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An Economic Analysis of Civil War: How Constitutions and Ethnic
Diversity Impact Internal Conflict

By

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Abstract

This thesis explores the connection between ethnic diversity and constitutional structures on the incidence of civil war. The following paper will bridge the gap between existing economic literature on constitutions and the existing work on civil wars. The main economic theory behind civil war is a cost-benefit analysis. Costs of civil wars include raising an army, supporting the army, economic losses due to conflict, and the lives lost in the fighting itself, while the main benefit is the gains of governing. The other main economic theory to civil war is game theory, exploring how the two sides engaging in civil war react to different situations. This paper uses multiple sources of data in order to test whether a relationship exists between ethnic diversity, constitutional structures, and civil war. One of the main questions this paper asks is whether political representation can offset high ethnic tensions and prevent civil war? Interaction terms between ethnic diversity and constitutional structures were used to determine if the two variables combine to affect the incidence of civil war. Taking the derivative of the interaction terms results can add to the discussion about whether or not a tradeoff exists between representation and accountability. The results found that ethnic fragmentation significantly increases the incidence of civil war, majoritarian governments decrease civil war compared to having a proportional representative system, and could not find any significant relationship between ethnic diversity and constitutional structure combining to effect civil conflict.

I. Introduction

Iraq in 2017 is a textbook case of instability, divided by sectarian civil war. The nation is split into three main ethnic groups: Sunni Arabs, Shiite Arabs, and Kurds. In a country that is so ethnically fragmented, a constitution that establishes proportional representation might provide greater stability; proportional representation would bring the three groups together to deliberate their problems, preventing costly sectarian warfare. The reality of the situation in present day Iraq is much different. Due to the 2003 American overthrow of the Sunni dictator Saddam Hussain, Iraq now has a majoritarian constitution. Romano (2014) highlights that while the constitution of Iraq was majoritarian, there were many provisions to make the country a decentralized state, insuring the rights of minorities. This goal of power sharing never came to be, with the Shiites sweeping into power under the new constitution written by the Americans. The Kurds and Sunni Arab populations were both brushed off and alienated from the political process. The Kurds became even more self-governing, essentially breaking off from Iraq completely and forming their own state. As for the Sunnis, many welcomed the rise of ISIS as liberation from Shiite oppression. Years of warfare followed along with countless deaths and an economy in ruin. Could this violence and destruction have been avoided if demographics were considered when drafting the Iraqi constitution?

Constitutions can be a stabilizing or destabilizing force in a country. The type of government that a country chooses should represent the nation's history, culture, and demographics. A country that is less ethnically fragmented and less polarized would be better off under a majoritarian system since the existing literature suggests that this system of government has less corruption and higher economic growth (Persson and

Tabellini, 2004). If a country is ethnically diverse and polarized would it be more stable under a system of proportional representation?

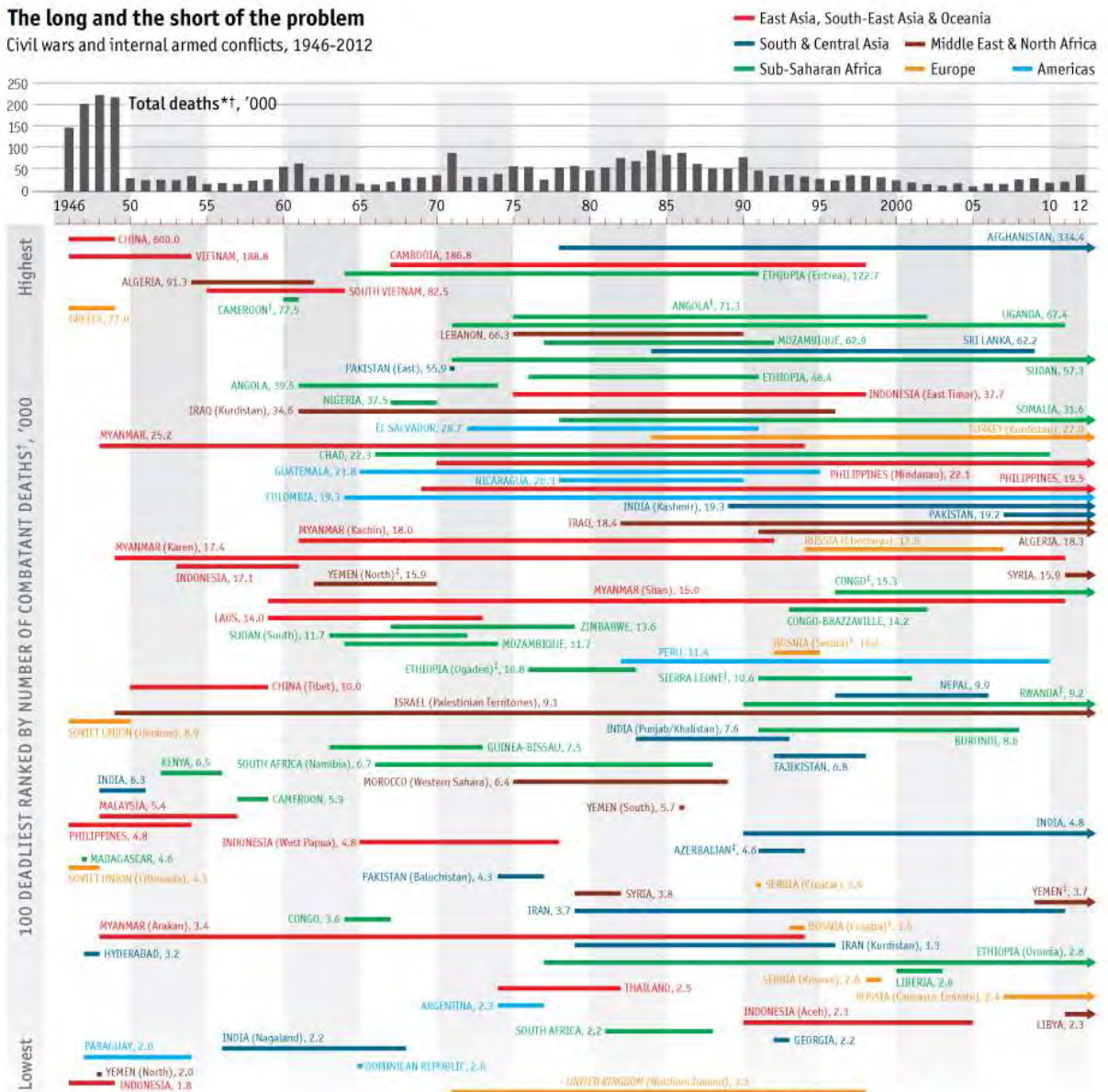
A civil war is an intra-state conflict where citizens of the same country kill each other. Civil war is an extreme failure of politics. In most cases, the outcome of a war could have very well been reached by means other than armed conflict. Mittal and Weingast (2010) provide an example of this phenomenon through their analysis of the American Civil War. On one end, they stress that the American Civil War was a failure of politics since the Constitution stopped being “self-enforcing”. On the other hand, they point to the Compromise of 1877 as an example of politics successfully preventing a second civil war. The Compromise of 1877 gave the Republicans the Presidency in exchange for ending reconstruction and reinstating universal suffrage for white males. By abandoning the civil rights gains made in the reconstruction era, the politicians of the time successfully prevented a second civil war through deliberation.

Studying civil wars is extremely important because of their destructive nature. Civil wars result in tremendous losses of life, reduce education opportunities for citizens, create refugees, and reduce the economy of the affected areas. These side effects of civil war were seen in our own country during the American Civil War. Around six-hundred thousand American’s died in the Civil War, more so than American WW1 and WWII casualties combined. In addition to the large losses of life, the American South was crushed economically. In the 21st century, many Southern states still have lower per capita incomes than their Northern neighbors. As deadly as America’s Civil War was, it is only one conflict on a long list of civil wars. By 2002, 16.5 million people died from internal conflict since the conclusion of WWII (Trei, 2002). This number far exceeds the

3.3 million who perished in inter-state conflict during the same period. Figure 1 below well displays the human cost of civil conflicts from 1946-2012. It is for these reasons that the causes of civil wars need to be studied, so the likelihood of their occurrence can be diminished and the duration of existing internal conflicts can be reduced.

Figure 1: Civil Wars from 1946-2012 (image from: https://ourworldindata.org/wp-content/uploads/2013/08/ourworldindata_the-100-deadliest-civil-wars-the-economist.png)

The long and the short of the problem
Civil wars and internal armed conflicts, 1946-2012



Sources: PRIO; Uppsala University

*Based on over 250 conflicts, 1946-2012 †Deaths in battle of government troops and troops of politically organised rebels; conflicts restarted within 10 years counted as continuous ‡Including foreign intervention

This study will build upon the previous economic literature. Collier and Hoeffler (1998) were some of the earliest economists to look at civil war. It is their work that established the cost-benefit analysis of civil war. A lot of work has been done on how ethnic fragmentation impacts stability and civil war including, Anyanwu (2014), Collier and Hoeffler (1998), and Blaney and Dimico (2009). Many economists also examine the connection between poverty and civil war, including Elbadawi and Sambanis (2000), Blattman and Miguel (2010), Holtermann (2012) and Miguel et al. (2004). Miguel uses the instrumental variable of rainfall to measure the connection between economic shocks and civil conflicts in Africa. The theory behind using rainfall is as follows: lower rainfall reduces crop yields, which increases poverty, which in turn lowers the opportunity cost of fighting among the rural population. On the constitutional side, my research is guided heavily from Persson and Tabellini (2004) where the efficiency of different governmental structures is examined. This work was extended in 2009 by Blume et al. In both cases, they look at Presidential vs. Parliamentary systems and Majoritarian vs. Proportional systems.

