Burden sharing in security organizations

Broadening the burden sharing debate

Marion Bogers

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Chapter 1

Chapter 1: Introduction

States currently face new challenges and enduring threats. The enduring threats range from aggressive actions by other states, terrorism, proliferation of weapons of mass destruction and advanced missile technology, to the possible consequences of climate change. States also react on new challenges such as pandemic diseases, cyberattacks, economic interference and disinformation campaigns. It is useful to distinguish between safety and security threats. A security threat is the result of, often, a 'planned' human action, for instance a terrorist attack. A safety threat (incident), on the contrary, is often the result of either (unintended or unplanned) human behavior in combination with the environment or the result of an environmental incident (e.g. flooding or pandemic diseases) (Pièrre-Cambacédes and Chaudet 2010; Beeres et al. 2016). It is important to distinguish between safety and security threats, because this distinction provides insight into the origin of the threat and the necessary measures to develop and counter the threats.

Some safety and security threats require counter measures that individual states cannot deliver efficiently and effectively on their own. Considering that the desired safety and security level cannot be effectively and efficiently produced by individual nations may lead nations to decide to develop a collectivity whose main purpose will be the achievement of the desired security solution (Russett and Sullivan, 1971; Soeters, 2020). In the literature these solutions are variously described as *public goods*, *collective goods*, *international public goods* or *global common goods*. To prevent possible quagmires springing from differences in terminology, in this introductory chapter *international public goods (IPG's)* is used as an encompassing notion. IPG's are defined by two characteristics *non-exclusiveness* and *non-rivalness*. Non-rivalness means that a nations consumption of a good does not affect the amount available for consumption by other nations. For example, the US nuclear umbrella can protect additional allies without diminishing the protection available to existing allies. Non-exclusiveness means that once these goods are provided, no nation can be excluded from consumption (Sandler and Hartley 1999). It is assumed that the good is purely public if it conforms completely to both criteria. The term *international* is often used for goods which benefits extend well beyond national boundaries, meaning that almost everybody on the globe benefits from the good. A *regional* public good is a good whose benefits accrue to a group of neighboring nations. A *club* good is a good whose benefits accrue to a specific club, for example North Atlantic Treaty Organization (NATO). NATO was founded after the Second World War with the aim to guarantee the safety and security of member states and to foster stability and security worldwide. Likewise, the United Nations (UN) were founded to facilitate international cooperation to prevent a new World War (UN 2021). Today, countries all over the world participate in various international organizations (IOs), working together on different safety and security challenges.

A factor to be considered in the design of an IO is the sectoral scope of the response. A narrow scope (specialization) is a preferred criterion for a public good oriented towards a specific demand for a select group of states. However, specialization can be counterproductive for goods with important externalities in relation to other types of goods. For these goods it is preferred to be produced by an organization capable of supplying different goods at the same time (UNIDO, 2008). Another factor to be considered in the design of IO's is the jurisdictional coverage. Some organizations act regionally, other more globally.

Figure 1, using the classification of 'activity coverage' and 'jurisdictional coverage', presents a number of examples of organizations that provide IPG's. IO's that provide IPG's that are examined in this study are included as an example. NATO is an example of an organization that specializes in one security domain and mainly focuses on the security of a group of countries. The Financial Action Task Force (FATF) is an example of a specialized organization acting globally, as it is the global money laundering and terrorist financing watchdog that tries to convince as many countries as possible to join as a member. There are also states that form a small collective and focus on multiple security domains. For example, countries in the European Union (EU) work together on external border surveillance, crime fighting, civilian and military operations outside the EU, active human rights policy and antiterrorism policy. The European law Enforcement Agency (EUROPOL) and the European Border and Coast guard agency (FRONTEX) are examples of agencies that assist EU members in their fight against international crime, terrorism and border protection. Finally, there exist international organizations, such as the United Nations (UN), that bring together most states in the world and focus on multiple security domains. The Worldbank, the World Health Organization (WHO) and the United Nations High Commissioner for Refugees (UNHCR) are examples of UN specialized agencies or bodies.

FIGURE 1: Some examples of institutional responses for the provision of international public goods (adapted from: Public Goods for Economic Development, 2008)

Activity coverage	*Jurisdictional coverage*	
	Regional	***Global***
Narrow (specialized)	NATO	FATF
Wide (diversified)	European Union	United Nations

Managing international safety and security goods can be an enormous challenge for IO's. The performance of IO's[1] has been investigated by multiple researchers and varies extensively (Grygiel 2008; Tallberg et all 2016). IO's performance can be measured using three measures: its output, outcome and impact (Young 2001; Roller 2005; Gutner and Thompson 2010). Output refers to the policies of an institution. The outcome measures the implementation of programs and rules. Impact provides insight into the behavioral changes of those addressed by the policies of the institution (Tallberg et al. 2016). Barnett and Finnemore (1999) argue that the rational-legal authority that international organizations embody give them power independent of the states that created them. International organizations can define shared international tasks and create and define affected parties (e.g. refugee) and/or create new interest for nations to act upon (e.g. promoting energy goals). An example of a policy that is considered as an output of an IO is NATO's guideline to spend two percent of Gross Domestic Product (GDP) on defense. This guideline principally serves as an indicator of a country's political will to contribute to the alliance's common defense efforts (NATO, 2020). According to Tallberg et al. (2016) output measures are more in favor to study IO performance than outcome- or impact measures. The outcome and impact of IO's are in all likelihood to be affected by confounding factors. An outcome measure, such as NATO members' compliance to the two per cent goal, is difficult to identify as NATO's contribution. In this example, non-compliance by several NATO members does not necessarily mean that NATO has done a poor job. Domestic politics, austerity, diverging threat perceptions can all contribute to the compliance gap of individual states with the two per cent guideline. So, when NATO fails to expand its capabilities, this is not solely due to the functioning of NATO but also their inability to take strong actions due to their dependence on member states. Eventually, IO's are still creatures of sovereign states and rely for their resources virtually entirely on its members which makes them dependent (Ness and Brechin, 1988). The alignment of member states is a crucial aspect for international organizations' success.

Another factor to consider is that there can also be elementary cultural differences between states in terms of the preference to use force, the sanctioned range and the type of missions, and the resources justified to carry them out (Zyla, 2011). States may respond differently to security threats. An example is given to clarify the disparities in the behavior of NATO states. Since 2016, the European Parliament called three times for a European weapon embargo against Saudi Arabia. According to Human Right Watch the Saudi and Emirati-led coalition attacks in Yemen were in violation with the laws of war as is the brutal murder of Saudi journalist Jamal Khashoggi, for which the Saudi government was held accountable. The last resolution, in 2018, was supported by a vast majority of EU members and also sparked domestic discussions in other NATO countries like US and Canada. Eventually, only a few countries have halted their arms sales to Saudi Arabia (Bogers et al., 2021).

1 By international organizations, I consider formal intergovernmental, multilateral and bureaucratic organizational structures established to further cooperation among states (Martin and Simmons 2012; Rittberger et al. 2012).

In this respect, former Chancellor Merkel stated: "we have, because of our history, very good reasons to have strict arms export controls" (Deutsche Welle, 2019). She hereby refers to Germany's enduring memory of the horrors of World War Two – not only the shame of Nazi crimes but also the devastation of cities and the many civilian casualties. Main arms exporters to Saudi Arabia – such as the United States (US), United Kingdom (UK), France and Spain– have discussed but not implemented the restrictions. France is one of the main arms exporters that still supplies weapons to Saudi Arabia. In a statement the Minister of the French armed forces explained why: "maintaining economic relations with the Gulf States means keeping a presence in key regions for our security interest and our energy supplies" (Irish, 2019). He also stated that he did not have any evidence that would lead him to believe that French arms are behind the origins of civilian victims in Yemen (Kar-Gupta, 2019). Also, the US continued their arms export to Saudi Arabia. Surprisingly, in 2017 the US signed a 110 billion-arms deal with Saudi Arabia. According to Rex Tillerson, the then US Secretary of State, this deal supports the security of Saudi Arabia and the Gulf region in the face of malign Iranian influence and Iranian related threats (Hindustan Times, 2017). He also explains that the US would be foolish to cancel these contracts, Russia and China would step in and be the enormous beneficiaries (Buncombe and Daragahi, 2018). SIPRI figures show that in absolute numbers the US is the largest exporting country to Saudi Arabia and 21,44% of its arms exports went to Saudi Arabia during the period 2013-2019 (own calculations from SIPRI, 2020). So, in this particular case there is also a large financial interest for the US weapon industry which profits not only from domestic sales but also from the arms export. This could be an indication that President Eisenhower concerns phrased during his farewell speech in 1961, regarding a future in which a powerful military-industrial complex endangers US liberties and democratic processes, is becoming a reality (Eisenhower 1961; Dunlap 2011). In summary, despite the call of the European Parliament for an arms embargo and Human Right Watch reviews on human right practices by the Emirati led coalition, NATO countries decided differently on the arms trade with Saudi Arabia. This example shows that before states' governments decide to contribute (or not to contribute) to the collective, they make their own tradeoff between the strategic, political, economic and security implications for their country. Ultimately, we live in a world where sovereign states are not yet ready to accept strong global coercive IO's, what makes it difficult for IO's to put pressure on states, when states lack to contribute to IPG's.

Another factor to consider is that from a practical perspective, states place different values on IPG's. Their willingness to contribute to the cost of providing the goods will depend on the perceived benefits. The problem with IPG's is that everyone shares the benefits, even those states not contributing. So, the incentives to invest in IPG's are often weak. States

that underinvest in public goods are often called freeriders[2]. The freerider problem[3] is one of the most widely discussed social dilemmas in economic theory. A state can choose between its own interest and the collective interest. Individual states may try to convince or coerce each other to contribute to the public good, but cannot activate a higher authority, a supranational organization, to enforce compliance with agreed treaties or the collection of taxes (Russett and Sullivan 1971). It is important for the collective to make decisions regarding the amount of the good and the implementation of a burden sharing mechanism to assure a fair allocation of the costs among all states.

The question of burden sharing is as old as the collective action problem. A collective action problem occurs when a group members have an incentive to choose to pursue individual gain, rather than behave in the whole group's best long-term interest, resulting in a collective loss (Dawes et al., 1986). It applies to organizations where people work together to achieve a common objective, it also occurs in international organizations where states work together to guarantee their security. This brings up the question: What is a fair burden sharing mechanism?

Two aspects are important to answer this question. First, what is a fair distribution, and second, the definition of the *burden*. Cimbala and Foster (2010) define burden sharing as *the distribution of costs and risks among members of a group in the process of accomplishing a common goal.* But when the *burden* is about costs and risks, what are these costs and risks, and also relevant, how to measure both of these variables? And if we understand the distribution of the burden, can we also explain the burden sharing behavior of states? There may be legitimate reasons for states' under-contributing behavior. Perhaps the same reasons as set forth in the arms embargo example helps to better understand Germany's behavior regarding the two per cent goal and their reluctant attitude toward offensive military missions. The specified reasons outlined in the arms embargo example could also contribute to a better understanding of the over-contributing behavior of the US. The high level of defense expenditures by the US can be explained, among other things, by their status as a great power with a corresponding large-scale weapon industry. Apparently, the strategic culture of countries, consisting of a shared set of beliefs, ideas and standards regarding the use of their military, plays an important role in burden sharing discussions. The arms embargo example also shows us that states contributions do not always sum-up. Is an arms-embargo effective, while some large arms exporting countries continue their trade? The next section will elaborate on these relevant questions.

2 States that receive a benefit without contributing towards the cost of its production, are called *freeriders*.

3 The *freeriding problem* occurs when the efficient production of collective goods by states is jeopardized by the incentive each state has not to pay for it (the supply of the good is inadequate or the supply is adequate, and one can receive it without paying).

Research gaps and political debates

In NATO, the burden sharing discussion still seems largely based on an input measure, the financial parameter 'defense expenditure as a percentage of gross domestic product (GDP)'. Especially former US President Trump has put a lot of pressure on the European allies to meet the two percent spending guideline NATO set in 2014. This guideline should be met by 2024 and is treated as a key political metric of what burden sharing performances should be (Cordesman, 2018). Trump demanded several NATO members to boost their defense spending and threatened to shift US military presence in Europe if they would not act upon it. In 2020, the US withdrew 12,000 troops from Germany, described as a 'strategic' repositioning of US forces in Europe. According to some observers the move was a response to Germany's failure to meet NATO targets on defense spending (Reuters, 2020). NATO Secretary Jens Stoltenberg's opinion is that burden sharing is not just about money. Burden sharing is also about capabilities and contributions to NATO missions and operations (NATO, 2017). However, the strength, efficiency and output of the armed forces are barely touched upon in the NATO burden sharing debate (Hartley and Sandler, 1999; Beeres and Bogers, 2012).

The burden sharing behavior of states during crisis response operations has also been relatively neglected in scientific literature (Oma, 2012). With crisis response operations' other indicators, such as 'the willingness of states to operate under difficult and dangerous circumstances' become important. During the ISAF mission in Afghanistan, former US defense secretary Robert Gates warned that NATO risks becoming a two-tier-alliance with some allies who are willing to fight and die for security and others who are not (Financial Times, 2008). Parameters to measure the risk sharing behavior of states are rarely used in burden sharing literature (Sperling and Webber, 2009; Ringsmose, 2010). States can also have different notions of distributive fairness. In the case of NATO security, there is no single predominant nation (anymore) who is willing to provide the security of NATO's territory on its own. In such a situation, one of the challenges is to find some scheme of burden sharing that can be accepted as 'fair' to all NATO members.

Ringius et al. (2002) focus on three different but complementary notions of fairness: (1) equality: all parties should have equal obligations; (2) equity: costs and benefits should be distributed in proportion; (3) exemption: no contribution will be required from the most disadvantaged parties who lack the capacity to contribute. NATO's two per cent guideline finds its origin in the equality notion. As stated earlier, former President Trump criticized some NATO members for not spending enough money on defense and indeed there is an underlying truth to Trump's criticism, the US spends a lot of money on defense and the protection of Europe. However, the US also benefits from NATO alliance. The US involvement in NATO has long helped the US to solidify its role as a global superpower. And as explained in the arms trade example, the US weapon industry has the power to influence US public policy.

More research into the factors and motives of states to contribute to the collective can help to better understand the burden sharing behavior of states and perhaps better understand the motives for the *under-contributing* or *over-contributing* behavior of states.

Researchers from various disciplines have conducted research into explanatory factors to explain the burden sharing behavior of states. These factors are combined in one framework by Bennett et al. (1994) and Bellamy and Williams (2013). Bellamy and Williams (2013) focus on the factors to explain the contributions of states to UN peacekeeping operations. They distinguish six main factors to interpret the behavior of states: political rationales, economic rationales, security rationales, institutional rationales, normative rationales and strategic culture. As outlined above different rationales can explain the behavior of states (not) to implement an arms embargo in the case of Saudi Arabia. This also applies to the decision of states to contribute troops to out of area operations.

