Binder, Paul:

The effects of major conventional weapons imports on interstate and intrastate conflict onset probability.

**Münchener Beiträge
zur Politikwissenschaft**

herausgegeben vom
Geschwister-Scholl-Institut
für Politikwissenschaft

2021

Paul Binder

**The effects of major conventional
weapons imports on interstate and
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Bachelorarbeit bei
Prof. Dr. Paul W. Thurner
2021

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1 Introduction

The analytical distinction between intrastate war on one hand and interstate war on the other hand is as intuitively reasonable as usually unchallenged. The distinguishing criterion is whether both warring parties are recognized members of the international system or not (Cunningham and Lemke, 2013, p. 609-610).[1] This distinction results in the fact that conflict researchers almost exclusively study these phenomena separately. However, recently there has been some change with regard to the unchallenged nature of this differentiation as Cunningham and Lemke (2013, p. 609) question "whether there is any justification for separate study of war type". The empirical analysis of different factors associated with civil and interstate war onset drawn from the literature yields "considerable similarity and very little difference in the effect of many covariates on each [type of conflict]" (Cunningham and Lemke, 2013, p. 624). They conclude that "there is substantial evidence that the division of wars into civil and interstate categories is a 'distinction without a difference'" (Cunningham and Lemke, 2009, p. 1).

Although Cunningham and Lemke's (2013) train of thought has been picked up by several scholars (e. g. Florea, 2012, p. 90-92; Reiter, 2015, p. 486-488), it lacks further empirical investigation, making the link to the present bachelor thesis. While building on the article by Cunningham and Lemke (2013), this paper has a different focus and goes beyond their approach in several dimensions. The empirical analyses conducted by Cunningham and Lemke (2013) focus on conflict onset, duration and outcome. This paper merely focuses on investigating the onset of conflicts. Said authors examine the effects of three sets of variables drawn from the existing literature on the dependent variables *interstate conflict onset*, *intrastate conflict onset* and combined *conflict onset*.[2] While the approach of replicating previous models without explicit theoretical justification has been criticized (Trinn and Wencker, 2021, p. 11), it seems adequate for Cunningham and Lemke's (2013) purpose. However, this bachelor thesis shifts the focus to the import of arms, theoretically motivating the independent variable of interest. As a consequence of this divergent focus, the argument regarding the justifiability of the distinction between interstate and intrastate conflict differs as well: This paper only defends the combined study of war types with respect to the effects of arms imports while being agnostic about the usefulness of a combined study of interstate and civil war in general (for details, see Chapter 2).[3] Thus, the purpose of this paper is to provide answers to two distinguishable but connected questions: How do arms imports affect the probability of conflict onset? Do arms imports affect interstate and intrastate war onsets in the same way?

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[1] In the course of this bachelor thesis, civil and intrastate war will be used as synonyms and no distinction is made between conflict and war (for details on the distinction between conflict and war see Blattman and Miguel (2010)). An operational definition of war will be provided in Chapter 7.1.1.

[2] These sets of explanatory variables consist of variables associated with interstate war onsets from the COW database, Hegre et al.'s (2001) most robust predictors of civil war, and some factors relating to insurgency conditions and ethnicity drawn from Fearon and Laitin (2003)

[3] Phrases like "types of war" or similar will be used referring to interstate and civil war.

The first question asks if arms transfers have restraining or enhancing effects on war. While this question is primarily subject to academic debates, it is not only theoretically relevant but also of high social relevance. The theoretical relevance of this topic was accurately illustrated by the Stockholm International Peace Research Institute (SIPRI) – the central scientific authority regarding questions of armament:

> "Weapons are for use in war. Perhaps the most important question about arms supplies is what effect they have on the development of wars – on the likelihood of wars breaking out, on the course of wars and on their general severity. This includes not only the general effect of arms races on wars – which is the same whether weapons are produced domestically or purchased abroad – but also the consequences of supplier entrammelment in conflicts, via the arms trade" (SIPRI, 1971, p. 73).

Besides this fundamental relevance of the study of the consequences of arms transfers, there is also a large scholarly controversy regarding the answer to this "most important question", as different 'schools' of researches hold diametrically opposed views (see 3). Yet, it seems like this disputation only sparked empirical research with the focus on interstate wars since there has been little attention to the role of arms transfers in the emergence of intrastate conflicts (Blanton, 1999, p. 234; Pamp et al., 2018, p. 431). By taking an exploratory approach therein (see Chapter 6), the present bachelor thesis seeks to shed further light on this subject. Regarding the social relevance of inquiring for the effects of arms imports on war onsets, the related question of the necessity of arms control is a controversially debated one concerning questions of ethics and moral. This debate – and the topic of arms transfers in general – is also associated with extensive media coverage and a high polarization.[4] The relevance of the second question – already touched upon in the previous paragraphs – is rather of a theoretical nature. It consists in its potential to challenge a commonly-assumed (but not necessarily theory-backed) analytical distinction.

While aiming at answering these two questions, improvements regarding the empirical analysis shall be made as well. In comparison to Cunningham and Lemke (2013), the approach taken in this paper offers several advantages. Firstly, a better fitting econometric model compared to the pooled analysis in Cunningham and Lemke's (2013) article (see Chapter 7) will be applied, making better use of the available panel data. Secondly, a longer time span of observations (1949-2018) will be used. In a sense, this work tries to refine the empirical analysis conducted by Cunningham and Lemke (2013) while scaling down the scope of their theoretical argument focusing only on the effects of arms transfers in order to provide a more sound and defensible reasoning.

Chapter 2 summarizes Cunningham and Lemke's (2013) argument. Chapter 3 provides an

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[4]See for instance, the recent controversy about potential arms exports to the Ukraine (von Bullion, 26.05.2021).

overview of the various theoretical arguments connecting arms imports to the onset of interstate (see Chapter 3.2) and intrastate conflict onsets (see Chapter 3.3) in the pertinent literature. The following Chapters sum up the results of empirical analyses of this interrelation (see Chapter 4), make the case for the combined study of the two types of conflict with regard to arms imports (see Chapter 5), and develop the hypotheses (see Chapter 6). In Chapter 7, these hypotheses will be subject to an empirical test, before Chapter 8 expounds limitations of this paper and Chapter 9 comes to a conclusion, complementing this bachelor thesis.

2   Interstate and civil war as 'distinction without difference'

Cunningham and Lemke's (2013) conclusion that the analytical distinction between civil war and interstate war might be one without substantial differences is based not only on the empirical analysis of war predictors but also on theoretical considerations. They speculate that the reasons for the separate study of war types lie in the beginnings of quantitative conflict research.

The studies of interstate war and civil war were parts of two different sub-fields of political science, International Relations and the comparative studies of domestic politics. Hence, theoretical arguments concerning interstate and intrastate wars were originally quite distinct (Wagner, 1993, p. 235; Cunningham and Lemke, 2013, p. 610). With realism dominating research in the sub-field of International Relations, interstate war has been characterized as the result of structural factors of the international system (e. g. power distribution between states and the anarchic structure of the international system) and comparativists studying domestic politics emphasizing the role of state-level attributes (such as the institutions of a state) regarding the onset of intrastate war. Additionally, the availability of data might have been an important factor contributing to the separate study of war types. The first version of the frequently used Correlates of War data set did not contain observations of civil wars – only interstate and extrastate wars were included (Cunningham and Lemke, 2013, p. 610). The distinction between interstate and intrastate war persisted as the theories explaining those phenomena changed and data became available for all types of conflicts (Cunningham and Lemke, 2013, p. 610-611) – in the words of Cunningham and Lemke (2013, p. 11), civil war and interstate war "are studied separately because they have always been studied separately".

As Lake (2003) points out, there has been beneficial arbitrage from theories of international relations to intrastate settings. Theories developed to explain interstate war have been applied repeatedly to intrastate contexts – one example is Posen's (1993) use of the security dilemma to explain the outbreak and intensity of conflict between ethnic groups in a situation of disintegrating empires (Reiter, 2015, p. 487; Saideman and Zahar, 2008, p. 2). It can be argued that nowadays the distinction between interstate and intrastate conflict is not justifiable by theoretical considerations since the prominent theoretical approaches in the recent literature apply to all forms of conflict without being limited to a specific type of conflict or violence (Cunningham and Lemke, 2013, 2014, p. 328). This theoretical advancement – especially the development of the bargaining model of war – might permit "the unification of interstate and intrastate conflict under a single theoretical banner" (Reiter, 2015, p. 487) and it could even be a step towards "approaching a single unified theory of political violence" (Lake, 2003, p. 81). Cunningham and Lemke (2013, p. 624) even conclude that the focus on the study of separate types of conflict might have hindered the accumulation of knowledge. They also emphasize the necessity and the benefits of the combined analysis of interstate and intrastate conflict (Cunningham and Lemke, 2013, p. 625).

Cunningham and Lemke's (2013) argument is quite controversial and there is valid criticism stressing differences between interstate and intrastate war that stand in the way of a combined analysis. Critics underline that factors like geopolitical considerations play an important role in decisions about interstate war rather than internal conflict. As Wagner (1993, p. 235-236) points out, it is also claimed by some scholars that the distinction between domestic and international politics rests on the differentiation between hierarchy within a state and anarchy in the international system. Yet, this distinction is shown to be somewhat misleading. Hierarchy by definition only applies to effective government and while forms of civil war are associated with ineffective governments (and hence no hierarchic political system), they are still a part of domestic politics, rendering the supposed justification of the distinction between international and intrastate politics by anarchy or hierarchy obsolete (Wagner, 1993, p. 236). Still, the general criticism undoubtedly has some merit to it. Thus, the question of whether Cunningham and Lemke's (2013) argument that both phenomena are not that different is convincing and whether their conclusion that the study of civil and interstate wars should take place in a combined form is generally useful, lies beyond the scope of this bachelor thesis. While this paper's argument is built on Cunningham and Lemke's (2013) general approach, it is only argued that there are strong reasons for the combined study of both war types with respect to the effects of arms transfers (for a more detailed explanation see Chapter 5).

3 The theoretical arguments concerning arms imports and conflict onset

The arguments concerning arms imports and the onset of interstate war can be assigned to two schools of thought. One argues that arms imports reduce the likelihood of conflict onset – this school of thought can be called "stabilizing school" (Anderton, 1995, p. 547). The other reasons that imports of weaponry make the outbreak of war more probable – this point of view has been named "destabilizing school" (Anderton, 1995, p. 547).

3.1 A remark about causality

An important annotation has to be made about causality in the context of arms transfers and the outbreak of conflict. As Kinsella (1994, p. 20) points out, the 'usual' understanding of causality is too strong in this context. Arms cannot be seen as a reason to go to war since "military acquisitions by themselves are extremely unlikely to provoke military hostilities" (Wallace, 1979, p. 6) and "conflicts do not predominantly arise over arms, they arise first and foremost over contested issues" (Pamp et al., 2018, p. 2). Instead, the meaning of causality is whether the imports of arms restrain or promote conflict (Kinsella, 1994, p. 20).

3.2 Interstate war

As a starting point of the comparison of arguments linking arms transfers to the types of conflict, the theories concerned with interstate war will be described. This is due to the fact that there exists more literature on interstate conflicts. The common arbitrage from interstate to intrastate settings allows for a detailed explanation of the arguments in this Chapter as well as a shorter description and recourse in Chapter 3.3.

3.2.1 Stabilizing school

The arguments of the stabilizing school follow the dictum *si vis pacem para bellum* (Bremer, 1992, p. 318; Craft, 1999, p. 18). The stabilizing school's main reasoning (Anderton, 1995, p. 547) links the arms trade to deterrence.

Deterrence can generally be defined as "the use of threats by one party to convince another party to refrain from initiating some course of action" (Huth, 1999, p. 26). In the context of theorizing about interstate war, the state is the protagonist and a policy of deterrence seeks to persuade the leaders of an opposing country by the means of the threat of military retaliation that the costs of military force used to attain some foreign policy objective outweigh its benefits (Huth, 1988, p. 424; Huth, 1999, p. 26). According to the deterrence theory, it follows that "a peaceful equilibrium can only be sustained if the short-run gains from a surprise attack are

counterbalanced by the long-run costs of triggering conflict" (Chassang and Padro i Miquel, 2010, p. 1821).

The argument usually employed to connect arms transfers to this "logic of deterrence" (Chassang and Padro i Miquel, 2010, p. 1821) is one relating to game theory. Two rational players (in the interstate war context, two states) repeatedly decide whether to be cooperative (and hence, peaceful) or to attack the other player. If both players import arms, they increase the long-run costs associated with the onset of conflict and thus generate incentives for peaceful behavior. The acquisition of weapons by both sides is expected to promote peace – at least if the long-run costs of war linked to the purchased weapons are high enough (Chassang and Padro i Miquel, 2010, p. 1821).

In addition to the costs imposed on aggressors, the credibility of threats also plays an important role. Quite intuitively, the success of deterrence is more likely if the threat of a state seems more credible to the attacker. The ability to inflict considerable costs on the attacking state is a condition for the credibility of the deterrent threat, yet, the attacker also has to believe that the deterring state is determined to use its existing military capabilities (Huth, 1999, p. 29-30). In short, according to deterrence scholars both the ability and the willingness to wage war must be displayed by a state in order to make costly as well as credible threats and succeed in avoiding escalation and war (Jervis, 1976, p. 58).

The general starting point of most deterrence related arguments is the situation of two opposed states facing off. In the context of arms transfers, besides those two states (potentially) importing weapons, a third and exporting state is per definition involved. This situation can be grasped using the concept of "extended deterrence" (Huth, 1988). Said concept refers to a situation in which decision-makers of one state (called "defender", in this case the exporter) threatens the use of military force against a potentially attacking state in order to prevent this state from deploying military force against an ally (called "protege", in this context the importing state) of the defender (Huth, 1988, p. 424).[5]

One strategy to increase the credibility of a threat is reputation building. In this context, reputation "can be defined as the willingness of state's foreign policy leadership to risk armed conflict in pursuit of political goals and to refuse to concede to the demands of adversaries under coercive pressure" (Huth, 1988, p. 425). In the setting of extended deterrence, the transfer of arms increases the reputation of the defender by signaling its willingness to use force, risking armed conflict in pursuit of the defense of its protege (Huth, 1988, p. 429). The general idea of reputation is that actions of a state in a particular context are interpreted as an indicator of overall willingness and resolve (Huth, 1988, p. 425). Consequently, by transferring arms to its pawn, the defender can generate a reputation of resolve that has a persistent effect on the credibility of

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[5]An alternative term for defender is "patron" (Yarhi-Milo et al., 2016). Instead of protege, "pawn" is sometimes used (Russett, 1963).

its threats. Thus, the probability of successful deterrence is increased.

In the setting of extended deterrence, another aspect of arms transfers – the connection to the exporter which comes to light with it – is a relevant factor for the success of deterrence. It is argued that

> "the credibility of deterrence depends upon the economic, political, and military interdependence of pawn and defender. Where visible ties of commerce, past or present political integration, or military cooperation exist, an attacker will be much more likely to bow before the defender's threats" (Russett, 1963, p. 103).

Evidently, arms transfers are a form of military interdependence.[6] Thus, they increase the credibility of threats issued by the defender about interventions when the pawn is attacked, reduce the probability that deterrence will fail and contribute to making the onset of war less likely (Russett, 1963, p. 103-104).