The following paper will seek to bridge the gap between the work done on constitutions and work done on civil war. This will be done by testing the relationship between constitutions and civil war. I will look at how constitutions interact with ethnic fragmentation, natural resources, and colonial heritage to impact the incidence of civil wars within the world's democratic states. Section II will explore the previous literature and work done on the subject; section III will state the testable hypotheses of the project; section IV will discuss the methodology and data used in this paper; section V will show

the results of the study; section VI will provide concluding remarks and suggestions for future research.

II. Existing Literature:

The following section will discuss previous works on civil wars and constitutions, with a look at institutions in both areas. This section will be broken up by the economic theory behind civil war, the causes of civil war, and the effects of constitutions. For the constitution section, most of the existing scholarly work examines how constitutions impact economic policy. If constitutions can impact economic policy, they can impact economic growth or cause increased political rents, i.e. corruption. There has not been a lot of research into how constitutions directly impact civil wars, so this paper will be filling the gap in the existing literature by connecting constitutions to the incidence of civil war.

Theory on Civil War

The main economic theory behind civil war is a cost-benefit analysis. The cost of a civil war includes raising an army, supporting the army, economic losses due to conflict, and the lives lost in the fighting itself. If the cost of raising an army rises, the chance of a civil war taking place decreases. Likewise, if the expected economic loss or expected loss of life goes up, such as an improvement in technology, the cost of a civil war goes up, causing the chance of conflict to fall. Another factor on the cost side is the expected duration of the conflict. If the expected duration of conflict decreases, the rebels have a greater incentive to peruse conflict (Collier and Hoeffler, 1998).

On the benefit side, there are the spoils of war: the gains from controlling the politics of the country. This benefit assumingly goes up when the country has higher levels of natural resources, such as oil. Collier and Hoeffler (2004) mention non-

economic benefits as well; the desire to settle past grievances can be a large benefit when considering engaging in civil conflict. Critical to the cost-benefit analysis of civil war is the perceived chance of winning, which can tip the cost-benefit analysis in either direction. If for any reason one side has an increased perceived chance of winning, the probability of civil war will theoretically rise.

Rebels have one of two goals: to capture the state or to succeed from it (Collier and Hoeffler, 1998). The rebel group will engage in civil war when the benefit of doing so outweighs the cost. The cost of civil war on the national level can be high, with the conflict wreaking havoc on the nation's economy. The classic example of this would be Russia after the Communist Revolution and the Civil War that followed. In 1917, the gross national income of Russia had fallen by one-fifth compared to 1914, the year WWI started, and by 1921 that number fell even more to three-fifths of the original national income (Markevich and Harrison, 2009).

Not all the cost benefit analysis that Collier and Hoeffler (2004) mention is economic in nature. In their grievance model, a rebellion occurs when people in a country have high levels of "grievance". Their list of grievances includes ethnic or religious hatred, political repression, political exclusion, and economic inequality. While these grievances have a cost-benefit analysis as to whether the group will actually rebel, not all of them have to be economic in nature. Strong ethnic or religious hatred alone could tip the scale of the cost-benefit, causing a civil war to take place.

Besley and Persson (2009) use game theory to explore the incidence of civil war. In their model, a country is split into two groups, each comprising 50% of the population. They assume that time is infinite. One group is the incumbent, while one is the

opposition. The incumbent almost always has the comparative advantage because they can raise an army using public finances. Power can be transferred either peacefully or forcefully. Whoever wins the conflict becomes the new incumbent. The game theory behind this model is that every decision by one group depends on the decision of the other, with different payouts for each equilibrium. There are three equilibriums that Besley and Persson come up with in this game theory matrix. First, neither side employs violent resources to a conflict, and peace prevails. Second, there is no insurgency but the government raises an army and puts down the opposition. This increases the government's payout while reducing the rebels' chances. Third, both sides commit resources to conflict and a civil war follows. The payout for all the option depends on the natural resources of the country which was assessed by both groups prior to making their decisions. The process for what determines which game theory matrix is used all start with the same steps, the decision by the opposition to mount an insurgency or not, followed by the governments response.

The Besley and Persson (2008) model is relevant to this paper because constitutions might be able to change the payout in the game theory matrix. If a country is more diverse or rich in resources and choses a proportional representation system, the government can essentially buy off parts of the population. Buying off a percentage of the population more likely to rebel would increase the payout of the first equilibrium in Besley and Persson, in which both sides stay at peace.

Sometimes the threat of revolution is enough to avoid a civil war. Acemoglu and Robinson (2000) look at how extending the franchise in the Western world was politically motivated to fight off the winds of revolution. The political elites extended

voting rights to prevent social unrest and revolution. Extension of the vote essentially “bought off” a revolution politically, which to the elites was “cheaper” than engaging in a costly civil war. Extending the franchise had real economic effects as well, leading to redistributive programs, which in turn reduced inequality in the Western world.

Evidence on Civil War

Various economists have differing opinions as to what factors cause civil wars. One of the most common subjects explored by economists studying civil war is the ethnic composition of a nation. Another common factor studied is income, unemployment and poverty. State reach, institutions, natural resources, and the culture and social capital are all factors economists have considered when working on civil war. These factors can raise or lower the costs or benefits of fighting a civil conflict.

Ethnic Composition

An ethnic group is an anthropological term that refers to people who share a similar ancestry; an ethnic group’s commonalities often include a shared language, culture, religion and ritual. The ethnic composition of a country is the share that each ethnic group represents in a state. For example, to use Iraq again, the population is roughly 75% Arab, 20% Kurd, and 5% “other”. There are many different dimensions to the ethnic composition of a nation. Ethnic fragmentation one way to measure a countries ethnic composition, showing the probability that two people, selected at random from a state’s population, belong to a different ethnic group. Alternatively, polarization measures the degree to which a group feels socially or ideologically separated from

others. Lastly, partition measures the percent of the population belonging to an ethnic group that spans across neighboring borders.

Civil wars often organize around ethnic groups for many reasons. Easterly (2001) offers the argument that ethnic groups often act in self-interest. An ethnic group is likely to gain from a spillover effect from an increase in human capital or knowledge from individuals their own group. Ethnic groups are also subject to the tragedy of the commons. Each ethnic group within a society has the incentive to over extract a common resource, increasing the payout of engaging in civil war. (Easterly, 2001).

The idea that ethnic, religious and linguistic fragmentation can augment the chances of civil war is supported by many economists, including Anyanwu (2014). Collier and Hoeffler (1998) determine that the ethnic fragmentation is not itself the cause of civil war; civil war occurs when ethnic fragmentation causes a country to be polarized into two main groups. Therefore, their study looks at polarization of ethnic groups, not the ethnic composition of a country itself. Overall, ethnic diversity becomes a problem when there is a group accounting for 40-60% of the population which has the power to dominate the others. A polarized country has a 50% higher chance of engaging in civil conflict than either a homogenous or heterogeneous state (Collier and Hoeffler, 1998). Bleaney and Dimico (2009) supported Collier and Hoeffler by finding that polarization is a significant cause of civil war in nations with low to mid-levels of ethnic diversity. However, they disagree with its relevance in nations with high levels of ethnic diversity, where the chance of civil war is already higher. An interesting aspect added by Cunningham (2013) was that the amount of kin an ethnic group has in neighboring states is significant. The reason for this is likely because the people in the neighboring state can

help their rebel kin, which effectively lowers the opportunity cost of fighting for the rebels.

Income, unemployment, poverty

Not all economists agree that ethnic fragmentation increases the propensity for civil war. Income, unemployment and poverty, three very closely related terms, are often explored by economists as a cause of civil war. The theory behind poverty causing civil war is related to the opportunity cost of engaging in fighting; by nature, people with less material wealth have less to lose from conflict.

Holtermann (2012) explains that poverty reduces the opportunity cost of rebelling and makes it easier to recruit. His theory is that less developed nations have lower levels of state reach; this lower levels of “state reach” allows for rebels to control remote areas; this in turn makes persuasion, organization and coercion easier, and increased the economic rewards for recruited rebels. His measures of “state reach” included road density, telephone density, and urban population. Bleaney and Dimico (2009) and Cunningham (2013) both support the theory that poverty can lead to civil war. Bleaney and Dimico (2009) use multiple definitions of civil war in their work. Their data sets of civil war range from a conflict with 1000 annual deaths to a conflict with only 25 annual deaths. All of these measures of civil war use incidence rather than onset. Their measure of poverty is real per capita GDP in terms of PPP. Another variable considered by Bleaney and Dimico (2009) was the amount of mountainous terrain a country has. This can be grouped in with an aspect of “state reach”, with mountainous terrain making it harder for the state to defeat a rebel group. Both Bleaney and Dimico (2009) and Cunningham (2013) recognize the problem of the endogeneity of poverty. Both attempt

to solve this problem the same way, using a time lag. However, even with a time lag, poverty can be endogenous, with the regressions unable to determine which came first, the poverty or the civil strife.