For example, the divergent contributions of the Dutch Armed Forces to UN peacekeeping operations in the period 1990-2018 can be explained by strategic culture rationales, security rationales and political rationales. After the Srebrenica debacle in 1995 the Netherlands contributed only token contributions to UN peacekeeping operations until the year 2013. These token contributions were influenced by the negative experience of the Dutch Armed Forces in the Former Yugoslavia. Despite the fact that Srebrenica had been denominated by the UN as a 'safe area', this could not prevent the enclave being overrun by Bosnian Serb forces in July 1995, killing about 8,000 civilians. The Srebrenica disaster had a long-lasting impact on Dutch behavior regarding military operations in general and UN peacekeeping in particular (van Willigen, 2016). Surprisingly, the Netherlands after years of token contributions to United Nations peacekeeping operations, contributed in 2013-2019 with more than 300 soldiers to the UN operation MINUSMA in Mali. The Dutch approach towards UN peacekeeping operations appears to have changed. Nowadays, security rationales and political rationales seem to be predominant. Some research has been done to investigate explanatory factors for the contribution of states to a particular operation. Longitudinal research has not yet been conducted into the role of certain factors during multiple operations.

Finally, most of the burden sharing studies concentrate on public goods where the larger states can compensate for the smaller states. However, there are also public goods where the larger states cannot compensate for the less performing states as allied defense efforts are not substitutable, i.c. weakest link goods and best shot goods (Hirshleifer, 1983). In case of a weakest link good the overall consumption level is only as large as the smallest provision level of a NATO member. In case of a best shot good, the largest provision level determines the consumption level of all NATO members (Sandler, 2006). Both weakest link and best shot goods are underexposed in the burden sharing literature, but in view of current

threats (terrorism, cyber threat, climate change, arms trade, COVID-19) they constitute a very interesting and important topic (Sandler, 2006). Some states may actually be less willing or able to carry the burden of fighting terrorism and undo the efforts of states that do (Lee, 1998; Clunan, 2006). In this case, other burden sharing discussions become apparent. Do states agree on the strategy to solve the weakest link (financial support, coercion, rewards) and how is this 'new' burden distributed among states?

Research goal and outline dissertation

This dissertation aims to broaden the debate on burden sharing in international organizations, by expanding current knowledge about burden sharing behavior. The main objective is to extend existing knowledge on burden sharing. The intent is not to create a new theory, but rather to propose several concepts for discussing the burden sharing theory development process.

First, the next chapter provides both a quantitative and a qualitative review and interpretation of 153 journal papers on NATO burden sharing behavior published over the period 1966-2020. NATO burden sharing literature is perceived as the most comprehensive literature on the theme *burden sharing* compared to other research. The chapter elaborates on three paradigms reflecting the main questions and views within their particular realm of burden sharing research. Together, the three paradigms study [1] the distribution of (defense) burdens; [2] the determinants of burden sharing behavior; [3] and how contributions to the public good of nations merge to determine the overall level of the good available for consumption. The chapter concludes that although the multi-product and multidimensional character of states' contributions necessitates more comprehensive and integrated research, studies on NATO burden sharing behavior are mostly conducted within one of those three specific paradigms, studying the ensuing main question and following the methodological approach characteristic to the paradigm. To advance our understanding of contemporary burden sharing there is a need for a more interdisciplinary approach integrating main questions and methods to create interaction and leverage between research disciplines. Burden sharing literature can benefit from cross-paradigm fertilization. The process of producing a collective security good should start with defining *the nature of the good* (summation, weakest link, best shot) and *the burden (paradigm three)*, before any discussion can take place on the distribution of the burden *(paradigm one)*. A discussion on the distribution of the burden should go hand in hand with an understanding of how states perceive and value collective burdens *(paradigm two)*.

Second, chapter three, four and five of this dissertation debate on relevant gaps and questions within the first paradigm. After the fall of the Berlin wall, when NATO turned to crisis response operations, the understanding of the concept *burden* changes from an input perspective to an output perspective, to risk sharing behavior and soft power issues (Bogers and Beeres, 2013; Hartley and Sandler, 1999; Ringsmose, 2010; Sandler and Shimizu, 2014; Sperling and Webber, 2009; Boyer, 1989, 1990; Chalmers, 1993, 2000). The chapters contribute to the burden sharing literature by providing burden sharing analysis focusing on these new definitions of *the burden*. The findings support the argument that in assessing burden sharing behavior, the selection of a specific parameter does make a difference. A framework consisting of multiple measures and parameters is recommended.

Third, in the wake of the rapid rise of out-of-area operations, academics have begun to investigate states' contributions to specific missions and, as a result, research within the second paradigm has soared. This shift in the debate provides more information on *how* and *why* states contribute to a specific mission. However, it provides little information on the longitudinal behavior of states. Chapter six investigates the possible self-interest behavior of states, in doing so it elucidates on a relevant question within the second paradigm: is there a recurrent pattern in the behavior of states?

Fourth, to date states are confronted with the spread of weapons of mass destruction, cyber-attacks, terrorism, pandemic diseases, threats to energy supplies as well as environmental challenges with security implications. Such threats surpass most single state's or multilateral organization's coping capacity, necessitating NATO to cooperate with - often novel – partners (NATO 2020). Individual contributions to these threats do not always sum-up, instead, they can be characterized as a weakest link or best shot good. To date, empirical research on these goods is still under-applied. Chapter seven contributes to this research gap as it addresses specific burden sharing issues in the case of a good (e.g. weakest link good) where nations contributions do not sum up and fits within paradigm three.

Finally, Chapter eight focuses on the main conclusions of this dissertation and reflects on the broader theoretical contribution of the study, possible directions for future research are outlined. The next section shows the relation between the chapters in this dissertation and the three paradigms and discusses the content of the various chapters in more detail.

Paradigm 1: distribution of (defense) burdens, chapter 3, 4 and 5.

Chapter three contributes to both the burden sharing literature as well as the emerging research on armed forces' performance measurement in crisis response operations. As discussed, the burden sharing debate is centered on the input side of the armed forces using the parameter defense expenditure as a percentage of Gross Domestic Product (GDP). It is discussed that using an indicator focused solely on expenditure provides no insight

into the multifaceted defense output (e.g., deterrence, defense, crisis response operations and national operations) of allies. To construct a meaningful narrative on burden sharing behavior this chapter contributes to the literature by formulating measures that can meaningfully characterize the input, throughput and output dimensions. Therefore, this chapter illustrates the performance of the European Armed Forces (EAF), over the period of 1995-2008, by formulating and comparing different measures for the input-, throughput- and output dimensions. As said before, the findings support the argument that in assessing burden sharing behavior, the selection of a specific performance measure or a set of performance measures does make a difference.

Chapter four contributes to the literature concerning burden sharing in specific crisis response operations. With crisis response operations other indicators, such as 'the willingness and ability of states to operate under difficult and dangerous circumstances' become important. During the ISAF mission the risk sharing behavior was an important subject for debate between NATO members. Surprisingly, parameters to measure the risk sharing behavior of states are rarely used in burden sharing literature. This chapter contributes to the literature providing a quantitative expression of burden sharing behavior using different parameters to measure the risk sharing behavior of NATO and non-NATO allies during the International Security Assistance Forces operations in Afghanistan from 2001 to 2010. The research results show that some states have operated in the most-risky parts of Afghanistan bearing a heavy burden (i.e., high number of casualties), while other countries operated in more stable regions. The findings support the argument that to construct a meaningful narrative on burden sharing behavior the 'ability' and 'willingness' of states to operate under difficult and dangerous circumstances should be part of the debate.

Chapter five contributes to the burden sharing literature that broadens the scope of the burden sharing debate beyond 'the narrow military approach' (Boyer, 1990). Facing divergent threats, states will increasingly need to collaborate on additional dimensions to protect their citizens. Next to the military burden-sharing debate, questions as to whether states are contributing their fair shares on other safety and security dimensions is also subject to debate. One state could over-contribute to the production of the military good, while under-contributing to other public goods. It is discussed that to construct a meaningful narrative on burden sharing behavior researchers must be aware that states do not value certain public goods equally, nor do they agree on any one scenario pursuing shared strategies. Chapter five contributes to the literature as it analyzes national contributions of 28 NATO states to five dimensions related to today's safety and security situation, namely military expenditures, foreign aid, combating terrorist financing, carbon dioxide reductions and refugee protection. The findings show that states can and do contribute in different ways to global safety and security. The chapter contributes to the literature by suggesting to transform the burden sharing debate from the negative (i.e., the costs) toward a dialogue on *benefit sharing behavior*. Using one's own and the other states' strengths to achieve mutual benefits, mutual understanding, and mutual recognition of the value of each other's contributions may sustain cooperation across all dimensions of safety and security.

Paradigm 2: determinants of burden sharing behavior, chapter 6

Measuring the burden sharing behavior of states provide insight in the question 'how much states contribute to the collective good', but little information on why states over- or under contribute to the collective. An assembly of scientific articles, which have its origins in international relations theory address to this question. Qualitative research methods are normally used to research this paradigm. Chapter six contributes to this literature by exploring the possible self-interest behavior of UN Security Council candidates longitudinal. There is no consensus in literature as to why states contribute troops to peacekeeping operations. Duyvesteyn (2017) argues that military participation in UN peacekeeping operations serves the political interest of obtaining an UN-seat. Diverse qualitative country studies (do Céu Pinto, 2014; Koops, 2016; Murphy, 2016; van Willigen, 2016; Capie, 2016; Tercovich, 2016) suggest evidence of such self-interest behavior of states. On the contrary, quantitative research findings show no evidence for such a relation (Bove and Elia, 2011; Dreher et al., 2014). One could argue that the studies (using either qualitative- or quantitative research methods) show different outcomes. It is not necessarily the case that one is right and the other is wrong and chapter 6 searches inter alia for an explanation of the divergent results. The chapter explores the contribution of 118 states to United Nations peacekeeping operations from 1990-2018. In particular, it analyzes if and which UN Security Council candidates are more likely to increase their contributions during the election period. In doing so it elucidates on another relevant question within the second paradigm: is there a recurrent pattern in the behavior of states? The findings are unequivocal. If the desire to become or be a non-permanent UNSC member influences state's decision to participate in UN peacekeeping missions, or alternatively mission participation raises the ambition level to become a non-permanent UNSC member, most states do not seem to opt repeatedly for this foreign policy tool. Peters (2002) has argued that political factors affect the initial selection of foreign policy instruments, including peacekeeping, and the ultimate implementation of policy. He states that the influencing factors seem to differ from country to country.[4] In this chapter it is argued that these factors might also differ per country over time.

4 Guy B. Peters, *The politics of tool choice*, in: *The tools of government: A guide to the new governance* ed. L. Salamon (Oxford: Oxford University Press. 2002).

Paradigm 3: Merging the individual member states' contributions, chapter 7

Finally, the third paradigm explains how contributions to the public good of nations merge to determine the overall level of the good available for consumption. The literature review shows that, to date, empirical research on social composition functions, like best shot goods and weakest link goods, are still under-applied. Chapter seven contributes to the burden sharing literature by an empirical investigation of a weaker link good. It provides a quantitative expression of the burden sharing behavior of 174 states in the case of combating terrorist financing. This burden sharing discussion differs from the well-researched burden sharing debate in the context of NATO. In the case of NATO, the US or larger European states could compensate for less performing states as allied defense efforts were substitutable. In the fight against terrorist financing nations efforts are not substitutable, consequently the state with the smallest individual contribution determines the level of the collective good for the entire alliance. States that do not implement FATF standards to control terrorist financing, can undo the actions of those that do. The effectiveness of the alliance in their fight against terrorist financing is thereby determined by its weakest link (Bogers and Beeres, 2013). In this particular case the weaker link principle affects the alliance in different ways and invoke novel burden sharing issues, such as, whether member states agree on how to solve the weaker link, or, how to distribute new burdens among themselves (Bogers et al, 2020). These specific burden- sharing issues are addressed in this chapter.

Methodological choices and considerations

This study aims to broaden the debate on burden sharing in international organizations, by expanding current knowledge about burden sharing behavior. To achieve this objective, it extends the mainstream academic approach on burden sharing in the security realm. Most of the academic burden sharing papers use a deductive approach and are predominantly based on Olson and Zeckhauser's work *the Logic of Collective Action* and Sandler's *Joint Product Model (JPM),* testing the hypothesis of 'the exploitation of the great by the small' (Olson and Zeckhauser, 1966; Sandler, 1977; Sandler and Forbes, 1980). The aim of this study requires a research strategy that has a more inductive approach. Rather than testing predetermined hypotheses and considering burden sharing as an *output* its focus is more on the *process* (Zyla, 2018). It aims to contribute to a constructive, meaningful in-depth burden sharing debate.

As said, this dissertation starts with a literature review. This review pulls together different streams of burden sharing research and tries to incorporate them into a coherent framework to achieve a burden sharing agreement that is considered as fair and effective by most states. Next, the study integrates multiple dimensions and parameters relevant to gain more knowledge about burden sharing behavior within the first paradigm (Chapter three, four and five). The dimensions and parameters have not been selected at random. The dimensions used in Chapter three and Chapter four are based on the 'production process' of the Armed Forces. According to world leaders, politicians and scientists, today's high-tech expeditionary military operations is not only about defense spending. The ability and willingness to contribute troops to sometimes risky out-of-area operations is becoming increasingly important (Hartley and Sandler, 1999; Financial Times, 2008; Sperling and Webber, 2009, Ringsmose, 2010). Therefore, the *burden* to be shared between alliance partners is not only about the amount of *money spent on defense,* but also about *the willingness to deploy troops to risky operations*.

The parameters in Chapter three and Chapter four are not the only ones worth considering, they serve to illustrate how the burden sharing debate can be broadened. The parameters are selected from the literature (Hartley and Sandler, 1999; Sperling and Webber, 2009; Ringsmose, 2010), inspired by the specific nature of out-of-area operations and/or determined by the available data. The difficulty of gaining access to relevant data was an important factor choosing the design of these studies. Data on state's contributions to safety and security is often classified and consequently not publicly available. Therefore, the burden sharing analysis in the chapters is restricted by the availability of data. Chapter five builds on Boyer's (1989, 1990) and Chalmers' (1993, 2000) previous work. As the vast array of possible contributions to international safety and security cannot be analyzed in one single chapter, the analysis is limited to just five dimensions. These dimensions are selected in accordance with threats mentioned in various national strategy documents.

Chapter six tries to bridge the gap between quantitative and qualitative burden sharing research as it searches for an explanation for divergent research results between qualitative and quantitative studies within paradigm two. A multimethod research design is used, that advances the integration of quantitative and qualitative data. This methodology permits a more complete and synergistic utilization of data that helps to better understand the relation between troop contributions and UNSC elections.

As the Chapters three to six take on a case-based approach, Chapter seven combines a case- and a variable-based approach. The case-based approach in this Chapter provides insight into the individual performance of states on the FATF compliance standards. It gives information on which countries are committed to adopt the FATF standards. These results in combination with relevant existing theories and concepts has led to the formulation of two hypotheses in Chapter seven. The main contribution of Chapter seven to literature is that it introduces novel burden sharing issues in the security realm, as weaker link and best shot goods affect alliances in different ways.