The importance of the patron is also emphasized by later scholars. Arms transfers can be seen as a signal of the patron's commitment to perpetuate the security of its weaponry importing client (Yarhi-Milo et al., 2016, p. 91). Arms transfers are an *ex ante* signal of the patron's intention by demonstrating its commitment to the security of the client. This signal is more valuable the greater the costs associated with the signal – larger and more institutionalized arms transfers are more costly and hence supposed to have a large deterring effect (Yarhi-Milo et al., 2016, p. 95-98). In summary, it can be said that those approaches view the connection to the exporter as the deterring factor of arms transfers and not the transferred military capabilities themselves.

It is also argued that the transferred weapons also affect the balance of military power between states by increasing the recipient's military capabilities. Craft (1999, p. 18-19) summarizes deterrence theorists' two distinct arguments: Deterrence is either seen as a consequence of arms transfers maintaining the regional balance of power or as the result of arms imports shifting this balance in favor of the weaponry importing state. In line with the first argument, Baugh and Squires (1983a, p. 42) theorize that if the regional military balances are maintained by the reciprocate weaponry transfers from patrons to their proteges, this balance of power should reduce the overall level of war.[7] Pierre (1978, p. 160) draws a notable conclusion from this reasoning, arguing that providing American arms to both Israel and its Arabian enemies during tensions in the Middle East was a balancing and peace-enhancing strategy.

Following the second argument, Yarhi-Milo et al. (2016, p. 95) surmise that "arms transfers deter and defend by shifting the local balance of power in the recipient's favor." This argument rests on the supposition that the probability for (extended) deterrence to succeed increases

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[6]While one might also see arms transfers as a form of economic cooperation, the share of the global (legal) trade in arms in global trade overall is relatively small, limiting the importance of the arms trade in the area of global trade (Stohl and Grillot, 2009, p. 39).

[7]Those arguments are based on the assumption that power parity leading to peace, which is rejected by some claiming predominance is less war-prone than power parity (for an overview see Bremer (1992, 313-314)).

if the balance of military capabilities shifts in favor of the defender since the costs of using military force are now relatively high for potential aggressors (Huth, 1988, p. 426-428). The resulting asymmetry in military capabilities reduces motives for preventive strikes both for the stronger and the weaker state (Chassang and Padro i Miquel, 2010, p. 1823).[8] Also based on this approach, Krause (2004, p. 350) argues that the importing state's improved military balance regarding its rivaling states might lead to an exalted perception of security, which reduces incentives for preemptive attacks.

The deterrence theory can also be used as a counter-argument to scholars associated with the destabilizing school, who claim that arms imports promote wars via leading to militarism (see Chapter 3.2.2.3). First, two concepts have to be defined. Militarization can be understood as military buildup with several dimensions like military spending, arms production, arms imports etc. (Ross, 1987, p. 564-573, Kinsella and Tillema, 1995, p. 308).[9] Militarism however is "the tendency of state leaders to seek military solutions to [...] disputes" (Kinsella and Tillema, 1995, p. 308). It has been argued that weaponry imports in the Third World by definition contribute to militarization but do not promote militarism. Instead, militarization might lead to military restraint via the deterrence related mechanisms presented above: Bolstering the perceived security environment of a state, shifting the military balance in the importing state's favor and reducing incentives for preventive attacks (Kinsella and Tillema, 1995, p. 308).

The deterrence based reasoning has been formalized by Kydd (2000) in the game-theoretic "deterrence model". Only in the case of incomplete information – uncertainty over "the overall ability of the country to bear the costs of arms racing, now and into the future" (Kydd, 2000, p. 238) – an arms race is possible in the equilibrium of the game (Kydd, 2000, p. 234-239). Yet, the arms race is not associated with a higher probability of war onset – instead, this underlying uncertainty about the relative power of the two competing states is reduced by the arms race itself and hence, the arms race is supposed to have a peace-promoting effect (Kydd, 2000).[10]

It can be summarized that – according to deterrence theorists – arms imports have a stabilizing effect reducing the probability of interstate war outbreaks in various ways:[11] By increasing the recipient's military capabilities they increase the costs of war for opponents and make threats, whose credibility is a requirement for the success of deterrence, more credible. Furthermore, imports might have a stabilizing effect by affecting balances of military power or by functioning

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[8]Chassang and Padro i Miquel (2010) only claim that asymmetry has a peace enhancing effect under strategic risk, in the case of complete information asymmetry is always destabilizing. It also has to be mentioned that they do not advocate for a complete monopoly of force since the stronger state's predatory (or aggressive) motives could not be kept in check in this case (Chassang and Padro i Miquel, 2010, p. 1823).

[9]For more details on militarization and a conceptual distinction between militarism and militarization, see Ross (1987).

[10]For the purpose of this bachelor thesis, the conclusions drawn from game-theoretic models and not their exact structure are of primary interest. Hence, the focus will be on this aspect.

[11]It has to be stressed that deterrence theory does not claim that threats always prevent war (as mentioned, their effect depend among other things on the credibility of the threat but deterrence theory – unlike the destabilizing school – does claim that threats cannot start self-fulfilling spirals that lead to the onset of war (Jervis, 1976, p. 79).

as signals of the defender's commitments and building a reputation, which has deterrent effects on potential enemies.[12]

While there are also other arguments connecting arms imports to a lower probability of interstate war onset,[13] there will be no focus on other stabilizing school arguments other than deterrence due to their small importance in the established literature.

3.2.2 Destabilizing school

The opposing perspective describes how arms imports (and arms races) promote conflict not peace. The destabilizing school uses several different arguments, which are described below.

3.2.2.1 Preventive war

One of the main arguments of scholars, who argue that weaponry imports have a war-encouraging impact, relates arms transfers to incentives for preventive attacks. This connection is the result of the so-called "action-reaction process" (Baugh and Squires, 1983a, p. 41) or "action-reaction cycle" (Kydd, 1997, p. 371). If a state imports weapons, the resulting increase in military capabilities can be perceived by another state as hostile or aggressive intention, leading this state to react by importing weapons himself (Baugh and Squires, 1983a, p. 40-41; Gerner, 1983, p. 20-22; Kydd, 1997, p. 371-372). The underlying problem is that the motivation for a state to import arms is unclear to other states. The decision to import weaponry could have been made either due to aggressive and greedy intentions or because of defensive, security-seeking considerations and usually arms can be used both for defensive or offensive means, making it impossible to deduce the intentions behind the increase in military capabilities (Jervis, 1976, p. 62-64; Kydd, 1997, p. 371; Glaser, 2000). Additionally, even if a state has no aggressive intentions and other states can be sure about this, there is no guarantee that these intentions won't change in the future (Jervis, 1976, p. 62).[14] It follows that even importing arms in order to strengthen one's defensive position can start an action-reaction cycle. According to Jervis (1976, p. 66) "[t]hese unintended and undesired consequences of actions meant to be defensive constitute the 'security dilemma'". As a result of the second state's reaction of importing arms, the first state in turn gets more fearful and aims at increasing its military capabilities even more by boosting arms imports (Kydd, 1997, p. 371-372). A self-reinforcing cycle arises – "each military increment alarms the other side still further, increasing tensions once again, thus lead-

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[12]Since most arguments focus on the effect of the increase in military capabilities, they would also apply to other forms of increasing one's military capabilities like producing arms domestically or increasing the size of one's army. Due to the scope of this paper's research question, the focus is only on arms transfers.

[13]For instance, it is argued that many of the recipients of the trade in advanced arms are unable to use such weapons effectively without the assistance and help of the seller. Thus, the exporting nation can control the use of arms by denying service or spare parts if it wants to. Due to the dependence of the buyer the trade in arms is unlikely to have unwanted war-encouraging consequences (Keller and Nolan, 2001, p. 180).

[14]This general uncertainty is a central aspect of the spiral model addressed below.

ing to pressure for still more armed might, and so on" (Wallace, 1982, p. 38) and an arms race takes place. This process and the interdependence of armament and fear was vividly described by the former British Secretary of State for Foreign Affairs, Sir Edward Grey:

> "If there are armaments on one side there must be armaments on other sides. [...] Each measure taken by one nation is noted and leads to counter-measures by others. The increase of armaments, that is intended in each nation to produce consciousness of strength, and a sense of security, does not produce these effects. On the contrary, it produces a consciousness of the strength of other nations and a sense of fear. Fear begets suspicion and distrust and evil imaging of all sorts, till each Government feels it would be criminal and a betrayal of its own country not to take every precaution of every other government as evidence of hostile intent" (Edward Grey, 1925, p. 92)[15]

The main difference to the deterrence approaches described in Chapter 3.2.1 is that scholars associated with the "destabilizing school" do not see mutual imports and arms races as peace-promoting factors like the deterrence theory does. Instead, such imports represent the starting point of an escalating cycle, which makes the outbreak of war more likely.[16] In the words of Wallace (1979, p. 4), "partisans of the 'arms race' school do not see the competitive acquisition of military capability as a neutral instrument of policy, still less as a means to prevent war, but rather as a major link in the complex chain of events leading to armed conflict."

The links between the process of arms racing and the onset of war are – as mentioned above – preventive attacks. The process of mutually importing arms provides incentives for states to launch preemptive attacks in order to avert that the opponent gains additional military strength by continuing its weaponry imports (Gerner, 1983, p. 20). Using a graphical approach, Burns (1959) shows that under certain conditions (regarding naivety of the states and growth of military capacities) there are reasons for a rational behaving state in a process of arms racing to strike first in order to surprise its opponent. Likewise, it is argued that even if "weapons diminish predatory incentives, they may increase preemptive incentives if being the victim of a surprise attack is particularly weakening" (Chassang and Padro i Miquel, 2010, p. 1823) – at least in a setting of strategic risk (different information about their environment for each state (Chassang and Padro i Miquel, 2010, p. 1821)).

Comparable to the formalization of deterrence theory in the deterrence model, the so-called "spiral model" offers a formalization of the action-reaction process described above (Kydd, 1997; Kydd, 2000, p. 228). Its key question is, "how states learn from observing arms buildups by other states and whether this learning process can drive them to war" (Kydd, 1997, p. 379).

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[15]At this point it should be emphasized again that most arguments do not only apply to arms imports but also to other forms of arming – independently of inter- or intrastate setting and stabilizing or destabilizing school.

[16]For an overview of the different arguments linking arms races with peace or war and empirical studies, see Glaser (2000).

The starting point of the spiraling process is the uncertainty of one state about the intentions of the other state. States could either be greedy and aggressive or seek to maintain their own security. Also, there are different types of states regarding their beliefs that the other state is in fact greedy – states can be fearful or trusting (Kydd, 1997, p. 374-375). The game yields multiple equilibria, among them several with an upwards spiral (states grow more suspicious of each other's intentions as a result of their first-round behavior). These outcomes emphasize the central argument of action-reaction-processes. A combination of vulnerability and mutual fear leads states that are fearful, yet only seek to preserve their own security, to increase their weapons stock (e. g. by importing) in the first round and this arms race reinforces fears and results in war between the states in the second round of the game (Kydd, 1997, p. 385).

Similar to the deterrence model depicted in Chapter 3.2.1, uncertainty is central in arguments related to the spiral model, it is a necessary condition for the emergence of arms races. Yet, the spiral model also stresses one fundamental difference regarding uncertainty in comparison to deterrence arguments. While the deterrence model reasons that arms races reduce uncertainty about the relative power of the states involved (Kydd, 2000), scholars associated with the destabilizing school argue that uncertainty (above intentions) is even increased by the mutual threats posed by importing weapons and increasing one's military capacity (Wallace, 1979, p. 4).

3.2.2.2 The bargaining model of war

Following his critique of existing rationalist explanations for the outbreak of wars, Fearon (1995) introduces non-cooperative bargaining theory to the research on wars (Walter, 2009, p. 44).[17] He develops three – in his view defensible – rationalist (or neorealist) explanations for war: The inability to reach a mutually preferable settlement because of private information about capabilities and incentives to misrepresent information of that kind, commitment problems (mutually preferable bargains are unreachable because states cannot trust each other to comply), which can lead to preemptive wars and indivisible issues (Fearon, 1995, p. 390-409).

Two of those mechanisms have been applied to the context of the arms trade. Krause (2004, p. 349, 351) argues that "arms transfers, unless they are part of defense pacts, aggravate and militarize information asymmetries, making their recipients more likely to experience militarized disputes". He embeds his argumentation in Fearon's (1995) framework (and in bargaining theory more generally), reasoning that war is a part (and not the end of) bargaining. A simple example of three states (States A, B, and C) is used by Krause (2004) to illuminate the theoretical mechanism at work. If state A and B are involved in a conflict, state A might get military support from state C. Yet, without any formal pact, the probability of state C helping state A depends on the climate of the relationship between these two states. Due to the fact that

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[17]Noteworthy literature reviews of the bargaining model of war generally are Walter (2009) and Reiter (2003), whereas Ramsay's (2017) review focuses on the role of uncertainty in the bargaining literature.

this climate changes over time and is the result of many interacting factors, state A has private information regarding state C's commitment to support, which strains the bargaining process with information asymmetry. Since arms transfers (without formal defense pacts) are mostly informal and can be offered or withheld without suffering from high reputation costs, transfers from state C to state A are unlikely to be symmetrically known to state A and B and the transfers likely depend on the relationship between A and C. As a result, state A has private information about state C's commitment and about the effect of C's commitment on arms transfers to A. The bargaining process between A and B is affected by greater information asymmetry than in the case without arms transfers (Krause, 2004, p. 352-353).

Bas and Coe (2012) ask whether the diffusion of military technologies causes war. They develop a game-theoretic model of a bargaining process between two states in a surrounding of spreading arms technologies. In this model, over time states become more likely to gain access to new technologies, which might alter the balance of power between the states (Bas and Coe, 2012, p. 652-656). The authors conclude that the "states' inability to commit to not taking advantage of their new weapons can, under certain conditions, lead to a preventive war aimed at stopping a state from getting the new technology" (Bas and Coe, 2012, p. 652).[18] This argument shows some resemblance with Fearon's (1995) general assessment that preventive war is a result of commitment problems. Quite contra-intuitively, according to this model (preventive) war can occur regardless of whether neither, one or both states already posses the new military technology (Bas and Coe, 2012, p. 652, 662-664).

3.2.2.3 Opportunity, willingness, and militarism

Using the concept of opportunity and willingness, it can also be argued that an increase in military capabilities (e. g. via import of arms) leads to more aggressive behavior of the importing state and a higher propensity to use force. Opportunity includes characteristics which create or constrain the set of available actions and policies (Most and Starr, 2015, p. 29-30). Willingness refers to the decision to choose among those available options and accept the costs and benefits involved (Most and Starr, 2015, p. 35). It is intuitive that military capabilities have an effect on the opportunity-side of the decision making process – decision-makers cannot choose to use force without having the military capability to do so. Beyond that, it is claimed that copious military capabilities also increase state leaders' willingness to use force by giving them more military options to choose from. This makes the behavior of the state more aggressive increasing the probability of war outbreak (Fordham, 2004, p. 633-634). Scholars suggested that

"[a]nything that affects the structural possibilities of the environment(s) within

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[18]Said certain conditions are expectations about the future held by the states, depending on the size of the expected shift in power and the starting position in relation to the availability of the technology war onset might get more likely or not (Bas and Coe, 2012, p. 651-652).

which decision-makers must act, also affects the incentive structures for those decision-makers. Capabilities, for example, make some actions possible (opportunity) and at the same time make some actions more attractive and others less attractive (willingness)" (Most and Starr, 2015, p. 45).