The analysis of Elbadawi and Sambanis (2000) also runs into the problem of reverse causation. Elbadawi and Sambanis (2000) dispute the belief that ethnic tension is the cause of civil war, and blame poverty, failed political institutions, and economic dependence of natural resources as the source of Africa's civil wars. They found that civil war is a failure of politics, which indicates that the solutions to civil war are political in nature. This supports the theory that constitutions can impact the stability of the country. A potential solution for diverse African countries would be a more proportional government, where various groups can come together to deliberate the issues the nation faces. Blattman and Miguel (2010) address this problem of reverse causation, in which the civil war might be causing the poverty and weak government institutions, not the other way around as Elbadawi and Sambanis claim.

Miguel et al. (2004) uses the instrumental variable of rainfall to measure the connection between economic shocks and civil conflict in Africa. Rainfall is an instrument for poverty since lower amounts of rainfall reduces crop yields. By using rainfall as an instrumental variable for poverty, Miguel et al. can eliminate the endogeneity of the variable. Reduced crop yields lowers the opportunity cost of fighting among the rural population. Lower amounts of rainfall also reduces government revenue and lowers the capacities of the states (Miguel et al, 2004). They find that a 5% negative economic shock can increase the chance of civil war the next year by one-half. These

findings would suggest that natural resources could play an extremely large role in civil conflict.

Institutions

One of the most common explanations for the high incidence of civil war is the legacy of colonialism. Acemoglu, Johnson, and Robinson (2001) suggest that European mortality impacted institutions; this can have present day implications on economic development. Countries where Europeans faced higher mortality rates resulted in institutions that were based on extraction. These institutions had long lasting negative effects on the country's economic performance. This theory can help explain why some colonies, such as Canada, the U.S., Australia, and New Zealand, became more stable and successful than others, such as the many colonies in Africa. Their findings are relevant to civil war because many economists attribute poverty with the onset of internal conflict. This would indicate that any country where European settlers faced higher mortality rates has a higher chance of engaging in civil war.

European imperialism also had long lasting impacts on the world map. Many borders around the world were drawn by Europeans without any regard for the people living there. For example, 80% of the borders in Africa are based off longitude and latitude. Alesina, Easterly and Matuszeski (2006) explore the effects of these "artificial borders" in great detail. Their study determines if a state is "artificial" based on two different ways: the straightness of their borders, and how borders divided ethnic groups between neighboring countries. Their logic behind both is simple, if a country has straight borders, it most likely was drawn by an outsider without considering the facts on the ground; if two neighboring countries have similar ethnic divisions, the same outside

drawing of borders likely occurred. “Artificial states” directly relate to civil war because of the problems artificial borders creates. The problem with an outsider creating borders is that they might have given the land to one group while ignoring claims of another. Additionally, they could have split ethnic groups into different countries, and/or combined multiple ethnic groups in a single country when they would prefer independence (Alesina, Easterly, and Matuszeski, 2006). A civil war is not necessarily eminent if the conditions of an “artificial state” occurs. Easterly (2001) suggests that good institutions can compensate ethnic divisions. If institutions prevail, Easterly found that high levels of ethnic diversity did not lower economic growth.

Natural Resources

Oil wealth is also thought to impact the propensity for civil war. Anyanwu (2014) explores the connection between oil and civil war in Africa. One of the ways that oil wealth can lead to civil war is by increased grievances over the resource. If a country is ethnically fragmented, uneven distribution of the oil wealth can lead to anti-government complaints. Similarly, the environmental impacts of extracting the oil might disproportionately impact one group of people within the country, which increases the chance of civil conflict (Anyanwu 2014). Overall, oil wealth can be a blessing or a curse. It could lead to a fight over the resource, or provide wealth for an entire people if managed and distributed properly. If an oil rich country uses their wealth wisely, they might be able to “buy off” a civil war by supporting social programs that the people want. This logic is supported in Regan and Frank (2014) where a government can use migrant remittances to smooth the nation’s problems and build up its social programs. Reagan and Norton (2005) and Collier and Hoeffler (2004) both go into detail on how grievances

impact the propensity for civil war. Collier and Hoeffler (2004) use the standard definition of civil war: a minimum of 1000 battle related deaths in one year with 5% casualties on each side. In many countries with abundant natural resources, the opportunity cost of rebelling is lowered because the benefit of rebelling is higher, i.e. gaining the natural resources. They point out exceptions, such as Saudi Arabia, where it is so resource rich that the government is too well financed for a rebellion to take place.

Culture and Social Capital

Often, a civil war can be preceded by a sudden revolution. Gorodnichenko and Roland (2015) use the term revolution to describe a time when citizens can overcome their collective problems and cultures to overthrow the government/regime. A civil war is always either a revolution or an attempt of one group to secede from the state.

Gorodnichenko and Roland (2015) recently discussed how collectivist cultures can inhibit a country from adopting democracy post revolution. In this theory, after a country undergoes a revolution that overthrows an autocrat, countries with more individualistic cultures will be more likely to successfully transition to democracy. The implications of these findings are huge for the future transitions of many of the worlds non-democratic countries. It is important to look at non-democratic countries as well, because as Persson and Tabellini (2004) remind us, very few democratic countries enact constitutional reforms. Conventional wisdom would suggest that China will eventually evolve into a democracy due to the human want for political participation as the middle class grows; oppression of those human rights can even lead to civil war. Gorodnichenko and Roland suggest otherwise, predicting that a country like China can advance economically and maintain its autocratic style of government because it is a collectivist country. Likewise,

their research suggests that individualist countries, such as many of the nations of the Middle East, will evolve into successful democracies. This is relevant for this paper because a civil war might take place in a Middle Eastern country as a result of the combination of high ethnic fragmentation and majoritarian system of government; the country might not transition into a successful democracy if it doesn't choose the correct constitution type for the nations' demographic structure.

Africa has experienced a disproportionate impact from colonialization due to the difference in the extractive nature of colonialism. Kitissou and Yoon (2014) draw a thought-provoking connection between the slave trade¹, colonialism, and the current problem with internal conflicts. It is important to note that Kitissou and Yoon do not use an empirical model to test their hypothesis, most likely because of the lack of data dating back to the slave trade. Their work is nevertheless extremely interesting to the research into the civil wars of Africa because of the continent's unique past with slavery. The common theme throughout periods of African history is a problem with low social capital (Kitissou and Yoon, 2014). Slavery decreased Africa's social capital, which ushered in the era of colonialism; European colonialism further reduced the social capital of the native population, which in turn led to the post-independence civil wars, lowering the social capital of the continent even further, leading to more internal conflicts. Ayers (2010) supports the idea that colonialism helped cause civil wars in Africa, using Sudan as an example. An interesting addition in Ayers (2010) is that it not only looks at how colonialism impacted ethnic fragmentation, but also studies how other global events, such

¹ The slave trade can be defined as the period from 650-1900. This started with Arab slavers in North Africa and increased under the Atlantic slave trade of 1400-1800s. Historians often end this era with nearly universal abolition of slavery by the end of the 19th century.

as the cold war and the war on terror, intensify the negative effects of colonialism on civil war.

Constitutions

There have been many studies on the economic consequences of constitutional structures. The leading scholars in this field are Persson and Tabellini, Acemoglu, and Weingast. Persson and Tabellini (2004) look at the effects of having a majoritarian vs proportional representation system and the effects of having a presidential vs parliamentary system. This work was later expanded on by Blume et. A (2009).

Majoritarian vs Proportional Representation

Some of the leading research on constitutions comes from Persson and Tabellini (2004). They look at the effects of having a majoritarian vs proportional representation system on the economic performance of a country. A proportional system is a type of government where divisions in the electorate are reflected proportionally in a governing body. For example, in Israel, if one party gets 40% of the nation's votes, the party will receive 40% of the seats in the legislative branch. A majoritarian system is different; it is a winner takes all system. Whoever gets the most votes gets the power, with the loser receiving nothing even if they received a large percentage of the vote. An example of a majoritarian system is the United States, where a person could win an entire seat in congress with less than 50% of the vote so long as they receive the most votes. A democracy can either be majoritarian presidential, majoritarian parliamentary, proportional presidential, or proportional parliamentary. It is important to remember that

the rules of each countries' elections vary, and while they can be categorized as one of the four options above, differences still do exist.

Persson and Tabellini (2004) found a tradeoff between accountability and representation. If a system of government is majoritarian, the representatives will be more likely to try and please the people who vote for them. This causes lower amounts of corruption and therefore higher economic growth. Overall, voting for an individual rather than a list is found to reduce corruption by roughly 20%. These results are supported by a later study, Persson, Roland and Tabellini (2007), which explores the efficiency of different forms of government. They found that competition among coalition members within a single government leads to higher spending. This supports the theory that majoritarian systems, which often result in single party rule, are more efficient. Many different things impact corruption in their study, including per capita income, openness, colonial history, geographical location, etc.

Blume et al. (2009) expand the data set used by Persson and Tabellini from 85 to 116 countries and utilize more recent data. They find results that support the previous findings about electoral systems, majoritarian versus proportional.

Presidential vs Parliamentary

Persson and Tabellini (2004) also look at the effects of having a parliamentary vs presidential system on the economic performance of a country. The difference between a presidential and parliamentary system is that the prior has executive power, while the latter has both executive and legislative power. They find that presidential governments have overall lower levels of spending compared to parliamentary systems. Their research

found that a country with a presidential system can reduce its government spending and have lower debt and deficits, while having lower tax revenue. Government expenditures can be 10% of GDP lower in the long run if a nation switched from a parliamentary system to a presidential system (Persson and Tabellini, 2004).

