

A Friendly Fire? The Impact of Foreign Aid on the Risk of Civil Conflict: Evidence from 144 Countries, 1973-2015

Abstract

This thesis analyzes theoretically and empirically the effects of foreign aid on the onset of civil conflict. The determinants of civil conflict can broadly be reduced to greed and grievances. The literature dominant in the field has not found a significant relationship between grievances and civil conflict onset. The objective of this thesis is to gain a better understanding of how greed and grievances interact and how foreign aid impacts greed and grievances in a society. This thesis separates foreign aid into different sectors in order to establish its effect independently. OLS and logistic regression analysis are used to determine the effects of aid on conflict. The findings show that military aid by the US has a significant and positive relationship with civil conflict onset. The other types of aid, social, economic, production and humanitarian, do not have a significant relationship with conflict onset according to this analysis. The results show that proxies for greed and grievances are insignificant, which might be a result of the data used. The finding that US military aid is significant and positively related is of importance since it accomplishes the opposite of what it is intended to.

Keywords: civil conflict, foreign aid, greed and grievances

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1. Introduction

Over the last few decades, dozens of countries have suffered from civil war, with the highest concentration in Sub-Saharan Africa (Miguel 2007, 50). The consequences of this are detrimental. Civil war has resulted in the death, displacement, psychological trauma, and poverty of millions of people. Civil war poses a fundamental problem against successful economic and human development. Most countries that have avoided civil war are making great steps towards sustainable development, whereas countries that experience civil war are reversing progress. Preventing civil war or escaping the conflict trap is of key interest for many countries. Poverty itself might induce violence, which could increase poverty and thus create a vicious cycle (Findley 2018, 360). Many wealthier countries – mostly western countries, are providing foreign aid to reduce the risk and the impact of war. The belief that foreign aid helps countries out of this vicious cycle is dominant. However, among scholars the effect of aid on conflict is ambiguous. Some argue that it could mitigate war by creating economic development (Collier and Hoeffler 2002b), others argue that aid increases the potential payoffs for rebels and thus increases the risk of war (Findley 2018). This thesis attempts to answer the question of how foreign aid affects the risk of civil war. To study this, I will be taking an interdisciplinary approach.

First, it is necessary to establish what the determinants of civil war are, then this thesis can analyze how foreign aid affects these determinants. The initial motivation for groups to rebel is the core of much controversy and a lot of the discourse has been based on the greed versus grievances debate. The opportunity of private gain, greed, that organized violence can offer, motivates rebels. On the other hand, there are grievances. The need to address grievances due to religion, ethnicity or class is generally referred to as a communal interest that motivates rebellion (Hoeffler 2012, 3). In the literature, the opportunities of greed can mostly be explained by economists and the motives of grievances can mainly be explained by political scientists (Collier and Hoeffler 2004, 563). However, I believe that this distinction between greed as economics and grievances as political science is not as straightforward as the literature suggests. This is where interdisciplinarity steps in; greed and grievances can both be explained by political scientists and economists, but the definitions of greed and grievances would have to be extended. Grievances are caused by inequalities within a society. An economist would argue that income inequality is a driver for grievances, a political scientist believes that political repression due to ethnicity for instance, explains grievances. Greed is rooted in the opportunity costs of an action. Economists argue that if it is more profitable to rebel than to remain in peace, then people will rebel. However, people do not always have to be motivated by greed in a monetary related manner. They can actually also be motivated by the possession of political power. These politicians are characterized as office-seeking: an intrinsic concern for rewards such as power, prestige or a place in the limelight (Budge and Laver 1986, 485). Thus, the classic distinction between economics as greed and political science as grievances does not exist anymore. This thesis attempts to explain how greed and grievances interact. Moreover, this thesis makes an effort to explain the role of grievances in civil war better than previous research, since most do not find a significant role for grievances. Foreign aid can influence these greed and grievances determinants in several ways, as will be discussed.

Research on the causes of civil conflict have found that there is far more solid evidence for greed than for grievances. There is strong support among academia for the finding that poverty and falling income are the main causes of civil war. Collier and Hoeffler (2002a) find strong correlations between national income levels and economic growth and the occurrence of civil war. Political factors that are considered to be feeders for civil war is the role of political repression. Researchers have looked at ethnic and religious fragmentation, regime type, income inequality, political and civil freedom, population density, political participation, and more. There is no significant difference in the effect of economic growth on conflict in countries with the previously mentioned variables (Miguel 2007, 51/55-56). However, there are good theoretical reasons to believe that there are

strong effects of grievances on civil war. This thesis will include these theoretical reasons and will test the influence of ethnic and religious fractionalization empirically.

Research on the influence of foreign aid can broadly be placed into two schools. One believes that foreign aid reduces the risk of civil war, whereas the other believes it increases the risk of civil war. For example, aid can decrease the risk of civil war by promoting economic growth and by creating stronger institutions (Collier and Hoeffler 2002b). Aid can also be used to buy-off rebels or to increase military spending and thus create a stronger army (Findley 2018, 366). However, foreign aid can also increase the risk of civil war. For example, when donor countries suddenly decrease a severe amount of their aid, it unintentionally shifts the domestic balance of power, causing commitment and information problems, and potentially induces violence (Nielsen et al. 2011). Another way in which it can increase the risk is that aid can be considered as an additional resource to be won over by rebels (Findley 2018, 365), and thus increases the potential payoffs.

Thus, there are various ways aid can cause an increase or decrease in the risk of civil conflict. Most research has looked at the effects of aid on economic growth, and thus adding to or reducing greed in society. Factors of grievances are often neglected because economists cannot find statistically significant results correlating grievances to civil war. This is either the case because there is no relationship, the proper variables are not used, or factors of grievances are immeasurable, and it does not make sense to conduct quantitative research on the relationship between grievances and civil conflict. This thesis will differentiate between various types of foreign aid and will test the influence of these on the risk of civil conflict onset. The methods used are OLS regression and logistic regression analysis. The data used showed an insignificant relationship between social, economic, production and humanitarian aid on civil conflict onset. Military aid by the US, however, appears to be positively related with civil conflict onset. The control variables, that are intended to measure greed and grievances, appear to also be insignificant with the dependent variable. However, there is still a strong theoretical basis to believe in a significant influence of grievances on civil conflict. These will be expanded on in this thesis.

2. Theoretical Framework

This theoretical framework functions as the theory behind the empirical research. First, I discuss what the economic and political determinants of civil conflict are and why an interdisciplinary approach is necessary. Next, I will explain how foreign aid affects the risk of civil conflict. Then, I will use OLS and logistic regression analysis, methods often adopted in economics and political science. In these regression analyses, I will estimate the influence of different types of foreign aid on the risk of civil conflict.

2.1 Determinants of civil conflict

The causes of civil conflict can broadly be divided into two fields: greed and grievances. In the literature, greed is often considered to be caused by economic factors, whereas grievances are caused by political factors (Collier and Hoeffler 2004, 563). This distinction is incorrect in my opinion. Greed and grievances can be explained by both economists and political scientists, but they do have a different approach. An economist looks at greed as the opportunity costs of private economic gain, while a political scientist would look at greed as the opportunity costs of private political gain. Economics and political science are both based on rational choice theory. This theory argues that an actor will conduct a cost-benefit analysis to determine whether it is the right action to undertake. For an economist this would mean that an actor would undertake an action if it were economically profitable. For a political scientist to undertake an action, it would have to be politically beneficial. In political science, there is a distinction between office-seeking and policy-seeking politicians. Office-seeking entails an intrinsic concern for rewards such as power, prestige or a place in the limelight. Policy-seeking, on the other hand, means that actors are in the political process in order to further particular policy objectives, often linked to underlying ideology (Budge and Laver 1986, 485). Thus, a political scientist would look at greed as actors that are motivated by office-seeking. The policy-seeking motivation can more be linked to grievances. However, there is no actor that is entirely office-seeking; it is often a combination between the two motivations. Nevertheless, this distinction is still relevant for the political explanation for greed.

A political scientist looks at grievances as the generated inequality due to identity, such as ethnicity, religion and social class. An economist looks at grievances as inequalities in income and poverty and would argue that these inequalities are what drives conflict. Political scientists measure grievances through factors such as repression, corruption, political participation and ethnic polarization, whereas economists often measure this with GDP per capita per region or the Gini-coefficient.

When discussing factors of greed and grievances, it is often a competition between which one can explain civil conflict better. Formulating the one as more important than the other is counterproductive. Rather, it is essential to understand how greed and grievances interact (Keen 2000, 31). The two are not in competition; they are complementary. The integration of political science and economics through the framework of greed and grievances can explain the occurrence of civil conflict.

Greed

Economists consider factors of greed as the opportunities of economic gain. Greed explains civil conflict by the occurrence of atypical circumstances that generate profitable opportunities. Supporters of the greed-argument believe that profitable opportunities for rebellion will not be passed up (Collier and Hoeffler 2004, 564). Economic agents are driven by self-interest, and it is thus necessary to explain why they choose conflict over other alternatives. A proper greed-based theory must give an account to the trade-off between labor and rebellion in making a living. This means that we need to understand the conditions under which violence becomes a more attractive option than other alternatives (Murshed and Tadjeddin 2009, 90).

According to the greed-view, conflict is the elite competition over valuable natural resource rents, concealed with a narrative over collective grievance. Rebellions need to be economically feasible: civil conflicts supported by natural resource-based rents or when supportive diasporas provide finance, are more likely to occur. Collier stresses the poverty trap: poverty makes rebellion more attractive, lowering the opportunity costs of civil conflict. In turn, conflict is destructive and thus reinforces poverty, creating a vicious cycle (Murshed and Tadjoeeddin 2009, 88). Fearon and Laitin (2003) argue that civil conflict risk is mainly affected by diminished state capacity in the context of poverty. Thus, what these findings show is that greed-based arguments argue that civil conflict occurs in poverty-stricken, failed states characterized by corrupt and incapable regimes, with the dynamics of conflict sustained by a motivation related to rebellion (Murshed and Tadjoeeddin 2009, 88).

