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Civil war outbreaks

Horizontal vs. Vertical inequalities

Bachelor's project

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Kunnskap for en bedre verden

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Civil war outbreaks – Horizontal vs. Vertical Inequalities

This paper takes a closer look at civil war outbreaks and what causes the onsets. Cederman and others have written about vertical inequalities and how they are the cause of civil wars. This paper we try to replicate his research to find out if his research is accurate. There are scientists on both sides of the spectrum of horizontal and vertical inequalities, as causes for civil wars. It is difficult to find the real reason behind the outbreaks, but there are a clear division between the two camps. One usually focuses on ethnicities and how they are treated by society, while the others focuses on the state and their involvement in civil war onsets. In this article the results show that exclusion from society are not explanatory factor for civil wars, and the results in Cederman's articles are not accurate.

Contents

1. Introduction

Throughout history civil wars have been present and fought for many different reasons, like territorial winnings, resources, religion and politics. The last fifty years have shown a decrease in civil wars, compared to the period prior to the big world wars. Some major spikes of civil wars occurred after the decolonisation period, because of a big change in how countries were governed. (Fearon, Laitin, 2003,75-77) The sudden change from the colonial powers strict and structured governance to a less experienced and less structured government caused discontent amongst the population. This situation led to the forming of rivalling groups in many countries. (Cederman, Wimmer, Min, 2010, 91-96) Over the last decade scientist have tried to figure out some of the main causes for the outbreaks of civil wars. The main interest of the scholars has been ethnic groups and horizontal and vertical inequalities.[1] (Collier, Hoeffler, 2004, 563-564)

A civil war is defined as an internal conflict with at least 1000 combat-related deaths per year. To distinguish civil wars from massacres, both sides must suffer at least 5% of the fatalities. (Fearon, 2006) Cederman This paper will try to answer the question: Why does civil war break out? Is greed or grievances the main cause behind civil war onsets?
Greed in this context is referred to as when someone causes a civil war to maximise own profit. Grievance means that the civil war is caused by political, social or economic differences as motivation for rebelling against the government. (Collier, Hoeffler, 2004, 563-565)

There has been written a lot about civil wars and trying to cover all the research would be impossible.

This paper will focus on Cederman's articles that is covering the topic of ethnic group as the root of civil war onsets. Cederman's articles used data sets that are older than the ones used here. The data sets used in this paper include more detailed information about countries, compared to earlier data sets. This will give more accurate calculations and a result that is more representative to define to cause of civil war outbreaks. There are some weaknesses mentioned in Cederman's articles i.e. he decided to exclude ethnic groups that are less than 500 000 people. This can affect countries with smaller populations. In his article he had a good reason for his choice, but in this paper, there will not be made similar exclusions. (Cederman, Weidemann, Gleditsch, 2011, 487)

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[1] See section 2.1 and 2.2 for explanation

The First section will be a short overview of the main theory of the data set. In the second section there will be a short walk through of the hypothesis. The main part of the paper comprises the approach, the data set and the analytics results. Further in the main part the different figures, definitions and variables will be explained. Lastly there will be a conclusion with the results and a short summery of the paper.

2. Theory

Over the course of history civil wars have been fought all over the world. The reasoning for going to war, would be to obtain more political or economic power, to significantly improve quality of life. (Cederman, Wimmer, Min, 2010, 87-96) During the enlightenment new thoughts about the world was introduced, they included thoughts about democracy and human rights. The governing structure of the society became more complex. The reasoning for rebelling against the government changed into a fight for the wider groups of the population. (Hague, Harrop, McCormick, 2016, s.23) The society of the western countries started to evolve into governing structures similar to what we see today. The scientists look at vertical and horizontal inequalities to explain what kind of environments are most prone to develop civil wars. Scientists also want to explain whether there is greed- or grievance-based motivations behind rebellions. (Cederman, Weidmann, Gleditsch, 2011, s.478)

2.1 Horizontal inequalities

In the past, conflicts occurred when the people revolted against the rich elites. When discussing conflicts in modern times, scientists looked at horizontal inequalities because of conflicts throughout history. The horizontal inequalities are one of two categories that explains civil war onsets. Horizontal inequalities are group-based inequalities and are based on economic situation, social group or political stance. (Østby, 2005, 6-11) Scientists want to see if there are big differences between social groups, and how it can affect civil war outbreaks. Within the spectrum of horizontal inequalities there are the political aspect, where groups with the same political opinions, are neglected by the society. They feel excluded from the political arena and turn to violence, because that is the only way their political opinions are heard. If there are political inequalities that causes a civil war than it is because parts of the population are discontent with the government. (Cederman, Wimmer, Min, 2010, 91-96)