When Blume et al. (2009) expanded on Persson and Tabellini's work, they did not find evidence that presidential regimes provide greater efficiency over parliamentary. There are multiple explanations for why they might have found presidential regimes to be insignificant whereas Persson and Tabellini found it to have a strong and significant effect. Persson and Tabellini might have excluded certain countries that had presidential systems because they didn't meet the freedom and civil liberty criteria, thus creating a systematic selection bias. Regardless of which papers results hold true, all of them agree that constitutions have strong effects. One thing that Persson and Tabellini fail to consider is the ethnic composition of the country. The ethnic composition of a country could impact the system of government that a nation chooses, therefore impacting that states economic policy, and ultimately their propensity for civil war.

Constitutions impact on stability and self-enforcing constitutions

Current decisions can influence the future distribution of political power. For example, a decision to extend the franchise in the present impacts who will be in power in the future. The people who are in power in the future are the ones who will be setting the policy of that time. Therefore, current decisions impact future decisions (Acemoglu et al. 2012). Acemoglu et al. argue that the stability of a constitution is not dependent on the absence of powerful groups that want an alternative government, but due to the absence of a *stable* alternative by the powerful opposition group. An interesting example comes

from comparing countries such as Saudi Arabia and Iran, to a country like Turkey. Iran and Saudi Arabia cater to the extreme Islamic elements in their states to allow the regimes to remain in power; they are worried that giving secular groups greater rights would result in the downfall in their governments. On the other hand, a country like Turkey bans state sponsored Islam and historically is worried about the “slippery slope” that might occur if the government grants religious parties too many rights. Indeed, one can argue that Turkey is already falling down this “slippery slope”, with the right-wing government of President Erdogan. The world witnessed the instability of Turkey in July 2016 when a secularist military coup failed to overthrow what they saw as an increasingly Islamic government.

The findings of Acemoglu et al. (2012) are particularly interesting when considering the tradeoff between stability and efficiency. Their findings would suggest that a country would forgo efficiency related changes due to the risk that it would increase the chances of future instability. This suggests that a state does not need to be in Pareto Efficiency. Another option for that state might exist with greater efficiency, but will not be stable enough to implement. (Acemoglu et al. 2012).

Mittal and Weingast (2010) support the theory that constitutions can cause stability or instability within a country. They use the example of the American Constitution, both pre-civil war and post Compromise of 1877, to examine how and when a constitution is “self-enforcing.” Their argument is that the Constitution was “self-enforcing” before 1860 and again after 1877. Abraham Lincoln was able to win the election of 1860 without carrying a single southern state. To Southerners, this signaled a breakdown in democracy; they no longer viewed the Constitution as valid, i.e. it was no

longer self-enforcing. The result was the American Civil War, the deadliest conflict in American history. The war ended in 1865, but the country was far from stable. The Republican government of the North imposed their will on the South, in what came to be known as the Era of Reconstruction. During this time, there was a real fear of another civil war. In order to reduce the chances of another civil war following the questionable election results of the 1876 election, a compromise was reached. In the Compromise of 1877, the Republicans would retain the presidency in exchange for the end of reconstruction. As the North withdrew their forces from the South, universal white male suffrage was regained in Southern states, and Jim Crow laws were put in place. A second civil war was avoided, the Constitution's "self-enforcing" nature was restored, but at the cost of the post-war gains in civil rights. It would be another hundred years before Black Southerners would again have the right to vote.

Another example of a self-enforcing constitution is England following the Glorious Revolution of 1688. North and Weingast (1989) explore the link between the Glorious Revolution and the economic success that England experienced in the following centuries. The goals of the "revolutionaries" was to protect their personal wealth from the Crown. Protection of wealth came from increased property rights and limiting government confiscations. By securing property rights, the incentive to invest increased dramatically, spurring a major increase in the English capital markets. The logic is simple; why would a wealthy English landowner invest in government debt if they never expected the Sovereign to pay them back? Before the Glorious Revolution, the Crown would forgive the debts it had, never paying back the people the King had borrowed from. The post-Glorious Revolution institutions insured that there were checks on the

Crown, which in turn lead to the expansion of the capital markets. These findings are extremely important because it shows that having rights guaranteed in a constitution is not enough to effect economic policy. The government must display a commitment to the constitutional rights it grants in order to gain from the full effects those institutions have to offer. (North and Weingast, 1989).

Mittal and Weingast's (2010) findings are interesting, revolving around the idea that constitutional stability is determined by the incentives facing elected political officials. For a constitution to remain stable, the incumbent who loses must have an incentive to step down from office; those out of office must forgo the use of force as a means of gaining power. The implication of this conclusion in the subject of constitutions and civil war is that constitutional stability revolves around a cost benefit analysis of engaging in a civil war.

Regional and colonial origins of constitutions

Regional tendencies and colonial origins can play a role in what type of constitution a country chooses. According to Persson and Tabellini (2004), South America tends to be dominated by the presidential system of government, Europe tends to have more parliaments and proportional representation, and former British colonies mainly have parliamentary systems with single member districts. Persson (2004) points out that constitutions are not picked randomly, and depend on the history, culture, and geography of a country. This is important because it can cause a selection bias in the data, where one system of government might have skewed results due to a common history, culture and geography. Regional tendencies can also cause the third variable problem, where the country's ethnic or cultural past might lead it to civil war, as opposed to the

type of government they have as a result of colonialization leading the country to civil war. A country might run into stability problems if its constitution is based on regional tendencies and/or a colonial past, when its demographics would suggest having a different form of government.

Constitutions and institutions

A constitution sets rules for how a country's institutions operate. Easterly (2001) argues that institutions can be used to solve the problems of ethnic fragmentation. These problems can include adverse effects on income, growth, and economic policies. If institutions can solve ethnic fragmentation problems and constitutions lead to institutions, it is logical to deduce that constitutions can be used to solve ethnic fragmentations.

III. Testable Hypotheses

The first hypothesis this paper will test is whether constitutional structures impact the incidence of civil war. This hypothesis (**H1**) is: if a country has a majoritarian government, the incidence of civil war will increase. This hypothesis helps to test the trade-off between representation and accountability. If the majoritarian variable is positive and significant, representation matters more than accountability when looking at civil war. If the majoritarian term is negative and significant, the opposite is true. In that case, lack of representation is offset more by the gain of accountability.

One of the main ideas that this paper will test is whether constitutions can reduce the chance of ethnic fragmentation causing civil war. The second hypothesis (**H2**) is: if a country is more ethnically diverse, more polarized, or has higher rates of partitioning, then a proportional representation system would reduce the incidence of civil war. Proportional representation would allow for all groups within the population to be represented in government, where they have a greater chance of solving problems through diplomacy, not violence. A proportional system would not allow for a majority to exclude minority groups from participating in government. Theory would suggest that greater political representation will raise the cost of fighting, while lowering the benefit, overall reducing the chance of civil conflict. H1 will be tested through an interaction term of ethnic composition * the majoritarian dummy. After the regression is run, the derivative of the results will be taken to determine if there is a positive or negative effect of constitutions relation to civil war. Other ethnic variables that will be run through regressions in the same way include polarization and partition. The interaction of ethnic fragmentation and the presidential dummy will also be checked.

The third hypothesis (**H3**) is: if a country with higher levels of natural resource reserves has a proportional representation system, then there will be a lower incidence of civil war. Previous economic literature shows that proportional representation leads to more inefficient government. The representatives use their influence in government to direct government resources to the segments of the population that voted for them. A resource rich country can “buy off” potential rebels through a proportional system, because different groups representatives in government will direct the resource wealth to their constituents. An interaction term of natural resource reserves * the majoritarian dummy will be used to test this hypothesis. It is expected that the interaction will be positive, since the combination of high natural resources and majoritarian government will lead to disproportionate sharing of wealth, i.e. increased inequality (greed model).

The fourth hypothesis (**H4**) this paper will look at is: if a country with a colonial past based on extraction has a majoritarian system, then they will be less likely to experience a civil war. Most of the non-European world was a colony at some point in history. Some of these colonies turned out to be successful wealthy countries, such as the United States, Canada, and Australia, while others became pressure cookers for violence, such as Sudan. Previous work suggests that if the European settlers faced high mortality rates, the colonial masters set up institutions based on extraction. One way to test for this is to use a longitude variable, since the colonies closer to the equator were the colonies with higher mortality rates. Another way to test this hypothesis would be to use Easterly’s wheat-sugar ratio, which uses the ratio of the land suitable to grow sugar versus the land suitable to grow wheat as an instrument for inequality. Controlling for ethnic fragmentation and natural resources, a majoritarian system might be better for

these post-colonial countries to avoid civil war. A majoritarian system would allow for lower political rents and higher economic growth. When the country reduces poverty, it would raise the opportunity cost of fighting in a civil war since people have more to lose from conflict.

IV. Data and Methodology

Data

One of the most important decisions with regards to the data is how to measure civil war. Miguel (2004) makes the point that defining civil war greatly effects the measurement and perception of such conflicts. For example, Figure 2 in the Appendix shows how the percentages of countries that are currently in a state of civil war from 1960 to 2006. The number of civil wars changes greatly if the definition goes from 1000 annual deaths to 25. Figure 2 in the appendix shows how under 10% of countries had an internal conflict in 2006 that had over 1000 deaths, while around 15% had conflicts with over 25 deaths. The most common definition of civil war used by other economists' is 1000 annual deaths from violence, so that is the definition this paper will use.