Various scholars have written about greed-based arguments that explain civil conflict, but Paul Collier is dominant in the field. Collier and Hoeffler (2004) distinguish various components of opportunity: financing rebellion, atypically low costs and atypically weak government military capability. There are three common sources for financing rebellion: extortion of natural resources, donations from diasporas and grants from hostile governments (Collier and Hoeffler 2004, 565). Natural resource wealth is the most important explanatory variable. Natural resources are a relatively easy way of creating income. If a rebel group gains power over the natural resources, they possess a great source for financing rebellion. However, for natural resources it can also be the case that this makes the government well-financed, so rebellion is militarily infeasible. Additionally, primary commodities are associated with other characteristics that can cause civil conflict, such as corruption and economic mismanagement (Collier and Hoeffler 2004, 565-567). Atypically low costs, which mainly relates to the low costs of recruitment, is another indicator for civil conflict. Recruitment is easier when there is a high proportion of young unemployed males in the population, in a setting of poverty and poor education. In these situations, the recruits have less to lose and more to gain to join the rebellion (Murshed and Tadjoeeddin 2009, 89; Collier and Hoeffler 2004, 569). Finally, an atypically weak government military capability is relevant. A clear indicator is if the terrain is favorable to rebels: forests and mountains provide rebels with a safe haven (Collier and Hoeffler 2004, 569-70). In short, greed simply means the economic opportunity to fight (Murshed and Tadjoeeddin 2009, 89).

Economists often use GDP growth as a measure for greed in a society. According to this view, when GDP growth is high, less conflict occurs and vice versa. This intends to measure the opportunity costs to rebel, which is a function of income level, potential reward for the rebellion and the perceived probability of success (Jakobsen, De Soysa and Jakobsen 2013, 142). For the income level, one can look at the actual income level or at the incidence of extreme poverty. The level of aid or the presence of natural resources in a society estimates the potential reward for rebellion. GDP says something about state strength because it is an indicator for a state's overall financial, administrative, police and military capabilities. Also, a higher GDP corresponds with more developed countries, which have terrain that is characterized by roads and rural society more connected to central administration (Fearon and Laitin 2003, 80). If a state is poorly run, then it is vulnerable to insurgent attacks because the chances of the rebels surviving or achieving their goals are greater than in case of a strong state. GDP thus says something about the perceived probability of success (Jakobsen, De Soysa and Jakobsen 2013, 142-43).

Grievances

On the other side, there are grievances. Grievances explain civil conflict by the occurrence of atypical grievances: rebellion occurs when grievances are sufficiently acute that people want to engage in violent protest (Collier and Hoeffler 2004, 564). In the literature, academics find good theoretical reasons for believing that grievances play a major role in the emergence of civil conflict. A person might receive utility from certain forms of behavior which is considered appropriate to his identity but is considered abnormal by other groups. This type of behavioral paradigm might be related to

solving the collective action problem (Murshed and Tadjoeeddin 2009, 96). Groups share certain grievances and might act alike. Grievances are usually associated with relative deprivation theory, which is the gap between expectations and achievement. If current trends led to the expectation of a continued increase in the satisfaction of economic and social needs, any decline from that trend would result in an unacceptable gap between expectations and achievements (Regan and Norton 2005, 320). This then, is a motivation for conflict to break out.

Grievance is sometimes described as a justice-seeking motivation (Murshed and Tadjoeeddin 2009, 96). Edward Azar summarizes his argument on the preconditions of conflict as follows:

Protracted social conflicts occur when communities are deprived of satisfaction of their basic needs on the basis of their communal identity. However, the deprivation is the result of a complex causal chain involving the role of the state and the patterns of international linkages. Furthermore, initial conditions (colonial legacy, domestic historical setting and the multicommunal nature of the society) play important roles in shaping the genesis of protracted social conflict (Demmers 2017, 85-86).

Azar distinguishes four steps. First, he emphasizes the communal content of conflict. If a society is characterized by multicommunal composition, conflicts are more likely to arise. Secondly, he identifies deprivation of human needs as the underlying source of conflict. These grievances are often expressed collectively. When these grievances cannot be addressed by the authority, the risk of conflict increases. Thirdly, Azar distinguishes between physical needs (security), a socially accepted and recognized communal identity (acceptance) and an effective participation in political, market and decision-making institutions (access) (Demmers 2017, 86-87). A failure to meet these basic needs also increases the risk of conflict. The third component is the state. Whether the basic needs are met is highly dependent upon the state. States in which the political authority consist of a dominant identity group, have a low level of democracy and legitimacy and are more likely to exclude others and thus feed into grievances. The availability of resources and the policy capacity are also an important factor in securing people's needs and preventing conflict (Demmers 2017, 87-88). The last relevant component that feeds into conflict are international linkages. Economic dependency and political and military relationships affect state autonomy and independency. This can force states to make decisions that are contradictory to the needs of its own people (Demmers 2017, 88).

On the other hand, various economists that have researched the influence of grievances on the risk of civil conflict find that grievances are not statistically significant in explaining the occurrence of civil conflict. Collier and Hoeffler (2004) find that grievances have little explanatory power. They discuss four measures of grievances: ethnic or religious hatred, political repression, political exclusion and economic inequality. For the first measure, they use a variable on fractionalization since ethnic or religious hatred can only occur in multi-ethnic or multi-religious communities (Collier and Hoeffler 2004, 570-71). This, however, measures diversity and not polarization, while polarization is what matters for conflict (Murshed and Tadjoeeddin 2009; Esteban and Ray 1994). Secondly, political repression is measured using the Polity III and the Freedom House datasets. Thirdly, exclusion is most apparent when a political alliance is based on ethnicity and one ethnic group has a majority: ethnic dominance. Lastly, they measure income inequality, by the Gini-coefficient and by the ratio of the top-to-bottom quintiles of income. For these measures, Collier and Hoeffler find that the proxies for inequality, political rights, ethnic and religious fractionalization are insignificant. Only ethnic dominance had adverse effects (Collier and Hoeffler 2004, 570-71, 588). However, the mentioned variables used by Collier and Hoeffler give reason to doubt, which I will explain further in the next paragraph.

How collective grievances explain civil conflict

As aforementioned, Collier finds that economics is far more important in explaining civil conflict than grievances are. He adds that 'grievance-based explanations of civil conflict' are 'seriously wrong'. He argues that inequality, measured in terms of income or landownership, has no effect on the risk of

conflict according to the data (Keen 2012, 757/760). Frances Stewart disagrees with this. Collier's argument that inequality does not explain conflict is based on vertical inequality – inequality between individuals or households in a society (Keen 2012, 760). If an individual feels frustrated if he is poor compared to other individuals in society, he will not start a rebellion on his own. Civil conflicts are organized group conflicts, not an act of random violence from individuals. Thus, the group aspect should be included when analyzing the causes of conflict (Østby 2008, 137). Therefore, Stewart looks at horizontal inequalities, which are inequalities in economic, social or political dimensions or cultural status between culturally defined groups. She argues that by looking at horizontal inequalities, the role of inequalities in generating conflicts can be better explained (Keen 2012, 757/760). Thus, Stewart aligns with the grievances camp, whereas Collier aligns with the greed camp. Stewart mostly focuses on the inequality and resulting grievances, while Collier finds the economic or criminal agendas of rebels important and downplays grievance as a motive behind rebellion and civil conflict (Keen 2012, 757).

Stewart does not only disagree with Collier on his different approach on inequalities, but she also argues that Collier's conclusions rest on unstable foundations at times. For example, the proxies that he uses for greed and grievances are questionable. Lack of access to education is considered as a proxy for greed, but that this proxy is a key grievance motivating many fighters can actually be learned from analyzing conflicts in many countries (Keen 2012, 761).

Murshed and Tadjoeeddin (2009) differentiate between four sources of horizontal inequality. Firstly, the discrimination in the allocation of public spending and unfair tax burdens lead to serious unrest. The over taxation of smallholders encourages rebellion, and indigenous people often experience discrimination in access to schooling, health care and public-sector jobs. Secondly, agrarian societies with high inequality have high asset inequality and are prone to conflict. Thirdly, economic mismanagement and recession are drivers for conflict. Economic mismanagement is often associated with an uneven and unfair distribution: public spending benefits the elite, the military is protected, and it often favors certain ethnic groups over others. Countries that have weak institutions of conflict management and have high income inequality are less capable to bear economic shocks and experience growth failure. They also have a higher risk of civil conflict since their weak institutions become weaker due to shocks and lower growth and are unable to contain the resulting social pressure and conflict. Fourthly, natural resource rents can become a source of grievances if the local population feel that they are not getting a fair share (Murshed and Tadjoeeddin 2009, 98-99)

The hypothesis that horizontal inequalities can explain the onset of civil conflict has also been analyzed econometrically. In the book *Horizontal inequalities and conflict*, edited by Frances Stewart, Gudrun Østby finds that, over the period 1986-2003, countries with severe social and economic horizontal inequalities (regardless of whether groups are defined by ethnicity, religion or region) had a significantly higher probability of the onset of conflict. She also suggests that a politically and economically inclusive government reduces the risk of conflict (Keen 2012, 760-61). In the same book, Caumartin, Milina and Thorp find that ethnic mobilization and participation of indigenous groups in mainstream politics tend to discourage rebellion. One conclusion of Stewart's major study is that conflict is more likely where political and socioeconomic horizontal inequalities are high and run in the same direction (Keen 2012, 761).