The study design and research methods used in this study are summarized in Table 1.

TABLE 1: overview of study design and research methods

	Research methods
Chapter 2: NATO burden sharing research along three paradigms	Literature review: quantitative and qualitative analysis of 153 journal papers on NATO burden sharing.
Chapter 3: Ranking the performance of European Armed Forces	The chapter compares European Armed Forces performance on three dimensions: input, throughput and output. In order to quantitatively express performance, over the period 1995-2008, different measures are, defined, measured and interpreted for each of the dimensions.
Chapter 4: Mission Afghanistan: who bears the heaviest burden?	The chapter provides a quantitative expression of burden sharing behavior of NATO and non-NATO allies during the ISAF operations in Afghanistan from 2001 to 2010. Different risk sharing measures are defined, measured and interpreted.
Chapter 5: Burden-sharing for global cooperation on safety and security	The chapter provides a quantitative expression of the burden sharing behavior of NATO states to different security dimensions (military, foreign aid, combating terrorist financing, carbon dioxide reductions and refugee protection). Spearman rank correlation tests are used to analyze relations between states' contributions to the five dimensions.
Chapter 6: What is the relation between participation in UN peacekeeping operations and the UNSC elections?	The chapter provides a quantitative analysis of states' behavior during different time periods, before election (t-2, t-1), election year (t) and two years after the elections (t+1, t+2). It also provides a qualitative interpretation of the individual behavior of a selected group of states during UNSC election time.
Chapter 7: Burden sharing in combating terrorist financing	The chapter provides a quantitative expression of the burden sharing behavior of 174 states in the case of combating terrorist financing and address specific burden sharing issues. To measure the contributions two well-known perspectives in burden sharing literature are used: (1) ability to pay and (2) cost-benefit. Two hypotheses are tested using Mann Whitney U-test.
Chapter 8: Conclusion, discussion and recommendations	The chapter provides an overall conclusion per paradigm, a reflection on the broader theoretical contribution of the study and possible directions for future research.

Before discussing the internal validity and reliability of this study, I would like to start with a quote:

"The world is complicated, and we understand it by simplifying it"

Dani Rodrik (2018) in 'a straight talk on trade'.

The same applies to the burden sharing debate. Politicians use an input measure (e.g., defense expenditure as a percentage of GDP) to discuss contributions to NATO. Although this measure is simple and easy to understand, it does not match with today's complex world. States face new challenges and enduring threats. These enduring threats range from aggressive actions by other states, terrorism, proliferation of weapons of mass destruction and advance missile technology, to the possible consequences of climate change. States also react to new challenges such as pandemic diseases, cyberattacks, economic interference and disinformation campaigns. This study provides a convincing case for using a variety of dimensions and parameters to measure states' burden sharing behavior as a variety of burden sharing questions should be matched by a variety of burden sharing dimensions and parameters.

Is this the most appropriate way to measure burden sharing behavior? This question cannot be answered with an emphatic 'YES". This study does not envisage to build the perfect burden sharing framework. This is considered a mission impossible. However, the dimensions proposed in this study are in line with the ongoing political discussions about what constitutes *fair* burden sharing metrics. Logically, states will embrace those parameters that defend a state's own interest (Hartley and Sandler, 199). Therefore, it is important to reach a broad consensus between states before parameters can serve as useful keys to distribute future commitments. The intention of this study is to contribute to this discussion.

The burden sharing analysis in this study is compiled using data from official and accessible databases of the Financial Action Task Force (FATF), North Atlantic Treaty Organization (NATO), the European Defense Agency (EDA), the United Nations (UN), the World Bank and journals like the Military Balance. Therefore, the outcome of this research can be replicated and repeated using the same models, parameters, and data.

Relevance

The results of this research are relevant to broaden the burden sharing debate and could help transform the debate on burden sharing from the narrow military 'cost approach' into a comprehensive view on burden sharing. Consequently, it may become possible to value every state's contribution and, building on national strengths, to further cooperation on safety and security. By considering burden sharing more as a process than an output it allows politicians to have a deeper and broader dialogue. This dialogue starts with the question '*How do individual defense contributions aggregate (paradigm three)?'* The answer to this question provides insight in the interdependencies between member states' security actions. The question that needs to be examined next is '*What determinants explain states' contribution (paradigm two)?'*. The answer to this question provides insight on how collective burdens are perceived, what meaning states assign to them and states' ability and willingness to contribute. The last question that needs to be answered is '*How can the burden be distributed among states (paradigm one)'*.

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Chapter 2

Chapter 2: NATO Burden Sharing Research along Three Paradigms[1]

Since its inception in 1949, research on the burden sharing behavior among the North Atlantic Treaty Organization (NATO) member states has proved of interest to academics hailing from differing domains. As it turns out, until now, reviews on NATO burden sharing studies confine themselves to either a specific discipline (Hartley and Sandler, 1999; Ringsmose, 2010; Sandler, 1993; Sandler and Hartley, 2001, Zyla, 2018) and/or a particular period of time (e.g. Khanna and Sandler, 1996; Khanna, Sandler and Shimizu, 1998; Shimizu and Sandler, 2002; Sandler and Shimizu, 2014). Concurrent with the alliance's 70th anniversary, and spanning the period from 1966-2020, this chapter intends to contribute to deeper understanding of its member states' burden sharing behavior. We do so by conducting a systematic and comprehensive literature review. In doing so, we distinguish how three paradigms in burden sharing research, representing three perspectives aligned to the spirit of the time, have evolved over time as well as the ways in which intra- and across-paradigm research may enhance future knowledge generation to serve better understanding burden sharing behavior.

Based on both a quantitative analysis as well as a qualitative interpretation analysis of 153 journal papers, making up the literature review, three paradigms on NATO burden sharing literature have been distinguished. These are considered the main questions to be answered to advance our understanding of (future) burden sharing behavior. The first paradigm studies the question: How is the defence burden distributed among NATO member states? Within this paradigm, we find the paper by Olson and Zeckhauser (1966) to be the seminal work. The second paradigm poses as main question: What determinants explain burden sharing behavior within NATO? We consider the paper written by Kupchan (1988) to be fundamental, as this author first took a more behavioral approach to NATO burden sharing research.

The third paradigm deals with the question: How do individual defence contributions of NATO member states aggregate? As compared to the first paradigm, which focuses on how the burden is shared among NATO allies, the third paradigm asks how contributions to the public good merge together to determine the overall level of the good available for consumption (Sandler, 2006). We regard Hirschleifer's work (1983) as pivotal to this school of research by introducing social composition functions (weakest link, best shot, summation goods) to the burden sharing literature.

1 This chapter is an updated and enlarged version of the following article:
Bogers, M., R. Beeres and M. Bollen. 2020. "NATO Burden Sharing Research along Three Paradigms." *Defence and Peace Economics*, 1-14. doi.org:10.1080/10242694.2020.1819135

Although we expect the three paradigms to yield relevant insights to advance understanding of NATO burden sharing behavior, at this point, we think it necessary to pay attention to three research gaps. First, it can be noted, mostly, studies on the complex concept of 'burden sharing behavior' to be conducted from a rather one-sided perspective. By this we mean, typically, research takes place within one paradigm, studying the main question springing from that specific paradigm and according to the paradigm's own research methods. We argue that such one-sided approaches will not allow us to study, understand and address contemporary burden sharing issues more comprehensively. We suggest burden sharing research and its findings may benefit from more cross-paradigm fertilization.

Second, our literature review, comprising 153 journal papers, encompasses only a few country studies, often geared towards one particular mission. Research within the second paradigm does not offer many insights in particular intra-member state burden sharing considerations and trends. We expect, longitudinal studies can contribute to better understanding whether member states prefer specific safety and security goods and/or security strategies over others and whether task specialization could allow for varying preferences regarding member states' contributions to NATO.

Third, the literature review shows that, to date, empirical research on social composition functions is only scarcely applied in burden sharing research. We argue that social composition functions (i.c. weakest link and best shot goods) are becoming increasingly relevant and empirical research within the third paradigm will be supportive to achieve the desired overall level of goods for the alliance.

The remaining part of this chapter is organized as follows. In the second section we explain how the journal papers, underpinning this research, have been collected as well as the methods of classification used to structure and classify the selected articles. In section three, a quantitative elaboration on the literature review is presented. The fourth section presents a qualitative elaboration on the results of our literature study. The chapter ends by offering conclusions and a way forward to future research on NATO burden sharing behavior.

Data collection and analysis

The literature review concerns academic papers, collected from journals on NATO burden sharing behavior. The earliest paper (Olson and Zeckhauser) dates back to 1966. Books and dissertations are not included and neither are policy documents nor professional debates. The World Wide Web, electronic libraries and academic databases have been searched by combining the key terms 'burden sharing' and 'NATO' and 'defence'. Resulting texts have been scrutinized and those not related to NATO burden sharing have been eliminated from the selection. The same applies to publications only generally describing defence expenditures and articles that elaborate on other alliances (e.g. European Union, United Nations, Warsaw Pact). Due to a lack of translation resources, the review is limited to publications in English.

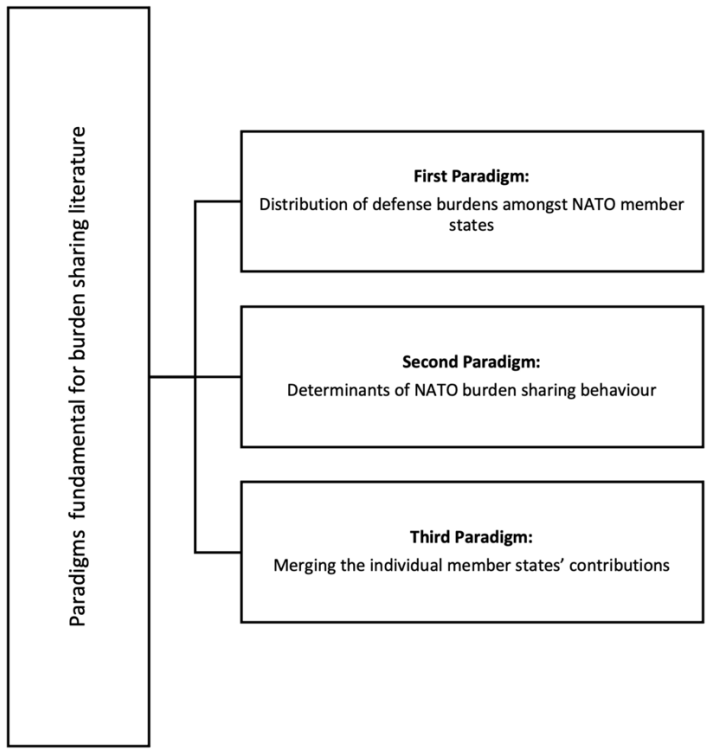
An important step towards identifying the core research questions was citation analysis. In the same way a genetic genealogy provides information about how life evolves, the record of citations provides information on how knowledge about burden sharing behavior has evolved. We consider this a reliable basis for identifying the theoretical foundations of burden sharing literature. Finally, we arrived at the beginning of the literature tree, where three articles are at the origin of each paradigm. Olson and Zeckhauser (1966) were the first to examine 'fairness of cost distribution amongst NATO member states', by introducing the "exploitation hypothesis, which predicts that those NATO members that benefit the most from the availability of a public good and have the greatest means to provide it, will bear a disproportionate share of the costs" (Duffield 1992). We have grouped papers on the distribution of defence burdens amongst NATO member states within the first paradigm. Kupchan (1988) was the first to study determinants of NATO burden sharing behavior by combining various theories on international politics. This work and other papers studying 'why' states contribute in a particular way to NATO are grouped within the second paradigm. Finally, Hirshleifer (1983) deepens the knowledge on alliance behavior by adding social composition functions (weakest link, best shot, summation) and clarifying how individual member states' contributions to the public good merge to determine the overall level of the good available for consumption (Sandler, 2006). Papers elaborating on this theme are grouped into the third paradigm (see Figure 2)

The final step in our analysis involves identifying evolutionary forms of each theory. The following rules, adapted from Moody et al. (2010), have been used in this process. (1) a theory can only be included in a theory cluster if it is a descended of a parent theory; (2) a theory is considered new if there is a major shift in the scope or boundaries of the theory; (3) a theory is considered to be new if it radically changes the structure of the theory rather than simply adding constructs or relationships.

Within paradigm one we saw a clear traceability of articles to Olson and Zeckhauser's paper. Articles that did not directly refer to Olson and Zeckhauser (1966) did have a clear reference to other influential studies (Sandler, 1977; Sandler and Forbes, 1980; Hartley and Sandler, 1999) within paradigm one. Regarding paradigm two it appears that only a few articles cited Kupchan's paper, most articles within this paradigm refer directly to Bennett et al (1994). Since Bennett's article refers to Kupchan's article, all these articles were assigned to paradigm two. All articles within paradigm three refer directly to Hirshleifer's paper.

A couple of articles assigned to Hirshleifer's paradigm also directly reference to Olson and Zeckhauser or other studies within paradigm one. One could argue that these articles extend the scope of paradigm one, as they include other social composition functions (weakest link and best shot) to the Joint Production Model. On the other hand, with the introduction of social composition functions in burden sharing theory, there is an obvious shift in the research scope. Weakest link and best shot goods clearly have other allocative and distributional implications than summation goods. For this reason, Hirshleifer's social composition functions qualify as the third paradigm.

FIGURE 2: Paradigms in NATO burden sharing literature



Distribution by paradigms

Encompassing all 153 papers, Figure 3 shows the distribution of studies across three burden sharing paradigms. As some research contributes to more than one paradigm simultaneously, the sum total exceeds 153. From Figure 3, it appears, most research on NATO burden sharing behavior is inspired by the first paradigm distribution of defence burdens amongst NATO member states (amounting to 99 papers). Both the second paradigm determinants of burden sharing behavior (42 papers) and the third merging individual member states' contributions (8 papers) have incited less research. Sixteen papers, mostly on burden sharing behavior of member states, cannot be categorized within or across paradigms. These are therefore grouped in the column other.