Economic-based civil wars occur if there is an unfair distribution of wealth or an actor wants to increase their wealth through a conflict. The economic side of horizontal inequalities can

lead to greed-based or grievance-based civil war, it depends on the motives.[2] (Østby, 2005, 8-10) If a civil war breaks out because of a poor majority, because the people want to improve their standard of living, then it is grievances-based motives behind the war. If someone rebel for their own economic gains, then there are greed-based motives. (Keen, 2012, 757-758)

If social groups rebel against the government, it is normally because of religion. This will only occur if the government prohibits the minority's possibility to exercise their religion and they are oppressed because of their beliefs. (Collier, Hoeffler, 2004, 570 - 572) Of the three under categories social group conflicts are the most uncommon today, because most countries do not oppress religious minorities. There are countries that decides which religions can be exercised, but they rarely punish people for exercising other religions. (Collier, Hoeffler, 2004, 570 - 572)

2.2 Vertical inequalities

Vertical inequalities are the second category that explains civil war onsets. Vertical inequalities focus on qualities that a person inherits or something they are born with, like ethnicity or gender. In recent times scientists have focused on vertical inequalities because, of the resurging focus on ethnic groups. After the 1960's people of African descent have fought for equal rights in our society. (Iheduru, 2006, 214) Another side to the vertical inequalities is the women's fight for equal rights. During the 1960' the fight for women's rights got a resurgence, because of the second world war. While the men went to war, the women stayed home and took the jobs of the men. This led to a movement where women wanted an opportunity to work to the same extent as men. (Gerson, J,1989, 872) The fight for equal treatment by society are common in our society, but the means for reaching that goal varies from country to country.

Throughout history one can clearly see how some ethnic groups have experienced more oppression compared to others. Because of all the discrimination and oppression there have been rebellions, especially in the United States, but also in South Africa. (Iheduru, 2006, 213-215) In those situations there where rebellions, but it did not cause a civil war based on the defined definition. With vertical inequalities there is a focus on the individual person, but when the situation escalates to a civil war, people with similar ethnicity will gather in groups. Under those circumstances they start out individually, but gather in groups, similarly to horizontal inequality. (Cederman, Wimmer, Min, 2010, 91-96) Everyone will have a motive,

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[2] See section 2.3 and 2.4 for explanation

but it will also be a collective effort to change the society if they choose to turn to violence. These types of inequalities will usually lead to grievance-based civil wars because, they have grievances with how the society operates. (Cederman, Wimmer, Min, 2010) They work together to fight for their individual rights in the society, to improve their way of living.

2.3 Greed

Greed-based civil wars are caused by actors that sees an opportunity to gain politically or financially through conflict. Economic greed-based wars are often started by actors who sell weaponry or controls private militaries. In peace times they have less opportunities to earn money and want conflicts to exist for profit. Other actors start greed-based civil wars, for political gains. (Collier, Hoeffler, 2004, 564-570) They want to increase their political influence in the society to strengthen their position. The motives behind these conflicts are selfish, they only care about personal gain, and take no regard for the rest of the population. Greed-based civil wars have higher chances of happening in countries with weaker states with less military power. In weaker states they will not be able to stop the rebellion. (Collier, Hoeffler, 2004, 564-570) The chances for conflicts to occur in countries with large amounts of natural resources are higher. The rebels can obtain political or economic power by having monopoly on a market and increase their position in society that way. (Cederman, Wimmer, Min, 2010, 91-96)

Greed-based civil wars are connected to horizontal inequalities and have nothing to do with ethnic groups. As mention earlier, horizontal inequalities are group based and applicable for a larger group of the population, but not when greed is the motivation. When greed is the motivation behind a rebellion, there are smaller groups, or a single person who wants to increase their power. (Keen, 2012, 757-758) The actors want to improve their own standard of living and their power. Greed-based civil wars were common before the current state structure occurred, after the peace of Westphalia, but today they are less common. (Hague, Harrop, McCormick, 2016, s.23)

2.4 Grievances

Grievance-based civil wars happen when the people have a problem with the government. When this occur, the people want a change in how or who governs the country. In these situations, they rebel want to improve the standard of living for the entire population. (Cederman, Wimmer, Min, 2010, 91-95) There are multiple causes for a grievance-based civil war, but the most common one is an oppressive, rich government, with a poor majority. Grievance-based civil wars are more common if the state has financial problems, that causes

general poverty in the country. (Keen, 2012, 767-776) In that case the people might want to overthrow the government through a civil war if, there is a possibility to improve their living situation.