Thus, importing arms can be seen as a factor contributing to the onset of interstate war by increasing military capabilities, which affects opportunity and thereby also influences willingness (to go to war). To summarize this section, reference shall be made to another former British statesman. Randolph Churchill's formulation in his resignation letter captures the enticing effect of the ability to use force: "The possession of a very sharp sword offers a temptation, which becomes irresistible, to demonstrate the efficiency of the weapon in a practical manner" (Churchill, 1906, p. 239).[19]

The previous paragraph raises the question, how exactly an increase in military capabilities affects the willingness to seek military solutions. A way of explaining the connection between enlarged military capacities and a higher willingness to go to war (often times without explicitly using the concepts of opportunity and willingness) refers to militarism (as defined in Chapter 3.2.1). It is argued that a country's extensive investment of resources in the military (e. g. via importing arms) and the accompanying devotion of a state's leadership's time to military questions causes those in power to give preference to military solutions to the disputes of the country in question in order to gain some return from their investment of time and resources (SIPRI, 1971, p. 74). Considerations of military superiority fall in this line of argumentation as well. It has been emphasized that arms deliveries might lead to perceptions of military superiority and boost the confidence in the primacy of military solutions to reach foreign policy goals. Hence, the outbreak of war is more likely (Pearson et al., 1992, p. 399; Krause, 2004, p. 350). Also, arms transfers might promote the decision to go to war by affecting "decision makers' perceptions about external recognition of their justifications for waging war" (Pearson et al., 1992, p. 350). Another causal link proposed in the literature stresses that an increase in military capabilities boosts the influence of "hardliners", who are more willing to use military force and advocate for "bold action" in foreign policy (Fordham, 2004, p. 635-636).

To summarize the previous paragraphs, the arguments associated with the destabilizing school emphasize that arms imports can be interpreted as hostile intent (due to uncertainty about the underlying motives) and set off an action-reaction-cycle leading to increased levels of fear and distrust. This generates incentives for preventive wars. Furthermore, arms imports are supposed to increase the probability of interstate war onset by intensifying information asymmetries between states, aggravating commitment problems, increasing opportunity and altering decision-makers' willingness to use force, while also contributing to militarism.

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[19]For an overview of some of the arguments concerning military capabilities and opportunity and willingness, see Fordham (2004, p. 633-636).

3.3 Intrastate war

While intrastate wars are a more prevalent phenomenon than interstate wars (Pettersson and Wallensteen, 2015, p. 539), it has to be noted that despite the obvious importance of the provision of internal security only a small percentage of the global trade in arms can be linked directly to internal security needs (Wezeman, 2010, p. 197). As mentioned in Chapter 1, the literature on arms transfers and intrastate war is also comparatively small. In the following Chapters, the arguments will again be subdivided in stabilizing and destabilizing school to allow for a comparison of interstate and intrastate war arguments in subsequent Chapters.

3.3.1 Stabilizing school

The arguments of deterrence theory have been applied *mutatis mutandis* to intrastate settings since deterrence can be used not only as a strategy directed at providing security from external threats but also from internal ones. The threat of the use of force by a government also functions as a deterrent to dissidents, political opposition and internal violence in general (Wagner, 1993, p. 252).

It is argued that the state has to perform a deterring function in two ways to ensure a secure intrastate environment: It "must deter groups from engaging in violence against each other" (Saideman and Zahar, 2008, p. 10) and it has to deter potential rebels and regime opponents planning violence against the state itself (Saideman and Zahar, 2008, p. 10). Manifestly, the costs and the credibility of threats play an important role once again. The ability of the state to impose costs on aggressors and the credibility of threats (and a status quo that is acceptable for both parties – a condition less relevant for arms transfer considerations) are necessary conditions for deterrence to be successful (Saideman and Zahar, 2008, p. 10-11). To be capable to impose relevant costs on aggressors, the military and police forces of a state have to be sufficiently equipped and armed. If those forces are unable to quell riots and rebellions and hence provide opportunities for groups to engage in violence against the state or against other groups at low costs, deterrence must fail (Saideman and Zahar, 2008, p. 10). Arms transfers are supposed to decrease the number of outbreaks of internal conflict by enabling the suppression of rebellions or riots. More generally, imports of weapons help the state utilizing violence or rather its threat in order to deter the expression of popular dissatisfaction (Gerner, 1983, p. 30).

Also, deterrence is unlikely to work unless the potential rebels "believe that the government will follow through and use its capabilities" (Saideman and Zahar, 2008, p. 11). It is argued that arms transfers can increase the credibility of threats in the intrastate setting by demonstrating resolve and building a reputation. Again, deterrence arguments have been underlined with game-theoretic modeling to illustrate this point. According to Pamp et al. (2018, p. 5), this situation of a state's government facing challengers can be linked to an entry deterrence game. This kind of game – the general setting is that of a monopolist, whose position is repeatedly

challenged by entrants – is described in detail by Kreps and Wilson (1982, p. 254-255). They show that in this game the monopolist can convince later opponents that it will not acquiesce by fighting any early entry. Thus, it can build a reputation, which deters challengers (Kreps and Wilson, 1982, p. 254-255). Transferred from this situation to the context of civil wars, the government corresponds to the monopolist and arms imports can be seen in the light of reputation building as a mean to generate deterrence by functioning as a signal for the government's resolve to fight (Pamp et al., 2018, p. 5).

Furthermore, Gerner (1983, p. 30) reasons that "[a]rms transfers may also decrease overt internal conflict if [...] they provide either the ruling elites or the dissidents with the means to gain a decisive victory." This argument resembles the reasoning about interstate war (presented in Chapter 3.2.1) claiming that due to decisive shifts in the balance of power in favor of the importing state arms transfers reduce the likelihood of the outbreak of war.

In summary, deterrence theory suggests – similar to arguments about interstate war – that arms imports principally make intrastate war less likely by deterring expressions of discontent generally and violent forms like rebellions and revolts more specifically (Gerner, 1983, p. 30). Again, this is the result of increases in the costs associated with rebellion due to increases in military capabilities, greater credibility of threats, shifts in the balance of military power, and incentives for reputation building.

3.3.2 Destabilizing school

3.3.2.1 Preventive war

While there is no explicit description of an 'action-reaction process' in the literature on intrastate wars, the link between weaponry transfers and the outbreak of violence is the same: incentives for preventive attacks. Analogous to the arguments presented in Chapter 3.2.2.1, preventing the opponent (in this case, the government of the state) from becoming even stronger (by importing even more arms) is the reason for these incentives.

Comparable to the arguments about interstate war (especially the spiral model), the starting point of the process, which results in preventive attacks, is uncertainty about the motives behind the weaponry acquisitions. On the one hand, arms imports by the government could have taken place due to defensive considerations, to deter insurgencies or foreign enemies. On the other hand, arms imports by the government could be a preparation for attacking rebels and dissidents (Pamp et al., 2018, p. 434). Hence, they can be perceived either as defensive intentions of the government or as hostile and aggressive intent – as Pamp et al. (2018, p. 434) point out, weapons imports can also be interpreted as a signal of the government's unwillingness to compromise, also leading to the hereinafter described consequences. If the imports are perceived as hostile intentions, the rebels will react accordingly. At this point, arguments about interstate

and intrastate war differ, as mentioned above an explicit action-reaction cycle (consisting of responding to the other party's military buildup with own arms imports (Kydd, 1997, p. 371)) is not modeled, potentially due to the fact that most (but not all) rebels groups do not have the capacities or trade connections necessary to scale up (or even conduct) arms imports. This reaction to arms imports by the government consists of launching a preventive attack before the rebels' chances of winning the resulting war decrease further as a result of the increasing military strength of the government (Pamp et al., 2018, p. 434).

3.3.2.2 The bargaining model of war

Krause's (2004) argument of weaponry transfers increasing information asymmetries has (to the knowledge of the author) not been applied in an intrastate context. Instead, another 'rationalist explanation' has been. Pamp et al. (2018, p. 441) link the incentives for preventive wars to commitment problems arguing that the power shifts (due to arms imports) mentioned above aggravate commitment problems and thus promote conflict onset.

The argument presented by Bas and Coe (2012) that the spread of new military technologies makes the occurrence of wars more likely is underpinned with a historical example of internal conflict demonstrating that their approach is also fit for explaining non-interstate forms conflict. The historical example is the so-called 'musket wars'. Bas and Coe (2012, p. 664-665) describe the clashes of Maori tribes in New Zealand as a consequence of commitment problems, posed by the spread of a new technology (the musket) via trade with Europeans to some but not all tribes.[20]

3.3.2.3 Opportunity, willingness, and militarism

Similar to the scholars mentioned in Chapter 3.2.2.3, Blanton's (1999) examination of the effect of arms transfers on human rights repressions refers to Most and Starr's (2015) concept of opportunity and willingness. She develops an argument explaining how the acquisition of arms might not function as a tool to preserve security but rather as a contributing factor to conflict participation (with a focus on internal warfare directed at the civil population). While it is argued that arms imports without the pre-existing willingness to use violence "are unlikely to be sufficient to induce a country to engage in warfare" (Blanton, 1999, p. 235),[21] arms increase the opportunity (to use force) "by providing the capability to engage in violent confrontation" (Blanton, 1999, p. 235) and thus contribute to the outbreak of conflict. Weaponry imports

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[20]While these conflicts cannot be defined as interstate war (see the definitions in chapter 7.1.1) and intuitively concern internal rather than external security issues, they cannot be classified as intrastate wars either due to the absence of the state as a warring party. This fact shows that pre-modern forms of violent disputes are not comprehended by today's commonly used operationalizations of war.

[21]This is another argument stressing the importance of the remarks about causality regarding arms transfers and conflict onset in Chapter 3.1

function as an instrument of repression for willing governments or other groups (e. g. due to fear of instability) by making political violence more feasible (Blanton, 1999, p. 235, 241).

The argument about arms imports increasing the chances of war outbreak by contributing to militarism (3.3.2.3) is not limited to war between states. It can be used to explain civil war and conflict universally as well. Kinsella and Tillema (1995, p. 308-309) mention that primary pursuit of military solution (as result of arms imports) is not limited to interstate disputes but also applies to internal disputes. In an analysis of conflict outbreak and political violence in Sub-Saharan Africa (leaving behind the distinction between interstate and civil war), Craft and Smaldone (2002, p. 704) surmise that arms imports promote conflict by increasing a state's perceived military capacity which in turn raises its leaders' confidence in favorable outcomes in militarized conflicts, mirroring arguments about military superiority mentioned above. Another link between arms imports and the involvement in militarized disputes states that the imports increase the institutional role of the military and its prestige, leading to more aggressive foreign policy behavior (Craft and Smaldone, 2002, p. 704). Blanton (1999, p. 241) concludes that arms imports might be the "endpoint of a longer process of strengthening the military or fueling a national security mentality". In turn, this contributes to repression, violation of human rights and political violence (effects associated with civil war) (Blanton, 1999, p. 235, 241).

The arguments of the destabilizing school regarding intrastate conflict are mostly identical to those concerning war between states (see Chapter 3.2.2). In an environment of uncertainty about the intentions associated with government arms imports, they can be seen as aggressive intent generating incentives for rebel groups to wage preventive attacks in order to avoid a continuing shift in the military balance to their disadvantage. Moreover, commitment problems are mentioned and arms imports are also presumed to affect the opportunity of violence and lead to militarism, making the onset of intrastate conflict more likely.

4 The empirical results in the existing literature

4.1 Interstate war

The empirical literature on the effect of arms imports on interstate war is extensive[22] – particularly due to the large body of research on arms races. Hence, many empirical investigations consider not only arms imports but also other forms of scaling up one's military capabilities. These broader approaches still offer valuable empirical insights.

As one of the first to study the effects of arms races, Wallace (1979) analyzes disputes between great powers with and without arms races and their chances of resulting in actual war. His results show that in comparison to dyads of nations not ending up in war "pairs of nations which end up going to war are characterized by much more rapid military growth in the period immediately prior to the conflict" (Wallace, 1979, p. 14). Hence, the author – stressing that a causal interpretation of the results should be avoided – concludes that "rapid competitive military growth is strongly associated with the escalation of military confrontations into war" (Wallace, 1979, p. 15)., providing support for the destabilizing school's arguments. Despite some limitations of this approach pointed out by Weede (1980) – concerning the assumed independence of war incidences as well as theoretical considerations – later research by Wallace (1982) offers renewed support for a strong positive relationship between arms racing and the escalation of smoldering crises to all-out interstate war.[23] Later work by Kiefer (1988) distinguishes between the effects of arms transfers regarding war outbreaks and ongoing wars. To examine these effects, a Markov regression model is used, yielding a positive, but insignificant effect for arms imports as a fraction of GDP on the outbreak of conflict. However, arms imports have a obstructive effect on the restoration of peace after the end of wars (Kiefer, 1988, p. 28-30).

Several scholars also analyze the impact of arms outside the arms race framework. Baugh and Squires (1983b) examine the effects of transfers of tanks and aircrafts to third world states on interstate conflict onset. The authors use stepwise logistic regression to test hypothesis concerning the temporal interaction of arms transfers and war. Their results do not provide support for lagged causation by indicating "much stronger support for contemporaneous causation than for the occurrence of wars as a result of accumulated arms transfers" (Baugh and Squires, 1983b, p. 138). In his seminal paper, Bremer (1992) analyzes – among other supposed predictors of war – the effect of militarization on war onset.[24] While bivariate analysis shows that militarized dyads of states are more likely to experience interstate wars, a multivariate Poisson regression

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[22]Fitting to the empirical analysis, the focus of this overview is not on qualitative studies but on the large-N literature

[23]This body of empirical literature has drawn criticism. Especially the focus on only two states may be problematic. For instance, Pamp et al. (2020, p. 9) argue that "such an approach misses the systemic character of many conflicts in history, where tensions ripple through the system and are 'infecting' other system units and levels."

[24]By Bremer's (1992) definition, militarization refers to the magnitude of military capabilities of the states constituting a dyad which is directly affected by arms transfers directly influence a state's military capabilities.

of the number of war outbreaks within a dyad on several war predictors yields an insignificant coefficient for militarization and leads to the conclusion that militarization cannot be seen as a warning indicator of war (Bremer, 1992, p. 325-334). Among others, Craft (1999) comes to different conclusions when analyzing the link between arms transfers and war outbreaks at the systemic level. The positive (and statistically significant) correlation between the (lagged) global arms transfers values and the number of wars begun in a given year leads the author "to refute the *para bellum* dictate. It appears that buildups associate with increasing numbers of war beginnings" (Craft, 1999, p. 29). Conducting several regressions of two dependent variables measuring whether a state is a militarized dispute initiator or target on the volume of major power arms transfers and controls, Krause (2004, p.357) finds that "increased arms transfers from major powers make states more likely to be initiators and targets of militarized disputes" (Krause, 2004, p. 367).[25]

4.2 Intrastate war

As mentioned in Chapter 3.3, the literature concerned with arms imports and civil war onset is comparatively small. Especially large-N studies are rare. Firstly, a study not only dealing with intrastate war deserves mention. Since domestic conflicts in Africa often spread across borders, Craft and Smaldone (2002) examine the effects of arms imports – including both transfers of small arms and light weapons as well as major conventional weapons – and controls on war involvement conceptualized broadly by including conflicts between two states as well as intrastate conflicts. Based on the results of pooled Logit-regression with observations between, they infer that "the arms trade is [...] a positive, significant predictor of conflict involvement in sub-Saharan Africa" (Craft and Smaldone, 2002, p. 705-706). An analysis of postcolonial states between 1956 and 1998 – carried out as a pooled Probit-regression of the outbreak of civil and ethnic conflict on major conventional weapons imports from major power and controls – yields quite contrary results by reporting a statistically insignificant coefficient of arms imports (Suzuki, 2007). Hence, Suzuki (2007, p. 107) concludes that "major arms imports from major powers have no effect on either civil (revolutionary) or ethnic war onset".