FIGURE 3: Paradigms in NATO burden sharing literature

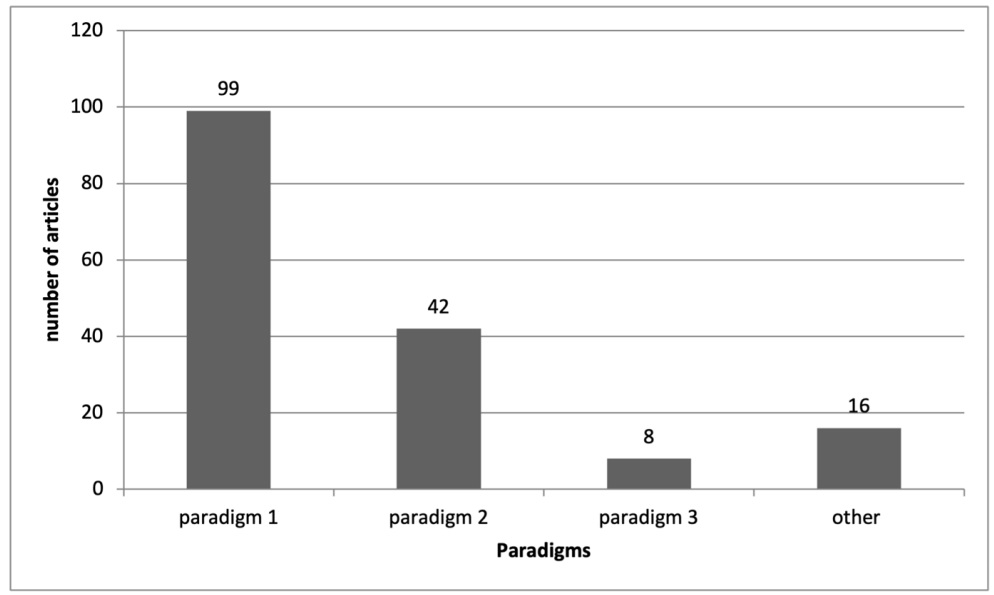
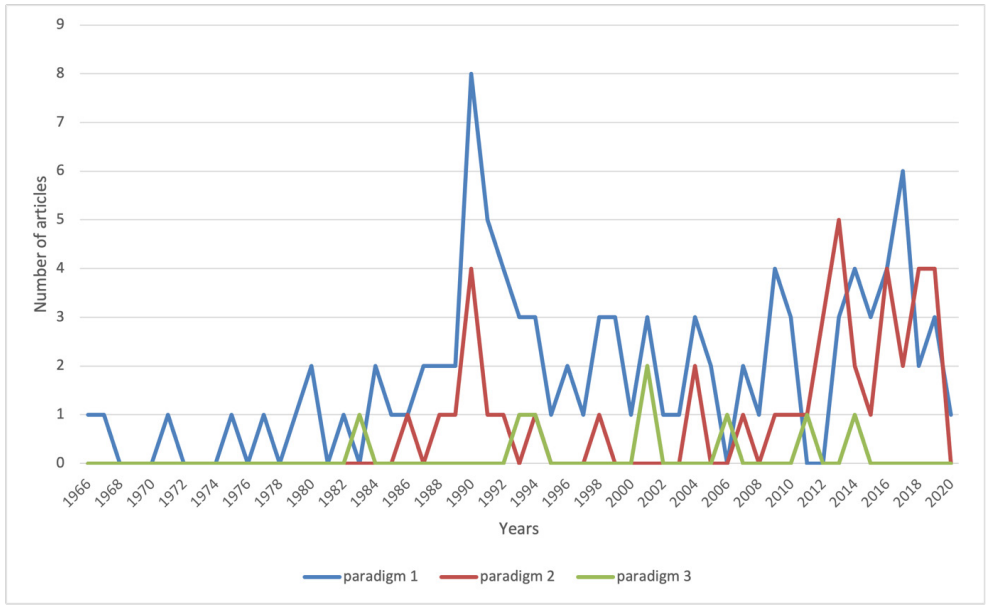


Figure 4 shows the distribution of studies across the three burden sharing paradigms over time. From 1966 until 1979, only a few articles have been published on NATO burden sharing behavior, mostly from the perspective of defense as a public good. From 1977, when Sandler publishes his research on the Joint Product Model (JPM), publications on NATO burden sharing increase, reaching their apex in 1990 – at least partially accounted for by Palmer (1990a, 1990b, 1990c, 1990d). Although, from Figure 4, it appears that from 1990 the number of publications fluctuates, academic interest in NATO burden sharing continues over time.

From the end of the Cold War, when the alliance expands and re-defines its core tasks and roles by engaging in expeditionary operations, the NATO burden sharing debate revives. From 2011, researchers gain interest in the second paradigm. The question 'why member states contribute in the way they do' has become more fundamental.

FIGURE 4: Distribution burden sharing articles by time



An interpretation of developments in NATO burden sharing literature

Based on the selected articles, in this section, the three paradigms serve to clarify developments in NATO burden sharing literature. For each paradigm, a qualitative description of evolving literature is provided, illustrated by figures representing publications, that, to us, have added considerably to knowledge creation.

First Paradigm: Distribution of defence burdens amongst NATO member states

This paradigm's main question asks: How is the burden distributed amongst NATO member states? Two aspects are important to answer this question. First, the definition of the 'burden' and, second, the applied burden sharing methods (based on fairness principles). According to Hartley and Sandler (1999) member states can contribute in different ways to the alliance: (1) on the basis of benefits received or (2) on the basis of their ability to pay proportionally or progressively. During the Cold War, Olson and Zeckhauser (1966) consider defence as a pure public good. At the time, a common notion of fairness in this period is that burdens are to be shared in some proportion to capacity and defence expenditure, as a percentage of GDP is conceived a typical measure. Later on, when, increasingly, defence is considered to be an impure good with private benefits, Sandler and Forbes (1980) develop the Joint Product Model (JPM). This model is based on a cost-benefit analysis, in which member states contribute proportionally to the benefits they receive. To measure and compare costs and benefits Sandler and Forbes (1980) designed a formula. This method requires to measure an 'Average Benefit Share' (ABS) and a 'Burden Share Index' (BSI) to measure the 'Net Benefit' (NB). This results in the following formula:

$$NB = ABS - BSI \tag{1}$$

The ABS of a nation is compared by measuring and combining the benefits: area, population, and GDP. The following equation shows the formula combining all three variables to measure the percentage of the ABS of an individual nation (i) as part of all NATO-nations (n).

$$\mathrm{ABS}_{i3} = \frac{\frac{Area_i}{Area_n} + \frac{Population_i}{Population_n} + \frac{GDP_i}{GDP_n}}{3} \tag{2}$$

At first, these benefits are grounded in what is to be protected within national borders, i.e. Area, Population, GDP (Murdoch and Sandler 1982, 1984; Sandler and Forbes 1980). After NATO transformed its interests, novel proxies for benefits were added, including Import, Export and Terrorism (Kollias 2008; Sandler and Shimizu 2014). Sandler and Forbes (1980) point out that as an ally's exact preferences are unknown, a simple average of the measures is to be used as the benefit proxy. Today, still, weighting factors are missing in the burden sharing analysis (see Solomon 2004).

The BSI can be calculated by dividing the contribution variable of an individual nation, by the sum of all NATO-nations. The following equation shows how to measure the BSI for defense spending:

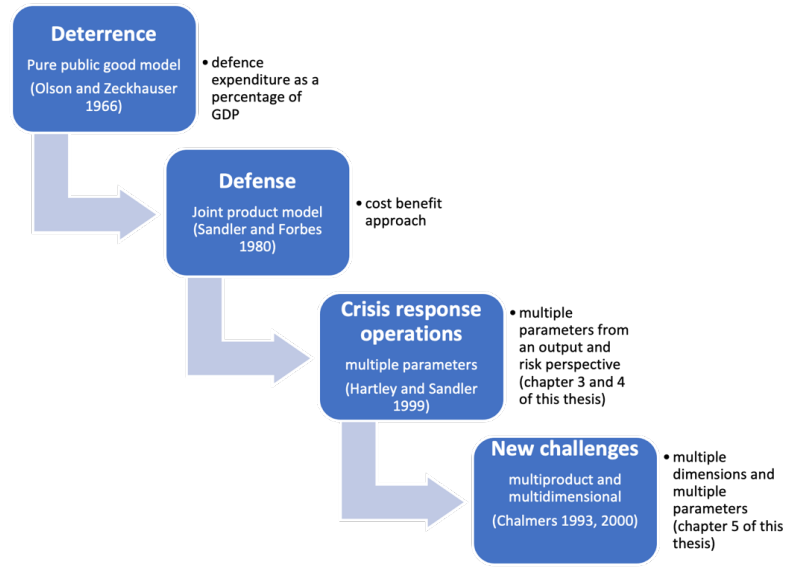
$$\mathrm{BSI}_i = \frac{Defense\ spending_i}{Defense\ spending_{\mathrm{n}}} \tag{3}$$

After the ABS and BSI, have been measured, it is possible to calculate the NB-percentage. Whenever the ABS is higher than the BSI, the NB will be positive, which is interpretable as 'free-riding' or under-contribution (Kolias, 2008). On the other hand, a negative NB means over-contribution by a nation. The following equation shows the NB formula in more detail in which (*x*) is the number of ABS-variables and (*y*) the amount of BSI variables:

$$\mathrm{NB}_i = \frac{\frac{\sum ABS_{ix}}{\sum ABS_{nx}}}{\mathrm{x}} - \frac{\frac{\sum BSI_{iy}}{\sum BSI_{ny}}}{\mathrm{y}} \tag{4}$$

Regarding the BSI, and in particular the *burden*, we argue that whereas literature is not explicit on the exact meaning of the burden, it can be deduced implicitly. Olson and Zeckhauser (1966), in keeping with the spirit of their times and the strategy of mutual assured destruction, define the burden as defence expenditure. After the fall of the Berlin wall, when NATO turned to crisis response operations, the meaning of the burden shifts from input measures (defence expenditures) to output measures (deployable and sustainable forces, troop commitments) and risk sharing measures (fatalities, caveats) (Bogers and Beeres, 2013; Harley and Sandler, 1999; Khanna and Sandler, 1997; Khanna et al. 1998; Ringsmose, 2010; Shimizu and Sandler, 2002; Sperling and Webber, 2009; Zyla, 2016b). Currently, an objective assessment of each member state's contribution is complicated by the absence of a single comprehensive indicator to quantify the multiproduct and multidimensional character of the separate contributions of allies to the NATO alliance (see Figure 5).

FIGURE 5: Distribution of defense burdens (member states)



Moreover, the question remains as to how to define and measure the benefits of crisis response operations unambiguously. Some authors use cost-benefit approaches to measure burden sharing behavior per mission, but per operation benefits are redefined. As benefits vary, a traditional analysis, as conducted by Sandler and Forbes (1980), cannot be found in recent literature. An exception is Sandler and Shimizu's research on NATO burden sharing behavior between 1999-2010. The authors extended the JPM's average benefit share measure to include terrorist incidents (Sandler and Shimizu, 2014). As a result, there is a clear shift in standards from *what is protected* (wealth, population, territory, trade) to *what is protected against* (terrorism). After this step, is seems plausible to add other threats (cyber-attacks, disinformation campaigns, energy security) to the equation as well (Balcaen et al., 2021). Capturing the above, we conclude changes in (perceived) threats and ensuing transformations of NATO strategy have complicated research on questions pertaining to burden sharing behavior within the first paradigm. Whereas during the Cold War era the burden could indeed be measured by using a single parameter of defence expenditures as a percentage of GDP, nowadays, since NATO's engagement in out of area operations, one single comprehensive indicator to quantify the multi-product and multidimensional character of the allies' separate contributions to NATO's out of area operations simply does not exist (Hartley and Sandler, 1999; Beeres and Bogers, 2012).

Second Paradigm: Determinants of NATO burden sharing behavior

Papers representing the first paradigm, offer insight into the quantitative contributions of NATO member states. Within paradigm one, the pure public good model and the joint product model predict that those states that benefit the most from the public good and states that have most means to provide the public good, bear a disproportionate share of the costs (Olson and Zeckhauser, 1966; Sandler and Forbes, 1980). As discussed above, both models do not match with NATO's new threats and changing strategy, neither can both models fully explain states' contributions to NATO.

Academics studying the first paradigm, in general, do not concern themselves with the question why member states contribute as they do. Our quantitative elaboration on the literature shows that from 2011, researchers from other research area gain an interest in exactly this question, that we label the second paradigm's main question. This subsection proceeds to present papers on the determinants of NATO burden sharing behavior (see Figure 6).

International relations theory comprises various schools of research on the foreign policy behavior of states. By means of a single case study, Kupchan (1988), investigated NATO efforts to address security problems in the Persian Gulf posing four hypotheses: (1) public good hypothesis; (2) balance of threat hypothesis; (3) alliance security dilemma hypothesis; (3) and (4) domestic politics hypothesis.

The *public good theory* and the *balance of threat theory* are frequently used by academics to explain the burden sharing behavior of states. The *public good theory* also known as the *collective action theory* has already been explained in the previous paragraph. It is based on parts of Olson's (1965) seminal work *The Logic of Collective Action* and proposes the hypothesis 'exploitation of the large by the small'. The underlying assumption is that large states will benefit from the realization of the public good even if no other state contributes, and that small states expect large states to provide the good in adequate supply (Olson and Zeckhauser, 1966; Oma, 2012). The *balance of threat theory* is based on the neo-realist theory of Walt (1987) as described in *The Origins of Alliances*. The balance of threat theory emerged in the 1980s. At the time, the most dominant model was Waltz' (1979) *balance of power theory*. This theory explains that states try to build their power to match the power of the strongest state, regardless of whether that state is aggressive. Walt (1987) was not convinced by this theory, he argued that states' ideas of security were prompted by perceived threat instead of the need to maintain a balance of power. Walt (1987) defined the foundation of the balance of threat theory to explain alliances as a response to threat. He proposes the hypothesis "the higher the threat perceived, the greater as state's propensity to contribute" (Walt, 1987). Walt distinguished four factors that affected the level of perceived threat: aggregate power, geographic proximity, offensive power, and aggressive intentions.

FIGURE 6: Determinants of NATO burden sharing behavior

Author(s)	Public good theory	Balance of threat theory	Alliance security dilemma	Internal regime theory	Domestic Politics theory			Contents
Kupchan (1988)	x	x	x		x			Persian Gulf (1980-1982)
Duffield (1992)				x				NATO conventional force levels
					State autonomy and domestic society	Bureaucratic politics		
Bennett et al (1994)	x	x	x		x	x		Operation Desert Storm
Männik (2004)	x	x	x					Estonia
Auerswald (2004)	x	x			x	x		Operation Allied Force
							National strategic culture	
Saideman & Auerswald (2012)		x			x		x	Operation ISAF
Oma (2012)	x	x	x		x	x		Review
Marton & Hyner (2012)	x	x	x		x	x		Operation ISAF
Dicke et al (2013)					x	x		Operation Unified Protector
Petersson & Saxi (2013)	x	x	x		x	x		Denmark Norway
Massie (2016)					x	x	x	Canada ISAF
Maskaliūnaite (2014)		x	x		x	x	x	Lithuania ISAF
Tago (2014)					x	x		Post-second World War coalitions led by USA
Haesebrouck (2016a)	x	x	x		x	x		Operation Inherent Resolve
Haesebrouck (2016b)	x	x	x		x	x		Operation Unified Protector
Haesebrouck (2018)	x	x	x		x	x		Review
Becker (2017)	x	x			x	x	x	Defense expenditure
Zyla (2018)	x	x	x		x	x		Review
Massie & Zyla (2018)						x		Alliance value

The *Alliance Security dilemma hypothesis* also has its origin in the balancing theory. Instead of focusing on external threats it focuses on intra-alliance threats. The hypothesis assumes that smaller states face a dilemma in their degree of commitment to the dominant power in the alliance. According to Snyder (1984) states in alliances face two fears: One is 'abandonment' (an ally de-aligns and realigns with the opponent), the other is 'entrapment' (the risk to be dragged into a conflict, which is not one's own). In short, the hypothesis assumes that small powers cooperate when they are forced to do so by a dominant power.