Grievances are usually connected to vertical inequalities but can also be connected to horizontal inequalities. If the government is oppressing an ethnic group, it will be connected to vertical inequalities. If it is based on large economics differences in the society, it will be connected to horizontal inequalities. (Cederman, Wimmer, Min, 2010, 91-95) Civil wars can only succeed if the people have enough military strength behind them. In countries with strict policies and larger military power it is more difficult to rebel, because of the big resistance from the state. It was the same in the Soviet Union during the cold war, after the berlin wall was built, the people were under heavy surveillance. The people wanted a change in the society, but the possibility for rebelling was removed by the government. (Fearon, Laitin, 2003, 75-78)

2.5 Cederman's research

Cederman has over the last couple of years focused on how ethnicity and nationalism have the potential to cause civil wars. He has criticised other scientists, who have written about the same topic. In the article "Does Ethnic Groups rebel?" the biggest criticism, is the role of the state in ethnic group conflicts. (Cederman, Wimmer, Min, 2010, 87-91) Other scholars have explained ethnic conflict onsets, by making it a security dilemma for the ethnic groups. When the state breaks down, the ethnic groups are left to themselves and without the state the ethnic groups react with violence. According to Cederman this is the wrong approch. He explains that the state actor's exclusion of ethnic groups is the reason for ethnic group conflict. (Cederman, Wimmer, Min, 2010, 87-91) Cederman explains that the lack of state agency can lead to political violence between local groups. This does not always lead to civil wars, but it can be the beginning of a larger conflict. There are cases where ethnic group conflicts occur, like when ethnic groups are excluded from privileges, they previously had access to. (Cederman, Wimmer, Min, 2010, 91-96) If this happens the state is an active contributor for the onset of the conflict.

In all his research regarding ethnic conflicts, Cederman have a problem with the approach of the scholars that support horizontal inequalities explanations. His main problem with horizontal inequalities is how widespread they are. He explains that the onsets for a civil war are too rare to be caused by horizontal inequalities. Cederman does not support these horizontal explanations, regarding civil wars. In his opinion, horizontal inequalities are not

specific enough to explain conflict onsets. (Cederman, Weidemann, Gleditsch, 2011, 478-479) For the research Cederman has done on the topic of ethnic groups, he has chosen not to make it country-based, but to make it group-based. This was done because he was focusing on the ethnic groups and their involvement in civil wars, rather than looking at countries with civil wars and who was affected by the conflict. Cederman also chose to exclude countries with a small population or where there might be small minorities. Cederman justified this in his article, but there might be cases where minorities have been able to start a civil war, and it might affect his results. (Cederman, wimmer, Min, 2010, 107-113) In Cederman's research he started making his own special data set, collected by scholars from around the world. He needed to make it from scratch to get the specific variables for his research. At the time of his first article he meant that the current data collected was too general and not descriptive enough for his type of research. (Cederman, Weidemann, Gleditsch, 2011, 478-480)

In the articles he often includes exclusion from the political arena as a main reason for why ethnic groups rebel against the state and the leaders of a country. He believes that only vertical inequalities can explain conflict onsets, because of how specific conditions must occur for a war to break out. (Cederman, Wimmer, Min, 2010, 87-88) Cederman believes that the vertical inequalities are the only inequalities that are specific enough to cause civil war onsets. There are a lot of minor things that Cederman did in his research that are not done the same way here, mainly because of the variables and where they are collected. (Cederman, Wimmer, Min, 2010, 87-91) Since he made his variables from scratch, there are possible that some of the variables used here, are slightly different from Cederman's variables. Cederman might have made small changes to some variables to fit his research, but the ones used here are just raw data, with no changes done.

3. Hypothesis

The theory section shows that there are multiple ways for civil wars to break out. This next section will present hypothesis for civil war onsets. The hypotheses will be tested to see if Cederman's findings are accurate. The main hypotheses will be:

H1: Civil war outbreaks are more likely to be caused by horizontal inequalities.