Buhaug, Cederman and Gleditsch (2013) research the influence of ethnic differences on the onset of civil conflict. They find that political and economic grievances influence the risk of conflict positively. They also argue that previous research used inadequate variables, which resulted in this insignificant relationship. They learned from Stewart and also differentiate between vertical and horizontal inequalities. They find that countries with one or more ethnic group(s) radically poorer than the national average and countries with large groups discriminated from national politics have a significantly higher risk of armed anti-governmental opposition. In contrast, traditional proxies for individual-level grievances, such as the Gini coefficient or income disparity or various fractionalization indices, have either no or much weaker impacts on the risk of civil conflict (Buhaug,

Cederman and Gleditsch 2013, 419). In their model, they use variables on horizontal economic inequality and systematic intergroup inequality in ethno-political opportunities and find that these disparities increase the risk of civil conflict primarily when they overlap with ethnic cleavages.

With this criticism on prominent research that has not found a significant relationship between grievances and civil conflict and only considered greed to be relevant, I do not mean to disprove the importance of factors of greed. What I want to make clear is that we should look at research with a critical eye. When the conclusion is that empirical research suggests that factors of grievances are irrelevant, we should look at their proxies and consider whether these variables are measuring what they intend to. In the case of Collier and Hoeffler, variables can be improved.

Greed-grievance interaction

Regan and Norton (2005) argue that grievance-based issues are at the core of the process that leads to civil conflict, but greed becomes important when rebel leadership has a hard time in motivating soldiers. Grievances form the backbone of violent movements, but resources become necessary to pay selective benefits to overcome the free-rider problem and to counteract government efforts to lure the rebels away (Regan and Norton 2005, 322).

The grievances generated due to inequality – in land, income, political access – result in discontent among those who go without, with political violence as a consequence. When this is handled poorly by the state, it could evolve into civil conflict (Regan and Norton 2005, 319-20). However, a rational actor will not participate in rebellion against inequality when there is not a higher expected payoff from participating in the movement. This is known as the collective action problem. To overcome this problem, rebel leaders are providing selective incentives to their supporters. These selective incentives are excludable and only accessible to their followers. These selective incentives can consist of economic (payments) or social (protection) needs (Regan and Norton 2005, 321-22). Every individual has the option to support one side or neither and this choice is dependent on maximizing their utility for a given level of effort. Three factors are relevant for making the decision to join a rebel movement: expected benefits, costs and the likelihood that support for one group would be discovered by the other. Potential rebels can be mobilized more easily when levels of utility are low, because then there is more to gain and less to lose. Thus, lower GDP corresponds with an increase in the risk at civil conflict (Regan and Norton 2005, 324-25).

The importance of economic incentives depends on two factors: the level of repression a state executes towards suspected rebels and the amount of protection the rebel movement can provide the individual. When repression is high, the individual will value protection more, and thus declines the importance of economic concerns. Logically, if the repression by the state is low, then economic factors become more important (Regan and Norton 2005, 325).

When grievances are severe, political entrepreneurs start to mobilize against the state. As a response, the state tries to minimize mobilization through repression. This gives the rebels an opportunity to protect its supporters, without having to offer economic incentives, which increases support due to the pursuit of protection from random punishment by the state. Higher levels of political repression will increase the incidence of civil conflict (Regan and Norton 2005, 325-26). Recruitment and mobilization are essential for violent movements. The ability to provide selective incentives to supporters is vital. Generally, the government will have greater access to resources to pay for these benefits. Therefore, rebels have to obtain access to resources. If they require these resources, then these can be converted into private benefits, which increases loyalty and makes it more difficult for the state to repress rebellion or to offer its own private benefits. Thus, the existence of exploitable resources will increase the risk of civil conflict (Regan and Norton 2005, 326).

2.2 How can foreign aid influence the risk of civil conflict?

Foreign aid is meant to improve the quality of life for citizens of a recipient country. Improving the economic situation of a country decreases poverty and therefore the outbreak of civil conflict is less

likely. When the living situation of citizens is better, then the opportunity costs of rebellion are higher than the opportunity costs of peace (Findley 2018, 366). Also, creating stronger and more democratic institutions improves the state's ability to reduce the inequalities among individuals and among social groups. On its turn, this will decrease the grievances in a society. In order to determine the influence of foreign aid on the risk of civil conflict, it is necessary to distinguish between the types of aid there are and theorize how they could affect the greed and grievances in a society. These aid flows can overlap, but often have other purposes. After I explain the theoretical mechanism of how foreign aid can impact violence, I will differentiate between the types of aid that influence greed and grievances: official development assistance, democracy aid and military aid.

Theoretical predictions for conflict onset

In the literature, different causal mechanisms link foreign aid and violence. The mechanisms that are believed to reduce violence are the hearts and minds mechanism, the information-centric model and the opportunity costs model. The hearts and minds mechanism works as follows: by providing public goods and improvement in economic conditions, civilians can be won over. If they value the goods and services, communities will develop more positive attitudes towards the government and the likelihood that they will support insurgency groups is low (Zürcher 2017, 515; Findley 2018, 366). Thus, by providing public goods, people will feel less aggrieved and feel less urge to take up arms against the government. However, aid allocation is not comprehensive, uniform or fair. Aid can actually exacerbate inequalities and grievances along social cleavages, which can result in rebellion. Politicians are inclined to allocate aid to their co-ethnics, for example (Findley 2018, 367), which would increase the horizontal inequalities within a society. Next, the information-centric model presupposes that the community has information on the activities of the rebels. Development aid can serve as an incentive for the population to share information with the government. Consequently, the government's counterinsurgency efforts become more effective and security increases. Lastly, the opportunity cost model assumes that economic opportunities generated by aid can create employment, and this makes recruitment more expensive and limits the size of the insurgency group (Zürcher 2017, 515-16). Besides this mechanism, aid can be of great help during economic downturns. During these times, people can lose their money and thus the risk of conflict increases since it lowers the opportunity costs for rebellion. Foreign aid can help recipient countries maintain their level of spending or at least minimize the decrease in government spending in times of economic shocks (Savun and Tirone 2012, 389).

Mechanisms that are believed to increase violence are sabotage and predation. The sabotage mechanism is a response to the information-centric model, and it posits that aid will lead to better relations and more collaboration between the population and the government. As a response, rebels want to sabotage this relationship. Rebels can use violence against collaborators to deter future cooperation with the government. The predation mechanism asserts that aid exacerbates violence because it is an additional resource that can be fought over. In this manner, aid can be seen as a lootable resource (Zürcher 2017, 516). Higher levels of aid can therefore incentivize rebels to capture the state to gain power and access to resources. As long as the costs of violence are not high enough, the government and rebels can fight over those resources. Another way predation becomes attractive is that aid can also fund rebellion. Aid often bypasses the government and can be captured by various actors. It can be distributed in a manner that potential rebels can loot it to fund rebellion (Findley 2018, 365).

Conflict is extremely costly, so there is always some bargain that both sides should prefer, and aid can actually take part in the bargain between the government and the rebels. Failures for bargaining include credible commitment problems and incomplete information since combatants are encouraged to lie about their strength and preferences. Credible commitment problems occur due to the volatility of foreign aid flows (Findley 2018, 365). Therefore, stability among aid donors is important. Abrupt downturns in aid flows can cause armed conflict. Aid shocks disrupt the status quo by weakening the government and encouraging rebels to challenge the government. The

government cannot credibly commit and the temporarily empowered rebels are motivated to attack because the expected rebel payoff from conflict is probably greater than any offer the government can credibly promise (Nielsen et al. 2011, 220-22). These aforementioned dangers: predation, sabotage, credible commitment problems and information problems, do not have to be the consequence of foreign aid. These dangers are conditional on the presence of weak institutions that cannot provide the checks and balances against such dangers (Findley 2018, 365-66).

Now that I have described the general mechanisms of how aid can impact the risk of conflict, I will explain how specific types of official development assistance affect the greed and grievances in a society.

Official Development Assistance (ODA)

ODA is public assistance – government bilateral or multilateral that is meant for economic development and welfare. This type of assistance is the most common policy tool developed countries use to improve economic development and welfare in recipient countries. ODA is concessional, meaning at least 25 percent of it is a grant (Findley 2018, 362). Sectors that ODA affects that are relevant for this thesis are social infrastructure and services, economic infrastructure and services, production, and humanitarian aid. Other sectors include multi-sector, debt-relief and unallocated. These latter sectors are not as relevant as the former in affecting the greed and grievances in a society since they are less specific in what they intend to target. This makes it for these sectors more difficult to theorize how they could affect greed and grievances.

Social infrastructure

Social infrastructure and services cover efforts to develop the human resource potential and improve living conditions in aid recipient countries. It includes, but is not limited to education, health and population, water supply, sanitation and sewerage, and government and civil society (OECD n.d.). Aid focused on these areas are meant to decrease the grievances in a society. Aid targeted at education improves the quality of and the access to education. This gives the population a chance to develop themselves and increase their job prospects. People that enjoy more years of education and/or have a job are less likely to join a rebellion. Additional years of education increase the opportunity costs of rebellion since people have more to lose (Collier and Hoeffler 2004, 588).

Health and population aid improves the health of the population. As Azar argues, the satisfaction of people's basic needs, such as physical security, lowers the risk of conflict (Demmers 2017, 85-86). Improving the population's health increases life expectancy and lowers grievances.

Water supply, sanitation and sewerage aid give people better access to water and the development of irrigation systems (OECD n.d.) makes the population less dependent on rainfall, and thus stabilizes the agricultural sector, which makes up for a great percentage of the GDP of developing countries. Thus, this type of aid increases the GDP in a society, which corresponds with higher opportunity costs for rebellion. Improving this sector also lowers grievances since it tackles the satisfaction of people's basic needs.