The *Domestic Politics hypothesis* focus is on domestic determinants of alliance burden sharing. It expects states to cooperate when there is domestic support for doing so or when political elites gain electoral advantages in tightening alliance relations or raising defence spending (Kupchan, 1988). Where Kupchan considers the overall impact of bureaucratic politics on states' decisions to contribute to be minor, Bennett et al. (1994) also incorporate 'bureaucratic politics' in their model. The *bureaucratic hypothesis* suggests that even when a state is autonomous or the population is in favour of a contribution, the level and kind of the contribution depends on the role and influence of a state's leader in relation to top bureaucratic actors (Bennett et al., 1994). Most authors use the domestic politics hypotheses to explain the magnitude and type of contributions.

Saideman and Auerswald (2004) were the first to incorporate *strategic* culture in their framework. Eventually three other authors follow this line of thought (Massie, 2014; Maskaliūnaite, 2014; Becker, 2017). According to Glenn (2009) strategic culture refers to "a set of shared beliefs, and assumptions derived from common experiences and accepted narratives, that shape collective identity and relationships to other groups, and which influence the appropriate ends and means chosen for achieving security objectives."

Overall, burden sharing studies use integral approaches (e.g., Becker 2017; Bennett et al. 1994; Haesebrouck 2016a, 2016b; Haesebrouck 2018; Kupchan 1988; Marton and Hynek 2012; Maskaliūnaite 2014; Oma 2012; Petersson and Saxi 2013; Zyla, 2018). Some burden sharing studies consider only few factors to clarify the over- and/or under contributing behavior of NATO member states (e.g. Auerswald 2004; Duffield 1992; Dicke et al. 2013; Männik 2004; Massie 2014; Massie and Zyla 2018; Saideman and Auerswald 2012; Tago 2014). These studies provide more in-depth analyses and sometimes develop supplementary explanations for the ways states behave. For example, Duffield (1992) describes the inadequacy of the balance of power theory and public good theory alone for explaining NATO conventional force levels in the Central Region of Europe. He develops a supplementary explanation based on the regime theory. The *regime theory* emphasizes the effects of enduring international factors. The hypothesis generated by regime theory is that states will in general act in accordance with

a regime's 'norms and roles', even when threat perception and/or domestic factors might entice them to do otherwise. According to the theory states are 'habit driven actors', which are conditioned to comply with regime's norms and rules (Duffield, 1992). To the best of our knowledge, this theory has not been used by other researchers to explain the burden sharing behavior of states within an alliance.

Based on the papers grouped within the second paradigm, we conclude research on NATO burden sharing behavior focuses increasingly on what determines member states' contributions. To this end, most papers apply a theoretical framework of multiple theories to find out which theory best explains the behavior of states. As the literature review shows, no single theory can answer the question why states contribute to the alliance the way they do. Instead, various theoretical insights are used to shed some light on why member states do or do not contribute. According to Figure 6, most of the scientific work analysis states' contributions to a particular operation, a few studies focus on the contribution of only one country. This aspect will be broached in the following paragraph.

Burden sharing behavior per mission/country: combining two paradigms

From the 1990s, a focus on the analysis of burden-sharing behavior per mission/ per country has broadened the scope of burden sharing literature as well as impacting burden sharing parameters applied hitherto. The current section discusses papers on altered parameters and provides an overview on executed country studies. The papers presented in Figure 7 analyze the burden sharing behavior of member states per mission, using different parameters.

Figure 7 shows that the International Security Assistance force (ISAF) and Operation Unified Protector were most frequently examined. One possible explanation, though valid for ISAF, lies in the fact that all NATO members contributed to the mission and data was available and accessible. The opposite is true for Operation Unified Protector, only a handful of European countries were able and willing to contribute to this mission which resulted in some interesting burden sharing issues to examine.

FIGURE 7: Burden sharing behavior per mission

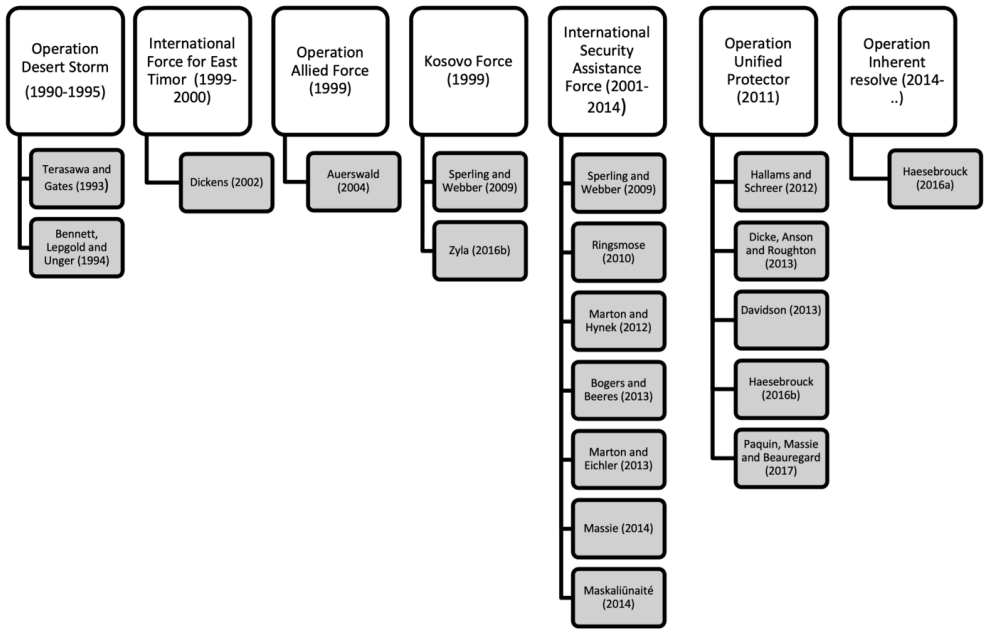
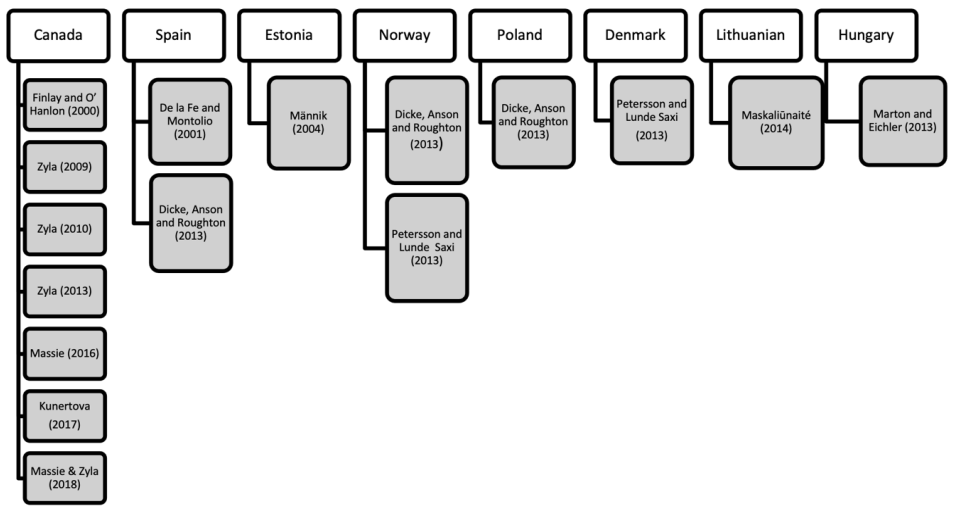


Figure 7 starts on the left side with Operation Desert Storm. Terasawa and Gates (1993) have examined the distribution of the defense burden during Operation Desert Storm using a cost-benefit approach to define benefits (preserving national sovereignty, securing Middle East oil supplies and increasing regional and international stability) and costs (defense contributions, cash in-kind and aid contributions and costs due to the economic embargo against Iraq). These costs and benefits are closely linked to this particular mission and not necessarily applicable to explain the burden sharing behavior of other missions. Sperling and Webber (2009), studying NATO allies' contributions to both the Kosovo operations and the International Security Assistance Force (ISAF) in Afghanistan, introduce risk sharing measures (stationing of troops in safe and dangerous regions, number of combat deaths, number of national caveats) to burden sharing literature. The concept of risk sharing is further elaborated by Ringsmose (2010) and Bogers and Beeres (2013), who analyze NATO burden sharing behavior during ISAF operations in Afghanistan. To this end, Bogers and Beeres (2013) use the parameters 'deployed troops', 'number of hostile fatalities' and 'willingness to operate in dangerous regions in Afghanistan' as parameters to examine member states' burden sharing behavior. Worthy of particular note is that all three articles used a cost approach and did not, in contrast to Kupchan (1988), incorporate the benefits of the operation in their burden sharing analysis.

As NATO evolves from an alliance-in-being into an alliance-in-doing (Ringsmose 2010), a new variety of indicators becomes apparent. Increasingly, both the ability of states to take part in out of area operations as well as their willingness to do so are being questioned. Hallams and Schreer (2012) express burden sharing behavior during Operation Unified Protector in Libya in qualitative terms regarding both the member states' ability and their willingness. To this end, NATO member states are divided into four main groups, comprising those (1) commanding the right troops and weapons and view Unified Protector as central to their security; (2) availing of the right means but take part in Unified Protector out of solidarity; (3) commanding the required military force but abstain from partaking because they disagree with the mission; and (4) who cannot avail of meaningful forces to contribute. The authors warn for the risk of disintegration among European allies, which could lead to a further disintegration of the NATO alliance (Hallams and Schreer, 2012).

Parallel to NATO's novel challenges, researchers gain an interest in member states' behavior to either contribute or not. As it appears highly complicated to analyze the abilities and willingness of 29 NATO member states simultaneously, country studies are favored instead. As Figure 8 shows, until today, a limited number of case studies has been conducted. Canada turns out to be the most frequently studied member state and this may be explained by the fact Canada is often seen as laggard to the United States (Zyla, 2009). For some member states, contributions to collective defense have been studied during a particular era (De la Fe and Montolio 2001; Finlay and O'Hanlon 2000; Männik 2004; Petersson and Lunde Saxi 2013; Zyla 2009, 2010) whereas, in other cases, member states' contributions to a specific mission have been analyzed (Davidson 2013; Dicke et al. 2013; Marton and Eichler 2013; Maskaliūnaité 2014; Massie 2016; Massie and Zyla 2018; Zyla 2013). Noteworthy is that several European countries (e.g., Belgium, France, Germany, Greece, the Netherlands, Portugal) are missing in Figure 8.

FIGURE 8: Burden sharing behavior per country



Third paradigm: Merging individual member states' contributions

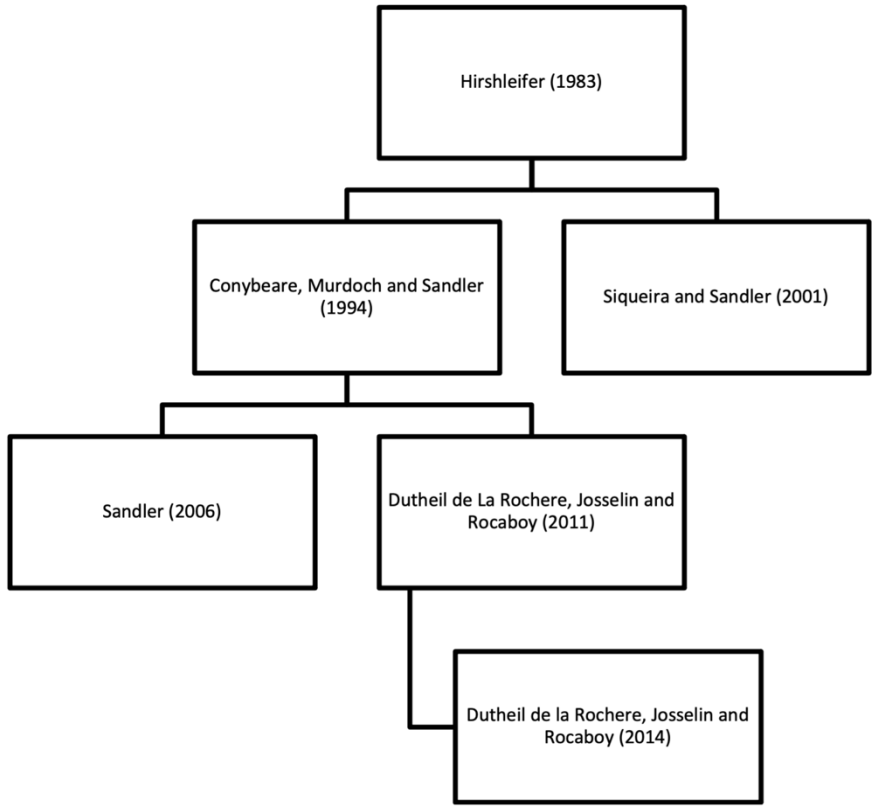
By introducing social composition functions (weakest link goods, best shot goods, summation goods) to study the merging of individual member states' contributions, we consider Hirshleifer (1983) at the forefront of third paradigm research. Social composition functions explain how individual contributions to the defense good combine to determine the overall level of the good. In most defense economic applications, individual contributions of NATO member states do not sum up, as assumed previously (Sandler 2006). Anti-terrorist goals, pursued by NATO, can be understood in terms of weakest link goods and, considering contemporary variations and spreading in (terrorist) threats, this weakest link function accentuates the interdependencies between member states' security actions (Dutheil de la Rochère et al. 2014; Sandler 2006). For example, to deprive terrorists of financial resources, each member state has to implement means to combat terrorist financing to prevent terrorists to move their financing to less protected NATO member states (Chapter seven of this thesis). As to 'best shot' goods, the largest contribution will determine the overall public good level. Sandler (2006) uses 'star-wars' defense to clarify how the best shot member state avails of all necessary capabilities to prevent enemy attacks on all. In this situation, only one system is needed to protect all allies, and this will induce extensive free-riding. Last, according to the summation function, the overall level of the public good equals the sum

total of all individual contributions, as appeared, for instance, when at the request of NATO all member states contributed troops to ISAF, to a sufficient extent, to fight the Taliban (Chapter four of this thesis)

To date, empirical research on social composition functions is still scarcely applied to NATO burden sharing behavior (see Figure 9). Conybeare et al. (1994) were the first to extend the JPM to permit social composition functions other than summation. The authors studied several alliances: Triple Alliance (1880-1914), Triple Entente (1880-1914), NATO (1961-1987) and the Warsaw Pact (1963-1987). The results show that in two of the four cases the alternative composition functions (weakest link and best shot) were more appropriate than summation. Two decades later, Dutheil de la Rochère et al. (2011, 2014) studied NATO over the period 1955-2006. The authors confirm the best shot good from 1955 to 1970 and a summation good from 1971 to 2006. From 1955 to 1970, NATO members rely heavily on US nuclear deterrence, explaining the best shot good. In 1967 the doctrine of flexible response received political approval within NATO. With this new doctrine there is complementarity between strategic and conventional forces, which calls for a greater involvement of the European allies. The technology of aggregation of contribution switched from best shot to summation.