H2: Civil war outbreaks are more likely to be caused by vertical inequalities.

These hypotheses are the two main questions in this paper. There are arguments that support both statements and scientists have found both hypotheses to be true. There are cases where conflicts have occurred where it is easy to say what caused the outbreak. (Collier, Hoeffler,

2004, 563-564) In this paper however, there will be an attempt to find the general causes for civil war outbreaks, and not just singular events. The theory section makes it possible to predict horizontal inequalities to have a higher likeliness to cause civil war, compared to vertical inequalities. This is because of the amount of variations of horizontal inequalities, and how it applies to a larger group in most circumstances. When there are larger groups under oppression the easier it is to have a successful rebellion, because more people can rebel against the government. (Collier, Hoeffler, 2004, 565-570) The second hypothesis to be tested is the opposite of the first hypothesis. It is tested because of Cederman's findings in his articles, to see if his results are significant or not. These two hypotheses will be tested at the same time, because they are the two opposites. Based on the data set it is possible to look at different types of vertical or horizontal inequalities, and it will be discussed in the analysis section.

H3: Civil war outbreaks are more likely to happen in a democracy

The next hypothesis to be tested in the data set will focus on the types of government that is present in the different countries. This is because of how important the governments are to civil war onsets. The government is an important actor to civil wars because the people goes to war against the state. (Østby, 2005, 8 - 10)(Cederman, Wimmer, Min, 2004, 88-91) Looking at the different government models, one will think that dictatorial models are more prone to have rebellions and conflicts than others. One could assume that democracies have less chances for civil war outbreaks. In democracies the people decide who governs the country and they have freedom of speech; therefore, violent rebellions are not necessary. (Hague, Harrop, McCormick, 2016, 23-25) In other countries with strict policies and government, the people's opinion about society are often ignored. Therefore, there might be a higher chance for civil wars occurring if, the state lacks military force. In a democracy it should be easier to be heard by the government and no reason for violent rebellions. (Cederman, Wimmer, Min, 2010, 87-91)

H4: Ethnic groups are more likely to experience a civil war?

This last hypothesis will be tested based on the findings from Cederman's articles and how he found a positive correlation between ethnic groups and civil wars. Cederman's findings and his main research about whether ethnic groups experience more conflicts, will be tested in the analysis. The ethnic groups included in the articles exclude white people in the western world.

The data set have variables to account for the same exclusions that Cederman focused on and there will be an attempt to replicate his research in the upcoming section.

4. Method

Throughout the entire regression the data presented are form the world banks data sets, and Varieties of democracy project. The data is gathered form 170 countries, in the period 1960-2019. There are variables that have missing data, but that is mainly for the earliest years, from when the data is gathered. The regression starts with a base table that gives a general overview for civil war outbreaks, with civil war onset as the dependable variable. The dependable variable will be measured in percent of likeliness for a civil war to happen. For all the variables that are measurable, beyond a yes or no answer, are calculated through a logarithmic regression. The missing data will create holes in a normal graph and the logarithmic regression will create a continuous graph, even with the missing data in place. To reduce the effects of the missing data gaps the logarithmic regression is used. (Benoit, K., 2011, s.2) In this case all the countries will be measured separately. This is done to prevent the countries from affecting the other countries results. To make sure that the measurements are separated, the variables of each country have been lagged in the data set. This is done to isolate each year before the average percentages for the variables are calculated. After the individual variables are measured, there will be given an average result for each of the variables. These results are the findings presented in the regression tables.

After the basic regression, four independent variables were added to the regression to test out some of the hypothesis. These variables are connected to horizontal and vertical inequalities. They were added to get a detailed answer to the main questions and to see whether Cederman's findings are correct or not. The new variables include economic, political, social and geographic exclusion variables. These variables help us understand what type of exclusion could cause a civil war. After that there are two variables that indicates the conditions for civil war outbreaks in democracies. They are added in to test the third hypothesis and includes health and educational variables. In the end there will be a table that shows the same regression, but this time from 1990-2019. This is done to make sure that the results found in the first regression are applicable to our society, regardless of the time period.