Yet, as Pamp et al. (2018) point out, these approaches suffer from problems that cannot be ignored. The previous studies neglect the potential simultaneity between the outbreak of conflict and acquisitions of weapons. To account for endogeneity, the authors use a simultaneous equations model while also including an instrument for civil war-related arms (Pamp et al., 2018, p. 436-438). The major finding is that imports of major conventional weapons indeed increase the probability of civil war onset – but only in a substantial way in high-risk cases (if contested issues exist) (Pamp et al., 2018, p. 442).

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[25]For a short overview of empirical papers dealing with the arms trade and interstate conflict nexus in general, see Anderton (1995, p. 440-552). For a review of empirical articles testing hypothesis about arms race and conflict onset in particular, see Glaser (2000, p. 263-266).

5 The case for a combined study of war types with regard to arms transfers

5.1 Theoretical resemblance

As mentioned in Chapter 2, the argument described in this Chapter and tested in the present bachelor thesis only refers to the link between arms imports and the outbreak of conflicts. It is not the aim to defend or retest the more general argument made by Cunningham and Lemke (2009, 2013). This Chapter outlines the multiple similarities between interstate and intrastate war related arguments about arms transfers and makes the case for the combined study of war types with regard to arms transfers.

As evidenced by the comparison of arguments in the previous Chapters, the same theoretic approaches are used for explaining how arms imports promote or restrain the onset of conflict – no matter if it is interstate or intrastate conflict. The stabilizing school mainly argues that the import of weapons has a deterrent effect – either against other states (e. g. Chassang and Padro i Miquel, 2010, p. 1821; Baugh and Squires, 1983a, p. 42) or against political opposition, internal violence and the expression of discontent (Wagner, 1993, p. 252; Gerner, 1983, p. 30). The underlying logic – concerning the costliness and credibility of the threats as well as aspects like reputation and shifts in the balance of military power – is identical for both applications (see Chapters 3.2.1 and 3.3.2). Hence, deterrence theory seems adequate for explaining the supposed war restraining effect of weapons acquisitions for both interstate and intrastate war.

The destabilizing school's counter argument is based on uncertainty about other states' intentions behind the import of weaponry, which exists in interstate settings between states as well as in intrastate contexts between the government and rebel groups. This leads to the possibility that the import of weapons is perceived as hostile intent (or unwillingness to compromise) by other states or rebel groups. It is argued that this sets off an action-reaction cycle in the interstate setting – a self-enforcing cycle generating ever greater levels of armament and fear. While there is no real equivalent to this in the literature concerned with intrastate wars, the final step linking the perception of arms imports as hostile intentions to the outbreak of conflict is the same: There are incentives for states and rebel groups to launch preventive attacks before the other state or the weapons importing government respectively gets even more powerful (Gerner, 1983, p. 20 ; Pamp et al., 2018, p. 434). Furthermore, rationalist explanations for conflict derived from bargaining theoretic approaches provide insightful arguments connecting arms imports to conflict. While information asymmetries have only been explicitly described as a cause of interstate war (Krause, 2004), they play a very important role for the onset of intrastate war as well (see Chapter 3.3.2.1). Meanwhile, commitment problems resulting from arms transfers are associated with interstate as well as other forms of conflict (Bas and Coe, 2012; Pamp et al., 2018). The concepts of opportunity and willingness are also used in both

contexts. Arms imports, which increase the opportunity (to use force), are supposed to either make the international behavior of a state more aggressive, leading to interstate war (Fordham, 2004, p. 633-634) or enable a willing government (or other groups) to repress its population and use political violence, aggravating the likelihood of internal conflict (Blanton, 1999, p. 245-241). It also has to be mentioned that the destabilizing school's arguments about militarism – in the formulations by Kinsella and Tillema (1995) and Craft and Smaldone (2002) – generally apply to internal and interstate disputes, further strengthening the point that the same theoretical approaches link increases in military capacity to interstate and intrastate war.

An important factor leading to the resemblance of these arguments is that there is little explicit theorizing with a focus on conflict in an intrastate setting.[26] Instead, arbitrage from theories about interstate war to intrastate settings takes place. This has already been pointed out by Lake (2003) as well as Reiter (2015, p. 487). It also holds for arms trade related arguments since the arguments about intrastate war described so far – if they are not already formulated to explain both types of war like theories about militarism (Kinsella and Tillema, 1995) – are taken more or less directly (and with varying degrees of adjustment to the interstate context) from the interstate war literature. Moreover, some arguments about interstate conflict, that have not been applied to the setting of civil wars, could be applied. Possibly, they have not been transferred to intrastate settings because of the comparatively small size of the literature on arms transfers and civil wars. The argument about arms transfers as a signal for a patron's commitment to its clients security (see Chapter 3.3.1) could be an example. It seems logical, that external support (or more precisely, the arms deals signaling this involvement) also has a deterring effect on potential domestic challengers of the government's authority (such as rebel groups and insurgents) and not only other states.[27]

Going a step further, it could even be argued that the classification of interstate and civil wars to different sub-fields of political science, which was the historical reason for the different theoretical arguments explaining both types of war (see Chapter 2), is no longer the case since the predominant study of all types of conflict now takes place in the sub-field of International Relations. Also, research paradigms and the methods of theorizing have converged considerably, rationalist approaches and game-theoretic modeling dominate research of intrastate and international politics and are also used to explain the effect of weapon transfers on the outbreak of conflicts of any type – as evidenced by the descriptions in the previous Chapters.

The arbitrage of arguments developed to explain interstate war to intrastate setting, the result-

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[26]The lack of explicit theorizing in the context of intrastate war has been noted, e. g. by Pamp et al. (2018, p. 2) and Suzuki (2007, p. 99-101).

[27]This argument is somewhat similar to the argument presented by Edry et al. (2021), who reason that (different forms of) alliances are deterrents to internal as well as external threats. Analogous to their argument linking defense pacts to external and consultation pacts to internal threats (Edry et al., 2021, p. 1, 18), it would be possible that different types of arms imported as reaction to different kinds of threats. This question could be subject of further research.

ing similarity in theoretical arguments and research paradigms as well as the fading division of conflict studies in different sub-fields leads to the conclusion that there is little theoretical justification for the distinct study of the effect of arms transfers on interstate and intrastate conflict onsets. Therefore, a combined analysis of both war types will be attempted.

5.2 (Temporal) links between conflict onsets

It is intuitively reasonable that onsets of conflict are not independent of each other since there are multiple links between the previous onset of conflict and current conflict onset. This temporal dependence between conflict in a given year and the last onset of conflict in the same country is also modeled in various empirical applications. It is argued that longer lasting peace since the last civil war is associated with the accumulation of peace-specific capital and non-use or depreciation of conflict-specific capital like weapon stocks (Collier and Hoeffler, 2004, p. 569; Hegre and Sambanis, 2006, p. 515). Other factors linking past and present civil war onsets are hatred and grievances against other ethnic groups as consequences of conflict, which are likely to slowly fade over time (Collier and Hoeffler, 2004, p. 575). Hence, a new civil war onset is supposed to be less likely the more years have passed since the last onset. A similar interrelation can also be assumed for interstate war. Grievances resulting from past conflicts between states[28] and changes in peace- and war-specific capital stocks probably also affect the interstate war onset probability. The destruction of infrastructure, industries etc. as well as the loss of life associated with wars might also link past outbreaks of conflict to present ones (of the same kind) by reducing a state's ability to defend themselves against any kind of threat.

While the temporal dependence between conflict onsets of the same type cannot be ignored, the combined analysis of civil and interstate wars opens up an additional opportunity. It allows us to examine the effects of prior onsets of civil war on interstate conflict onsets and vice versa. There are theoretical explanations why the previous outbreak of one type of conflict has an effect on the probability for the onset of the other type of conflict.

For instance, Jenne and Masullo (2014) examine the spill-over effects between internal and external conflict in the case of Columbia and Venezuela. They conclude that there are several possibilities for spill-overs. These links include interventions by states in other countries to protect ethnically akin population parts, cross-border movements of refugees resulting in resentment or instability and perceptions of illegitimate regime changes, which must be reacted to militarily (Jenne and Masullo, 2014, p. 58-59). Divergent preferences between the government involved in civil warfare and neighboring states concerning the outcome of this civil war as well as military actions in a civil war that can be perceived as threats by neighbors (like deploying soldiers near a border in order to fight domestic rebels) are also factors causing the trans-nationalization of internal conflict (Jenne and Masullo, 2014, p. 59). Being involved in internal conflict also

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[28]The mutual antipathy and enmity characterizing the relations between Germany and France in the 19th century could be one example.

might be perceived by other states as a sign of weakness, resulting in temptations for predatory neighbors to attack (Levy, 1989, p. 269).

Another theoretical framework linking external to internal conflict is the diversionary theory of war. Its main argument is that domestic crisis or unrest – intrastate conflict can be seen as a form of domestic unrest – causes state leaders to provoke interstate conflict in order to create a distraction from internal problems and solidify their political position at home (Levy, 1989, p. 259; Haynes, 2017, p. 337). Two theoretical mechanisms are proposed. In short, the 'rally around the flag' theory – sometimes also called "in-group/out-group hypothesis" (Levy, 1989, p. 260) argues that cohesion of the population of a state (the 'in-group') increases when conflict with another state, which constitutes the 'out-group', is initiated. A patriotic political climate and a more favorable situation for state leaders are the consequences (Haynes, 2017, p. 338, 341-342). However, the 'gambling for resurrection' theory explains the link between internal conflict and interstate war differently. It contends that state leaders who are likely to lose office have incentives for provoking conflict. Since they have little to lose (because their loss of office is probably independent of the outcome of the conflict) and much to gain (demonstrating competence in war and retaining office), even risky conflict against a stronger state, which would not be started by rational leaders under "usual" circumstances, can become a rational strategy and a last ditch effort to stay in office (Haynes, 2017, p. 338, 342-344).

The reverse connection – internalization of interstate war – also seems plausible.[29] Interstate conflict can lead to civil wars and revolution since

> "the exaction of men, supplies and – especially – taxes for the conduct of war incites resistance from crucial elites or important masses [...] and the absorption or weakening of a government's repressive capacity by war [...] encourages its enemies to rebel" (Tilly, 1975, p. 74).

In summary, there are possible effects of prior civil and interstate war onsets on interstate conflict onset and of prior civil and interstate war onsets on the outbreak of intrastate conflict.

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[29]For an overview of literature supporting this connection, see Levy (1989, p. 267-269).

6 Hypotheses

As explained in Chapter 3, there is no theoretical consensus regarding the effects of weaponry transfers on conflict onset. Both theory schools – stabilizing and destabilizing – have compelling arguments for their postulated interconnection between arms imports and the outbreak of wars. Also, the existing empirical results are ambiguous and contradictory (see Chapter 4). Hence, the empirical analysis in this bachelor thesis will not simply aim for the examination of one school's hypothesis since it is not possible to derive a clear hypothesis from the theoretical and empirical literature. Instead, a more exploratory approach is chosen with the empirical test of the following pairs of competing hypotheses hat each formulate the expectations of a theory school (H1a, H2a, and H3a refer to the destabilizing school, the other ones go with the stabilizing school).

> **H1a:** An increase of a country's imports of major conventional weapons is associated with a higher probability for interstate war onset.[30]

> **H1b:** An increase of a country's imports of major conventional weapons is associated with a lower probability for interstate war onset.

> **H2a:** An increase of a country's imports of MCWs is associated with a higher probability for intrastate war onset.

> **H2b:** An increase of a country's imports of MCWs is associated with a lower probability for intrastate war onset.

Additionally, the effect of arms imports on conflict in general is of interest as well. Again, the two theory schools discussed above suggest two competing hypotheses.

> **H3a:** An increase of a country's imports of MCWs is associated with a higher probability for conflict onset in general.

> **H3b:** An increase of a country's imports of MCWs is associated with a lower probability for conflict onset in general.

These hypotheses directly refer to the question about the sign of the effect or arms transfers on conflict onset raised in the introduction. The second question – if this effect is similar for both types of war – is not explicitly formulated in said hypothesis. The juxtaposition of the theoretical arguments in Chapters 3.2 and 3.3 as well as the Chapter 5 allows for a clear conjecture, which can be easily verified by comparing the results of the pairs of hypotheses: The expectation is that arms imports have a similar effect – same sign and a comparable strength of

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[30]Although the presented arguments concern weapon imports in general and not only a specific arms type, the following empirical analysis will consider only major conventional weapons (MCWs) due to the better availability of data and reliability issues with data on small arms and light weapons transfers (Kinsella, 2011, p. 224-225; Gerner, 1983, p. 14-16).

the effect – on both civil and interstate conflict (so that there is either support for H1a *and* H2a or for H1b *and* H2b).

The arguments about temporal dependencies between war onsets of either type are subject to an empirical test as well. If no temporal dependence would be present, war onset 2 years after the previous onset of conflict would be as likely (*ceteris paribus*) as onset twenty years after the prior onset. However, every argument presented in Chapter 5.2 suggests otherwise by arguing that a previous onset (whether civil or interstate war) might result in another onset as a direct consequence. As it is assumed that the effect of past outbreaks diminishes over time, the expectation is the following.

> **H4a:** A larger number of years passed since the last outbreak of interstate conflict is associated with a smaller likelihood of conflict onset of every type.

> **H4b:** A larger number of years passed since the last outbreak of intrastate conflict is associated with a smaller likelihood of conflict onset of every type.

The strength and exact nature of the respective effect of prior onsets cannot be derived from the arguments. Hence, it is reasonable to ask if the patterns of temporal dependence are the same for interstate and intrastate conflicts. In other words: has the time, that passed since the end of an interstate conflict, the same effect on new onsets of either type of conflict as the time passed since the last intrastate conflict? Cunningham and Lemke (2013) do not seize the opportunity to examine this question by only considering the effects of prior civil war on civil war onset and so on. Hereby, the authors avoid modeling the temporal interdependencies of different conflict types. In this bachelor thesis, such an analysis will be conducted, thus extending the body of literature.

7 Empirical analysis

To test these hypotheses, regressions of different dependent variables on the theoretically interesting independent variable *major conventional weapons imports* and a set of controls will be conducted. Based on Cunningham and Lemke (2013), the dependent variables will be *interstate conflict onset*, *intrastate conflict onset*, and *conflict onset*.

7.1 Variables and Data

To conduct the following empirical analysis, a panel dataset with observations for 134 countries ranging between the year 1949 and 2018 will be used.[31] The included variables are described in the following sections.