The categorization of aid as intended for "government and civil society" is considered democracy aid (Savun and Tirone 2011, 237). The "democratic peace" proposition, which dominates the western view on peacebuilding operations, argues that democracies are rarely in conflict. Therefore, peacebuilding operations include a transition towards a democracy since this would, according to this view, eradicate the risk of conflict (Paris 2004).

The risk of conflict may be unlikely when a country is a well-established democracy, but democratization can be a violent process. Countries that are in the process of democratization are prone to civil conflict. The transition to democracy creates conditions that are favorable for the outbreak of civil conflict in two ways. Namely, political elites exploit rising nationalism for their own ends to create divisions in a society, and the government is too weak to prevent the polarizing tactics by the elites. Credible commitment problems arise because the new and old political elites are cautious of each other's intentions and are thus unlikely to believe the other will hold to their

promises made during the transition period. If a state consists of multiple ethnic groups, a different credible commitment problem can possibly arise between elites and domestic ethnic groups (Savun and Tirone 2011, 243-44). During the process of democratization, grievances felt among ethnic groups can increase due to insecurities caused by the weakening of state authority and the uncertainty in the environment. Especially severe are the insecurities among minority groups who feel unprotected in an environment of fragile institutions, weak state authority, opportunistic elites and rising nationalism. Institutions cannot credibly commit to protect the state from being captured by any group to exploit the other. Due to the risk of annihilation in the future and the incredible commitments by the state, the opportunity costs to rebel during regime change are low for a minority group (Savun and Tirone 2011, 244). As aforementioned in the grievance section, Azar would argue that the minority group is deprived of their basic needs, due to the malfunctioning state and thus increases the risk of conflict.

Democracy aid can decrease the risk of conflict by mitigating the severity of commitment problems that are present during the early phases of democratization. Democracy aid helps transitioning regimes to strengthen political institutions. Working political institutions increase the government's ability to credibly signal its intentions to opposition groups and make future promises to the society. Likewise, external electoral assistance helps to gain additional credibility to the promises made by the state to the newly empowered domestic groups. Also, democracy aid empowers nonstate actors who can monitor the state's actions and thus reduce the centralization of power and fears about the state's intentions (Savun and Tirone 2011, 233-34). Democracy aid can thus help to reduce the grievances felt in a society. Stronger political institutions are more able to address the grievances in a society. Democratization also gives people hope for a better future and consequently gives people less reason to rebel and raises the opportunity costs.

Economic infrastructure

Economic infrastructure and services cover assistance for networks, utilities and services that facilitate economic activity. It consists of, but is not limited to, energy, transportation and communication, banking and financial services and businesses (OECD n.d.). Aid of this kind improves the economic conditions in a country, which can ensure economic development.

Energy includes the production and distribution of energy, involving also the peaceful use of nuclear energy (OECD n.d.). For developing countries, energy availability for cheaper and better lighting can increase productivity and it can extend the length of the workday. Energy provision can also directly and indirectly improve the health and therefore the productivity of the workers. Cleaner energy can improve indoor air quality, promote access to safe drinking water, facilitating refrigeration and lowering costs of food production (Toman and Jemelkova 2003). These are all ways in which human health improves.

Aid targeted at transportation improves the infrastructure, which is necessary for a functioning economy. Infrastructure can play a major role in promoting economic growth and equality and through both of these channels, it can help reduce poverty. In Africa, for instance, about 40 percent of the population lives in landlocked countries, and many regions are remote from the global market centers. These geographical disadvantages result in high transport cost that hamper intra and interregional trade. Mainly due to the reduced openness to trade, landlocked countries tend to go slower than other countries. However, this can be solved with good transport and communication facilities. Infrastructural development can also decrease income inequality in a country. However, if it is not targeted at the poor, then it can actually also increase income inequality (Calderón and Servén 2010, 14-17). Therefore, aid of this kind reduces poverty, and thus increases the opportunity costs to rebel, but under the right circumstances it can simultaneously decrease income inequality and therefore reduce the grievances.

Aid directed at banking and financial services and business advances a country's ability to manage the economy and thus promote GDP growth, which increases the opportunity costs for rebellion.

Production and humanitarian aid

Aid targeted at the production aims to contribute to all production sectors. It comprises agriculture, forestry, fishing, industry, mining, construction, trade and tourism (OECD n.d.). Aid directed at this can improve these sectors and thus promote economic growth.

Humanitarian aid is emergency and distress relief such as emergency responses, food aid, short-term reconstruction relief and rehabilitation and disaster prevention and preparedness (OECD n.d.). This type of aid can address the most urgent grievances in a short period of time.

US military aid

Another form of foreign assistance is aid given by the US with the purpose of strengthening military development in the recipient states (Savun and Tirone 2018, 1614). Unfortunately, there is only data on this type of aid for the US. The amounts are difficult to track globally because there are very little incentives to report military aid (Findley 2018, 375). Nevertheless, the US makes up for an enormous part of aid distribution, thus it is significant to discuss its effects on the onset of conflict.

The effect of military aid on conflict has not been abundantly researched cross-country. The research that has been done are mostly case studies. However, case study results are relevant to theorize about the possible relationship between military aid and conflict. Military aid is deployed with the view that it strengthens states against insurgents and other armed nonstate actors. Aid can benefit weak states if it strengthens the state's repressive capacity, but the state's weakness can also enable considerable capture of external resources by armed groups. There has been little focus on how military aid can exacerbate conflict. Most attention has been paid to how military aid affects sovereign states, while aid can have a different effect on where the state does not have a monopoly on violence. When this is not the case, donor countries might fuel the very groups that military aid is supposed to suppress, which prolongs conflict and further weakens the state (Dube and Naidu 2015, 249-50).

Military aid is a form of security aid, and security aid can increase repression by enabling the government elites to maintain power by suppressing the opposition. Likewise, cross-national evidence implies a negative relationship between military aid and human rights violations (Dube and Naidu 2015, 250). Through these channels, military aid would exacerbate grievances rather than creating peace. People would feel more repressed, which gives more reason to rebel. In Columbia, Dube and Naidu (2015) find that increases in US military aid leads to higher levels of paramilitary attacks. Increases also did not lead to reductions in guerilla violence. Other examples include Iraq, Afghanistan, Mexico, and Indonesia. In these countries, links between the military and armed nonstate actors led to the use of foreign military resources by unlawful militias and sometimes went hand in hand with extreme human rights abuses (Dube and Naidu 2015, 266).

However, military aid can also be successful. Aid can provide security to people whose physical security is being harmed by armed non state actors. They will feel less aggrieved, and it will show them a way out and support the government rather than joining the rebellion. Military aid can strengthen the state in repressing the opposition. This can be effective. It raises the opportunity costs of participating in a rebellion since the chances of being successful are low. However, the informal link between the state's armed forces and nonstate actors needs to be considered when implementing military aid in a conflict sensitive country (Dube and Naidu 2015, 266).

2.3 Empirical findings

Before starting the empirical analysis, it is important to be aware of previous attempts to quantitatively research the influence of aid on the risk of civil conflict. To broaden the scope of the literature, this thesis will also include other types of violence, such as terrorism.

Collier and Hoeffler (2002b) find that foreign aid does not have a direct effect upon the risk of conflict. However, aid directly affects the growth rate and the extent of dependence on primary commodity exports, and these influence the risk of conflict (Collier and Hoeffler 2002b, 435). Collier

and Hoeffler argue that aid can affect the risk of conflict in three potential ways. Firstly, aid augments government budget so they can spend it on other priorities. Secondly, aid generates growth in society and thus income. Lastly, aid can change the structure of income. As income per capita increases, economies are likely to diversify away from primary commodity dependence, which could reduce the risk of conflict (Collier and Hoeffler 2002b, 439). To find the influence of aid on the risk of conflict, they use data on 161 countries and eight time periods, 1960-64, 1965-70, ..., 1995-99). Control variables they use are GDP per capita, GDP growth, primary commodity exports/GDP, population size, social fractionalization, ethnic dominance, geographic dispersion, peace duration and average aid. They find that an increase in aid reduces the risk of conflict from 11.5 to 11.7 percent. Not directly, but through increased income and diversification of the economy.

De Ree and Nillesen (2006) find that a ten percent increase in foreign aid reduces the risk of conflict by about six to nine percent. They have estimated a model that explains the incidence of conflict out of a measure of aid flows and a set of important controls, using an annual panel data set of 39 sub-Saharan African countries covering a period of 19 years. They have identified a stabilizing effect of foreign aid (De Ree and Nillesen 2006, 2-3). De Ree and Nillesen (2006) disagree with Collier and Hoeffler (2002b). They argue that in Collier and Hoeffler's (2002b) research aid does not directly affect conflict, but only reduces its risk through the indirect effect upon income and reduced primary commodity dependence (De Ree and Nillesen 2006, 20). They use data on civil conflict from the Armed Conflict Database by the Peace and Research Institute Oslo (PRIO). Foreign aid is measured as official development assistance (ODA) in proportion to GDP.

Nielsen et al. (2011) find a direct connection between changes in aid and conflict. They argue that negative aid shocks increase the probability of conflict onset. Sudden aid shortfalls make governments relatively less able to make enough side-payments or military investment to preserve the peaceful status quo in the future (Nielsen et al. 2011, 230). Nielsen et al. also work with data on armed conflict by PRIO. They use AidData's dataset of bilateral and multilateral aid from 1981 to 2005.