The civil war data was sourced from the University of Michigan's Correlates of War Project (CoW). The intra-state war data is on version 4.1 currently, and was released in 2010. The dataset includes all intra-state conflicts with over 1000 total annual battle deaths from 1816 to 2007. This data was used to code the CW variable, breaking it into decadal data from 1960 to 2000. If a country was engaged in internal conflict for two years out of the decade, they would receive a .2 for CW for that time period. The 2000 decade was more limited since the CoW data stops at 2007. There are 580 observations for the CW variable, with a mean of .0314. This means that the average country is engaged in civil war for less than one third of a year per decade. The data of the 116 democracies indicates that most nations are very stable over time, with countries like the United States experiencing zero civil war for the entire 50 years of the data. On the other side of the spectrum are countries like Nicaragua, which experienced eight years of civil

war in the 1980s. There is a wide range of CW across countries, with some having zero incidence of civil war, coded in as a 0 for that decade; on the other hand, some countries have a civil war that lasts the entire decade, coded as a 1.

Several limitations exist with using the Correlates of War data that need to be noted. First, large number of conflicts are left out due to the 1000 death cut off. The Troubles in Ireland, a major conflict for modern Western European history, is not included because the U.K. never experienced a single year of over 1000 deaths. Other smaller but notable conflicts that are left out include Cyprus, Macedonia, Slovenia. Another limitation on using the 1000 death definition of civil war is that it doesn't always account for the length of the conflict. One example of this is Senegal, which had a decade plus long civil conflict, yet only one year had over 1000 deaths, resulting in only one decade coded as a .1. On the opposite side of the spectrum, the 1000 death definition implies that larger countries are more likely to be engaged in civil war. India, with over a billion people, often has small rebellions that result in over 1000 deaths annually. This results in India being coded in as engaged in civil war for most parts of every decade, when in reality 1000 deaths out of a population of over a billion is a relatively small number. It is hard to compare the decadal CW data of India to a country like Venezuela. Lastly, since the data only goes to 2007, it does not take into account the conflicts that have happened since. The ethnic data and constitution data might look as though a civil war should have taken place, but the CW variable might remain at zero. This could be because the conflict has not happened yet as of 2007. Indeed, this effect is shown in the Central African Republic (2012 start), Mali (2012 start) and Ukraine (2014 start). While

many limitations exist, the correlates of war data is still the most commonly used scholarly source on civil war, so using it helps maintain consistency across the discipline.

Both the presidential and majoritarian variables are dummies, coded as either a 0 or 1. The source of this data was Dr. Voigt, who extended Persson and Tabellini's work from 80 countries to 116, by using a broader definition of the term democracy. For the sake of repetition, this paper will use those same 116 democratic countries. The variable PRES is a dummy variable showing whether the country has a presidential system of government or a parliamentary system. A 1 indicates that the country has a presidential system, while a 0 means the country is run by a parliament (and therefore a Prime Minister). The variable MAJ is a dummy variable showing the way a government is elected. A 1 indicates that the country utilizes a majoritarian system of voting, while a 0 indicates the country as a proportional representative structure. PRES has a mean of .3, so the vast majority (70%) of the 116 countries are on a parliamentary system; A smaller majority, 58% of the 116 countries, are on a proportional representation system (MAJ has a mean of .42).

There are three main variables used to measure the ethnic structure within a country. The first variable is FRAG, which shows the ethnic fragmentation of the nation. Sourced from Easterly, this variable shows the likelihood that two people are in the same ethnic group. Some countries are extremely homogenous, scoring a 1 in fragmentation such as Japan or Portugal. Likewise, some states are extremely diverse ethnically, such as the Central African Republic which scored an 83. The ethnic fragmentation data covers 71 of the 116 countries used. The range of fragmentation varies from 0 to 90. FRAG has a mean of 36.47. An alternative way to measure ethnic diversity within the country is to

use polarization. POLAR is the variable that measures the degree to which a group feels socially or ideologically separated from others. The data for POLAR came from Jose Montalvo's paper on ethnic polarization, and was generated using data from the World Christian Encyclopedia. The POLAR variable is available for the majority of countries, resulting in 435 observations. Similar to FRAG, POLAR covers a wide array of countries, ranging from .017 to .958. The last measure of ethnic diversity is a PARTITION variable, measuring the percentage of the population belonging to a partitioned group. This shows how ethnic groups are split across two bordering countries. This data was sourced from the 2006 Alesina, A., W. Easterly, and J. Matuszeski paper on artificial states. PARTITION also has a wide variation across countries, ranging from 0 to 99.

Using multiple variables to measure ethnic diversity is very important; While these three variables all measure the ethnic makeup of a country, they all use different definitions, and hence result in different findings. Furthermore, the previous work done on the subject of ethnic diversity and civil war has mixed conclusions, with some economists finding fragmentation matters while others find that polarization is what truly matters. Utilizing multiple variables that cover ethnic data will allow for comparing results with a wide array of past works. In order to test the relationship between the constitution of a country and its ethnic composition, interaction terms will be created with each of the three measures of ethnic diversity. This results in the generation of six new variables: MAJFRAG, PRESFRAG; MAJPOLAR, PRESPOLAR; MAJPARTITION, PRESPARTITION.

The main variable used to test H2 is the natural resource rents (NRRENTS). The natural resource rents variable is source from the World Bank's, World Development Indicators. NRRENTS measures the amount of natural resource rents of a country as a percent of GDP. Natural resource rents are the sum of oil, natural gas, coal, mineral, and forest rents. There is a wide range of resource rents across the 116 countries, ranging from 0 to 47.

In order to test for H3, this paper will utilize the wheat-sugar ratio (WHEATSUGAR). The wheat-sugar ratio is defined as the natural log of $1 + \text{share of arable land for wheat}$ divided by $1 + \text{share of arable land for sugar}$. This variable measures the amount of land suitable for either of those crops, which is used as an instrument for both inequality and colonialization. Countries with more land suitable for sugar are more unequal and have increased levels of poverty. Colonialization could be one of the causes of this correlation to inequality and poverty, since European colonists tended to set up extractive systems (bad institutions) in warm weather places where sugar is grown more than wheat. Again, the range across countries is large, going from -0.39 to 0.577 . Another measure of inequality used in this study was a GINI index using WIDER data, but since the GINI is endogenous the wheat-sugar ratio ends up being a stronger variable for inequality.

In order to have robust results many controls will be used in order. Population (POP) will be used to account for the size of the country. Since the range of population goes from 15 thousand to over a billion, the natural log of population (LNPOP) will be used in order to create a better measure. This data is sourced from Easterly, who used the WDI. Another control used in every regression is the population density of the country.

POPDEN shows the amount of people per square kilometer. Controlling for population is important because larger countries would have shown up as having more civil wars simply because the CW variable defines civil wars as a conflict with over 1000 annual deaths, a number that is much easier to reach if the country has a large population. Another control that is used in every regression is the distance a country is from the equator (DISTEQ). This variable was generated by taking the absolute value of a countries latitude, with data coming from Dr. Voigt. DISTEQ is used as a geographical control, in place of breaking each country down by region or continent.

Three development controls are included in the data. This includes GDP Per Capita (GDPCAPITA), an education index (EDU) and a democracy index (DEM). The GDP data comes from Penn World Tables version 6.3, which uses 2005 as the base year for real dollars. Education comes from Barro-Lee, while the democracy index is sourced from Polity IV. For a complete definition of the democracy variable see “Democracy Variable Description” in the appendix. Due to heavy correlation between the three only, only GDP per capita is used in most of the regressions as a control.

The remaining controls used are the age of democracy and a countries openness to trade. The age of democracy (DEMYEAR) comes from Dr. Voigt, and shows the year that each country became a democracy, i.e. the year they enacted a democratic constitution. OPEN, sourced from Easterly, is a measure of how connected a countries economy is to the rest of the world, calculated by summing imports and exports then dividing that by GDP. Lastly, a measure of individualism (INDIV) and corruption (CORRUPTION) was used to control for their effects on the results.

A complete summary of the data set is provided in the appendix under Table 1.

Methodology

The following baseline regression will be used to test the relationship between the three measures of ethnic diversity (fragmentation, polarization, and partition) and civil war:

$$CW_{t,c} = B_0 + B_1ETHNIC_c + B_2LNPOP_{c,t} + B_3POPDEN_{c,t} + B_4DISTEQ_c + B_5NRRENTS_{c,t}$$

In addition to those controls used in the baseline regression above, other controls will be used to add robustness to the regressions. These variables include: Age of Democracy, GDP Per Capita, Openness, and Wheat Sugar Index. The democracy and education variables were dropped from the regressions due to a heavy correlation between the GDP variable. Due to this correlation, GDP per capita acts as a “development control” within the regressions. Exact correlation results can be found in Figure 3 in the appendix. The GINI variable was not used as a control due to its endogeneity; the Wheat-Sugar ratio also measures inequality, but is not endogenous.

In order to test the H1 model, the following baseline regressions will be used:

$$CW_{t,c} = B_0 + B_1ETHNIC_c + B_2MAJ_{c,t} + B_3PRES_{c,t} + Controls_{c,t}$$

$$CW_{t,c} = B_0 + B_1ETHNIC_c + B_2MAJ_{c,t} + B_3PRES_{c,t} + B_4PRES_{c,t} * ETHNIC_c + B_5MAJ_c * ETHNIC_c + Controls_{c,t}$$

$$\frac{dCW}{dPR} = B_1 + B_4ETHNIC \quad \text{check if greater or less than 0}$$

$$\frac{dCW}{dMA} = B_1 + B_5ETHNIC \quad \text{check if greater or less than 0}$$

The first of the above baseline regressions will test if a relationship exists between ethnic diversity, constitutional structures, and civil war. ETHNIC will include the three measures of the ethnic structure of a country: fragmentation, polarization, and partition. The second regression includes interaction terms between the constitutional variables and

the ethnic variables. If these interaction terms are significant, then the constitutional structure of a country can have different impacts on the probability of civil war based on different ethnic situations. Likewise, significant results from these variables would imply that ethnic composition has different impacts on civil war in varying political environment. In a case where the derivative of the interaction term is negative, then the combination of that constitutional structure and high ethnic measure results in lower likelihood of civil war. If the derivative of the interaction term is positive, the constitutional structure combined with high ethnic diversity will increase the chances of civil war. For example, if the derivative of the MAJ*POLAR variable shows up positive, the combination of a majoritarian system and high ethnic polarization increases the incidence of civil conflict.