7.1.1 The dependent variable

The dependent variables *interstate conflict onset* and *intrastate conflict onset* are dummy variables taking the value 1 if an interstate war or intrastate war respectively starts in the concerning country-year and 0 if there is no such onset in said country-year. In this context, war is defined as "a contested incompatibility that 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 in a calendar year" (Pettersson, 2020, p. 1). If both conflict parties are (officially recognized) states, the conflict is coded as interstate war and if one side is the government of a state while the other conflict party consists of one or more rebel groups, the respective conflict is defined as intrastate war (Pettersson, 2020, p. 5-6). For an observation of a conflict to be coded as an onset, there must not be an outbreak of the same conflict in the two previous years (Pamp et al., 2018, p. 436). This restriction is taken to avoid conflicts fluctuating around the threshold of 25 battle related deaths to be counted as new onsets all too often. The dependent variable *conflict onset* displays the value 1 if there is an onset of interstate war or intrastate war (or both) in the country-year. The source of the data is the UCDP/PRIO Armed Conflict Dataset Version 20.1 (Gleditsch et al., 2002; Pettersson, 2020).

Since the focus of this paper is war onsets and not the incidence of war, one has to decide how to proceed with ongoing conflicts. As McGrath (2015) shows, coding ongoing conflicts as zeros leads to serious problems since there are two different meanings of a country-year coded 0 and the possibility that explanatory variables have different effects on event onsets and durations is ignored (McGrath, 2015, p. 534). Instead, ongoing events should be coded as missing (McGrath, 2015, p. 535), an approach also followed in this paper.

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[31]Different datasets have been merged to create the dataset used for the empirical analysis in this paper. For details, see footnote 39

7.1.2 The theoretically interesting independent variables

As mentioned in Chapter 6, the independent variable only includes imports of MCWs.[32] The original source of the data on transfers of MCWs is the SIPRI Arms Transfers Database (SIPRI, 2021c). The quantification of the value of transferred arms is quite challenging. Firstly, it is important to note that not the financial value of the transferred weaponry but the military capabilities associated with them is of relevance for the theoretical arguments (Pamp et al., 2018, p. 436). Secondly, this value cannot be determined by sales prices since many arms deals are either part of military aid, gifts or subject to price discounts (Moore, 2012, p. 337). A measure fit to quantify the military capabilities of arms transfers and independent of their sales prices is SIPRI's trend-indicator value (TIV), which is based on the known production costs of weapon systems (SIPRI, 2021a). To allow for comparisons across time, the value of weaponry is given in inflation adjusted constant 1990 US dollars (Pamp et al., 2018, p. 436). Another issue one has to deal with, is reverse causality. It seems theoretically plausible that not only arms imports have an effect on war onsets but conflict onsets might also affect arms imports (Pamp et al., 2018, p. 432). It is usually argued that outbreaks of conflicts entail arms imports as means of resupplying conflict parties (Craft, 1999, p. 19; Baugh and Squires, 1983a, p. 40-43). To deal with this issue, not the amount of weapons imported in the year of observation will be included in the regression but the average of imports in the five years before (in million TIVs). Additionally, the natural logarithm is taken of the resulting five year-average.[33] Hence, this explanatory variable is named *log arms imports*.

To test the hypotheses about temporal dependencies, other explanatory variables of theoretical interest will be included as well. To deal with temporal dependence, different approaches are taken. It has become established in the literature on conflict onsets to either generate dummy variables for outbreaks of previous conflict in a short time span (usually one or five years) before the observation (e. g. Fearon and Laitin (2003); Cunningham and Lemke (2013)), use several dummies, each representing the years since the last onset, or to include splines (e. g. Krause (2004)) or a cubic polynomial of the time since the last onset (e. g. Pamp et al. (2018)). Of those four possibilities, dummy variables indicating prior onsets posses the smallest informational value. The inclusion of dummy variables for every year since the last onset is inefficient, with the present dataset spanning 70 years, 70 dummies would have to be included. Due to the binary dependent variable, different forms of separation could also be the result of this time dummy variable approach (Carter and Signorino, 2010, p. 275-278). The use of splines, which was first proposed by Beck et al. (1998), is more sophisticated but associated with problems concerning knot selection (Carter and Signorino, 2010, p. 279-282). The inclusion of a cubic polynomial

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[32]A definition of MCWs and a listing of every type of weapon considered a major conventional weapon is provided by SIPRI (2021a).

[33]The natural logarithm is often used to alleviate the effects of outlying values of a variable and to linearize data (e. g. Diehl and Goertz (2001, p. 295); Craft and Smaldone (2002, p. 698-699)) in case of skewed and outlier heavy distributions (as it is the case for arms imports).

of the time since the last onset is the most advantageous approach. Richer in information than dummies for past onsets and more efficient than dummies for the years between onsets, it is less complex and hence easier to interpret than the inclusion of splines while also going along with the same benefits (Carter and Signorino, 2010, p. 282).

Since there is a theoretical interest in temporal dependence within and between the conflict types, six different variables are created and included in the models. Firstly, $t_{interstate}$ displays the time passed since the last onset of interstate conflict.[34] $t^2_{interstate}$ and $t^3_{interstate}$ complete the cubic polynomial. Analogously, $t_{intrastate}$, $t^2_{intrastate}$ and $t^3_{intrastate}$ are included to measure effects of past civil war onsets. In the first models, whose results are presented in Table 2, these polynomials are added as further controls. Here, $t^3_{intrastate}$ is divided by 1000 in order to reduce the large differences in size between $t^2_{intrastate}$ and $t^3_{intrastate}$, which could lead to numerical instability (Carter and Signorino, 2010, p. 283). In the models focusing on temporal dependence, whose results are visualized in figure 2, no such adjustment is made.

7.1.3 Control variables

The first control variable is *military expenditure*. It is measured as the share of a country's military expenditure – defined as spending on armed forces, government agencies engaged in defense projects, paramilitary forces, and military space activities (SIPRI, 2021b) – in the GDP of a country (measured in 2019 US dollars). At first, it might not seem intuitive to add *military expenditure* as a control variable since one could think of *arms imports* and *military expenditure* as almost identical quantities based on an accounting identity. Yet, Pamp and Thurner (2017) show that this is not the case as weaponry imports are often not fully billed in defense budgets. This variable is included for two reasons. Not including *military expenditure* could result in omitted variable bias. While the relationship between *arms imports* and *military expenditure* is not as straight forward as one might think, there is an effect – highly conditional on factors like regime type – of *arms imports* on *military expenditure* (Pamp and Thurner, 2017, p. 460-461, 469). Since *military expenditure* is also supposed to affect war onset probability (Craft and Smaldone, 2002, p. 698), it seems careless not to include it as a control variable. Due to this supposed effect, the variable *military expenditure* is also of some theoretical interest. As mentioned multiple times before, many of the theoretical arguments described in the course of this bachelor thesis are concerned with increases in military capabilities in general, applying to both *arms transfers* as well as *military expenditure*. Hence, the expectation is similar to *log arms imports*: The comparison of theoretical arguments suggests that similar effects for all types of conflict should be observed. The source of the data is the SIPRI Military Expenditure

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[34]To avoid losing observations of countries without conflict onset, for the first year of observation (for most countries 1946) $t_{interstate}$ and $t_{intrastate}$ take on the value one. Details on coding can be found in the Do-File. While there is also a rationale for including the time since the last end of conflict in a regression, the time since the last onset seems more fitting due to the reasoning of the diversionary theory of war that relates to the time during the conflict.

Database (SIPRI, 2021d).

Other controls are taken from Cunningham and Lemke's (2013) combined analysis of civil and interstate war.[35] Their first four control variables are supposed predictors of interstate war – the number of *alliances*, 'enduring' *rivals* and *neighbors* of a country, as well as an indicator whether the country in question is a *major power*. The control variable *alliances* counts the number of formal alliances the state in question has made (for the definitions of alliances also used in Cunningham and Lemke (2013), see Correlates of War Project (2012)). Cunningham and Lemke's (2013) article and this bachelor thesis use the data provided by Bennett and Stam's (2000) EUGene-project. Enduring *rivalries* are rivalries – generally defined as a relationship between states characterized by regular threats as well as foreign policies formulated in military terms (Diehl and Goertz, 2001, p. 4) – "that involve six disputes or more *and* last for at least 20 years" (Diehl and Goertz, 2001, p. 44). The data on rivalries is also from Diehl and Goertz (2001). The number of *neighbors* (defined as states sharing a border with the country) is from the Major Episodes of Political Violence-dataset (Center for Systemic Peace, 2019). The control variable *major power* is a dummy taking the value of 1 if a state can be classified as a major power and 0 otherwise.[36] Its source is the Correlates of War Project's major power dataset (Correlates of War Project, 2016).

As a second set of controls, Cunningham and Lemke (2013) include the factors frequently associated with civil war that are found to be the most robust onset predictors by Hegre and Sambanis (2006): *GDP per capita*, the *log population*, and a country's level of *democracy*. The variables *GDP per capita* and *population* are from the Maddison project (Bolt et al., 2018). To allow for comparisons across time, the GDP per capita has been adjusted for inflation and is measured in 2011 US dollars. The population size of a country is measured mid-year and in thousands. The variable *log population* is created as the natural logarithm of the population size. To operationalize the level of democracy, the Polity V index created by Marshall and Gurr (2020) is utilized.

The third set of control variables refers to insurgency conditions and ethnicity as potential civil war predictors (first used by Fearon and Laitin (2003)). This set of controls contains the percentage of a country's terrain that is covered by *mountains*, and dummy variables for *noncontinuous territory*, *oil* exporting countries, *new states*, and *political instability* as well as measures of *ethnic fractionalization*. The variable *mountains* is originally taken from Fearon and Laitin's (2003) article.[37] To extend the observation period (originally until 1999), later values have been imputed. The dummy variable *noncontinuous territory* indicates whether a state hast noncon-

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[35]There is also a case for the inclusion of most of these variables in order to avoid omitted variables bias.

[36]Since the coding of major powers rests more on scholarly consensus than on a exact definition, reference shall be made to some remarks about the concrete definition of major powers provided by the Correlates of War Project (2003).

[37]For details on the measurement of the share of a country's terrain that is covered by mountainous terrain, see Fearon and Laitin (2003, p. 81).

tinous territory (coded 1) or not (coded 0).[38] *Oil* is a dummy variable as well. It displays the value 1 if the revenues from a country's fuel exports exceed one-third of the revenues generated by all exports (Fearon and Laitin, 2003, p. 81). The *new state* dummy variable is coded as 1 if a country is in its first or second year of independence. The original data source of *noncontinuous territory*, *oil*, and *new state* is Fearon and Laitin (2003). An indicator of political *instability* can be generated with help of the polity V index mentioned above. Based on Pamp et al. (2018, p. 438), the *instability* dummy is coded as 1 if there has been a change in the index of three or higher in the three years prior to the observation. To operationalize ethnic fractionalization, Cunningham and Lemke (2013) use the ethnolinguistic fractionalization index. Since there are several issues with this index, there will be another operationalization for ethnic fractionalization in this paper – Girardin et al.'s (2015) measure of sum of all excluded (from power and participation) groups' population as share of the total population of a country.[39]

Observations are not for every variable available for the same time period. Especially *rivals*, *noncontinuous territory*, *oil* and *new state* stand out. Since their sources are replication data sets from Diehl and Goertz (2001) and Fearon and Laitin (2003), that have not been updated or extended by imputation recently, they lack observations for years after 1999 (*oil*), 2004 (*noncontinuous territory* and *new state*) and 2006 (*rivals*) respectively. Hence, in Chapter 7.3.1 regressions of each dependent variable will be conducted on two different sets of independent variables – in models 1, 3, and 5 every explanatory variable described in this Chapter will be included in the analysis and in models 2, 4, and 6 only the independent variables with observations for recent years will be used in order to take advantage of the larger number of observations (see Chapter 1). Descriptive statistics of dependent and independent variables are displayed in Table 1.

7.2 The statistical model

As evidenced by the previous Chapters, the data, which will be analyzed in this bachelor thesis, are a form of binary time-series cross-section (BTSCS) data. In order to deal with the dichotomous nature of the dependent variable, several models come into question. As a simplest approach, one can employ a linear probability model (LPM) based on common ordinary least squares estimation. While offering intuitive interpretations of coefficients and a straight-forward estimation procedure, LPMs come with multiple problems. By definition, LPMs al-

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[38]For coding details, reference shall be made to Fearon and Laitin (2003, p. 81).

[39]While the variables *major power* and *interstate conflict onset* have been coded directly from their original data sources, most variables (dependent as well as independent variables) have not been taken manually from their original and cited data sets. The variables *alliances*, *rivalries*, *noncontinuous territory*, *oil*, and *new state* are taken from the replication data provided by Cunningham and Lemke (2013). The variables *intrastate conflict onset*, *military expenditure*, *neighbors*, *GDP per capita*, *Log population*, (the imputed version of) *mountains*, *democracy*, *instability*, and *ethnic fractionalization* are taken from the country-year data set of the chair, provided by Andreas Mehltretter. To add the *interstate conflict onset* variable, Stata code provided by Andreas Mehltretter has been used as well. For details regarding the sources of data and coding of variables, see the attached Do-File.

Table 1: Descriptive statistics of the variables.

Variables	N	Mean	Std. Deviation	Minimum	Maximum
Interstate conflict onset	9,965	0.012	0.109	0	1
Intrastate conflict onset	8,886	0.039	0.192	0	1
Conflict onset	8,846	0.051	0.220	0	1
Log arms imports	9,780	5.906	3.944	0	12.957
Military expenditure	8,740	0.025	0.052	0	0.949
Alliances	6,512	1.393	2.330	0	20
Rivals	7,908	0.331	0.866	0	6
Neighbors	9,705	3.423	2.382	0	14
Major power	9,746	0.040	0.196	0	1
GDP per capita	9,301	10,328	12,890	0	156,299
Log population	9,345	13.68	1.588	9.429	18.75
Democracy	9,611	0.850	7.382	−10	10
Mountains	9,335	18.03	21.53	0	94.30
Noncontinuous territory	7,568	0.160	0.367	0	1
Oil	6,296	0.131	0.337	0	1
New state	7,568	0.026	0.158	0	1
Instability	9,499	0.012	0.109	0	1
Ethnic fractionalization	9,870	0.156	0.217	0	0.980
$t_{interstate}$	10,094	26.70	18.68	1	73
$t^2_{interstate}$	10,094	1,062	1,251	1	5,329
$t^3_{interstate}$	10,094	50.75	80.48	0.001	389.0
$t_{intrastate}$	10,094	21.46	17.59	1	73
$t^2_{intrastate}$	10,094	770.1	1,107	1	5,329
$t^3_{intrastate}$	10,094	35.05	69.40	0.001	389.0

$t^3_{interstate}$ and $t^3_{intrastate}$ are depicted in the versions included in the main models (Table 2)   .

ways suffer from heteroskedasticity, yielding inaccurate standard errors (Wooldridge, 2002, p. 454). This problem is not insurmountable since heteroskedasticity-robust standard errors can be calculated. The two following problems are far more serious. Furthermore, the fitted values of the dependent variables (the predicted probability of $y = 1$) can be smaller than 0 or larger than 1 (Wooldridge, 2002, p. 454-455). In addition, a LPM assumes — often times wrongly – "that a ceteris paribus unit increase in x_j always changes $P(y = 1|\mathbf{x})$ by the same amount, regardless of the initial value of x_j." (Wooldridge, 2002, p. 455). Due to these shortcomings, a LPM will not be used as the main model. However, LPMs can function as a convenient approximation

(Wooldridge, 2002, p. 454) and therefore, it will be utilized to conduct robustness tests (see Chapter 7.4).