Savun and Tirone (2012) did not look at the effect of foreign aid shocks on conflict, but at exogenous economic shocks and conflict. They find that foreign aid is a useful tool for preventing civil conflicts in the wake of negative economic shocks. They argue that during economic crises, governments often have to reduce their spending. Reduction in government spending tends to exacerbate economic losses and grievances created by the shock (Savun and Tirone 2012, 363-64). Small increases of aid can help relax government expenditure and reduce the conflict-generating aspects of an economic shock (Savun and Tirone 2012, 389). They use ODA data covering 1990 through 2004, and they also work with the PRIO Conflict Data Set.

Savun and Tirone (2018) research whether foreign aid could serve as a counterterrorism tool. They argue that governance and civil society aid can dampen the participation in and the support for domestic terrorism by altering the political conditions for a country. This type of aid improves the level of civil rights and liberties in a country, which ensures regained trust in political institutions and loyalty to the state. They use data on aid recipient countries between 1997 and 2010 and find that the former is indeed the case, but only when a country is not experiencing civil conflict (Savun and Tirone 2018, 1607/1610).

From the above theorized reasons, I formulate the following hypothesis: countries that receive more social, economic, production and military aid, relative to GDP, can address the greed and grievances in a society better and therefore less likely to experience civil conflict. In contrast, I believe that a higher level of military aid would increase the risk of civil conflict. I will test this hypothesis in the next section.

3. Data and Method

3.1 Data description

Civil conflict onset

This thesis defines armed conflict according to the Armed Conflict database by the International Peace Research Institute of Oslo and the University of Uppsala (PRIO/Uppsala) (Gleditsch et al. 2002). Civil conflict is “a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths” (Miguel, Satyanath and Sergenti 2004, 730-31; Uppsala University n.d.). Many others have used the PRIO/Uppsala database as well (De Ree and Nillesen 2009; Savun and Tirone 2012; Collier, Hoeffler and Rohner 2008; Nielsen et al. 2011). There are other databases that have a 1,000-death threshold used to identify a civil war. This, however, has the danger of excluding conflicts that may be major for smaller countries, including many African countries. Categories 3 and 4 of the database cover civil conflict with and without interference from other countries. The database does have its limitations. The definition of conflict means I do not include types of organized violence that does not directly involve the state (Miguel, Satyanath and Sergenti 2004, 730-31). All country-year observations with a civil conflict with at least 25 battle deaths per year are coded as ones, and other observations are coded as zeros. Data is available from the time period 1946-2019. When countries experienced multiple conflicts in the same year, the conflict with the highest intensity is chosen and coded as a 1 for onset that year.

Foreign aid

The main independent variable of interest is the level of aid, measured as official development assistance (ODA). The hypothesis is that social and humanitarian aid reduce grievances and economic and production aid reduce greed in a society. In the previous section, I differentiate between the sectors that ODA focuses on: social infrastructure, economic infrastructure, production sector aid and humanitarian aid. These categorizations are based on OECD’s classification of foreign aid. The chosen categorizations are believed to assess how different types of aid affect the greed and grievances in a society, and therefore address the determinants of civil conflict. The aid flows are measured as bilateral aid commitments in current prices (USD millions) (Savun and Tirone 2011, 237) (OECD, n.d.). ODA is measured in proportion to GDP per capita. This measure demonstrates the size of aid flows relative to other resources at a government’s disposal (de Ree and Nillesen 2009, 6). This data is available through OECD’s Creditor Reporting System.

Military aid

Information on military aid is not globally available. However, the United States does have information on their military expenditure in other countries. The US is the largest provider of foreign aid and military aid makes up for an enormous part of this. Estimates suggest that the US spend \$484 billion in military assistance from 1946 to 2012 (Findley 2018, 375). This variable has a high coverage of all military aid, since the US is the biggest provider. Military aid can have a significant effect on civil conflict; therefore, this thesis included this variable even though it only covers US aid. This data goes from 19476 to 2019 (USAID, n.d.). Military assistance is measured in obligations in current prices (USD millions), relative to GDP per capita. I expect increased military aid to increase the risk of conflict. It increased grievances through suppression, and it is an additional resource that can strengthen rebels.

To understand how aid flows compare to other common predictors of armed conflict, this thesis includes a variety of control variables that have been discussed and are also variables commonly

used in the civil conflict (and foreign aid) literature (Nielsen et al 2011; Fearon and Laitin 2003; De Ree and Nillesen 2009; Collier and Hoeffler 2004; Miguel, Satyanath and Sergenti 2004).

Recipient GDP

A higher GDP should be associated with a lower risk of civil conflict onset for three reasons. Firstly, it is an indicator for a state's overall financial, administrative, police and military capabilities. Secondly, a higher GDP corresponds with more developed countries, which have terrain that is characterized by roads and rural society more connected to central administration. Lastly, when the economic circumstances in a country are worse, then it is easier for rebels to recruit new supporters (Fearon and Laitin 2003, 80). Thus, I expect a higher GDP to reduce greed in a society. Data on GDP per capita in current US\$ is available at the World Bank Group.

Regime type

The relationship between regime type and civil conflict has been extensively studied. Many have argued that there is an inverse U-shaped relation between the level of democracy and the occurrence of civil conflict, concluding that semi-democracies are indeed the most prone to civil conflict. At both extremes, in autocracies and democracies, civil conflicts are rare. In a semi-democracy, the combination of both grievances and the opportunity to rebel is at its peak. In democracies, grievances are rarer and more moderate since there are many different options to express grievances other than violence. In autocracies, grievances are more felt but repression may prevent them from being openly expressed. Thus, state failure is more likely in between autocracy and well-functioning democracy (Østby 2008, 7-8). This means that the risk of civil conflict is higher in semi democracies than in democracies and autocracies. To measure this, I use Polity V data (Center for Systematic Peace 2020). Polity V rates countries on their level of democracy from 1946 until 2018. The polity term ranges from 10 until -10. I split the term into three categories: democracies (6 to 10) semi democracies (-5 to 5) and autocracies (-10 to -6). I created for all these dummy variables in the analysis.

Ethnic and religious fractionalization

This index measures the probability that two randomly drawn individuals are not from the same ethnic group or religion. Collier and Hoeffler (2004), Nielsen et al. (2011) and (De Ree and Nillesen 2006) have also used this as a control variable. A high index would indicate that there are many different ethnicities and religions within a country. I do not expect this to have a significant relationship with conflict onset, since this merely measures ethnic and religious diversity, and not hatred. This data is obtained from the dataset by Nielsen et al. (2011). The data ranges from 1975 until 2006.

State capacity

The conditions under which office-seeking politicians or parties are more likely to arise are relevant as an indicator for political greed in a country. The issue here is that most developing countries receiving foreign aid do not have a political system in place that is similar to western democracies with an electoral process, which is what most research on office-seeking politicians or parties is focused on. Thus, we should look at the window of opportunity for political actors that seek office. The opportunity costs are lower when state capacity is relatively low. In a state with low capacity, there are little checks and balances, so it is easier for office seeking politicians to come to power. Also, the level of law and order is low, which makes it difficult to deter office seeking politicians. Lastly, corruption is high, and the level of bureaucracy is low, which are perfect circumstances for power-seeking politicians to arise and to sustain. Thus, the level of state capacity is used to measure the presence of office seeking politicians. The hypothesis is that low state capacity lowers the opportunity costs for office seeking politicians, but also for rebels since it is easier to win over a state that possesses little capacity.

To measure state capacity, this thesis will use the State Capacity Index by Hanson and Sigman (2013). State capacity is still in the process of having a clear definition, but closely related to state strength, state failure, quality of government and rule of law (Hanson and Sigman 2013, 1-2). This index focuses on three dimensions of state capacity: extractive, coercive and administrative capacity. They include 24 underlying variables and formulate an index that ranges from -2 (low state capacity) to 2 (high state capacity). The dataset covers the years 1960 to 2015 for 177 countries.

National resources

The extortion of natural resources is a relatively easy way of creating income. If rebels gain power over the resources, it is a great source to fund rebellion. However, it can also work in the opposite direction: natural resources can make the government well-financed which makes opposition militarily infeasible. Lastly, natural resources can also increase the potential rewards for rebellion (Collier and Hoeffler 2004). I expect a higher percentage of natural resources would increase the risk of conflict through the channel of greed. This indicator is measured as natural resource rents (% of GDP). Data is available at the World Bank Group.

Size of the population:

A large country population increases the risk of civil conflict. A larger population means that it is harder for the center to keep up with who is doing what at the local level and it also increases the number of potential recruits for a rebellion (Fearon and Laitin 2003, 81). Thus, a larger population lowers the opportunity costs since it is hard to keep track of rebels, and thus increases the risk of conflict. Data on the total population is available at the World Bank Group. For the analysis, I included the natural log of this variable.

Mountainous terrain

This variable measures the percentage of a country that consists of mountainous terrain. A higher percentage indicates that there are more possible safe havens for rebels, which makes it more difficult for the government to deter rebellion. This thus lowers the opportunity costs and increases the risk of conflict. Data is available from the Fearon and Laitin (2003) database. For the analysis, I included the natural log of this variable.

From these variables, the following equation emerges for the linear OLS regression:

$$onset_{i,t} = \beta_0 + \beta_1 social_{i,t} + \beta_2 economic_{i,t} + \beta_3 production_{i,t} + \beta_4 humanitarian_{i,t} + \beta_5 military_{i,t} + \beta_6 capacity_{i,t} + \beta_7 democracy_{i,t} + \beta_8 semidemocracy_{i,t} + \beta_9 autocracy_{i,t} + \beta_{10} natural\ resources_{i,t} + \beta_{11} ethnic\ fractionalization_{i,t} + \beta_{12} religious\ fractionalization_{i,t} + \beta_{13} population_{i,t} + \beta_{14} gdp_{i,t} + \beta_{15} mountainous_i + e_i$$

The equation for the logistic regression:

$$onset = \frac{1}{1 + e^{-[\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i}]}}$$

3.2 The Empirical Analysis

The objective of the rest of the paper is to determine the influence of different kinds of aid on the onset of civil conflict. The analysis includes 144 countries (Appendix 1) from 1973 until 2015 (Appendix 2). Table 1 shows the descriptive statistics of the included variables with the observations, mean, standard deviation, the minimum value, and the maximum value. What becomes immediately apparent is that for ethnic and religious fractionalization, only 2808 observations are available rather

than the 4007 of the other variables. This variable does not have information before 1975 and after 2006.