As social composition functions can have impact on the behavior of alliance members, the third paradigm seems indispensable when analyzing burden sharing behavior. The article of Dutheil de la Rochère et al. (2011) shows that a shift in social composition function often coincides with the introduction of a new NATO doctrine. Sandler (2006) argues that both the *weakest-link* as the *best shot* social composition functions are underexposed in burden sharing literature, but in view of current threats (terrorism, cyber threat, climate change, arms trade, COVID-19) a very interesting and important topic. Hirshleifer's social composition functions offer interesting insights for politicians to address these threats. As will be discussed in Chapter 7, some states may actually be less willing or able to carry the burden of fighting terrorism and undo the efforts of states that do (Lee, 1998; Clunan, 2006; Bogers and Beeres, 2013). In this case other burden sharing discussions become apparent. Do states agree on the strategy to solve the weakest link (financial support, coercion, rewards) and how is this *new burden* distributed among states? Two interesting questions that could be more explored by academics.

FIGURE 9. Merging individual member states' contributions



Conclusion: research gaps and perspectives

In the final section of this chapter, we will conclude our findings by paying attention to three interconnected research gaps in studies on NATO's burden sharing behavior and the ways in which future research may overcome these gaps to advance understanding and to find solutions for complex burden sharing practices.

Cross-paradigm fertilization

We find, from 1966-2020, and even though the multi-product and multidimensional character of the member states' contributions necessitates more comprehensive and integrated research, studies on NATO burden sharing behavior, mostly, are being conducted within

one out of three specific paradigms, studying the ensuing main question and following the methodological approach characteristic to the paradigm.

This literature review pulls together different streams of research and tries to incorporate them into a coherent framework. We suggest the three paradigms' differing main questions and methodological approaches may benefit from cross-paradigm fertilization. Building on the advice for a multi-disciplinary research approach to burden sharing behavior, as proposed by Kim and Hendry (1995), we suggest there is a need for a more interdisciplinary approach integrating main questions and methods to create interaction and leverage between research disciplines in order to advance our understanding of contemporary NATO burden sharing behavior and to enable researchers, policy makers, politicians and the military to come up with creative solutions. For example, finding answers to the typical first paradigm question 'how to define and measure the benefits of crisis response operations unambiguously' today, still proves challenging. We think research within the second paradigm may be used to this effect, as it may lead to discover relevant variables to be used to answer questions within the first paradigm. Conversely, unexpected correlations, appearing from research within the first paradigm may be explored by using second paradigm qualitative research methods. The third paradigm focuses on the best way to produce a good, which may invoke novel burden sharing issues, such as, whether member states agree on how to solve the weakest link (e.g. (financial) support, coercion) or, how to distribute new burdens amongst themselves. First and second paradigm research can offer insights into how to achieve these goods most effectively and efficiently.

Longitudinal approaches

In the wake of the rapid rise of NATO out of area operations, academics have begun to investigate member states' contributions to specific missions and, as a result, research within the second paradigm has soared. However, our literature review shows only a few country studies have been examined and this research is often geared towards one particular mission. We suggest to study individual member states' burden sharing behavior longitudinally as we need to learn more on whether member states prefer specific safety and security goods and/or security strategies over others and whether task specialization could allow for varying preferences regarding contributions to NATO.

Empirical focus on new threats

To date, NATO faces a broader range of threats than before and the complex global security situation requires the alliance to reinforce its deterrence and defense posture, as well as

to consider supporting international efforts to protect stability and to strengthen security elsewhere in the world. Nowadays, NATO member states are confronted with the spread of weapons of mass destruction, cyber-attacks, terrorism, pandemic diseases, threats to energy supplies as well as environmental challenges with security implications. Such threats surpass most single state's or multilateral organization's coping capacity, necessitating NATO, amongst others, to cooperate with - often novel - partners (NATO 2020).

Moreover, individual contributions to these threats do not always sum-up, instead, they mostly can be characterized as a weakest link or best shot good. Based on our literature review we find that, to date, across burden sharing research, empirical research on social composition functions is still under-applied. We argue that as social composition functions are becoming increasingly relevant, empirical research within the third paradigm can add to achieve the desired overall level of goods for the alliance. In counterterrorism, for instance, multiple strategies are used (e.g. military strikes, imposing sanctions or supporting weak states), where individual member states' contributions do not sum up to provide the desired overall level of the public good 'protection from terrorism'. Whenever the characteristics (summation, weakest link, best shot) are clear, the best way to produce the good can be determined. When weakest link goods are concerned, NATO should focus on remedial action plans to solve the weakest link. Doing so, will invoke novel burden sharing issues, such as, whether member states agree on how to solve the weakest link (e.g. by offering financial support or by coercion), or, whether they agree on how to distribute new burdens amongst themselves. In case of best shot goods, only one system is needed to protect all, which may induce extensive freeriding or a waste of resources because of duplications of effort. Therefore, strong burden sharing mechanisms are required to ensure resources are pooled to produce the necessary technology in the most efficient way.

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Chapter 3

Chapter 3: Ranking the performance of European Armed Forces[1]

Over the past two decades, with regard to both their size and tasks most European Armed Forces (EAF) have undergone a series of transformations (De Waard, 2010; Osinga and Lindley-French, 2010; King, 2010). As a result, the number of troops to potentially execute crisis response operations has decreased with the remaining militaries allegedly better prepared for their jobs (Zandee, 2010). Also, at the equipment side, a sizeable amount of heavy-duty equipment (e.g., tanks, fighter jets and frigates) became obsolete and has been discarded (De Bakker and Beeres, 2010). Essentially, such transformations aim to increase EAF's deployability and interoperability (Ringsmose, 2010). To this end, the Lisbon treaty presents important innovations to the European Defence field. At the core of a more collective European Defence are the mutual solidarity clause and the commitments to further develop military and diplomatic capabilities (Hartley, 2003; Hartley and Sandler, 1999; Kollias, 2008; Nikolaidou, 2008). At the same time, the move towards more cohesiveness in European defence policy raises issues about burden sharing and free-riding amongst the EAF (Hartley, 2003; Kollias, 2008, Nikolaidou, 2008). Based on literature, a number of burden sharing indicators measuring benefits and contributions to the collective military effort can be distinguished (Hartley and Sandler, 1999; Khanna and Sandler, 1997; Kollias, 2008; Ringsmose, 2010; Sandler and Murdoch, 2000; Shimizu and Sandler, 2010; Zyla, 2016b). However, most of these indicators focus on the input-side of the armed forces featuring defence expenditure as a percentage of Gross Domestic Product (i.e., D/GDP) as the input indicator most prominently used (see Hartley and Sandler, 1999; NATO, 2009). Currently, the use of D/GDP to measure the contribution of armed forces is subject to debate amongst various European allies (Sandler and Murdoch, 2000; Van den Doel, 2004). Some countries emphasise alternative burden sharing measures may do more justice to their military contributions. It is being debated that using an indicator focused solely on expenditure provides no insight into the multifaceted defence output (e.g., deterrence, defence, crisis response operations and national operations) of allies, concomitant risks and the efficiency of their defence system. However, as yet there exists no single comprehensive performance measure to reflect the multiproduct and multidimensional nature of the allies' 'military resources', 'military abilities' and 'political willingness' to contribute to an alliance (Hartley and Sandler, 1999).

In this chapter we argue that to provide a relevant insight into EAF's performance during modern crisis response operations differing performance measures should be combined. Instead of a single myopic comprehensive measure, we suggest a balanced scorecard

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approach to be more appropriate to assess the burden sharing behavior of armed forces. To underpin this argument, by selecting, defining, measuring, and interpreting a number of burden sharing measures from alternating perspectives (dimensions), we aim to offer a balanced insight into the performance of the armed forces of specific EU countries. To this effect, this chapter compares the performance of several European nations by addressing the input, throughput and output dimensions.

Depending on the selection of measures (e.g., a percentage of a country's Gross Domestic Product (GDP), or the number of expeditionary operations the country engages in) a country will hold various positions on EAF's 'performance ranking list'. The results show that for instance, the armed forces of Greece outrank all others when comparing them on the input dimension using D/GDP. However, when comparing the same countries on the output dimension Greece comes in almost last. Ireland, on the other hand, comes in last when measured on the input dimension using D/GDP, whereas the tables turn altogether when measuring this country on the output dimension using 'number of troops deployed'. Our findings show appreciations of burden sharing behavior to vary considerably depending on the selection of specific measures of performance. We therefore conclude that to assess burden sharing behavior of the European countries meaningfully, various measures on all three dimensions should be combined.

This chapter, in drawing upon the domains of economics and accounting (Coase, 1990), contributes to both the body of burden sharing literature (Hillison, 2009; Olson and Zeckhauser, 1966; Sandler and Cauley, 1975; Sandler and Hartley, 2001) as well as to the emerging literature and research on armed forces' performance measurement in crisis response operations (Beeres et al., 2010; Beeres and van Fenema, 2008; Catasús and Grönlund, 2005; Rietjens, 2008; Van den Doel, 2004). First, by using multiple burden sharing measures we investigate the performance of the armed forces of EU members. In using differing measures, we aim to discover the impact on the EU members' burden sharing behavior. Next, over the period from 1995 until 2007, we offer a quantitative expression of EAF's performance during crisis response operations. It should be noted that the concepts of 'EU military' and 'EU defence expenditures' actually refer to 'the military of the member states of the European Union' and 'the sum total of defence expenditures of the countries of the European Union'.

The remaining part of the chapter is structured as follows. The next section discusses the concepts of burden sharing and performance measurement. Based on this discussion three dimensions to analyse the performance of EAF in terms of burden sharing are put forward. The third section explains the research methodology. The fourth section elaborates on the ways in which appreciations of EAF's burden sharing behavior are affected by the selection of specific dimensions of performance. Lastly, we review the main conclusions.

Burden sharing: performance measurement and the Armed Forces

To both confine security problems and to prevent spill over effects across the European borders, the European Security and Defence Policy has shifted towards an active engagement of the EU in international conflict prevention and crisis management (IISS, 2008). In line with this policy, European nations are prepared to make collective contributions to various military operations. Against this background, a study of Kollias (2008) analyses the concept of burden sharing by relating the expenditures regarding European defence to a benefit share index (which is based on area, population, GDP, import and export). In relation to the suggested benefits, Kollias (2008) finds some EU members to be under-contributing whilst others are over-contributing. In addition to Kollias, we hold that in applying measures other than expenditures differing conclusions regarding the burden sharing behavior of EU members can be drawn. Our research does not take the benefits of crisis response operations into account, as we feel such benefits should be discussed from an outcome perspective -e.g., the appreciation of the population in mission areas, the appreciation of the home base population, as well as the international political appreciation- (Beeres and van Fenema, 2008; Bollen and Soeters, 2010; Soeters et al., 2010). To theoretically underpin our findings, we will elaborate on the concepts of burden sharing and performance measurement. Based on the combination of these concepts we will put forward three perspectives and corresponding measures of EAF's performance.

Burden sharing

Burden sharing has been defined as "the question of how costs of common initiatives or the provision of public goods should be shared between states" (Thielemann, 2003). Olson and Zeckhauser (1966), at the forefront of analysing burden sharing behavior within NATO by introducing their model based on the pure public good 'deterrence', showed that within an international alliance, the larger nations share a disproportionate part of the incurred costs, whereas the smaller nations contribute less. Smaller nations experience little to none incentive to contribute to the collective good, because their needs already have been met. Therefore, according to these authors, smaller nations are inclined to opt for a free-ride. Drawing on this model, Sandler and Cauley (1975), designed the so-called Joint Product Model (JPM) a more comprehensive theoretical representation of alliance behavior. JPM includes private, impure public and public outputs of defence expenditures. Its implications differ significantly from Olson's and Zeckhauser's (1966) single product, deterrence model. JPM states the policy makers' defence preferences to be partially revealed and consequently, whenever, to a considerable extent, the jointly produced outputs consist of private and excludable impure public outputs 'the production of defence' can be financed by market transactions and user (or deployment) fees (Sandler et al., 1980).

Literature offers ambiguous views on the degree in which current defence operations should be considered as public goods. Shimuzu and Sandler (2002) argue today's military missions can be perceived in various ways. Under the condition that intrastate and interstate conflicts impact negatively on other nations, a crisis response effort to end such conflicts can be regarded a transnational pure public good. However, under the circumstances that some benefits of the crisis response effort are considered only partially excludable (that is, not fully available to some nations) or else partially rival, defence should be regarded an impure public good. Under the condition that crisis response operations benefits decline with the number of countries deriving gains from such operations these are considered partially rival. Generally, crisis response efforts are viewed to yield multiple outputs, namely joint products (1) purely public to the global community, (2) impurely public to some nations, and (3) private (country specific) to the country engaged in the crisis response operations.

Mostly, in literature, both the empirical analysis and testing of burden sharing appear to be based on the measure of 'defence spending as a share of national output' (Hartley and Sandler, 1999; Hillison, 2009). As a result, usually, armed forces performance regarding burden sharing is measured by D/GDP. By applying differing measures of burden sharing additional images of burden sharing behavior are expected to appear. The next section views burden sharing literature from a performance measurement perspective. This section concludes by expressing performance on three dimensions input, throughput and output.

Performance measurement

To measure armed forces' performance, or, for that matter any organization's performance various dimensions can be identified (Beeres et. al., 2010). First, in reference to the allocation of resources an input dimension can be distinguished. Second, regarding the transformation processes the throughput dimension is addressed, whereas, in discussing products and services produced the output dimension is referred to. Lastly, taking into account to the societal impact of products and services rendered the outcome dimension is touched upon. By declaring to be in control over the effectiveness and efficiency of operations, organizations imply to have achieved some degree of performance along at least one dimension.

As the following example attempts to clarify, such declarations of control come easier to private sector companies than to public sector institutions. In private business companies selling products or services (output) will lead to financial revenues by means of the price mechanism (outcome). As such, 'sales' are an expression of the effectiveness of the enterprise. In order to sell, private companies incur costs to provide the means (input) to feed into the transformation process to create the products and services (throughput). The incurrence of costs expresses the organization's efficiency (cost per unit produced). Consequentially, private companies are able to manage effectiveness and efficiency based on a single performance criterion: *profit*. Therefore, private companies' management can dispose of a relatively straightforward measure of organizational success (Speckbacher, 2003).

However, it is next to impossible to sensibly measure the armed forces' products and services in terms of financial revenues and, therefore, it is far more complex to express correlations between effectiveness and efficiency. For this reason, the Defence organizations' effectiveness and efficiency - their performance - is measured in different ways in different contexts.