As main models, logistic regressions will be conducted instead. Here, the logistic cumulative density function (cdf) $\Lambda(z)$ is used as an identity function with the purpose to solve the problem that predicted probabilities are negative or larger than 1. This is possible since the logistic cdf is strictly between 0 and unity for all values of z (Wooldridge, 2002, p. 457-461). In a Logit model, the marginal effects of the independent variables on the dependent variable are also no longer constant but dependent on the level of the indepent variable. Those, the advantages of Logit models are accompanied by a more difficult interpretation of the estimated coefficients, which can no longer be interpreted as marginal effects (Wooldridge, 2002, p. 458-459).[40]

To account for the panel structure of the BTSCS data, most researchers rely on either pooled, Random Effects (RE), or Fixed Effects (FE) methodology (Cook et al., 2018, p. 1). Unfortunately, all those approaches are associated with serious problems – either due to doubtful assumptions concerning unobserved unit heterogeneity or due to issues of separation. Pooling assumes that unit heterogeneity does not exist, which is deeply problematic since BTSCS data often have unobserved unit heterogeneity (Cook et al., 2018, p. 1). In contrast to pooling, RE explicitly takes the panel structure of the data into account. The suitability of Random Effects depends – besides the more general assumption of strict exogeneity underlying RE as well as FE estimators – on the assumption that the unit heterogeneity is orthogonal to the independent variables (Cook et al., 2018, p. 1; Wooldridge, 2002, p. 257-269). As Cook et al. (2018, p. 1-2) point out, this assumption is unlikely to hold in most International Relations contexts, resulting in biased estimates. The Fixed Effects-Approach has some advantages – the unobserved unit heterogeneity is eliminated by transforming (demeaning) the data (Giesselmann and Windzio, 2012, p. 40-47) – but goes along with several issues as well. Firstly, coefficients for time-invariant independent variables cannot be estimated severely restricting the choice of explanatory variables (Giesselmann and Windzio, 2012, p. 44; Cook et al., 2018, p. 2). Secondly, in the case of the analysis of rare-events (like war onsets) the problem of separation arises since many units do not experience the event in the analyzed time frame. These observations are dropped from the analysis and hence, parameters are only estimated for units that experience the event. This results in inaccurate estimates of the baseline risk (of war) and biased marginal effects (Cook et al., 2018, p. 1-5).

One option to avoid the shortcomings of these approaches and also deal with the problem of endogeneity is the use of an instrumental variables (IV) model, which was first proposed in the context of civil war research by Pamp et al. (2018). The authors "use variation in non-civil war-related weapons as a suitable instrument for civil war-related weapons" (Pamp et al., 2018, p. 436-437). It is argued that the exclusion restriction holds because some types of weaponry are purchased as a reaction to external threats and used in interstate rather than intrastate wars

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[40]For a more detailed description of the Logit model and its properties, see Wooldridge (2002, p. 457-492).

(Pamp et al., 2018, p. 437). This argument runs counter to the approach used in this paper, analyzing both civil and interstate war in a combined form. Hence, IV estimation is not suitable for this bachelor thesis. [41]

As a possibility to combine the advantages of FE (controlling for unit heterogeneity) and RE (estimating parameters for time-invariant variables), Giesselmann and Windzio (2012) introduce Random Effects regression with context variables – sometimes also called "hybrid models" (Giesselmann and Windzio, 2012, p. 52-55, 102-103). Due to that fact that hybrid models are scarcely used in the literature, a short introduction in regression with context variables shall be provided. To this end, the case of Random Effects OLS regression with context variables will be described to explain the underlying logic, before turning to Random Effects Logit models with context variables. Context variables are the unit-specific means of time-varying variables. By including these context variables in addition to our normal time-varying explanatory variables, the time-invariant unit heterogeneity associated with the respective variable now is no longer transported through the normal variables but through said context variable (Giesselmann and Windzio, 2012, p. 52-53). Thus, unit heterogeneity is still partly in the error term. However, this is unproblematic since the share of unobserved unit heterogeneity correlated with the independent variables has been eliminated and hence the remaining unit hetereogeneity is uncorrelated with the error, fulfilling the underlying assumption for unbiased RE-coefficients (Giesselmann and Windzio, 2012, p. 53, 102). The coefficient of a normal independent variable now only deals with the intra-unit variation between explanatory variable and dependent variable – similar to Fixed Effects approaches (Giesselmann and Windzio, 2012, p. 53). Hence, Random Effects-regression with context variables produces the (also in the case of unit heterogeneity correlated to independent variables unbiased) Fixed Effects-coefficients and valid standard errors as well as test statistics while still allowing for the integration of time-invariant explanatory variables (Giesselmann and Windzio, 2012, p. 102-103). After describing regression with context variables in general, some adaptions in the case of binary dependent variables must be addressed. Before estimating a Random Effects-Logit model with context variables, two data transformations must be carried out. Firstly, context variables are created for time-varying independent variables (as in the OLS case). Secondly, the time-varying explanatory variables are demeaned (Giesselmann and Windzio, 2012, p. 161). The coefficients for the demeaned independent variables can be interpreted as within-estimated coefficients – similar to FE models (Giesselmann and Windzio, 2012, p. 162). In the case of binary dependent variables, using Random Effects with context variables also avoids the separation problem associated with the use of Fixed Effects-Logit.

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[41]Another estimator suitable to avoid the pitfalls of Pooling, RE, and FE methodology is Cook et al.'s (2018) penalized maximum likelihood-FE estimator, which is able to conduct FE-logistic regressions without losing observations due to separation. Unfortunately, there is no implementation of this solution in the statistical software used for this bachelor thesis (Stata).

7.3 Results

7.3.1 Results concerning the effects of MCWs imports

The results of the Logit-hybrid models are reported in Table 2.[42] All coefficients for time-varying variables (every variable but *mountains*) depicted below concern the demeaned (within-transformed) variables. Models (1) and (2) regress *interstate war onset* on the set of variables described in Chapters 7.1.2 and 7.1.3 while models (3) and (4) use *intrastate war onset* as dependent variable. Finally, in models (5) and (6), *conflict onset* in general is used as dependent variable. The number of observations varies between 3,555 and 5,448. Due to the omission of *rivals*, *noncontinuous territory*, *oil*, and *new state*, the number of observations is higher in models (2), (4), and (6) than in models (1), (3), and (5). In addition, the results of a Wald-test for every model are reported. In general, the Wald-test is used to test multiple exclusion restrictions (joint hypotheses) – in this case, it is used to test whether all independent variables have no effect on the dependent variable (Wooldridge, 2002, p. 461-463). Since the corresponding p-value is extremely small in every model, the null hypotheses – no explanatory variable has an effect on the probabilities of *interstate war onset*, *intrastate war onset*, and *conflict onset* in general – can be rejected for models (1)-(6).

The results are not entirely conclusive. While the coefficient of *log arms imports* is positive in all models, this effect is only significant in half of them. In models (1) and (2) (with interstate war onset as the dependent variable) a two-tailed z-test reveals that the coefficient for *log arms imports* is not significant at the 10 percent level ($p = 0.335$ in model (1) and $p = 0.137$ in model (2)), implying that the null hypothesis – *log arms imports* has no impact on the probability of interstate war onset in the population – cannot be rejected. In model (3), said coefficient is significant: the null hypothesis can be rejected with an error probability (error in a sense of wrongly assuming that the null hypothesis can be rejected while it is in fact true for the population) smaller than 5 percent ($p = 0.034$). In turn, model (4) yields an insignificant coefficient ($p = 0.154$). And finally, in models (5) and (6) the coefficient of *log arms imports* is significant at the 1 percent level (model (5)) and 5 percent level (model (6)), respectively. These results have implications for the pairs of competing hypotheses. H1a as well as H1b cannot be supported. Models (1) and (2) suggest that arms imports do not have a positive or negative effect on the probability of *interstate war onset* – instead the evidence points to the conclusion that there might be no effect at all. Things look a bit different for civil war. There is at least some support for H2a as model (3) yields a significant positive effect of *log arms imports* on the probability of *civil war onset*. Yet, this evidence is not fully conclusive since model (4) (without four control variables and a larger number of observations) shows no significant effect. Concerning conflict in general, the results are more unequivocal. The positive significant coefficient of *log arms imports* supports hypothesis H3a and thus allows for the rejection of H3b. The 'meta-hypothesis'

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[42]For the estimation of these models, the Stata code suggested by Giesselmann and Windzio (2012, p. 161) has been used.

Table 2: Results of Random Effects-Logit models with context variables.

	(1) interstate war onset	(2) interstate war onset	(3) intrastate war onset	(4) intrastate war onset	(5) conflict onset	(6) conflict onset
Log arms imports	0.087	0.115	0.152**	0.103	0.134***	0.113**
	(0.090)	(0.077)	(0.072)	(0.073)	(0.048)	(0.050)
Mil. expenditure	3.476	2.222	7.813**	4.565*	5.894***	4.217**
	(3.565)	(3.882)	(3.706)	(2.410)	(2.217)	(2.132)
Alliances	0.022	−0.036	−0.104	−0.061	−0.084	−0.035
	(0.113)	(0.073)	(0.168)	(0.098)	(0.070)	(0.061)
Rivals	0.183		0.119		0.167	
	(0.300)		(0.269)		(0.186)	
Neighbors	−0.067	−0.252	0.345	0.308	0.223	0.086
	(0.308)	(0.195)	(0.391)	(0.345)	(0.246)	(0.255)
Major power	2.551	−7.724	−4.370	−18.768**	1.676*	−0.015
	(17.646)	(5.418)	(6.825)	(8.268)	(1.006)	(0.637)
GDP per capita	−0.000*	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log population	−1.121	−1.647***	0.906*	0.072	0.348	−0.188
	(0.977)	(0.614)	(0.545)	(0.620)	(0.451)	(0.382)
Democracy	−0.040	−0.064*	0.087***	0.078***	0.051**	0.045**
	(0.044)	(0.038)	(0.032)	(0.027)	(0.025)	(0.022)
Mountains	0.006	0.005	0.005	0.004	0.005	0.003
	(0.008)	(0.006)	(0.006)	(0.005)	(0.004)	(0.004)
Noncont. territory	0.633		3.850***		2.287***	
	(0.687)		(1.324)		(0.664)	
Oil	−0.570		−0.376		−0.422	
	(0.625)		(0.622)		(0.359)	
New state	3.060**		2.049***		1.893***	
	(1.470)		(0.770)		(0.626)	
Instability	0.138	0.465	0.927	1.087**	0.958*	0.994*
	(1.164)	(1.129)	(0.622)	(0.544)	(0.548)	(0.541)
Ethnic fract.	2.344**	3.192***	−0.645	−0.045	0.052	0.329
	(1.073)	(1.128)	(0.958)	(0.474)	(0.625)	(0.527)
Constant	4.686	5.002	8.777***	5.233**	5.949***	4.021**
	(4.001)	(3.602)	(3.391)	(2.104)	(2.290)	(1.638)
Observations	3,992	5,448	3,564	4,829	3,555	4,817
Countries	133	134	133	134	133	134
Wald-χ^2	5474	979.3	497.8	406.7	803.6	756.8
$p > \chi^2$	0	0	0	0	0	0

Clustered standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Coefficients for context variables and the cubic polynomials of the time since the last onsets of interstate and civil war are not reported.

that the effects of *arms imports* are similar for interstate and civil conflict (see Chapter 6) has to be rejected as well as there are no common effects of *log arms imports* on interstate and civil war onsets due to the absence of a significant effect of MCWs imports on the probability of *interstate conflict onset*. Thus, a comparison of effect sizes is not useful.

In contrast to Fixed Effects models, Random Effects allow for the calculation of predicted probabilities (as well as marginal effects). Hence, conditional effects plots visualizing the significant effects of arms imports on the onset probabilities of intrastate war (model (3)) and conflict in general (model (5)) are provided in figure 1 to allow for a more lucid description of the effect of *arms imports*.[43] In a conditional effects plot, the predicted probability of the onset of conflict is calculated for different values of the explanatory variable (demeaned *arms imports*) while all other independent variables are held constant – metric variables are at their means and dummy variables are at their modes.
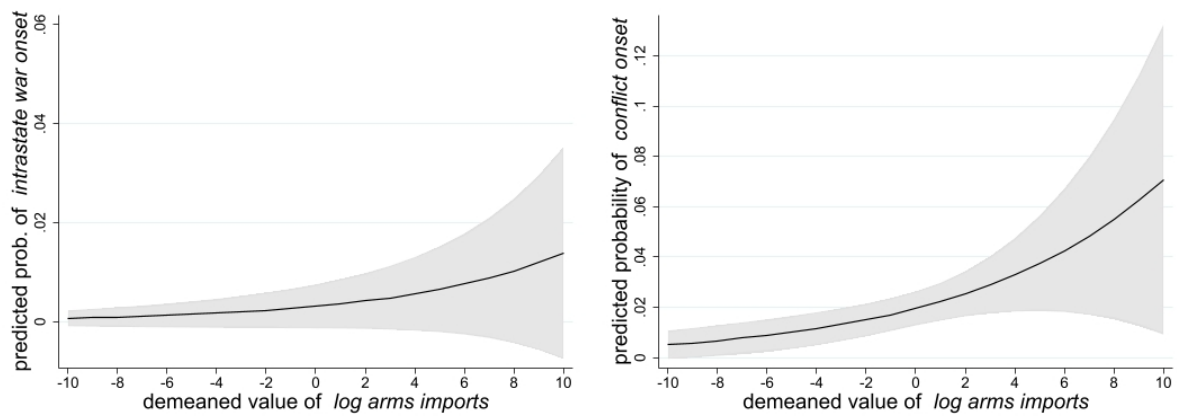
Figure 1: Conditional effect plots for the effect of *log arms imports* (demeaned) on the probability of civil war onset (left, corresponds to model (3)) and conflict onset in general (right, corresponds to model (5)) are shown. 95 percent confidence intervals are displayed in gray. Note the different scaling of the y axes.

The conditional effects plots allow for several observations.[44] For onsets of civil conflicts (left plot), the effect is virtually non-existent for values of *log arms imports* less than or equal to the unit-specific mean of this explanatory variable. For values larger than the mean, the probability of *intrastate war onset* increases more and more, demonstrating the non-linear nature if the effect. Regarding onsets of conflict in general, the effect of *log arms imports* is more pronounced for smaller values of the independent variable. However, the general structure of the plot is quite similar, depicting a non-linear (convex) and positive effect of *log arms imports* on the probability of *conflict onset*. The wider confidence intervals at the right end might be the results of the fact that there are less observations for the corresponding values of *log arms imports*.

The results concerning *military expenditure* deserve mention as well. Here, the evidence is

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[43]The visualization of the insignificant results of model (1) is not insightful and hence omitted.

[44]The need for different axes might result from the differences in the probabilities of civil war onsets and onsets of conflict in general (see Table 1).

rather clear cut. While there seems to be no impact on the probability of interstate war onset, in the models (3)-(6), *military expenditure* is significant and of positive sign: a rise in a country's military spending increases both the probability of civil war outbreaks and onsets of conflict in general. This result – differences in effects on *interstate war onset* and *intrastate war onset* – conflicts with the expectations formulated in Chapter 7.1.3 based on the resemblance of theoretical arguments for different types of conflict (as far as they concern not only arms imports but all kinds of enlargements of military capabilities).