Table 1 Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|-------------------|------|-------|-----------|--------|--------|
| onset | 4007 | .019 | .137 | 0 | 1 |
| humanitarian | 4007 | .002 | .013 | 0 | .463 |
| production | 4007 | .022 | .105 | 0 | 3.257 |
| economic | 4007 | .038 | .12 | 0 | 3.276 |
| social | 4007 | .022 | .059 | 0 | 1.179 |
| military | 4007 | .001 | .007 | 0 | .174 |
| capacity | 4007 | -.003 | .624 | -1.826 | 1.992 |
| semi-democracy | 4007 | .283 | .45 | 0 | 1 |
| autocracy | 4007 | .336 | .473 | 0 | 1 |
| democracy | 4007 | .335 | .472 | 0 | 1 |
| natural resources | 4007 | 8.834 | 10.723 | 0 | 87.507 |
| ethnic frac | 2808 | .47 | .282 | .005 | .925 |
| religion frac | 2808 | .361 | .212 | 0 | .783 |
| population | 4007 | 16.16 | 1.491 | 12.863 | 21.039 |
| gdp | 4007 | 6.975 | 1.184 | 4.26 | 10.123 |
| mountainous | 4007 | 2.233 | 1.424 | 0 | 4.557 |

For some of the observations of ODA there was no information available. I replaced the missing information with a zero. This can have consequences for the results since it creates a bias. However, not replacing the missing information would make it impossible to draw conclusions from the unavailable observations. For the most part the values were present, so I believe the bias will not be significant. There are many kinds of ODA, but the types can be reduced to eight different sectors. For this analysis, I used the sectors that I believed to be of impact for the greed and grievances in a society: social, economic, production and humanitarian aid. In the dataset, the different types are coded so they can be reduced to a single sector. I allocated the types of aid to the corresponding sector, creating the total aid of a specific kind of aid for a country in year x. Subsequently, I divided the total aid of sector x by the GDP per capita, to acquire the amount of aid relative to GDP. The amount of military aid was in real numbers, thus, to scale military aid to my ODA variables, I divided military aid by a million and made them relative to GDP.

To directly interpret the results of the regression in percentage change, I transformed the variables GDP per capita, population and mountainous terrain into a natural logarithm. I conducted OLS regressions and logistic regressions, using Stata version 16.

3.3 Results

First, I ran an OLS regression with all variables mentioned above. The results are displayed below in Table 2. In the first regression (1), only population size is significant. Since there are quite some observations missing due to the dataset of ethnic and religious fractionalization and both are insignificant, I decided to drop these variables for the next regression. After this, the observations increase from 2808 to 4007. The R^2 increases, but with very little. The second model (2) shows that 2.2 percent of conflict onset is explained by this regression. What is interesting though, is that military aid becomes significant for civil conflict onset. Thus, this model finds that all variables are insignificant except for population size and military aid by the US. The suggested relationship is that an increase of 1 in military aid (USD millions), relative to GDP, leads to a risk of conflict of 2.648 points, holding the other independent variables constant. Additionally, an increase of the population by 1 percent, leads to a risk of conflict of $100/0.00437$ points, holding the other independent variables constant.

Table 2 OLS Estimates of Civil Conflict Onset

| | (1) 1975-2006 | (2) 1973-2015 |
|-----------------------|----------------------|----------------------|
| humanitarian | -0.0533 (-0.27) | -0.122 (-0.72) |
| production | -0.00176 (-0.07) | 0.00735 (0.32) |
| economic | -0.0112 (-0.48) | -0.00888 (-0.44) |
| social | -0.0793 (-1.60) | -0.0610 (-1.45) |
| military | -0.573 (-0.47) | 2.648*** (7.93) |
| Capacity | -0.000741 (-0.12) | -0.00290 (-0.57) |
| semidemocracy | 0.0118 (0.80) | 0.0154 (1.35) |
| autocracy | 0.0150 (1.04) | 0.0131 (1.17) |
| democracy | 0.00277 (0.18) | 0.00355 (0.30) |
| naturalresources | -0.000380 (-1.38) | -0.000120 (-0.56) |
| ethfrac | 0.0101 (0.90) | |
| relfrac | -0.0105 (-0.72) | |
| population | 0.00639** (3.04) | 0.00437** (2.71) |
| gdp | -0.00106 (-0.29) | -0.000780 (-0.29) |
| mountainous | 0.000906 (0.45) | 0.00209 (1.33) |
| _cons | -0.0813 (-1.74) | -0.0593 (-1.75) |
| <i>N</i> | 2808 | 4007 |
| <i>R</i> ² | 0.007 | 0.022 |

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As shown, interpreting the relationship of how it affects conflict onset is difficult. There are some problems with the linear probability model when estimating the coefficients of an equation with a dummy dependent variable. Firstly, the R^2 is not an accurate measure for overall fit. The reason for this is that in an OLS regression the estimate of onset can move from one extreme to the other, while the actual onset is a dummy variable that can equal only 1 or 0. This makes the R^2 much lower than 1, even if it is a good model. Secondly, the estimate of onset is not bounded by 0 or 1 in an OLS regression. Therefore, the estimated effects of military aid and population are almost meaningless. One could say, however, that a risk of conflict of 2.6 points is substantially larger than 1 and thus associated with a high risk of conflict (Studenmund 2017, 392-94).

What might be a better fit for a dummy dependent variable is a logistic regression model. The binomial logit is an estimation technique for equations with dummy dependent variables that avoids the unboundedness of the linear probability model. The estimate of onset is now limited by 0

and 1, as becomes apparent when the equation on page 17 is being studied (Studenmund 2017, 400-01).

First, I conducted a logistic regression model with all variables (Table 3) and later without the ethnic and religious fractionalization variables (Table 4). In the tables there is information on the raw effects and the marginal effects (mfx) effects of the independent variable on the dependent variable. The mfx function numerically calculates the marginal effects. This analysis only looks at the marginal effects and not at the raw effects. The essence of marginal effects is that they are predictions, and in this case for civil conflict onset. Because of these effects, it is possible to interpret the model. The coefficients represent changes on a probability scale varying between 0 and 1.

Table 3 Logit Estimates of Civil Conflict Onset, 1975-2006

| | (1) raw | (2) mfx |
|-------------------|--------------------|----------------------|
| onset | | |
| humanitarian | -14.82 (-0.49) | -0.246 (-0.49) |
| production | -0.0715 (-0.06) | -0.00119 (-0.06) |
| economic | -0.448 (-0.38) | -0.00744 (-0.38) |
| social | -5.465 (-1.45) | -0.0906 (-1.48) |
| military | -58.77 (-0.52) | -0.975 (-0.52) |
| Capacity | -0.0972 (-0.29) | -0.00161 (-0.29) |
| semidemocracy (d) | 0.905 (0.86) | 0.0190 (0.69) |
| autocracy (d) | 1.003 (0.96) | 0.0193 (0.82) |
| democracy (d) | 0.336 (0.31) | 0.00595 (0.29) |
| naturalresources | -0.0221 (-1.29) | -0.000367 (-1.31) |
| ethfrac | 0.447 (0.83) | 0.00741 (0.83) |
| relfrac | -0.719 (-1.00) | -0.0119 (-1.01) |
| population | 0.309** (3.16) | 0.00512*** (3.31) |
| gdp | -0.0968 (-0.49) | -0.00160 (-0.49) |
| Mountainous | 0.0533 (0.53) | 0.000883 (0.53) |
| <i>N</i> | 2808 | 2808 |

Marginal effects; *t* statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

What you can see here is that again, only the size of the population is significant for civil conflict onset. What the coefficient implies is that there is a positive relationship between conflict onset and population size: the expected probability of conflict onset increases by 0.00512 with a marginal increase in population size. However, the observations are again at only 2808. Since the ethnic and

religious fractionalization variables are again not significant, I drop them and run another logistics regression with the remaining variables.

Table 4 Logit Estimates of Civil Conflict Onset 1973-2015

| | (1) raw | (2) mfx |
|-------------------|---------------------|-----------------------|
| onset | | |
| humanitarian | -31.92 (-0.90) | -0.482 (-0.93) |
| production | 0.179 (0.22) | 0.00270 (0.22) |
| economic | -0.367 (-0.33) | -0.00555 (-0.33) |
| social | -3.736 (-1.30) | -0.0565 (-1.31) |
| military | 24.44*** (3.48) | 0.369** (3.23) |
| Capacity | -0.248 (-0.87) | -0.00375 (-0.87) |
| semidemocracy (d) | 0.853 (1.20) | 0.0158 (0.98) |
| autocracy (d) | 0.729 (1.02) | 0.0126 (0.89) |
| democracy (d) | 0.108 (0.14) | 0.00166 (0.14) |
| naturalresources | -0.00585 (-0.47) | -0.0000884 (-0.47) |
| population | 0.270** (3.15) | 0.00409*** (3.31) |
| gdp | -0.0598 (-0.40) | -0.000904 (-0.40) |
| mountainous | 0.132 (1.46) | 0.00200 (1.48) |
| <i>N</i> | 4007 | 4007 |

Marginal effects; *t* statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Without ethnic and religious fractionalization, military aid and population size are significant again. Both have a positive relationship with conflict onset. The expected probability of conflict onset increases by 0.369 with a marginal increase of military aid. A marginal increase in population size corresponds with a 0.00409 in conflict onset. The marginal effects of military aid are surprisingly high. In the next section I discuss the relevance of these results and the limitations of the analysis.