Performance measurement in the Armed Forces: differing measures for various burdens

During the Cold War, the concept of *readiness* (i.e., 'the capability to respond quickly to a conflict with the appropriate force'; George, 1999) constituted virtually the only criterion to assess armed forces' performance. To ascertain the required *military readiness*, grounded on EAF's various Cold War NATO doctrines sub-criteria and norms were developed to counter potential Warsaw Pact invasions into NATO territories. To this effect, the norms for the intended level of readiness were broken down in terms of *operational readiness*. Operational readiness, on its turn, was decomposed into *proficiency requirements* (according to level of training) and personnel and materiel readiness, based on filling and *fitness for use*. Such norms and requirements were at the core of decision-making processes regarding the numbers of conscripts to be drafted and materiel investments.

As opposed to the Cold War era, modern armed forces actually deploy during crisis response operations and the use of 'the military instrument' can no longer be primarily described in terms of operational readiness. Instead, today's deployments require evaluation criteria to be formulated in terms of attained results. Simultaneously, during many operations combat power cannot be considered the only leading perspective. As a result, requirements for general operational readiness have become increasingly diffuse and dynamic. Apart from security, today's crisis response operations entail a broad range of reconstruction, stabilisation and humanitarian tasks (e.g., monitoring elections, training indigenous armies and police, as well as providing humanitarian assistance), necessitating a broad range of skills, such as knowledge of local communities, negotiating, policing and engineering skills) harbouring potential discrepancies between the supplied military capabilities and the demands made in theatre.

Modern defence organizations, by working towards peace and security, have entered new domains and perform new activities and tasks. Not only are military and civilian organizations supposed to assess their own performance, but the same applies to the performance of their counterparts and ensuing alliances. Consequentially, the development of performance

measurement systems that cross organizational and professional boundaries seems indicated (Beeres and Van Fenema, 2008). The focus of this chapter, meanwhile, regards the assessment of military performance in the context of burden sharing only.

Figure 10 aims to clarify the ways in which performance measurement of armed forces deploying during crisis response operations is conceptualised. To this effect, Figure 10 visualises the production process of the armed forces of an EU member state, distinguishing between preparing units for deployment (home-based) and generating effective military crisis response performance (based in-theatre). Figure 10 is based on the customary analysis in terms of input (resources), throughput (activities), and output (results) (e.g., Berman, 2006; Mol and Beeres, 2005). To analyse the production process, it is important to develop meaningful and measurable indicators (Van den Doel, 2004). Figure 10 shows the *production process* of the armed forces can be divided into two sub-processes. The first sub-process - steps (1) to (3) - is directed at preparing units for deployment. The second sub-process - steps (4) to (6) - is directed at the actual deployment of these units. The latter sub-process regards deployed units to be the inputs into the mission, whereas the outputs depend on potential consequences impacting the country in which the mission takes place (e.g., peace) as well as the consequences affecting the deploying country (e.g., increased or decreased political support).

FIGURE 10: The 'production process' of the Armed Forces

Step 1	Step 2	Step 3
Input	Throughput	Output
Resource indicators	*Activities Indicators*	*Result Indicators*
Defence budget	% Personnel % Investment	% Deployable units % Sustainable units
Preparing for deployment		

Step 4	Step 5	Step 6
Input	Throughput	Output
Resource indicators	*Activities Indicators*	*Result Indicators*
# Deployed units # Sustained units	# Foot patrols # Interventions	# Casualties # IED detected
Generating crisis response performance		

As Figure 10 shows the range between input and results consists of six steps. As to the indicators referring to steps 1-4 finding measurable aspects is considered feasible. Once

deployed the defence organization aims to generate effective and efficient crisis response performance. Steps 5 and 6 refer to the actual execution of the crisis response operations, both regarding the consequences impacting the host-nations and the consequences affecting the countries conducting the operations.

The transfer of this conceptualisation of the armed forces' performance to performance measurement in the burden sharing process requires the development of measures along the four aforementioned dimensions. Hence, it will be possible to express the Defence organization's performance by measuring, amongst others:

Step 1: Resources allocated to the Ministry of Defence.

Step 2: Process indicators, such as the percentage of the budget dedicated to investment, personnel and equipment.

Step 3: The armed forces' deployability and sustainability percentages.

Step 4: The armed forces' actual deployment percentages.

Step 5: Process indicators, such as the number of interventions a week; the number of trained policemen a year or the number foot patrols a week.

Step 6: Output indicators, such as the number of casualties (soldiers, civilians and enemies); the number of schools and hospitals built or this year's decrease in the cultivation of poppy fields.

Please note that, first, indicators such as the ones mentioned above are to be understood as examples that can be used to assess the armed forces' efforts and results in both production processes. Whatever actual indicators are to be selected, they should meaningfully characterise the resources [step 1 and 4], the activities [step 2 and 5] and the results [step 3 and 6] in relation to the performance in the context of burden sharing. Secondly, it can be argued that, basically, all of the above-mentioned indicators are input indicators. However, by cross-relating selected input indicators, process and output indicators can be assembled.

Based on this reasoning 'a narrative of performance in terms of burden sharing' can be construed, as the following example demonstrates:

> 'During a given year in which the budget amounted to of 8.5 billion euro [step 1: input] an investment percentage of 20 per cent has been realised [step 2; throughput]. These investments contributed to a deployability percentage of 10 per cent [step 3; output]. This

deployability percentage, on its turn, resulted in a deployment percentage of 5 per cent of active national armed forces deployed [step 4; input], which led to a number of 1,000 interventions per month [step 5; throughput]. Finally, these efforts resulted in a decrease of fatalities per troops deployed by 20 per cent [step 6; output].

Obviously, such narratives reveal more in-depth insight into the burden sharing behavior of countries than can be derived from a statement such as, 'this year D/GDP amounted to 1.5 per cent'. Third, in this chapter, no measures for steps 5 and 6 will be developed because any relevant indicators to measure these steps will have to be mission-specific. Instead, in this chapter we have abstracted from the specific activities in specific contexts with specific results. So, in a sense we are pretending that all missions are alike. We will return to this issue in the discussion.

Finally, for several reasons, we do not address the outcome dimension of the armed forces' performance measurement in this chapter. For one thing, the vast body of literature relating economic growth (outcome) to increases or decreases in military expenditures (input) in fact discusses this dimension. In addition, it appears challenging to causally link the actual output of the armed forces in theatre to its impact on a host-country's local population and on home based stakeholders. For the purpose of this chapter, we focus on the input, throughput and output dimension. By adopting various measures we compare the performance of different EU countries in terms of burden sharing behavior on differing dimensions in the steps (1) to (4) of Figure 10.

Methodology

Research design

The research underlying this chapter can be categorised as an exploratory study. Definition, measurement, and interpretation of burden sharing measures based on alternating dimensions can be approached both from a military and a civilian perspective as well from a cross-sector perspective. However, at this time, a comprehensive analysis of both the international civil and military contribution to crisis response operations is not possible. For one reason, because of their diffuse and multi-faceted nature operationalising services rendered by civilian institutions appears challenging. Therefore, assessing the broad range of civilian contributions (varying from the fields of diplomacy, immigration policy, the fight against organised crime, export- and import policies to stabilisation and reconstruction missions) is not yet feasible. Moreover, civil organizations are accountable to a whole gamut of institutions, amongst them international organizations (IOs), non-governmental organizations (NGOs), and donor organizations. At this time, data regarding civil activities and expenditures during operations are hardly available.

Data collection

In collecting data, we have applied the technique of systematic observation using primarily data collected and published annually -since 2005- by the European Defence Agency (EDA). Except for Denmark, all EU members participate in EDA and data are provided by the Ministries of Defence of twenty-six participating member states. However, EDA does not publish all EU countries' defence related data. Therefore, additional data have been collected from NATO and the International Institute for Strategic Studies (IISS, 2005; 2006; 2007; 2008a; 2008a; 2008b; 2009; 2010).

Data analysis

Table 2 summarises the measures selected for steps 1 to 4. Moreover, Table 2 extends an overview concerning the period of data collection, the tables that hold the result and the data sources. To express each EAF's 'normal' crisis response effort, on behalf of all measures of step 1 to 3, three (or four) year averages have been used. As to constructing the measures of step 4 all available data during the period from 1995 – 2007 have been used.

In the previous section we remarked that for each step distinguished in Figure 10 numerous indicators can be selected. Some indicators, however, appear to make more sense than others. Regarding both their nature and numbers the selection of indicators presented in Table 2 is subjective. To select the indicators, we have applied the following set of criteria: (1) the indicator adds useful information on spent resources, activities and results; (2) the indicator's relevancy to themes in the burden sharing literature (e.g., measures related to D/GDP, measures related to deployability and sustainability, and measures related to actual deployment) (Hartley and Sandler, 1999; Ringsmose, 2010; Shimizu and Sandler, 2010), and (3) the availability of reliable data underlying the indicator.

TABLE 2 Summary of measures

Dimension	*Measures*	*Period*	*Table*	*Source*
Step 1	Defence expenditures Defence expenditures as % of total EU defence expenditures Defence expenditures per capita in € Defence expenditures per capita as a % GDP	2005-2008	3	EDA & IISS
Step 2	Total investment expenditures in € mln Investment expenditure per soldier in € Investment expenditure as % of national defence expenditure	2006-2008	4	EDA
Step 3	Deployability as % of active land forces Sustainability as % of active land forces	2008	5	NATO
	Number of direct deployable troops Number of direct deployable troops as % of total directly EU deployable troops Sustainability expressed in number of troops Sustainability as % of total EU sustainable troops	2006-2008	6	EDA
Step 4	Average number of troops deployed Number of troops deployed as % of total EU troops deployed Number of troops deployed as % of active national armed forces	1995-2007	7	IISS

Results

Armed forces' performance: defence expenditures

Along the input dimension several measures can be identified and therefore, it proves to be rather straightforward for nations to generate such data. Defence expenditures may be presented in various ways, for instance, by comparing a country's defence expenditures to the cumulated EU defence expenditures; or else by comparing defence expenditures per capita to the defence expenditures.

Within the EU, by comparing absolute defence expenditures it appears from Table 3 (column 1 to 4) the UK, France and Germany score highest. However, when looking at Germany from the angle of defence spending per capita and defence expenditure as a percentage of GDP the country ranks in the middle (Table 3 column 3 and 4). As for Bulgaria, although in absolute terms commanding a much lower defence budget (Table 3 column 1) and therefore able to spend only very little on defence per capita (Table 3 column 3), this country, on account of their lower level of prosperity, ranks high on the measure defence expenditure as a percentage of GDP (Table 3 column 4).

TABLE 3 Defence expenditures (2005-2008)

Countries	*(1)*	*Rank*	*(2)*	*Rank*	*(3)*	*Rank*	*(4)*	*Rank*
Austria	2,347	**13**	1.2	**11**	284	**12**	0.89	**19**
Belgium	3,731	**10**	1.9	**10**	357	**11**	1.15	**18**
Bulgaria	704	**19**	0.3	**19**	91	**23**	2.40	**3**
Cyprus	301	**22**	0.2	**17**	387	**9**	2.00	**4**
Czech Republic	1,971	**14**	1.0	**12**	192	**17**	1.64	**6**
Estonia	224	**24**	0.1	**18**	167	**18**	1.62	**8**
Finland	2,409	**12**	1.2	**11**	450	**6**	1.38	**14**
France	43,906	**2**	22.0	**2**	700	**2**	2.40	**3**
Germany	30,.947	**3**	15.5	**3**	376	**10**	1.57	**10**
Greece	5,492	**7**	2.8	**7**	493	**4**	2.61	**1**
Hungary	1,224	**16**	0.6	**13**	122	**21**	1,28	**15**
Ireland	974	**17**	0.5	**14**	228	**16**	0.55	**22**
Italy	24,289	**4**	12.2	**4**	412	**8**	1.63	**7**
Latvia	278	**23**	0.1	**18**	122	**21**	1.52	**12**
Lithuania	304	**21**	0.2	**17**	90	**24**	1.18	**16**
Luxembourg	195	**25**	0.1	**18**	419	**7**	0.59	**21**
Malta	35	**26**	0.0	**19**	64	**26**	0.70	**20**
Netherlands	8,178	**6**	4.1	**6**	500	**3**	1.50	**13**
Poland	5,326	**8**	2.7	**8**	139	**20**	1.82	**5**
Portugal	2,484	**11**	1.2	**11**	232	**15**	1.58	**9**
Romania	1,918	**15**	1.0	**12**	89	**25**	1.55	**11**
Slovakia	812	**18**	0.4	**15**	151	**19**	1.63	**7**
Slovenia	491	**20**	0.2	**17**	244	**14**	1.52	**12**
Spain	11,745	**5**	5.9	**5**	266	**13**	1.17	**17**
Sweden	4,320	**9**	2.2	**9**	475	**5**	1.38	**14**
United Kingdom	45,957	**1**	23.0	**1**	759	**1**	2.45	**2**

Sources: www.eda.europa.eu and IISS (2005-2010)
(1) Defence expenditure in € mln
(2) Defence expenditure as % of total EU defence expenditure
(3) Defence expenditure per capita in €
(4) Defence expenditure as a % GDP

Despite the abovementioned statistics, answers to the question whether EU countries spend enough money on defence are not as straightforward as they may seem. Because defence expenditure represents all factor inputs in the military production function, Hartley and Sandler (1999) consider it to be the best measure. Furthermore, by dividing by GDP, the measure relates these inputs to a country's potential ability to pay. From Table 3 (column 4)

we conclude that on account of this input measure, Greece, UK, Bulgaria and Cyprus turn out to be the best performers in Europe.

Armed forces' performance: investment expenditure

Another widely used measure is the amount of money military forces use for investment projects. To ensure interoperability and deployable units, the use of modern resources is important. In this case, besides the amount of resources, the quality of the resources is also considered relevant. In order for the EU military to be able to co-operate, the defence systems are facing increasingly higher demands. Technologically advanced systems require high investment levels and investment expenditures therefore, constitute a relevant performance measure in step 2.

Table 4 includes the investment data of the armed forces of various EU countries. In the period 2006-2008, EU members have spent 20 per cent on average of their defence budgets on investments (Table 4, column 3). According to EU standards, countries such as Belgium, Cyprus, Ireland and Portugal, have spent too little on investments in the period 2006-2008 (IISS, 2008b). The relatively low investment expenditures of these countries are explained by significantly higher levels of personnel costs. Based on the input measure investment levels per soldier, Sweden, the UK and Luxembourg rank high (Table 4, column 3)

Besides the abovementioned financial measures, other relevant measures constitute the quantitative and qualitative characteristics of available personnel and equipment capabilities. Such measures provide insight into military capabilities, that is to say, the extent to which nations command the resources needed to contribute to operations within different spectra of violence. Obviously, it depends on the political preferences and willingness of the EU nations whether these military capabilities will be actually deployed. While not attempting to rank the capabilities of each nation, an IISS study (2008) describes the European military capabilities and ambitions of different EU nations. For each EU country, the IISS study investigates the processes of attuning the armed forces to the national defence goals giving special attention to the steps that have been taken to adapt the armed forces to modern international operations.