While the effects of the other control variables are not of theoretical interest per se, a comparison to the result described by Cunningham and Lemke (2013) might be insightful since almost identical sets of explanatory variables are used. However, in this paper all control variables are included in the models (at least in model (1), (3), and (5)) while Cunningham and Lemke (2013), estimate separate models for interstate predicting explanatory variables, Hegre and Sambanis's (2006) intrastate conflict predictors, and insurgency variables. As a result of the inclusion of less control variables in each model, their findings could have suffer from omitted variables bias. The comparison of results reveals that there is little resemblance regarding significant predictors between this results and those obtained by Cunningham and Lemke (2013). The only significant predictor of all types of conflict onset in both papers is *new state*. Further similarities concern *noncontinuous territory*, which has a significant positive effect on *intrastate war onset* in both approaches. All other variables vary between some overlaps (*instability* has a common positive and significant effect on *conflict onset*) and totally contradictory results. Further comments on the implications of these analyzes for Cunningham and Lemke's (2013) article will be made in Chapter 9.

7.3.2 Results concerning temporal dependence

To estimate the effects of the time since the last onset of civil or interstate war, a Random Effects Logit model (coefficients and standard errors are displayed in Table 3) has been preferred over the estimation with context variables. This allows for an easier interpretation without demeaned explanatory variables. However, it needs to be emphasized that this choice of model could result in biased estimates of coefficients.[45] Hence, the results should only be viewed as a first approximation of an under-researched interrelation. To allow for an interpretation of the results, conditional effects plots are depicted in figure 2. Again, all metric control variables are held constant at their mean while dummy variables take on their mode.

The conditional effects plots are quite insightful and yield a number of interesting conclusions. The effect of the time since the last onset of interstate war (left column) completely defies the expectation of a decreasing probability of conflict onset of any type with increasing time. Hence,

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[45]Hausman-Wu tests have been carried out for the different model specifications. The results suggest that the orthogonality assumption is unlikely to hold. This reinforces doubts about the suitability of Random Effects. Hence, the results are not interpreted with respect to *log arms imports* since better models for this purpose are available.
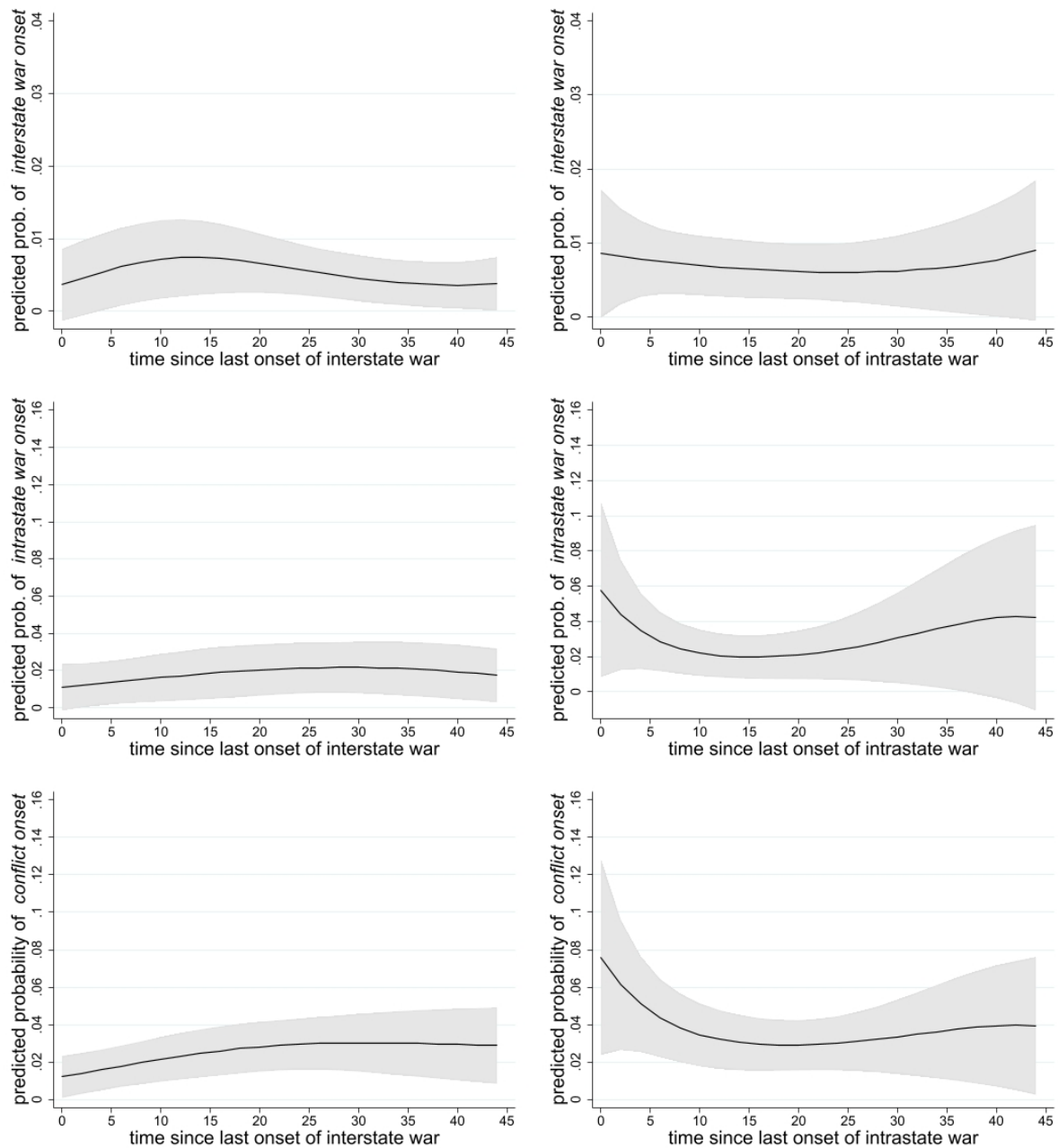
Figure 2: Conditional effects plots for different temporal dependencies are displayed. In the first row, the probability of interstate war onset conditional on the years since the last onset of interstate war (left) and intrastate war (right) are displayed. Analogously, the second row shows the probability of civil war onset in dependence of the years since the last onset of interstate war (left) and intrastate war (right) and the third row depicts the probability of the outbreak of conflict in general depending on the years since the last onset of interstate war (left) and intrastate war (right). 95 percent confidence intervals are displayed in gray. Note the different scalings of the y axes.

hypothesis H4a is rejected. Regarding the time since the last onset of civil war, the picture is less clear. For the first years since the onset, the negative relationship seems to hold but after some time the minimum probability of conflict onset is reached (24 years for the probability of interstate war onset, 16 years for civil war, and 18 years for conflict in general) and begins to rise. This leads to rejection of H4b as well. The patterns of temporal dependence vary widely

for the different forms of conflict. The time since the last onset of interstate war has a different effect on onset probability than the time passed since the last onset of civil conflict. In general, the effect of the time since the last onset of interstate war on the probability on any type of onset displays an inverted-U-shape and the structures of temporal dependence for the time since the last onset of intrastate war are U-shaped. It has to be noted that these nonlinear effects are very weak if one looks at the interrelations between past intrastate war onset and ('current') interstate conflict onset and between past interstate war onset and ('current') intrastate conflict onset. It seems like the effects within conflict types (e. g. the effect of the time since the last onset of interstate war on the onset probability of interstate war) are more pronounced than the temporal dependencies between conflict types. It also has to be noticed that the confidence intervals are quite large, partly even the probability of zero cannot be discarded at the 95 percent confidence level. At least partially, this might be due to the relatively small number of observations for some (especially large) values of the time since the last onset.

7.4   Robustness of the results

To test the robustness of the results reported in Table 2, several robustness tests will be conducted. For the first two tests, a different estimation method will be used. Instead of maximum likelihood estimated Logit, the more simple linear probability model will be estimated. Firstly, a linear probability model with Fixed Effects will be estimated. The results are shown in table 4. To account for heteroskedasticity (see 7.2), heteroskedasticity robust standard errors have been calculated. The results substantially differ from those of the Random Effects Logit models with context variables. The positive coefficient of *log arms imports* is now of significance in every model except model (1). Due to the use of the linear probability model, the coefficients can be interpreted easier. Model (2) suggests that a one percent increase in the yearly average arms imports in the five years preceding an observation (*ceteris paribus*) is associated with an increase in the probability of *interstate war onset* by 0.001 percentage points. The other coefficients of *log arms imports* can be interpreted analogously. Regarding the comparison of effect sizes, differences between the effect magnitudes can be observed. The effect of *log arms imports* on *interstate war onset* is smaller than its effect on *intrastate war onset*. However, the comparison also shows that the effects of weaponry imports are of small magnitude in general. Notwithstanding, the results of the LPMs provide at least some support for H1a with respect to the signs of the effects in the specification with more observations (model (2)) and strengthens support for H2a. Hence, the results are also more in line with the expectation of similar effects of *log arms imports* on the different types of conflict. The support for hypothesis H3a is unchanged.

However, this conclusion might be spurious since autocorrelation and the contemporaneous correlation could be possible violations of the common OLS assumptions about error terms frequently associated with panel data. Wooldridge-tests for autocorrelation reveal that serial correlation is present. Thus, the significant coefficients could be the result of the incorrect

calculation of standard errors. Checking for the presence of contemporaneous correlation is not possible due to the unbalanced panel. To arrive at the most certain results, contemporaneous correlation will be assumed and controlled for. Unfortunately, it is not possible to adequately implement solutions for these issues in a Fixed Effects setting.

Hence, Beck and Katz's (1995) "panel-corrected standard errors" approach, which was originally designed as a pooled estimator, will be used (results are shown in Table 5) to account for first order-autocorrelation, heteroskedasticity, and contemporaneous correlation. To avoid the shortcomings of pooled analysis, a least squares dummy variables (LSDV) estimator will be employed. LSDV includes dummy variables for every country in the regression equation and hence explicitly takes the effect of unobserved unit heterogeneity into account (Giesselmann and Windzio, 2012, p. 48-51). This inclusion of country dummies explains the increases in the R^2 in every model in comparison to the regression results depicted in Table 4. The change in estimation procedure renders the previously significant coefficients for *log arms imports* insignificant in models (2), (3), and (4). Concerning the first hypotheses pair, this leads to a conclusion similar to the Random Effects Logit model with context variables: Neither H1a nor H1b can be supported. In contrast to the results above, H2a or H2b cannot be supported either. Meanwhile, the effects of weaponry imports in model (5) and (6) are of comparable magnitude to those in the Fixed Effects linear probability model and significant with both sets of control variables as well.

Multicollinearity could also pose a problem. If independent variables are (strongly) correlated with each other, incorrect standard errors are the results. Contemplating the correlation coefficients for every pair of variables, two explanatory variables stand out: *GDP per capita* and *log population* are strongly correlated with several variables. Hence, models are estimated without these control variables to allow for a comparison of results (see Table 6). It turns out that *log arms imports* is of significance in models (3) and (5). This again rejects hypotheses H1a and H1b while providing mixed support for H2a and H3a. Interestingly, *military expenditure* is of significance in every model but model (6), hinting at the possibility that there might be more to the presumption of similar effects for war types in this context than initially detected.

As a final robustness test, a different (and more cautious) specification of the dependent variable will be used. Now, there have to be five (instead of two) years without an onset of the same conflict in a country for *interstate conflict onset*, *intrastate conflict onset*, or *conflict onset* to be coded as 1. In comparison to Table 6, the coefficient of *arms imports* stays the same with respect to sign and significance. Table 7 generates some support for H2a and H3a (in the specifications with all controls) while H1a or H1b cannot be supported once more.

In summary, the following findings result from the empirical analysis. The first two competing hypotheses (H1a and H2b) are rejected in almost every model (the potentially spurious Fixed Effects linear probability model being the lone exception), arms imports seem to have no effect

of any sign on the probability of *interstate war onset*. The results concerning *intrastate war onset* are mixed. In the specifications with all context variables, most models generate support for a positive effect of *log arms imports*. Because the effect is no longer significant in models with a different set of control variables, this finding is to be enjoyed with caution. The case of *conflict onset* in general is most clear. Most models provide support for the hypothesis that an increase in *log arms imports* is associated with an increase in *conflict onset* probability (only the specifications with less control variables and the different dependent variable do not). These results clearly indicate that the 'meta-hypothesis' of equality between the effects of weaponry imports on the different types of wars has to be rejected.

8 Limitations

There are several limitations to the approach taken in this bachelor thesis. While intrastate wars are studied monadically (observations of country-years), research on wars between states almost exclusively uses dyadic data formats (observations of dyad-years). To allow for comparisons of different models' results, a common data type had to be used in all analyses conducted in this paper. Since observations of state-rebels dyads are difficult, appropriate dyad-year data on civil wars is not available and a monadic data design is used for civil as well as interstate war models (Cunningham and Lemke, 2013, p. 614). As Bremer (1992, p. 310) expounds, the country-year is not the appropriate unit of analysis for interstate wars since theoretical arguments explaining war onset are dyadic in nature (Florea, 2012, p. 93).

Besides this underlying problem, there are also theoretical issues. The fact that there is no modeling of 'action-reaction processes' in intrastate settings casts doubt on the supposed resemblance of theoretical arguments since in this case it is questionable if this difference is only due to the smaller body of (theoretical) literature on civil wars or if it is the result of substantial differentials between the processes linking arms transfers to both types of conflict – if arms races between a state and a rebel group are not possible, this indicates a difference between war types, that cannot be ignored. To this end, the arms race literature needs to theoretically and empirically consider the question of intrastate arms races. Also, the mere comparison of arguments related to interstate and intrastate war does not represent a form of theoretical advancement to the end of a "unified theory of political violence" (Lake, 2003, p. 81). If one wants pursue this goal despite the finding that some factors (such as arms imports) only seem to have an effect on some types of conflict, further theorizing will be essential.

Methodological problems are present as well. While the multitude of control variables and the elimination of unobserved unit effects have the purpose of reducing omitted variables bias, such bias cannot be ruled out. Furthermore, the econometric models did not account for simultaneity which could also result in biased estimates. These problems stress the need for additional methodologically refined research on the arms trade-conflict onset nexus.

Another disadvantage of the used methods is that the exact causal path(s) cannot be identified. Regarding the significant positive effects of weaponry imports of the probability of *intrastate conflict onset*, one cannot distinguish if this effect is for instance due to commitment problems or the perceptions of arms imports as hostile intent. Therefore, the presentation of the theories in Chapter 3 serves primarily the purpose of setting up the comparison in Chapter 5.

9 Conclusion

First of all, there is the need to emphasize a point that has made several times before: The effects discovered in econometric analysis and their significance is highly dependent on the choice of statistical model. While it has not been the purpose of this bachelor thesis to review Cunningham and Lemke's (2013) results, the large differences between the conclusions that can be drawn from the results of Random Effects Logit models with context variables and their inferences based on Pooled Logit are unmistakable. Due to the fact that their model ignores unobserved unit heterogeneity and does not adequately deal with temporal dependence, this difference casts some doubts concerning the accuracy of their results. Again, further research will be needed to empirically reexamine their argument.