5. Analysis

5.1 Analysis of the 1960-2019 period

For the upcoming section there will be a walkthrough of the different tables that show the likeliness for civil war outbreaks. Each regression will show the likeliness for civil war

outbreaks, but some are directed at Cederman's research. These regressions are done to replicate Cederman's research. The first column shows the base regression and the general conditions for a working society. Then there is added some independable variables to the regression to see how it effects the basic regression.

For the basic regression there are no excluding variables added. The base regression gives a general overview for civil war onsets. The general gradient for civil war onsets is declining, without taking anything into consideration. (Fearon, Laitin, 2003, 75-77) This gradient is the constant variable in the regression. When looking at the first table there are variables that are not significant, because their p-value are higher than 0,05. The variables that are non-significant are findings that are not applicable to a general and wider selection of data and can only explain singular events. Therefore, there is no need to take "amount of peace years" into an account when looking at civil war outbreaks, at least for the base regression. The variable that is named "logincome" is a measure for a countries GDP and this variable is separate from the variable that covers percent of GDP that comes from oil. There are three significant variables that effects the likeliness for civil war outbreaks. The first variable is the country's GPD and it is the only variable with a negative impact on the constant. The general GDP has an impact of -0.328%, which means a country with a higher GDP has a smaller chance for a civil war to break out.

The two other significant variables have a positive effect on the onset for civil wars. The first one the population variable. This variable has a positive effect of 0.369% on the general constant for civil war outbreaks. With the positive effect it means that the bigger the population, the likeliness for a civil war outbreak increase. A large group of people is more difficult to please because of a larger variety in opinions. This makes it more difficult for the government to please everybody and the chances for discontent increases. The positive effect of this variable can change drastically from country to country, based on the government and how they rule. (Fearon, Laitin, 2003, 75-79) The next variable with a positive effect, is the variable that measures how much of a country GDP stems from oil. This variable has a positive effect of 0.029% and have a small effect on the general constant variable, regardless of it being positive or negative. Like the other positive variable, the higher the percent of the country's GDP that stems from oil, the higher are the chances for a civil war outbreak. This is probably because in many countries with large oil resources there is often a rich elite, and a big gap between the rich and poor, which can lead to conflict. (Buhaug, Cederman, Skrede, 2014, 422-424) These are the only significant variables from the basic regression for the

outbreak of civil war. In the next table the exclusion variables are added to test some of Cederman's findings.

Figure 1 (Data collected from; Varity of democracy Project (2020) World Bank (2020))

VARIABLES	(1) onset2	(2) onset2	(3) onset2	(4) onset2	(5) onset2	(6) onset2	(7) onset2
L.logincome	-0.328**	-0.291**	-0.216*	-0.264**	-0.269**	-0.294**	-0.233*
L.logpopulation	0.369**	0.372**	0.395**	0.380**	0.372**	0.368**	0.355**
L.oilgdp	0.0293**	0.0270**	0.0224**	0.0261**	0.0244**	0.0261**	0.0245**
L.peaceyrs	-0.0334*	-0.0334*	-0.0301*	-0.0329*	-0.0310*	-0.0350*	-0.0339*
_spline1	0.000535	0.000540	0.000642	0.000659	0.000631	0.000576	0.000526
_spline2	-0.000250	-0.000259	-0.000283	-0.000301	-0.000286	-0.000269	-0.000257
_spline3	9.27e-05	9.71e-05	9.89e-05	0.000109	0.000102	9.76e-05	9.67e-05
L.exclusion socio-econ group		0.388					
L.exclusion political group			1.010*				
L.exclusion by living location				0.505			
L.exclusion by social group					0.644		
L.health equality						0.00848	
L.libral democracy index						-0.464	-0.361
L.education equality							-0.143*
Constant	-6.518**	-7.032**	-8.315**	-7.431**	-7.335**	-6.583**	-6.919**
Observations	6,360	6,225	6,160	6,215	6,211	6,218	6,218

Robust standard errors in parentheses
** p<0.01, * p<0.05, * p<0.10

In the next columns, two, three, four and five, there are added in four exclusion variables. The variables are added in to see if exclusion from society in any regard, affects the likeliness for civil war onsets. The variables are added to the base regression, one by one, to avoid that they do not affect each other. The significant variables from the base regression have the same effect on the civil war variable, but the strength of the effect varies based on the exclusion variable. The first exclusion variable is the socio-economic group. This variable looks at how certain groups might be excluded from the society, based on their social-economic situation. This variable is not significant with a p-value of 0.419. This means that the variable is not applicable for a general selection and can only be applicable in some circumstances. Based on this result, socio-economic exclusion gives no certain explanation for the outbreak of a civil war.