H2 will be testing in a similar manor to H1 except with natural resource rents replacing the ETHNIC variable. H3 will be tested throughout the models by including the wheat-sugar ratio and DISEQ variable, as well as by creating interaction terms with the constitution variables and the wheat-sugar ratio.

V. Results

Ethnic Composition

Tables 2-8, located in the appendix, show the regression results. Table 2 shows the baseline regressions for researching the influence of ethnic divisions on civil war. Each regression uses one of the three measures of ethnic diversity within one country, while controlling for LNPOP, POPDEN, DISTEQ, NRRENTS, and DECADE. Regression 1 in Table 2 shows that fragmentation has a positive and significant effect on civil war to the 10% level. The coefficient of FRAG in regression 1 is 0.000876, meaning that one standard deviation of ethnic fragmentation increases the chance of civil war by that amount. Regressions 2 and 3 look at polarization and partition respectively, and neither one show a significant relationship with civil war. Fragmentation consistently is shown to be positive and significant throughout the results, as expected and supported by previous literature.

Table 3 uses the same three regressions as the baseline model, with additional controls for robustness. Additional controls include: GDPCAPITA, OPEN, DEMYEAR, and WHEATSUGAR. The controls almost double the R^2 value in each regression. Interestingly, when adding more controls, the relationship between ethnic fragmentation and civil war becomes even more significant and much stronger. The coefficient rose from 0.00088 to 0.0011, almost doubling the impact ethnic fragmentation has on civil war. This doubling was accompanied by an increase in significance, from the original 10% level to the 5% level. The polarization and partition variables did not become significant by adding more controls. The wheat-sugar ratio shows up as negative and highly significant in all three regressions, implying that the legacy of colonialism and

extractive institutions might be a more significant indicator for civil war than ethnic divisions.

In order to test the H1 and H2 model, Table 4, runs regressions that show the effect of both ethnic fragmentation and constitutional structures on the incidence of civil war. All five regressions in Table 4 include FRAG, MAJ, and PRES. Regressions 3, 4 and 5 include the interaction terms of PRESETHNIC and MAJORETHNIC. Regressions 2, 4, and 5 include the controls, while all of the regressions utilize the baseline controls. Regression 5 is the same as regression 4 except it controls for corruption.

The results of Table 4 support the idea that ethnic fragmentation is positive and significantly impacting civil conflicts, as many economists have found in the past. The significance of ethnic fragmentation on civil war varies within the five regressions of Table 4, but never only reaches below the 5% level once, in regression 3. The coefficients of ethnic fragmentation in Table 4 are even higher than the results of Table 3, indicating that ethnic fragmentation matters more when accounting for constitutional structure. The coefficients for ethnic fragmentation in these five regressions range from 0.0013 to 0.0022. Majoritarian governments are found having a negative and significant impact on civil war in regressions 1-4, but not to be significant in regression 5, where corruption is controlled for. The value of the coefficients of MAJ that are significant average -0.074, meaning that a majoritarian system of government reduces the likelihood of civil war by that amount.

This relationship is opposite of what was expected, and could be due to majoritarian governments having higher levels of accountability, as previous literature suggests. Majoritarian systems have higher accountability than proportional

representation because it is easier to determine who is responsible to for specific policies. Understanding responsibility allows citizens to vote unfavorable politicians out of office. This accountability might lead to higher efficacy, as Persson and Tabellini (2004) suggest. The results of Table 4 indicate that the greater efficiency of a majoritarian system might outweigh the gains of greater political representation offered in a proportional representation system of government. When controlling for corruption (regression 5), majoritarian becomes insignificant, and the importance of ethnic fragmentation on civil war actually doubles. Regressions 3-5 fail to prove H2, since there is no significant relationship between the interaction of governmental structure and high ethnic fragmentation. These regressions support the part of H1 that says constitutional structure matters, but is opposite of what was expected, with majoritarian governments reducing the incidence of civil wars. It is important to note that once again, the wheat-sugar ratio is showing up as positive and significant in every regression that it is used in.

Tables 5 and 6 are similar to Table 4, except use polarization and partition respectively as the measure of ethnic diversity. Neither polarization nor partition are found to be significant in any of the regressions. While looking at the connection between polarization and civil wars, the distance to the equator was negative and significant, but only if the wheat-sugar ratio was left out. Once again, the wheat-sugar ratio is found to be negative and highly significant (to the 5% level) in all of the regressions it was used in Tables 5 and 6. Interestingly, the distance to the equator when looking at partition and civil war had the exact opposite effect; DISTEQ in Table 6 was only found to be significant when the wheat-sugar ratio was included, and had a positive effect on civil war.

Two results distinctly stand out in Table 6. In the first regression in the table, MAJ is both negative and significant to the 5% level, with a value of -0.0345. This is consistent with the results of Table 4. In the fourth regression in Table 6, the interaction term of a majoritarian government combined with partition is found to be negative and significant. These findings are opposite of the H1 prediction that high levels of ethnic partition will be less likely to engage in civil war if they institute a proportional system of government. Once again, these results support the idea that the greater efficiency of a majoritarian systems, and the economic benefits that come with it, offsets the lower amount of political power for minority groups.

Natural Resources

Table 7 tests whether or not natural resources impact the incidence of civil war. This table looks at the presence of natural resources and constitutional structures, to test if the two variables impact the likelihood of civil conflict. The initial hypothesis was that a country with high levels of natural resources would be more likely to have a civil war under a majoritarian system of government. This hypothesis was drawn on the logic that greater representation might allow for more distribution of resource rents, which could essentially “buy off” an unhappy segment of the population.

The results did not support this hypothesis. While higher levels of natural resource rents did show up positive in all four regressions, it is only significant in regression 3, and only to the 10% level. The coefficient of the significant natural resource variable in regression 3 had a value of 0.00356, meaning that higher levels of resources increase the incidence of civil conflict. The significance found in regression 3 goes away in the 4th regression when the wheat-sugar ratio is included. This hints that natural

resources are not directly related to civil wars, but that the wheat-sugar ratio might be a better measure for extractive policies. Countries with higher level of extractive institutions could be fueling more civil wars than simply the presence of natural resources.

The interaction between constitutional structures and natural resources causing civil war is weak. All 3 regressions with the interaction terms show up as negative (opposite of the H3 hypothesis) and only the MAJNRRENTS in regression 3 showed up as significant, at the 10% level, with a value of -0.00395. These results indicate that there is no definitive connection between natural resources and constitutional structure causing civil war.

Colonial Heritage/Inequality

The wheat-sugar ratio was included throughout the various regressions in tables 3-7 as a control, and was consistently shown to be significant. Table 8 attempts to test H4, by looking at the interaction of the wheat-sugar ratio with both the majoritarian and presidential dummy. Wheat-sugar is positive and significant in two of the four regressions in Table 8. In the first regression, the coefficient is -0.079, while in the fourth regression the impact of wheat-sugar rises to -0.1. All of the results of the interaction terms between the wheat-sugar ratio and constitutional structures show up as insignificant. The results of the interaction terms indicate that no significant relationship takes place when looking at the connection between the wheat-sugar ratio and governmental structures.

VI. Concluding Remark

One of the key findings of this study was that majoritarian systems of government lowers the likelihood of civil conflicts. While this was opposite of the initial hypothesis, the results can potentially be explained through a lens of accountability. Majoritarian systems offer citizens a clearer picture of who is responsible for policy and political outcomes. By understanding responsibility, citizens in a democracy can vote a politician who doesn't support their views out of office. Persson and Tabellini (2004) found that majoritarian governments were more efficient than proportional systems. This efficiency could be a greater benefit to citizens from diverse groups within a country, outweighing the cost of having greater political power. Even though Collier and Hoeffler (1998) found a connection between polarization and civil war, this paper could not find any significant relationship between polarization and internal conflict.

The paper started with a discussion about Iraq's failure as a modern state and asked the question of whether its constitution didn't fit with its diverse ethnic structure. The results of this paper could not find a strong connection between the interaction of ethnic diversity and constitutional structure on civil war. This indicates that you cannot tailor a constitution to a country's ethnic composition. In Iraq's case, the results of this work suggest that the country would not be able to reduce its internal conflict by increasing representation, i.e. by changing from majoritarian to proportional representation.

Since the interaction of ethnic composition and constitutions was not found to be significant, further study into the incidence of civil wars is definitely needed. Since the end of WWII, the vast majority of conflict related deaths have been due to civil conflicts.

Replications of this study should be done with different definitions of civil war. This paper stuck to the standard definition of 1000 battle deaths annual, which limited the amount of countries that had civil war showing up in their data. Understanding the causes behind civil wars is the first step in reducing the chances of them occurring in the future.