Besides this annotation, multiple conclusions can be drawn from this bachelor thesis. With regard to the first question raised in the introduction, no clear answer is possible. According to the results of this paper, a negative effect of arms imports on onset probability of any kind of conflict can be ruled out. The models employed in this paper find no effect of arms imports on the probability of the outbreak of interstate war and generate mixed evidence for a positive effect regarding the onset of intrastate war. This positive effect falls in line with the most recent findings in the literature (Pamp et al., 2018). If one studies conflict in general, the evidence points towards a war-promoting effect of arms imports. However, it is highly doubtful if there is any justification for this combination of civil and interstate war onset in one category considering the differences in effects for both war types. Overall, there is more (but not definitively convincing) support for the arguments of the destabilizing school than for those of the stabilizing school. Thus, the answer to the second question is more unambiguously. As there are differences in (the existence of) effects of MCWs imports on interstate and civil war, the question of whether arms imports affect interstate and intrastate conflict onset probability in the same way can only be negated. At least with respect to the effects of arms transfers, the distinction between interstate and civil war seems to be one with substantial differences.

This paper has been able to provide a first glimpse at the evidence concerning temporal dependence between conflict onsets of different types. The visualization of the effects suggests non-linear effects of the time since the last onset and the results differ depending on the type of the past conflict onset. The effect of the time since the last onset of interstate war seems to have an inverted-U-shaped effect on all onset probabilities, while the interconnection between the time since the last outbreak of civil war and onsets is U-shaped. Methodically more sophisticated research on this matter is required to examine these effects. There is also a need for developing theoretical explanations for the differences in temporal dependencies since this topic has not been subject to extensive research before. As a starting point of theorizing, it seems possible that it takes a longer time for past interstate wars, which are on average less intensive than civil wars (Cunningham and Lemke, 2013, p. 611), to arrive at the level of de-

struction, war-produced grievances etc. associated with the maximum probability of onsets. At this point, extensive theory building will be necessary in future research.

The findings of this bachelor thesis show that a combined analysis of interstate war – in a sense of comparing results and investigating interdependencies (and not in a sense of combining both war types in one category) – can be beneficial despite the fact that effects of arms imports (and most other variables) are distinct for both types of conflict.

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Appendix

Table 3: Results of Random Effects Logit models (polynomials of the time since the last onsets of interstate and civil war are included).

	(1) interstate war onset		(2) intrastate war onset		(3) conflict onset	
Log arms imports	0.142**	(0.071)	0.072	(0.052)	0.080**	(0.039)
Mil. expenditure	2.819	(1.749)	0.215	(1.832)	1.674	(1.507)
Alliances	−0.035	(0.048)	−0.075	(0.079)	−0.053	(0.058)
Rivals	0.292**	(0.130)	−0.061	(0.193)	0.100	(0.140)
Neighbors	−0.112**	(0.054)	0.135	(0.095)	0.049	(0.071)
Major power	1.378*	(0.765)	0.466	(1.173)	1.268	(0.916)
GDP per capita	−0.000***	(0.000)	−0.000***	(0.000)	−0.000***	(0.000)
Log population	0.294*	(0.170)	0.154	(0.158)	0.215*	(0.130)
Democracy	0.046	(0.029)	0.048**	(0.022)	0.038**	(0.019)
Mountains	0.000	(0.007)	0.014*	(0.008)	0.010	(0.007)
Noncont. territory	−0.308	(0.482)	0.855*	(0.449)	0.530	(0.372)
Oil	0.429	(0.357)	0.544	(0.429)	0.455	(0.308)
New state	1.760	(1.201)	1.286**	(0.634)	1.586***	(0.592)
Instability	−0.056	(0.980)	1.307***	(0.487)	1.120**	(0.493)
Ethnic fract.	0.961*	(0.555)	0.994*	(0.569)	1.168**	(0.471)
$t_{interstate}$	0.120	(0.087)	0.047	(0.072)	0.079	(0.059)
$t^2_{interstate}$	−0.006	(0.004)	−0.001	(0.003)	−0.002	(0.003)
$t^3_{interstate}$	0.000	(0.000)	−0.000	(0.000)	0.000	(0.000)
$t_{intrastate}$	−0.023	(0.083)	−0.173**	(0.076)	−0.132**	(0.067)
$t^2_{intrastate}$	0.000	(0.004)	0.008**	(0.004)	0.005	(0.003)
$t^3_{intrastate}$	0.000	(0.000)	−0.000*	(0.000)	−0.000	(0.000)
Constant	−9.061***	(2.415)	−6.111***	(1.970)	−6.651***	(1.588)
Observations	3,992		3,564		3,555	
Countries	133		133		133	
Wald-χ^2	238.9		68.41		82.80	
$p > \chi^2$	0		6.31e-07		2.73e-09	

Clustered standard errors in parentheses next to the coefficients; *** p<0.01, ** p<0.05, * p<0.1

Table 4: Results of Fixed Effects Linear Probability Models.

	(1) interstate war onset	(2) interstate war onset	(3) intrastate war onset	(4) intrastate war onset	(5) conflict onset	(6) conflict onset
Log arms imports	0.002	0.001*	0.005*	0.005*	0.007**	0.006**
	(0.001)	(0.001)	(0.003)	(0.002)	(0.003)	(0.003)
Mil. expenditure	0.021	−0.035	0.266**	0.198**	0.299**	0.189*
	(0.070)	(0.051)	(0.121)	(0.085)	(0.145)	(0.107)
Alliances	−0.001	−0.001	−0.006	−0.000	−0.006	−0.000
	(0.004)	(0.003)	(0.005)	(0.004)	(0.005)	(0.004)
Rivals	0.013		0.004		0.015	
	(0.009)		(0.019)		(0.022)	
Neighbors	−0.005	−0.010	0.026*	0.023*	0.020	0.013
	(0.006)	(0.007)	(0.014)	(0.014)	(0.015)	(0.017)
Major power	0.013	−0.014***	0.009	0.010	0.015	0.000
	(0.019)	(0.005)	(0.021)	(0.008)	(0.026)	(0.010)
GDP per capita	−0.000	−0.000	0.000	0.000	−0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log population	−0.036**	−0.030***	0.031	0.024	0.011	0.006
	(0.018)	(0.009)	(0.033)	(0.018)	(0.034)	(0.019)
Democracy	−0.001	−0.000	0.002*	0.002**	0.002	0.001*
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Noncont. territory	0.074*		0.117		0.150**	
	(0.038)		(0.094)		(0.075)	
Oil	−0.015		−0.009		−0.018	
	(0.011)		(0.019)		(0.017)	
New state	0.034		0.076		0.112**	
	(0.028)		(0.048)		(0.055)	
Instability	0.001	0.002	0.090**	0.080*	0.090*	0.082*
	(0.017)	(0.014)	(0.042)	(0.041)	(0.051)	(0.048)
Ethnic fract.	0.028*	0.018	−0.041	−0.029	−0.009	−0.008
	(0.016)	(0.014)	(0.043)	(0.028)	(0.048)	(0.031)
Constant	0.470*	0.446***	−0.533	−0.396	−0.271	−0.121
	(0.249)	(0.127)	(0.462)	(0.259)	(0.490)	(0.277)
Observations	3,992	5,590	3,564	4,971	3,555	4,959
Countries	133	138	133	138	133	138
R^2	0.018	0.009	0.024	0.015	0.021	0.010

Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; Coefficients for the cubic polynomials of the time since the last onsets of interstate and civil war are not reported.

Table 5: Results of Least Squares (LPM) Dummy Variable Regressions with panel corrected standard errors.

	(1) interstate war onset	(2) interstate war onset	(3) intrastate war onset	(4) intrastate war onset	(5) conflict onset	(6) conflict onset
Log arms imports	0.002	-0.002	0.004	0.003	0.007**	0.004*
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Mil. expenditure	0.109	0.014	0.354***	0.282***	0.382***	0.253***
	(0.094)	(0.077)	(0.108)	(0.078)	(0.115)	(0.087)
Alliances	−0.005	−0.008	−0.010*	−0.002	−0.008	−0.002
	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Rivals	0.020		0.001		0.015	
	(0.014)		(0.011)		(0.013)	
Neighbors	−0.007	−0.018	0.039***	0.038***	0.027*	0.021
	(0.014)	(0.013)	(0.013)	(0.011)	(0.015)	(0.013)
Major power	0.006	−0.017	−0.003	0.019*	0.005	0.006
	(0.025)	(0.013)	(0.016)	(0.010)	(0.022)	(0.011)
GDP per capita	−0.000***	−0.000**	−0.000	0.000	−0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log population	−0.154***	−0.137***	0.020	0.021	−0.011	−0.008
	(0.035)	(0.023)	(0.028)	(0.018)	(0.031)	(0.020)
Democracy	−0.001	−0.000	0.003*	0.002**	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Noncont. territory	0.122		0.148***		0.168**	
	(0.079)		(0.044)		(0.066)	
Oil	−0.025		−0.003		−0.018	
	(0.022)		(0.021)		(0.026)	
New state	0.112***		0.107***		0.157***	
	(0.026)		(0.037)		(0.043)	
Instability	0.013	0.015	0.065**	0.055**	0.080**	0.070**
	(0.016)	(0.014)	(0.030)	(0.027)	(0.037)	(0.031)
Ethnic fract.	0.054*	0.029	−0.037	−0.020	0.002	0.004
	(0.029)	(0.021)	(0.048)	(0.044)	(0.045)	(0.041)
Constant	2.332***	2.335***	−0.658	−0.577*	−0.181	0.032
	(0.618)	(0.405)	(0.495)	(0.309)	(0.566)	(0.350)
Observations	3,992	5,590	3,564	4,971	3,555	4,959
Countries	133	138	133	138	133	138
Wald-χ^2	2150	19117	1714	751.7	1095	4454
$p > \chi^2$	0	0	0	0	0	0
R^2	0.162	0.135	0.201	0.185	0.204	0.185

Beck and Katz's (1995) panel corrected standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Coefficients for country dummy variables and the cubic polynomials of the time since the last onsets of interstate and civil war are not reported.

Table 6: Results of Random Effects-Logit models with context variables (without *GDP per capita* and *log population*).

	(1) interstate war onset	(2) interstate war onset	(3) intrastate war onset	(4) intrastate war onset	(5) conflict onset	(6) conflict onset
Log arms imports	0.067	0.094	0.150**	0.103	0.129***	0.116
	(0.086)	(0.072)	(0.060)	(0.065)	(0.046)	(0.083)
Mil. expenditure	5.905*	5.603*	6.535***	4.537**	6.056***	4.673
	(3.453)	(2.866)	(2.367)	(2.186)	(2.079)	(3.280)
Alliances	0.025	−0.003	−0.111	−0.070	−0.076	−0.039
	(0.121)	(0.082)	(0.125)	(0.101)	(0.070)	(0.094)
Rivals	0.256		0.065		0.184	
	(0.245)		(0.244)		(0.169)	
Neighbors	−0.123	−0.449***	0.424	0.304	0.253	0.067
	(0.281)	(0.162)	(0.319)	(0.324)	(0.229)	(0.471)
Major power	5.286	−8.548	−1.690	−16.916**	1.528	−0.011
	(8.142)	(5.285)	(4.251)	(7.749)	(1.113)	(0.509)
Democracy	−0.044	−0.079**	0.089***	0.079***	0.051**	0.044
	(0.042)	(0.036)	(0.030)	(0.026)	(0.024)	(0.047)
Mountains	0.012*	0.005	0.004	0.006	0.006	0.005
	(0.007)	(0.004)	(0.005)	(0.005)	(0.004)	(0.010)
Noncont. territory	1.150		3.134***		2.217***	
	(0.748)		(0.762)		(0.610)	
Oil	−0.840		−0.453		−0.484	
	(0.561)		(0.596)		(0.372)	
New state	2.903**		1.719**		1.732***	
	(1.378)		(0.709)		(0.611)	
Instability	0.246	0.550	0.899	1.077**	0.971*	1.035*
	(1.146)	(1.112)	(0.570)	(0.548)	(0.550)	(0.541)
Ethnic fract.	2.367*	3.219***	-0.582	-0.095	-0.005	0.241
	(1.359)	(1.212)	(0.628)	(0.475)	(0.646)	(0.608)
Constant	8.435***	3.878***	3.251*	4.928***	4.989***	5.016
	(2.773)	(1.164)	(1.688)	(1.403)	(1.260)	(0.000)
Observations	3,992	5,448	3,564	4,829	3,555	4,817
Countries	133	134	133	134	133	134
Wald-χ^2	4715	1122	364.3	291	788.8	34232
$p > \chi^2$	0	0	0	0	0	0

Clustered standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Coefficients for context variables and the cubic polynomials of the time since the last onsets of interstate and civil war are not reported.

Table 7: Results of Random Effects-Logit models with context variables and a different specification of the dependent variable.

	(1) interstate war onset	(2) interstate war onset	(3) intrastate war onset	(4) intrastate war onset	(5) conflict onset	(6) conflict onset
Log arms imports	0.089	0.127	0.172**	0.096	0.149***	0.108
	(0.098)	(0.079)	(0.084)	(0.094)	(0.054)	(0.957)
Mil. expenditure	−0.221	−4.505	6.544	3.457	3.645	2.218
	(3.542)	(6.940)	(4.460)	(2.968)	(2.255)	(3.335)
Alliances	0.039	−0.035	−0.108	−0.110	−0.096	−0.078
	(0.142)	(0.088)	(0.225)	(0.108)	(0.073)	(0.102)
Rivals	0.256		0.111		0.207	
	(0.339)		(0.355)		(0.188)	
Neighbors	−0.056	−0.237	0.443	0.390	0.292	0.137
	(0.362)	(0.238)	(0.354)	(0.373)	(0.265)	(3.770)
Major power	−1.791	−9.752	−5.956	−18.509**	1.319	−0.529
	(7.625)	(6.159)	(7.156)	(8.771)	(1.187)	(15.708)
GDP per capita	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log population	−1.717	−2.143**	0.361	−0.427	−0.147	−0.719
	(1.270)	(0.835)	(0.636)	(0.672)	(0.472)	(2.068)
Democracy	−0.045	−0.062	0.089***	0.087***	0.052**	0.050
	(0.049)	(0.041)	(0.033)	(0.029)	(0.025)	(0.295)
Mountains	0.003	0.001	0.005	0.006	0.004	0.003
	(0.010)	(0.008)	(0.006)	(0.006)	(0.005)	(0.115)
Noncont. territory	0.969		3.817*		2.525***	
	(0.861)		(2.017)		(0.731)	
Oil	−0.442		−0.441		−0.404	
	(0.582)		(0.601)		(0.350)	
New state	3.215**		2.247***		2.237***	
	(1.524)		(0.785)		(0.650)	
Instability	0.285	0.664	1.208*	1.226**	1.173**	1.182**
	(1.157)	(1.091)	(0.648)	(0.557)	(0.563)	(0.556)
Ethnic fract.	1.799	2.599**	-0.896	-0.210	-0.388	0.179
	(1.218)	(1.208)	(1.423)	(0.669)	(0.664)	(7.478)
Constant	5.102	4.390	7.996**	4.291*	5.330**	3.160
	(4.626)	(3.919)	(3.684)	(2.547)	(2.246)	(30.186)
Observations	3,981	5,437	3,539	4,787	3,520	4,765
Countries	133	134	133	134	133	134
Wald-χ^2	1059	545.7	401.9	316.4	661.2	448.8
$p > \chi^2$	0	0	6.31e-07	2.54e-10	2.73e-09	0

Clustered standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Coefficients for context variables and the cubic polynomials of the time since the last onsets of interstate and civil war are not reported.