The next exclusion variable, political group, considers what party or political group one is a part of in the society. This, unlike the first variable, is significant with a p-value of 0.025 and it is possible to generalise this result. The results tell us that the political situation can explain

a civil war outbreak. If most of the population do not support the government, the likeliness for a civil war increase. This type of exclusion has a positive effect of 1.00% on the base variable for civil war. The reason might be if the government is corrupt or if there is a strong elite that rules and the people are not heard by the government. This will lead to an oppressed population that wants a change in how the county is governed. (Cederman, Wimmer, Min, 2010, 87-96) A good example of this is of course the French revolution and the Russian revolution, in both situations the people wanted to overthrow the ruler. These cases might not count as civil wars, but the principles behind the conflicts are the same.

The next exclusion variable that was added, is the geographical exclusion variable that considers where people live. This variable has a p-value of 0.307, this is also not significant. Again, this means that it is not applicable for a larger general selection when looking at civil war outbreaks. The last exclusion variable that was added to the basic regression was a social group variable, that considers how certain social groups might be excluded from society. These groups can be sports teams or church groups. In general groups that might not fit into the society's norm compared to other social groups. This variable is not significant, like the previous variable, with a p-value of 0.163 and cannot give a general explanation for civil war outbreaks. Looking at the general constant variable when all the different exclusion variables are added, one by one, the gradient is steeper than without any exclusion variables. This does not necessarily mean that this is caused by the exclusion variables, because the effect of the significant variables from the base regression have changed. In this case the effects of the significant variables have increased in most cases when the exclusion variables were added. All the variables combined increases the steepness of the gradient for the constant variable.

For the last two columns of the table, the next two variables that was added to the main regression are covering the general health and education in the world. The original significant variables from the beginning, are still significant and have approximately the same effect. In these regressions the exclusion variables are removed to make sure that they do not interfere with the results. The first two variables that were added into the base regression are the liberal democracy index, that just looks at liberal democracy, and a health equality indicator. In short, these variables measure the general health standard in a liberal democracy. Both variables are not significant in this regression, with liberal democracy have a p-value of 0.504 and the health equality variable have a p-value of 0.914. Like previously, they are not explanatory variables for why civil wars break out, from a general perspective.

The next combination that was added to the regression, was the same liberal democracy variable as mentioned above and an educational equality variable. These were added to measure the level of education in the liberal democracies, to see how they affect the chances for a civil war outbreak. With this combination the liberal democracy variable is not significant for the outbreak of a civil war, and the same goes for the educational equality variable. With the two combinations of variables mentioned above there is minor changes to the constant variable for civil wars. They are minimal and are only affected by the significant variables from the base regression.

5.2 Analysis of the post-Cold War period

For the last table presented in this paper, all the previous regressions mentioned have been redone. This time the data is not gathered from 1960-2019, but only the data from 1990-2019 is part of the regression. It is to make sure that the results are not affected by certain time periods. Reducing the timeframe is done to make sure that it is applicable to the current time, not just the Cold War period. The results for the new base regression have not changed to much when comparing to the earlier result, but there is one main difference. The difference is that the peace year variable is significant in the new base regression. The peace time variable has a negative effect of -0.038% on the constant variable. This means that in current times, the amount of time since the last civil war is an explanatory reason for a new civil war outbreak. It means that the longer it goes since the last conflict, the smaller chances there are for a new war to start. The other variables remain generally the same, with some varying effect on the constant variable, but there is no big change compare to the earlier results. The constant variable for civil war has gotten a steeper gradient for the time period 1990-2019, with a negative gradient of -7.351 and earlier it was -6.518, which is a big difference.