3.4 Discussion

The question this thesis attempts to answer is what the influence is of foreign aid on the onset of civil conflict. The key finding is that a higher military aid, relative to GDP, corresponds with an increase in the probability of civil conflict onset. This is in correspondence with Dube and Naidu's (2015) case study on the effect of military aid on conflict in Columbia. There are several theoretical reasons that can explain this phenomenon. The other discussed types of foreign aid, social, economic, production and humanitarian aid, do not have a significant influence on the onset of civil conflict. Another finding is that a higher population size also corresponds with an increased

probability of civil conflict onset according to the used data. The other variables that can explain conflict through the mechanism of greed and grievances that are included in the regression are insignificant according to the data. Overall, the regressions do not perform a great job at estimating the risk of civil conflict onset. There can be various reasons for this, those will be discussed underneath.

The result of increased military aid in relation to GDP is of importance. Military aid is often provided with the idea that military assistance would increase the ability of the recipient government to repress rebels. However, it does not always strengthen state capacity since this type of aid is often given to countries that do not enjoy a monopoly on violence. Armed non-state actors can gain control over external resources and empower themselves. This would then increase the risk of conflict (Dube and Naidu 2015). However, the data on military aid is restricted to aid implemented by the US. This does not give an accurate overall picture of the influence of military aid on conflict, merely on the influence of US military aid. Nevertheless, it is critical that we think of ways how military aid can affect increased risk of conflict. Donor countries must think twice before implementing it since it can have the reverse intended effect. However, the overall fit of the models makes it difficult to generalize the results. Therefore, I would suggest research to study the relationship between military aid and conflict onset. Countries should be incentivized to report their military aid in order to assess its effects. This topic is understudied and in the need of more in-depth research.

To my knowledge, there have not been previous attempts to differentiate ODA into different sectors and to test their relationship between civil conflict quantitatively. Previous research bundled ODA together and looked at the cumulative relationship. De Ree and Nillesen (2006) found a negative effect of foreign aid on the risk of civil conflict, after dealing with endogeneity problems. Collier and Hoeffler (2002b) found that foreign aid does not have a direct effect upon the risk of conflict. However, they found that aid directly affects the growth rate and the extent of dependence on primary commodity exports, and these influence the risk of conflict. This thesis' findings are similar to Collier and Hoeffler's (2002b) in the sense that this thesis also did not find a direct effect of aid on the risk of conflict. This gives reason to think about other channels through which aid can affect conflict. Perhaps there is not a direct relationship between aid and conflict. Future research should focus on how different types of aid can indirectly affect the risk of conflict.

A possible reason for the insignificant results is omitted variable bias. There are many different causes for conflict, and it is difficult to control for these. Many of the determinants of conflict are subjective, which makes it complicated to measure. Østby (2008) was successful in measuring horizontal inequalities through household surveys. This thesis was unfortunately unable to include this data since it consisted of only 38 countries from the period 1986-2003. To increase generalizability, more countries and a longer period was considered more appropriate for this thesis. Nevertheless, it would be interesting to look at how different types of aid affect the horizontal inequalities in a society. The influence of horizontal inequalities rather than vertical inequalities is understudied. One of the reasons is that measuring horizontal inequalities is significantly more complicated than the vertical inequalities, which can be measured through the Gini coefficient for instance. For further research, it would be important to expand the horizontal inequalities database to get a greater coverage of countries and years. This would make the generalization of horizontal inequalities more accurate. Other insignificant variables are ethnic and religious fractionalization. These variables have also been used by previous studies (Fearon and Laitin 2003; Collier and Hoeffler 2002b; De Ree and Nillesen 2006; Nielsen et al. 2011) to determine a relationship between ethnic and religious diversity and conflict onset. Most did not find a significant relationship, similarly to this research. It is intended to measure hatred against the other group, but the mere existence of multiple ethnicities or religions within a country is not an indicator for hatred. Ethnic wars are not uncommon (Fearon and Laitin 2003), so it is necessary to find more accurate data on ethnic and religious hatred. Data could be survey-based for instance, since this is not an objective measure. However, this also comes with its limitations.

A possibility for the insignificance of aid is the replacement of the missing values with zeros. Consequently, the data tells there was 0 aid received while the actual aid could have been a large amount. This creates a bias since we assume the aid is zero when data is absent. It could be the case that this can be related to the insignificant results. However, we can only know for certain if this is true when we replicate the study with more accurate data on foreign aid.

Another possible reason is that there are many ways in which aid can affect conflict: positively and negatively. Many of these different types of flows are discussed in the theoretical framework. There is a possibility that the positive and negative link cancel each other out. For instance, aid can speak to the hearts and minds of the people and thus generate more support for the government. Aid, however, can also be considered an additional resource to gain power over, which incentivizes rebels. These are two examples of different impacts aid can have which could cancel each other out.

Aid also goes along with some potential endogeneity issues. Firstly, aid allocation can be an endogenous process; if the threat of a conflict influences the donor's decision-making calculus on whom to give aid and how much to allocate, then the model would be potentially biased. If the imminent threat of conflict influences donor's decision-making, then aid would predominantly go to countries at peace (Savun and Tirone 2011, 238-239). This reasoning applies to ODA, military aid deals with the opposite problem: the threat of conflict might increase donor countries allocation of aid. As a result, military aid predominantly goes to countries that are already at the risk of conflict. Through these two channels reversed causality bias can show up. A potential way to deal with these problems is to use instrumental variables analysis. The idea behind this approach is to estimate the endogenous variable (aid allocation), using an exogenous variable that is correlated with the endogenous variable but uncorrelated with the dependent variable (Savun and Tirone 2011, 239). De Ree and Nillesen (2006) applied the mentioned approach, and they used donor GDP as an instrument for aid flows since aid allocation is often a function of donor GDP. This does solve the endogeneity issue, but this makes it unattainable to differentiate between different sectors of aid. Another way to solve endogeneity issues is to lag aid flows since there could be a few years delay for aid to become effective. This would take care of reverse causality bias but not sufficient to eliminate omitted variable bias since donors may adjust the level of aid they are willing to extend in anticipation of conflict in recipient countries (Savun and Tirone 2011, 239).

Even though this research did not find a direct significant relationship of social, economic, production and humanitarian aid, there are strong theoretical reasons to believe that there is an influence of aid on civil conflict. Therefore, it is necessary to continue the quantitative search of the impact of foreign aid.

4. Conclusion

This thesis aimed to analyze the influence of foreign aid on the onset of civil conflict. The empirical analysis found that there is an insignificant relationship between social, economic, production and humanitarian aid on civil conflict. Military aid by the US, however, appeared to be significant and positively related with civil conflict onset.

The theoretical framework discussed the different determinants of civil conflict. These determinants are based on greed and grievances that produce incentives to rebel. Greed relates to the opportunity costs to rebels, whereas grievances refer to the inequalities in a society due to identity, such as ethnicity, religious or social class. Factors of greed are explained by economists, while factors of grievances are explained by political scientists. This thesis argues that this distinction should not be that clear. Both greed and grievances can be explained by economists and political scientists. An economist would argue that grievances emerge due to inequalities in income, whereas a political scientist would argue that greed is not restricted by a monetary value, but people can also be after political greed. The interdisciplinarity of the greed and grievances mechanism gives a better understanding of how the two interact and thus gives a greater understanding of the determinants of civil conflict.

Prestigious civil conflict literature, such as Collier and Hoeffler (2004), did not find a significant relationship between factors of grievances and civil conflict onset. Collier and Hoeffler used vertical inequalities as proxies for grievances. Østby (2008) finds that vertical inequalities are indeed insignificant, but horizontal inequalities are significant and have a positive relation with civil war onset. Horizontal inequalities are inequalities in economic, social or political dimensions or cultural status between culturally defined groups (Keen 2012, 757/760). Therefore, it is necessary to include these types of inequalities in an empirical analysis.

Aid can have several different effects on the onset of civil conflict. Mechanism of foreign aid that are believed to reduce violence are the hearts and minds mechanism, the information-centric model and the opportunity costs model. Mechanisms that increase the violence are sabotage and predation (Zürcher 2017; Findley 2018). Specific types of aid can influence greed and grievances in society, if effectively implemented. This thesis hypothesizes that social and humanitarian aid would lower the grievances in a society, whereas economic and production aid would lower greed in a society. Military aid can strengthen the government's military capacity and deter rebels. However, it can also repress the population more, which would result in increased grievances. Also, armed nonstate actors can gain power over the external resources and empower themselves, which increases the risk of conflict (Dube and Naidu 2015).

To test my hypotheses for the role of aid on civil conflict, I conducted OLS and logistic regression analysis. Logistic regression is more accurate for this thesis' model since the dependent variable is a dummy variable. I find that population size and military aid are significant for conflict onset, whereas ODA, state capacity, regime type, natural resource rents, ethnic and religious fractionalization, GDP per capita and mountainous terrain are insignificant. However, insignificant results for this analysis does not mean there is not a relationship. Reasons for the insignificance can be omitted variable bias, reversed causality bias, the replacement of missing values or that the positive and negative impacts of aid that cancel each other out. Further research should focus on the relationship between aid and horizontal inequalities. This thesis was unable to include horizontal inequalities in the empirical analysis due to data restriction, but this thesis did give better insights on how these inequalities play a role in conflict onset. Understanding the relationship between aid and grievances and conflict is of critical importance. Civil conflict has detrimental effect and should be avoided at all costs. Foreign aid is a measure predominantly used to avoid countries of going into conflict, therefore it is essential to gain a good understanding of how aid and conflict are related.