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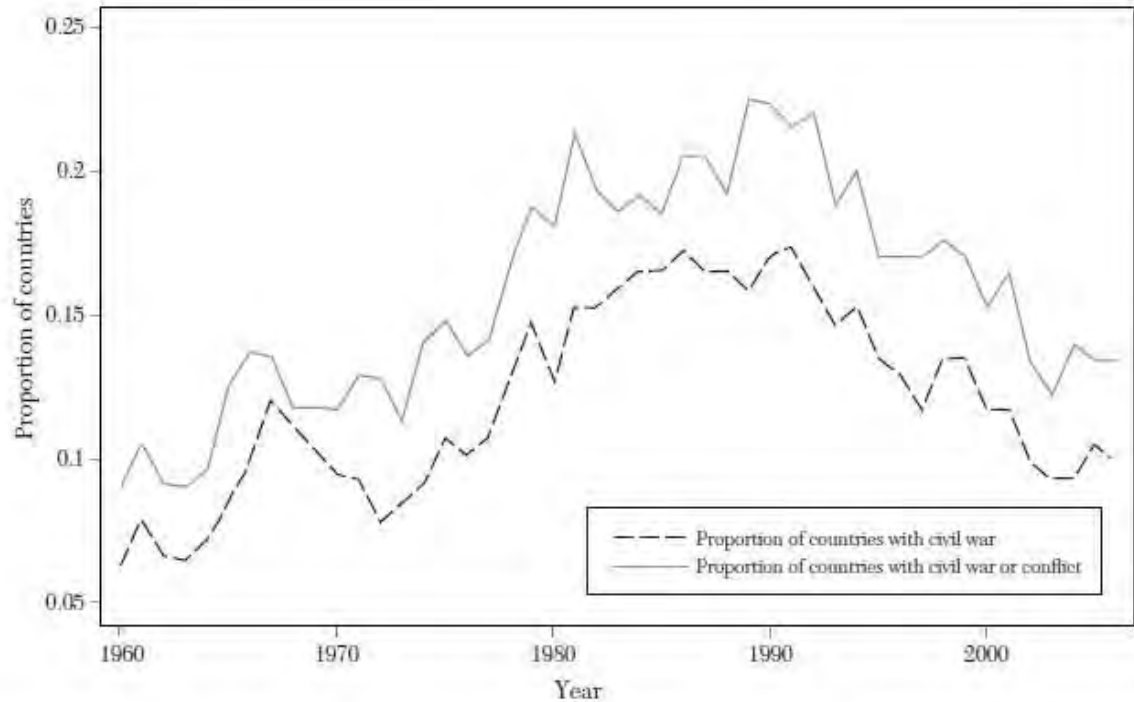
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Appendix

Figure 2:

Proportion of Countries with an Active Civil War or Civil Conflict, 1960–2006



Sources: Data based on UCDP/PRIO armed conflict database (Gleditsch et al. 2002). Civil wars are those internal conflicts that count more than 1,000 battle deaths in a single year. Civil war or conflict includes cases with at least twenty-five battle deaths in a single year.

Source
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Democracy Variable Description:

“Institutionalized Democracy: Democracy is conceived as three essential, interdependent elements. One is the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders. Second is the existence of institutionalized constraints on the exercise of power by the executive. Third is the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. Other aspects of plural democracy, such as the rule of law, systems of checks and balances, freedom of the press, and so on are means to, or specific manifestations of, these general principles. We do not include coded data on civil liberties. The Democracy indicator is an additive eleven-point scale (0-10). The operational indicator of democracy is derived from codings of the competitiveness of political participation (variable 2.6), the openness and competitiveness of executive recruitment (variables 2.3 and 2.2), and constraints on the chief executive (variable 2.4) using the following weights”

Figure 3: Correlation between GDP per capita, Education, and Democracy

```
. corr gdp edu dem
(obs=369)
```

	gdpcap~a	edu	dem
gdpcapita	1.0000		
edu	0.7151	1.0000	
dem	0.5350	0.5419	1.0000

Figure 4: Correlation between ethnic fragmentation, polarization, and partition

```
. corr frag polar partition
(obs=255)
```

	frag	polar	partit~n
frag	1.0000		
polar	0.4975	1.0000	
partition	0.6730	0.3995	1.0000

Figure 5: Correlation between majoritarian government and corruption

```
. corr maj corruption
(obs=205)
```

	maj	corrup~n
maj	1.0000	
corruption	-0.1037	1.0000

Figure 6: Correlation between corruption and ethnic fragmentation

```
. corr corruption frag
(obs=179)
```

	corrup~n	frag
corruption	1.0000	
frag	-0.3077	1.0000

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
country	0				
countrycode	0				
decade	580	1980	14.15434	1960	2000
cw	580	.0313793	.1354892	0	1
pres	376	.3058511	.4613809	0	1
maj	376	.4255319	.4937338	0	1
gdpcapita	492	9023.85	8671.695	578.6465	63391.88
nrrents	346	4.847613	7.59348	0	47.01978
dem	389	5.987147	3.907743	0	10
edu	470	5.889809	3.053427	.08	12.93
open	432	72.06555	42.51914	7.755843	278.9909
polar	435	.5222458	.2583295	.0166841	.9582003
pop	556	2.37e+07	7.61e+07	15000	1.02e+09
popden	554	145.6336	412.4628	.6322125	6011.771
gini	355	39.99159	10.11538	22.93548	73.9
demyear	580	1966.198	39.59013	1800	1994
frag	355	36.47887	27.02367	0	90
partition	380	22.81645	26.47622	0	99
latitude	545	18.40963	25.87159	-36.89	63.89
wheatsugar	415	.1214964	.2243008	-.3926	.5775
presethnic	265	13.9434	24.03045	0	90
majorethnic	265	20.11698	29.11754	0	90
prespolar	312	.2132001	.3182882	0	.9546801
majorpolar	312	.238404	.3129643	0	.9582003
prespartit~n	242	10.17851	23.69828	0	99
majorparti~n	242	7.866116	19.37138	0	99
lnpop	556	15.18368	2.120129	9.615806	20.73906
disteq	545	26.71422	17.14396	.23	63.89
nrrents2	346	80.99364	265.7875	0	2210.86
lnpop2	556	235.0309	63.22897	92.46371	430.1087
majnrrents	283	2.167081	5.660706	0	47.01978
presnrrents	283	2.437482	6.069966	0	43.92686
presws	275	.0124349	.1413823	-.3314	.5775
majws	275	.0319251	.127682	-.3926	.4833
indv	301	44.46512	24.06553	6	91
corruption	227	.5877533	.2214509	0	1

Table 2: Baseline Regressions

VARIABLES	(1) cw	(2) cw	(3) cw
frag	0.000876* (1.892)		
polar		-0.0118 (-0.266)	
partition			0.000348 (0.976)
lnpop	0.0318*** (3.827)	0.0270*** (4.160)	0.0102* (1.735)
popden	-2.84e-06 (-0.312)	-1.09e-05* (-1.694)	-2.37e-06 (-0.354)
disteq	-0.00167** (-2.136)	-0.00242*** (-3.320)	-0.000491 (-0.911)
nrrents	-0.000514 (-0.270)	-0.000622 (-0.341)	0.00179 (0.634)
1980.decade	0.0595* (1.652)	0.0531* (1.744)	0.0413 (1.156)
1990.decade	0.0129 (0.423)	0.0136 (0.510)	-0.0104 (-0.404)
2000.decade	-0.0211 (-0.972)	-0.0147 (-0.770)	-0.0319* (-1.810)
Constant	-0.449*** (-3.209)	-0.316*** (-3.394)	-0.125 (-1.278)
Observations	261	311	229
R-squared	0.130	0.108	0.070

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Baseline Regressions Robustness Check

VARIABLES	(1) cw	(2) cw	(3) cw
frag	0.00107** (2.272)		
polar		0.0174 (0.318)	
partition			0.000269 (0.639)
lnpop	0.0290** (2.398)	0.0354*** (3.041)	-0.000806 (-0.0672)
popden	0.000347*** (2.654)	0.000102 (1.092)	0.000434** (2.025)
disteq	0.00118 (0.865)	0.000746 (0.597)	0.00146 (1.529)
nrrents	0.00111 (0.472)	0.000370 (0.155)	0.00253 (0.900)
gdpcapita	-2.61e-06 (-0.953)	-3.33e-06 (-1.463)	-1.98e-06 (-0.963)
open	-0.000386 (-1.196)	-2.18e-07 (-0.000789)	-0.000782** (-2.471)
demyear	0.000265 (0.983)	0.000136 (0.560)	0.000440** (2.013)
wheatsugar	-0.207*** (-2.950)	-0.197*** (-2.873)	-0.182*** (-2.995)
1980.decade	0.0630* (1.653)	0.0592* (1.676)	0.0577 (1.471)
1990.decade	0.0147 (0.402)	0.0146 (0.442)	-0.00579 (-0.200)
2000.decade	-0.0169 (-0.521)	-0.0150 (-0.515)	-0.0142 (-0.619)
Constant	-0.981* (-1.759)	-0.786 (-1.545)	-0.818** (-2.177)
Observations	233	260	202
R-squared	0.208	0.157	0.151

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Ethnic Fragmentation and Constitutions