Figure 2 (Data collected from; Varity of democracy Project (2020) World Bank (2020))

VARIABLES	(1) onset2	(2) onset2	(3) onset2	(4) onset2	(5) onset2	(6) onset2	(7) onset2
L.logincome	-0.336**	-0.311**	-0.183*	-0.241*	-0.289*	-0.269*	-0.222
L.logpopulation	0.424**	0.423**	0.449**	0.438**	0.422**	0.419**	0.407**
L.oilgdp	0.0318**	0.0302**	0.0200*	0.0265*	0.0276**	0.0269*	0.0248*
L.peaceyrs	-0.0379*	-0.0383*	-0.0377*	-0.0392*	-0.0370*	-0.0393*	-0.0390*
_spline1	0.00145	0.00147	0.00147	0.00149	0.00140	0.00143	0.00144
_spline2	-0.000602	-0.000617	-0.000629	-0.000629	-0.000587	-0.000601	-0.000607
_spline3	0.000192	0.000198	0.000206	0.000204	0.000188	0.000192	0.000194
L.exclusion by socio-econ group		0.234					
L.exclusion by political group			1.372*				
L.exclusion by living location				0.745			
L.exclusion by social group					0.502		
L.health equality						-0.0266	
L.liberal democracy index						-0.584	-0.628
L.educational equality							-0.125
Constant	-7.351**	-7.625**	-9.559**	-8.657**	-7.916**	-7.583**	-7.745**
Observations	4,332	4,241	4,214	4,241	4,237	4,235	4,235

Robust standard errors in parentheses
** p<0.01, * p<0.05, * p<0.10

For the next section of the regression there were added in four exclusion variables. When looking at the shorter period, there are some changes compared to earlier. Looking at the second exclusion variable, political group, both the variable for the general GDP of a country and the percentages of the GDP that stems from oil is not significant. This means that in modern times the percentages of GDP from oil and the country's general GDP, is not an explanation for the outbreak of a civil war. In short, this means that regardless of how rich or how poor a country might be, it does not explain the reason for a civil war outbreak. For the other exclusion variables added to the regression there are no big changes. The results remain the same compared to earlier. There are no variables that have big changes in how they affect the constant variable and there are no changes in which variables that are significant. In the three remaining regressions the variables stay the same but have an overall larger effect on the main constant. For the main constant variable there are two regressions with steeper gradients compared to the rest. When the political exclusion is added, there is a negative gradient of -9.56, which is a lot steeper than the base regression with -7.351. There is also a big difference when geographical exclusion is calculated with a negative gradient of -8.657. In both cases the exclusion variables have an increased effect on the constant variable, which affects the steepness of the gradient.

For the last section there were added in two variables that describe the situations in liberal democracies. When the new regression is calculated for the health variable, there is no big changes to the results compared to the previous regression. The results are the same, but the gradient for the constant variable are steeper than previously. For the other regression which accounted for the education equality in a country, had one big difference from previously. In this new regression the variable for GDP was no longer significant, but the variable that measured the amount of the GDP came from oil was significant. In this case, we can therefore assume that in countries where there is a big difference in the education levels the chances for a civil war outbreak is more likely to happen. If the average education levels are low the chances for a civil war is higher. On the other hand, how rich or poor the country is, does not necessarily explain the outbreak of a civil war. However, big economic differences caused by oil production helps to increase the likeliness of civil war onsets.

6. Conclusion

When looking at the results there are some of the hypothesis that can be ruled out from being true. The first two hypotheses regarding whether horizontal or vertical inequalities are more likely to cause civil war outbreaks, vertical inequalities are not something that causes civil wars. Ethnic groups that have experienced different treatment because of their ethnicity or their gender, will not start a civil war because of it. The data set rules out vertical inequalities for being an explanatory reason, because the variables that covers that area are not significant. The hypothesis for horizontal inequalities being the reason for civil war outbreaks, are something that can be described as true, based on the results. There are some horizontal inequalities variables that are none-significant, but some of them are significant. This means that looking at civil wars on a general bases, they are more likely to be caused by horizontal inequalities.

For the third hypothesis considering whether civil war is more likely to happen in a democracy, the results shows that it is not likely to happen in a democracy. All the variables, health, education and type of government, all showed a none-significant result. Therefore, we can say that it is more likely to happen outside of a democracy. Democracies can have civil war outbreaks, but they are less likely to happen compared to other types of governances. There was not done any regressions regarding what other governances are the most likely to experience civil wars. Because of this there is only an opportunity to rule out democracies as less likely to experience civil wars.