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6. Appendix

Appendix 1.

| Recipientname | Freq. | Percent | Cum. |
|----------------------------------|-------|---------|-------|
| Afghanistan | 23 | 0.57 | 0.57 |
| Albania | 27 | 0.67 | 1.25 |
| Algeria | 43 | 1.07 | 2.32 |
| Angola | 36 | 0.90 | 3.22 |
| Argentina | 43 | 1.07 | 4.29 |
| Armenia | 24 | 0.60 | 4.89 |
| Azerbaijan | 24 | 0.60 | 5.49 |
| Bahrain | 16 | 0.40 | 5.89 |
| Bangladesh | 43 | 1.07 | 6.96 |
| Belarus | 11 | 0.27 | 7.24 |
| Benin | 43 | 1.07 | 8.31 |
| Bhutan | 36 | 0.90 | 9.21 |
| Bolivia | 43 | 1.07 | 10.28 |
| Bosnia-Herzegovina | 22 | 0.55 | 10.83 |
| Botswana | 43 | 1.07 | 11.90 |
| Brazil | 43 | 1.07 | 12.98 |
| Burkina Faso | 43 | 1.07 | 14.05 |
| Burundi | 43 | 1.07 | 15.12 |
| Cambodia | 25 | 0.62 | 15.75 |
| Cameroon | 43 | 1.07 | 16.82 |
| Central African Republic | 43 | 1.07 | 17.89 |
| Chad | 43 | 1.07 | 18.97 |
| Chile | 43 | 1.07 | 20.04 |
| China | 37 | 0.92 | 20.96 |
| Colombia | 43 | 1.07 | 22.04 |
| Costa Rica | 43 | 1.07 | 23.11 |
| Croatia | 16 | 0.40 | 23.51 |
| Cuba | 43 | 1.07 | 24.58 |
| Cyprus | 22 | 0.55 | 25.13 |
| Democratic Republic of the Congo | 43 | 1.07 | 26.20 |
| Djibouti | 30 | 0.75 | 26.95 |
| Ecuador | 43 | 1.07 | 28.03 |
| Egypt | 43 | 1.07 | 29.10 |
| El Salvador | 43 | 1.07 | 30.17 |
| Eritrea | 19 | 0.47 | 30.65 |
| Ethiopia | 35 | 0.87 | 31.52 |
| Fiji | 43 | 1.07 | 32.59 |
| Gabon | 43 | 1.07 | 33.67 |
| Gambia | 43 | 1.07 | 34.74 |
| Georgia | 23 | 0.57 | 35.31 |
| Ghana | 43 | 1.07 | 36.39 |
| Guatemala | 43 | 1.07 | 37.46 |
| Guinea | 30 | 0.75 | 38.21 |
| Guyana | 43 | 1.07 | 39.28 |
| Haiti | 43 | 1.07 | 40.35 |
| Honduras | 43 | 1.07 | 41.43 |
| India | 43 | 1.07 | 42.50 |
| Indonesia | 43 | 1.07 | 43.57 |
| Iran | 41 | 1.02 | 44.60 |
| Iraq | 27 | 0.67 | 45.27 |
| Israel | 24 | 0.60 | 45.87 |
| Ivory Coast | 43 | 1.07 | 46.94 |
| Jamaica | 43 | 1.07 | 48.02 |
| Jordan | 43 | 1.07 | 49.09 |
| Kazakhstan | 24 | 0.60 | 49.69 |
| Kenya | 43 | 1.07 | 50.76 |
| Kuwait | 6 | 0.15 | 50.91 |

| | | | |
|------------------|------|--------|--------|
| Laos | 32 | 0.80 | 51.71 |
| Lebanon | 28 | 0.70 | 52.41 |
| Lesotho | 43 | 1.07 | 53.48 |
| Liberia | 16 | 0.40 | 53.88 |
| Libya | 20 | 0.50 | 54.38 |
| Madagascar | 43 | 1.07 | 55.45 |
| Malawi | 43 | 1.07 | 56.53 |
| Malaysia | 43 | 1.07 | 57.60 |
| Mali | 43 | 1.07 | 58.67 |
| Mauritania | 43 | 1.07 | 59.75 |
| Mauritius | 40 | 1.00 | 60.74 |
| Mexico | 43 | 1.07 | 61.82 |
| Moldova | 19 | 0.47 | 62.29 |
| Mongolia | 29 | 0.72 | 63.01 |
| Morocco | 43 | 1.07 | 64.09 |
| Mozambique | 25 | 0.62 | 64.71 |
| Myanmar | 16 | 0.40 | 65.11 |
| Namibia | 26 | 0.65 | 65.76 |
| Nepal | 43 | 1.07 | 66.83 |
| Nicaragua | 43 | 1.07 | 67.91 |
| Niger | 43 | 1.07 | 68.98 |
| Nigeria | 43 | 1.07 | 70.05 |
| Oman | 34 | 0.85 | 70.90 |
| Pakistan | 43 | 1.07 | 71.97 |
| Panama | 43 | 1.07 | 73.05 |
| Papua New Guinea | 41 | 1.02 | 74.07 |
| Paraguay | 43 | 1.07 | 75.14 |
| Peru | 43 | 1.07 | 76.22 |
| Philippines | 43 | 1.07 | 77.29 |
| Rwanda | 43 | 1.07 | 78.36 |
| Saudi Arabia | 27 | 0.67 | 79.04 |
| Senegal | 43 | 1.07 | 80.11 |
| Serbia | 10 | 0.25 | 80.36 |
| Sierra Leone | 43 | 1.07 | 81.43 |
| Singapore | 23 | 0.57 | 82.01 |
| Slovenia | 11 | 0.27 | 82.28 |
| Somalia | 18 | 0.45 | 82.73 |
| South Africa | 29 | 0.72 | 83.45 |
| Sri Lanka | 43 | 1.07 | 84.53 |
| Sudan | 39 | 0.97 | 85.50 |
| Syria | 35 | 0.87 | 86.37 |
| Tajikistan | 24 | 0.60 | 86.97 |
| Tanzania | 28 | 0.70 | 87.67 |
| Thailand | 43 | 1.07 | 88.74 |
| Togo | 43 | 1.07 | 89.82 |
| Tunisia | 43 | 1.07 | 90.89 |
| Turkey | 43 | 1.07 | 91.96 |
| Turkmenistan | 23 | 0.57 | 92.54 |
| Uganda | 43 | 1.07 | 93.61 |
| Ukraine | 11 | 0.27 | 93.89 |
| Uruguay | 43 | 1.07 | 94.96 |
| Uzbekistan | 24 | 0.60 | 95.56 |
| Venezuela | 42 | 1.05 | 96.61 |
| Vietnam | 31 | 0.77 | 97.38 |
| Yemen | 26 | 0.65 | 98.03 |
| Zambia | 43 | 1.07 | 99.10 |
| Zimbabwe | 36 | 0.90 | 100.00 |
| Total | 4007 | 100.00 | |

Appendix 2.

| year | Freq | Percent | Cum. |
|--------------|-------------|----------------|-------------|
| 1973 | 74 | 1.85 | 1.85 |
| 1974 | 72 | 1.80 | 3.64 |
| 1975 | 73 | 1.82 | 5.47 |
| 1976 | 73 | 1.82 | 7.29 |
| 1977 | 75 | 1.87 | 9.16 |
| 1978 | 75 | 1.87 | 11.03 |
| 1979 | 77 | 1.92 | 12.95 |
| 1980 | 79 | 1.97 | 14.92 |
| 1981 | 82 | 2.05 | 16.97 |
| 1982 | 81 | 2.02 | 18.99 |
| 1983 | 80 | 2.00 | 20.99 |
| 1984 | 82 | 2.05 | 23.03 |
| 1985 | 84 | 2.10 | 25.13 |
| 1986 | 84 | 2.10 | 27.23 |
| 1987 | 84 | 2.10 | 29.32 |
| 1988 | 89 | 2.22 | 31.54 |
| 1989 | 89 | 2.22 | 33.77 |
| 1990 | 92 | 2.30 | 36.06 |
| 1991 | 92 | 2.30 | 38.36 |
| 1992 | 96 | 2.40 | 40.75 |
| 1993 | 99 | 2.47 | 43.22 |
| 1994 | 103 | 2.57 | 45.79 |
| 1995 | 105 | 2.62 | 48.42 |
| 1996 | 103 | 2.57 | 50.99 |
| 1997 | 102 | 2.55 | 53.53 |
| 1998 | 102 | 2.55 | 56.08 |
| 1999 | 102 | 2.55 | 58.62 |
| 2000 | 103 | 2.57 | 61.19 |
| 2001 | 103 | 2.57 | 63.76 |
| 2002 | 104 | 2.60 | 66.36 |
| 2003 | 103 | 2.57 | 68.93 |
| 2004 | 104 | 2.60 | 71.52 |
| 2005 | 106 | 2.65 | 74.17 |
| 2006 | 107 | 2.67 | 76.84 |
| 2007 | 107 | 2.67 | 79.51 |
| 2008 | 105 | 2.62 | 82.13 |
| 2009 | 105 | 2.62 | 84.75 |
| 2010 | 105 | 2.62 | 87.37 |
| 2011 | 103 | 2.57 | 89.94 |
| 2012 | 101 | 2.52 | 92.46 |
| 2013 | 101 | 2.52 | 94.98 |
| 2014 | 101 | 2.52 | 97.50 |
| 2015 | 100 | 2.50 | 100.00 |
| Total | 4007 | 100.00 | |