VARIABLES	(1) cw	(2) cw	(3) cw	(4) cw	(5) cw
frag	0.00146*** (2.767)	0.00158*** (2.857)	0.00133* (1.801)	0.00171** (2.193)	0.00219** (2.232)
maj	-0.0776*** (-2.691)	-0.0801*** (-2.636)	-0.0789** (-2.482)	-0.0611* (-1.875)	-0.0702 (-1.533)
pres	-0.0257 (-0.930)	-0.00658 (-0.248)	-0.0367 (-0.956)	-0.0159 (-0.377)	-0.0122 (-0.245)
preseethnic			0.000259 (0.300)	0.000221 (0.250)	-0.000179 (-0.152)
majorethnic			1.64e-05 (0.0178)	-0.000511 (-0.525)	-0.000296 (-0.202)
lnpop	0.0303*** (3.350)	0.0318*** (2.672)	0.0307*** (3.469)	0.0330*** (2.722)	0.0223 (1.201)
popden	3.22e-06 (0.367)	0.000336*** (2.648)	2.93e-06 (0.337)	0.000330** (2.552)	0.000518** (2.598)
disteq	-0.00184** (-2.406)	0.00128 (1.050)	-0.00193** (-2.464)	0.00132 (1.037)	0.00177 (0.944)
nrrents	-0.00123 (-0.888)	0.000793 (0.426)	-0.00122 (-0.866)	0.000816 (0.442)	0.000920 (0.450)
gdpcapita		-4.87e-06** (-2.168)		-5.12e-06** (-2.269)	-4.42e-06 (-1.356)
open		-0.000215 (-0.730)		-0.000179 (-0.596)	-0.000297 (-0.629)
wheatsugar		-0.108** (-2.171)		-0.107** (-2.103)	-0.113* (-1.784)
1980.decade	0.0746** (2.358)	0.0752** (2.307)	0.0749** (2.368)	0.0746** (2.298)	
1990.decade	0.0417 (1.530)	0.0450 (1.433)	0.0417 (1.525)	0.0455 (1.449)	-0.0248 (-0.510)
2000.decade	0.00456 (0.262)	0.0130 (0.452)	0.00463 (0.264)	0.0138 (0.480)	-0.0894* (-1.705)
corruption					-0.0998 (-0.782)
Constant	-0.421*** (-2.967)	-0.513** (-2.567)	-0.419*** (-3.017)	-0.533*** (-2.643)	-0.256 (-0.699)
Observations	211	189	211	189	146
R-squared	0.164	0.254	0.164	0.256	0.290

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Ethnic Polarization and Constitutions

VARIABLES	(1) cw	(2) cw	(3) cw	(4) cw
polar	-0.0130 (-0.300)	0.0129 (0.215)	-0.0102 (-0.318)	0.00157 (0.0376)
maj	-0.0191 (-0.928)	-0.0266 (-1.194)	-0.0200 (-0.483)	-0.0431 (-0.837)
pres	-0.00641 (-0.284)	0.0102 (0.386)	-0.000243 (-0.00313)	0.00310 (0.0349)
prespolar			-0.0108 (-0.0898)	0.0116 (0.0851)
majorpolar			0.00109 (0.0187)	0.0308 (0.397)
lnpop	0.0243*** (3.350)	0.0342*** (2.973)	0.0244*** (3.448)	0.0343*** (3.033)
popden	-8.85e-06 (-1.381)	0.000133 (1.283)	-8.91e-06 (-1.336)	0.000139 (1.350)
disteq	-0.00242*** (-3.081)	0.000914 (0.735)	-0.00242*** (-3.119)	0.000820 (0.659)
nrrents	-0.00182 (-1.449)	-0.000762 (-0.429)	-0.00181 (-1.404)	-0.000799 (-0.452)
gdpcapita		-4.93e-06** (-2.432)		-4.85e-06** (-2.371)
open		0.000118 (0.446)		8.68e-05 (0.306)
wheatsugar		-0.122** (-2.435)		-0.124** (-2.514)
1980.decade	0.0736*** (2.670)	0.0811*** (2.621)	0.0735*** (2.669)	0.0817*** (2.672)
1990.decade	0.0442* (1.780)	0.0483* (1.675)	0.0441* (1.750)	0.0488* (1.656)
2000.decade	0.0138 (0.911)	0.0174 (0.674)	0.0136 (0.889)	0.0182 (0.694)
Constant	-0.285*** (-2.721)	-0.525*** (-2.700)	-0.288*** (-2.871)	-0.518*** (-2.732)
Observations	252	209	252	209
R-squared	0.116	0.180	0.116	0.180

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: Ethnic Partition and Constitutions

VARIABLES	(1) cw	(2) cw	(3) cw	(4) cw
partition	0.000475 (1.460)	0.000321 (0.841)	0.000391 (1.115)	0.000326 (0.978)
maj	-0.0345** (-1.993)	-0.0183 (-0.976)	-0.0204 (-1.347)	0.00823 (0.433)
pres	0.0183 (0.761)	0.0167 (0.785)	0.00385 (0.126)	0.000909 (0.0267)
majorpartition			-0.000759 (-1.508)	-0.00131** (-2.167)
prespartition			0.000573 (0.959)	0.000699 (0.916)
lnpop	0.00721 (1.217)	0.00607 (0.562)	0.00770 (1.289)	0.00640 (0.594)
popden	1.65e-06 (0.335)	0.000305 (1.444)	-1.06e-06 (-0.237)	0.000319 (1.447)
disteq	-0.000425 (-0.858)	0.00145* (1.747)	-0.000694 (-1.326)	0.00141* (1.787)
nrrents	-0.000720 (-0.350)	-5.50e-05 (-0.0300)	-0.000770 (-0.382)	-7.29e-05 (-0.0407)
gdpcapita		-3.16e-06* (-1.910)		-4.15e-06** (-2.200)
open		-0.000455* (-1.850)		-0.000422* (-1.721)
wheatsugar		-0.140** (-2.431)		-0.139** (-2.322)
1980.decade	0.0653* (1.830)	0.0782** (2.048)	0.0628* (1.773)	0.0762** (2.042)
1990.decade	0.0247 (1.060)	0.0304 (1.164)	0.0251 (1.089)	0.0332 (1.281)
2000.decade	-0.00284 (-0.308)	0.0152 (1.028)	-0.00162 (-0.193)	0.0194 (1.303)
Constant	-0.0984 (-1.023)	-0.0923 (-0.511)	-0.0947 (-1.004)	-0.0882 (-0.523)
Observations	184	165	184	165
R-squared	0.084	0.139	0.092	0.156

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Natural Resources and Civil War

VARIABLES	(1) cw	(2) cw	(3) cw	(4) cw
nrrents	0.000812 (0.609)	0.00285 (1.429)	0.00356* (1.717)	0.00227 (0.851)
maj	-0.00655 (-0.407)	-2.27e-05 (-0.00122)	0.000864 (0.0452)	-0.0273 (-1.184)
pres	0.0365* (1.725)	0.0430 (1.592)	0.0214 (0.822)	0.0323 (1.166)
majnrrrents		-0.00213 (-1.058)	-0.00395* (-1.842)	-0.00103 (-0.428)
presnrrents		-0.00205 (-0.828)	-0.00363 (-1.445)	-0.00444 (-1.490)
lnpop			0.0213*** (3.307)	0.0321*** (3.094)
popden			1.45e-05* (1.907)	0.000141 (1.381)
gdpcapita			-3.79e-06*** (-3.458)	-4.53e-06*** (-2.919)
disteq				0.000622 (0.728)
wheatsugar				-0.113** (-2.522)
1980.decade	0.0514** (1.982)	0.0497* (1.923)	0.0711*** (2.655)	0.0774** (2.513)
1990.decade	0.0349 (1.553)	0.0344 (1.545)	0.0476** (2.006)	0.0440* (1.689)
2000.decade	0.00801 (0.718)	0.00740 (0.656)	0.0283** (1.978)	0.0138 (0.779)
Constant	0.00122 (0.146)	-0.00303 (-0.305)	-0.301*** (-3.123)	-0.481*** (-2.922)
Observations	283	283	282	221
R-squared	0.037	0.038	0.138	0.184

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Wheat-Sugar Ratio and Civil War

VARIABLES	(1) cw	(2) cw	(3) cw	(4) cw
wheatsugar	-0.0791*** (-2.746)	-0.0570 (-1.366)	-0.0737 (-1.498)	-0.102* (-1.937)
maj	5.77e-05 (0.00340)	0.00632 (0.286)	-0.0260 (-1.153)	-0.0171 (-0.727)
pres	0.0289 (1.408)	0.0337 (1.370)	0.00762 (0.295)	0.0157 (0.675)
majws		-0.0417 (-0.740)	-0.0573 (-0.782)	-0.0435 (-0.557)
presws		-0.0165 (-0.270)	0.0594 (0.890)	0.0206 (0.315)
lnpop			0.0299*** (3.203)	0.0272*** (2.810)
popden			0.000121 (1.236)	0.000143 (1.425)
gdpcapita			-4.05e-06*** (-3.443)	-4.25e-06*** (-3.048)
disteq				0.000775 (1.107)
1970.decade	0.00623 (0.943)	0.00622 (0.921)	0.0118 (0.958)	0.0138 (1.163)
1980.decade	0.0731** (2.424)	0.0733** (2.415)	0.0804** (2.545)	0.0840*** (2.696)
1990.decade	0.0489** (2.249)	0.0485** (2.210)	0.0538** (2.240)	0.0537** (2.124)
2000.decade	0.0212 (1.567)	0.0208 (1.531)	0.0271 (1.584)	0.0262 (1.372)
Constant	0.00585 (0.593)	0.000775 (0.0536)	-0.434*** (-3.165)	-0.420*** (-2.722)
Observations	275	275	264	255
R-squared	0.057	0.058	0.175	0.169

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1