The last hypothesis was whether ethic groups are more likely to start a civil war. This was added mainly because, that is the question that Cederman have tried to answer and found to be true. One thing that is important to consider in Cederman's articles, are how he added in ethnic groups to most of his main variables. In one he chose to look at ethnic group's economy, which can be a good variable. (Cederman, Wimmer, Min, 2010, 107-111) However, based on the results from the regressions in this paper, there are some problems with that. In general, there are no significant connection between ethnic groups and civil war outbreaks, but there are significant correlations between economy and civil war outbreaks. This means that he has put one significant and one none-significant variable together and ends up with one significant variable. Without testing the two variables separately someone cannot determine which variable makes the result significant. (Cederman, Weiderman, Gleditsch, 2011, 480-485, 487- 492) With the information from this paper, we know which variable that matters, and how Cederman ended up with a significant result with the ethnic-economic variable.

When looking at the results in this paper, there are a couple things that should be considered, when trying to answer the last hypothesis. There are different data sets that were used for these two analyses. The numbers for each variable should be identical, but some of the data are gathered from different sources, which can cause minor differences in the results. This should not be the case, but small changes in definitions can be the cause of different numbers in the regression.(Cederman, Wimmer, Min, 2010, 107-113) (Cederman, Weidermann, Gleditsch, 2011, 487-492) Looking at the research from Cederman and compare it to the analysis in this paper, there are two different results, regarding whether ethnic groups are more prone to experience civil wars. In all Cederman's articles, his results show a positive effect or a significant result. (Cederman, Wimmer, Min, 2010, 107-113) (Cederman, Weidermann, Gleditsch, 2011, 487-492) He has done different research regrading ethnic groups and civil wars, but regardless there is always a positive correlation between the two variables.

In the analysis there are no positive correlation between civil war outbreaks and ethnic group exclusions. The variables that covers exclusion and ethnic groups, are not significant. The only exclusion variable that are significant, are the political exclusion. There might be some ethnic groups that support one party over the other, but that is the only case where Cederman's research might be correct. (Cederman, Wimmer, Min, 2010, 91-94) There are possible to claim that the results that Cederman has presented in his articles are not valid, at

least in the modern times. There can be cases where his results are valid and can explain why a civil war broke out, but only special cases. Looking at civil wars on a general basis, there are no reason to claim that ethnic groups exclusion from society are the main reason for civil wars.

The big difference between the approach for this paper, compared to Cederman's, is how one view our society. This is the main difference between the different research. Cederman are focusing on the individuals and how they affect the situations, while here there is a focus on the collective. (Cederman, Wimmer, Min, 2010, 87-94) This is how the papers start to separate from the beginning, but the numbers should tell the same story, and that makes the results interesting. In the future it would be interesting to see what would happen if more replicated the same research. It would be interesting to see if more people would get the same results presented here, or if there would be more results that are similar to Cederman's. I think one of the reasons why the results are so different are because of the data sets and how the variables are coded. The approach for how he understands the variables are slightly different from how they are understood here.

7. Summary

In this paper there has been an attempt to answer the question, whether ethnic groups are more prone to experience civil wars, compared to other groups of people. The starting point for this paper and analysis, was the research that Cederman has done with other scientists over the years. There were some minor flaws with the way he conducted the research, and that lead to some interesting results. (Cederman, Wimmer, Min, 2010, 107-113) (Cederman, Weidermann, Gleditsch, 2011, 487-492) These results made it interesting to see what would happen if someone replicated a similar research. Would the results be the same? Would the same variables be significant? Was there possible to end up with the complete opposite result?

Small changes can affect how much of an impact a variable have on the constant variable, or it can change something from being none-significant to significant. There are many possibilities for why there are differing results in this paper and Cederman's articles. Based on the way the analysis is conducted here, there are a clear answer to the main question of the article. There is no correlation between ethnic groups exclusions and civil war outbreaks. The results found in this article also suggests that there is no big difference between the period between 1960-2019 and 1990-2019. This show us that during the cold war period, where a lot of civil wars was being fought all over the world, there are small changes to the motives.

(Collier, Hoeffler, 2004, 563-570) Civil wars are mostly fought because of horizontal inequalities, and not vertical inequalities that focuses on ethnicities and gender.

There will always be possibilities for a civil war outbreak, regardless of one state's current situation. In some countries the likeliness is higher compared to others, but the world and society are changing. Civil wars are still being fought because of people wanting power or money. It seems like most civil wars in modern times are fought based on grievances and not greed. There are obviously civil wars that are fought because of greed, but it is not as common as civil wars being fought because of grievances. There are many factors that contributes to the civil war outbreaks, and one can only hope to understand the complexity of them. Hopefully more research will give us an opportunity to understand them and reduce the severity of civil wars.

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