TABLE 4 Defence investment (2006-2008)

Countries	*(1)*	*Rank*	*(2)*	*Rank*	*(3)*	*Rank*
Austria	309	**13**	12	**12**	9,988	**13**
Belgium	358	**11**	8	**15**	9,655	**14**
Bulgaria	139	**17**	19	**8**	3,401	**24**
Cyprus	11	**25**	4	**16**	764	**25**
Czech Republic	228	**15**	11	**13**	8,762	**17**
Estonia	51	**22**	21	**6**	17,543	**9**
Finland	636	**10**	26	**3**	19,051	**8**
France	9,772	**2**	22	**5**	27,722	**5**
Germany	5,348	**3**	17	**10**	21,484	**6**
Greece	1,782	**6**	31	**2**	13,153	**10**
Hungary	150	**16**	12	**12**	7,151	**19**
Ireland	92	**19**	9	**14**	8,844	**16**
Italy	2,863	**4**	12	**12**	11,348	**12**
Latvia	37	**23**	12	**12**	5,289	**22**
Lithuania	65	**21**	20	**7**	6,907	**20**
Luxembourg	33	**24**	19	**8**	32,539	**3**
Malta	-	**-**	-	**-**	119	**26**
Netherlands	1,445	**7**	17	**10**	29,867	**4**
Poland	1,054	**9**	19	**8**	7,472	**18**
Portugal	235	**14**	9	**14**	6,166	**21**
Romania	347	**12**	18	**9**	4,844	**23**
Slovakia	133	**18**	16	**11**	8,907	**15**
Slovenia	80	**20**	16	**11**	12,071	**11**
Spain	2,680	**5**	22	**5**	20,230	**7**
Sweden	1,383	**8**	32	**1**	80,817	**1**
United Kingdom	11,741	**1**	25	**4**	62,513	**2**

Source: www.eda.europa.eu. For Malta no data available for (1) and (2). Belgium based on 2008.
(1) Total investment expenditure in € mln (Cyprus based on 2007-2008)
(2) Investment expenditure as % of national defence expenditure (Cyprus based on 2006-2007)
(3) Investment expenditure per troop in € (Finland, Latvia and Italy based on 2006-2007)

In 2004, the US Department of Defence (US DOD, 2004), ranking the different nation members' ground combat, naval combat and combat aircraft capabilities, also investigated the allied contributions to the shared defence goals. Unfortunately, the report is not clear on the measures used to assess the quantity and quality of the defence equipment. Next, in annual surveys, The Military Balance (IISS, 2005-2010) lists personnel and equipment capacities of 170 countries. Based on sources such as these it is possible to gain insight into the ways in which nations construct their armed forces and the numbers and kinds of

weapon systems they command on behalf of their land-, air- and sea components. Based on such data, capability statements can be constructed allowing for comparisons between EU countries. However, for several reasons it remains difficult to compare the EU countries' military capabilities in a meaningful way. For instance, although it proves to be relatively easy to count all countries' heavy equipment such as tanks and fighter planes, taken at its own, this quantitative measure would add little to no information necessary to decide whether the current numbers of heavy equipment are indeed the ones needed in future operations.

We therefore are convinced of the necessity to assess military capabilities on their usability regarding current as well as planned operational needs. In this way, weapon systems that are frequently used as well as expected to fulfil future operational demands can be attributed an increased weight. In addition to this criterion, the following criteria also can be taken into consideration: (1) the availability versus the lack of specific capabilities within the EU; (2) the extent to which the systems are multifunctional and inter-operable and (3) the level of readiness of the (weapon) systems. At present a fixed set of such criteria proves to be absent. In addressing the criterion 'level of readiness of the (weapon) systems'' we touch upon the indicators of step 3 in Figure 10 measuring EAF's relative performance.

Armed forces performance: deployability and sustainability

Ultimately, to contribute to crisis response operations the main effort of defence will be directed towards the product 'military units deployed' or 'troops deployed'. To this end, defence organizations perform various activities such as educating and training personnel, the maintenance and readiness of equipment as well as practicing various types of (combat) situations. All activities will lead to a certain degree of combat readiness. It is possible to link several measures to these activities. We hold that the most important performance measures aim to measure 'deployability' by revealing the effectiveness of activities such as 'educating and training personnel', 'maintenance of equipment' and 'practicing different types of (combat) situations'. To produce deployable units for crisis response operations all activities are necessary.

Table 5 shows two types of criteria to measure deployment readiness: deployability and sustainability. These measures focus on specific army units and are primarily used within NATO. Regarding these criteria, at the NATO summit in Istanbul (NATO, 2004) it was agreed that: "*NATO countries agreed to usability goals for their respective ground forces of 40 per cent deployability and eight per cent sustainability. This means that member nation armed forces will be restructured so that 40 per cent of their ground forces can be deployed and eight per cent can be supported in Alliance operations at any one time*". By developing these measures, NATO endeavoured to change the Member States' focus from primarily defending their own territory into the contribution to crisis response

operations and the fight against terrorism. These measures offer insight into the usability of the armies, or, in other words, into the extent to which the countries have succeeded in adapting their ground forces to the new circumstances.

It should be noted, however, that the 'denominator' (the size of the army) of both measures is relatively easy to attain by Member States. It can be done, for example, by excluding specific categories of military personnel (active at MoD's, DoD's or central headquarters). Besides, it is not clear whether, and if so, what percentages of conscripts and reservists have been included in the accounts. Finally, the majority of Member States prove to be reluctant to publicly announce information on these performance measures. As for the European NATO countries that willingly provide information on performance measures, Table 5 provides the records on the applied measures.

TABLE 5 Deployability and sustainability (2008)

Countries	*(1)*	*Rank*	*(2)*	*Rank*
Bulgaria	32.0	**4**	6.0	**5**
Czech Republic	47.4	**2**	8.0	**3**
Hungary	18.7	**6**	11.9	**1**
Netherlands	63.7	**1**	10.2	**2**
Poland	38.0	**3**	7.0	**4**
Slovenia	21.0	**5**	4.0	**6**

Source: http://www.nato.int/issues/commitment/index.html
(1) Deployability as a percentage of active land forces
(2) Sustainability as a percentage of active land forces

Based on the statistics in Table 5, the Netherlands and the Czech Republic score sufficiently on both measures. Apparently, as to the deployment readiness of their ground forces, the Netherlands and the Czech Republic meet NATO's demands.

Until now, with regard to the air force and navy no measures and indicators have been developed. Due to this omission the picture of the overall performance of the armed forces is in fact incomplete. Because of their more advanced technological nature, any measures to be developed to assess these branches have to address the technical capabilities of the systems.

TABLE 6 Contribution to total EU land forces (2006-2008)

Countries	*(1)*	*(2)*	*Rank*	*(3)*	*(4)*	*Rank*
Austria	2,083	0.5	**16**	1,050	0.8	**16**
Belgium	6,984	1.5	**8**	1,256	1.0	**12**
Bulgaria	4,493	1.0	**13**	901	0.8	**15**
Cyprus	238	0.1	**23**	-	-	**-**
Czech Republic	6,279	1,4	**9**	1,083	1.0	**13**
Estonia	570	0,1	**21**	206	0.2	**20**
Finland	4,767	1.1	**11**	1,567	1.5	**11**
France	90,667	20.4	**1**	22,000	19,3	**2**
Germany	-	-	**-**	-	-	-
Greece	22,182	5.0	**6**	3,500	3.1	**6**
Hungary	2,332	0.5	**15**	1,041	0.9	**14**
Ireland	850	0.2	**20**	850	0.8	**17**
Italy	56.200	12.6	**3**	13.933	12.6	**3**
Latvia	-	-	**-**	-	-	**-**
Lithuania	1.208	0.3	**19**	322	0.3	**19**
Luxembourg	287	0.1	**22**	53	0.0	**21**
Malta	156	0.0	**24**	30	0.0	**22**
Netherlands	18,167	4.1	**7**	3,056	2.7	**7**
Poland	24,700	5.0	**5**	3,600	3.3	**5**
Portugal	4,677	2.0	**12**	1,963	1.7	**10**
Romania	6,199	1.4	**10**	2,757	2.5	**8**
Slovakia	1,645	0.4	**18**	641	0.6	**18**
Slovenia	1,850	0.1	**17**	322	0.3	**19**
Spain	28,834	6.5	**4**	4,493	4.0	**4**
Sweden	3,555	0.8	**14**	2.351	2.1	**9**
United Kingdom	78,839	17.3	**2**	31.532	27.9	1

Source: www.eda.europa.eu. Germany and Latvia do not provide the data (That is why columns (2) and (4) do not add up to 100%)
(1) Number of direct deployable troops: The figures for Belgium and Slovenia only for the year 2008; Poland only for the year 2007 and 2008.
(2) Number of direct deployable troops as a % of total directly EU- deployable troops.
(3) Sustainability expressed in number of troops: The figures for Austria and Malta only for the years 2006-2007; Belgium and Slovenia only for the year 2008; Poland only for the year 2007.
(4) Sustainability as a % of total sustainability in the EU.

Besides comparing EU countries to measures based on the denominator (size of the land forces) one may also compare the numbers of direct deployable and sustainable land units for each EU Member State to the overall deployability and sustainability of the EU. Such measures can be distinguished from the abovementioned. Instead of providing information about the countries' ability to transform its resources into combat ready units, these measures give insight into the relative contribution of one nation compared to other EU nations. This information is presented in Table 6. Table 6 (column 1) shows France to command the highest number of immediately deployable units, followed by the UK, Italy, Spain and Poland. Looking at the measure of sustainability the same countries make up for the top five, the UK and France taking pole position.

Armed forces performance: troops deployed

Actual deployment of military personnel is in fact an input measure (see Figure 10) providing insight into the extent to which nations are prepared to contribute to peace and security by deploying troops. Because of annual fluctuations, the figures presented in Table 7 are based on both the average number and the standard deviation of deployments from 1995-2007. Table 7 (column 1) shows that in absolute terms, the UK, France, Italy and Germany contribute highest.

However, this finding applies to the numbers of troops only and bears no relation to the effectiveness of the product delivered by the troops. In practice, a fighter pilot's contribution to the mission will generate more effect as, for instance, the contribution of an infantry soldier. These differences are explained by the scope and effectiveness of the weapon systems to execute the military operation. Therefore, we suggest that next to the number of soldiers, the systems and their capabilities should be taken into account. However, as yet, such information has not been published.

Also, we would like to point out the benchmark makes no allowances for the differing situations in which the soldiers are carrying out their tasks. However, as can be seen in today's operations, International Security Assistance Force (ISAF) troops in the Afghan province of Helmand run far higher risks then troops deployed in, for instance, Bosnia-Herzegovina. Therefore, it appears appropriate to endow complex high-risk missions with an increased weighing factor (see also Chapter 4). Apart from focusing on the number of troops deployed, it is possible to correlate this number to the total number of military personnel working within Defence. During the period 1995-2007, Table 7 (column 3) shows Ireland to have deployed an average of 6.1 per cent of its troops in crisis response operations. The UK and the Netherlands follow by 5.5 per cent and 4.0 per cent. Both Ireland and the Netherlands, commanding relatively small sized armed forces (0.6% and 2.6% of total EU military – untabulated results) contributed relatively high during this period.

TABLE 7 Number of troops deployed (1995-2007)

Countries	*(1)*	*(2)*	*(3)*	*Rank*	*(4)*	*Rank*
Austria	1,017	135	2.0	**11**	2.5	**8**
Belgium	1,105	341	2.2	**9**	2.7	**7**
Bulgaria	247	285	0.5	**19**	0.5	**19**
Cyprus	0	0	0.0	**22**	0.0	**20**
Czech Republic	801	196	1.6	**15**	1.9	**12**
Estonia	70	71	0.1	**21**	1.6	**13**
Finland	1,066	366	2.1	**10**	3.5	**4**
France	9,665	1,695	19.0	**2**	3.3	**5**
Germany	5,920	2,573	11.7	**4**	2.0	**11**
Greece	1,260	692	2.5	**8**	0.8	**18**
Hungary	708	314	1.4	**16**	2.0	**11**
Ireland	682	122	1.3	**17**	6.1	**1**
Italy	6,085	2,668	12.0	**3**	2.8	**6**
Latvia	85	58	0.2	**20**	1.6	**13**
Lithuania	119	84	0.2	**20**	1.1	**16**
Luxembourg	30	19	0.1	**21**	3.5	**4**
Malta	0	0	0.0	**22**	0.0	**20**
Netherlands	2,158	554	4.3	**7**	4.0	**3**
Poland	2,475	975	4.9	**5**	1.5	**14**
Portugal	955	442	1.9	**12**	2.1	**10**
Romania	921	664	1.8	**13**	0.9	**17**
Slovakia	506	253	1.0	**18**	2.0	**11**
Slovenia	96	101	0.2	**20**	1.4	**15**
Spain	2,372	779	4.7	**6**	1.5	**14**
Sweden	841	316	1.7	**14**	2.3	**9**
United Kingdom	11,568	3,951	22.8	**1**	5.5	**2**

Source: IISS (2008b)
(1) Average number of troops deployed
(2) Standard deviation of troops deployed
(3) Number of troops deployed as a % of total EU troops deployed
(4) Number of troops deployed as a % of active national armed forces

Although, as compared to the Netherlands and Ireland, in absolute terms, Germany contributed more troops (Table 7, column 1), this country deployed a smaller proportion of its armed forces (Table 7, column 3). By correlating the measure 'number of troops deployed' to 'the number of troops employed in the armed forces', the measure adopted in Table 7 (column 3) provides insight into the armed forces' efficiency. Please note this measure does not take into account the military's domestic responsibilities. These may vary strongly between nations.

When analysing the previous results, the relative scores of Ireland and Luxembourg on the one hand and Bulgaria and Greece on the other hand leap to the eye. Ireland, while ranking twenty-two in Table 3 (defence spending as a percentage of GDP) in Table 7 (column 4) comes in first with Luxembourg following suit. Greece, however, shows a reverse trend. In Table 3 Greece performs top of the ranks by spending 2.6 percent of GDP on defence whereas, in Table 7 Greece ends up almost last. As for Bulgaria, more or less the same holds true. The UK scores high on all measures and consequentially, can be said to perform well overall (Hartley and MacDonald 2010).

Our results show armed forces that score high on the input dimension may very well score low on the output dimension (e.g., Bulgaria and Greece). Also, armed forces that score low on the input dimension may score high on the output dimension (e.g., Ireland and Luxembourg). The UK's armed forces score high on both dimensions. Finally, for instance, the armed forces of Malta score low on both the input and the output dimension. The implication of these findings is that to evaluate EAF's performance meaningfully, various indicators should be combined.

Conclusions

Our findings support the argument that in assessing the performance of EAF's burden sharing behavior, the selection of a specific performance measure or a set of performance measures does make a difference. Although traditional resource indicators (e.g., D/GDP) are well suited to express the size of armed forces, in today's high-tech expeditionary military operations sheer size does not matter as much as it used to. Our results show armed forces that score high on the traditional input dimension (D/GDP) may score lower on the measure 'number of troops deployed' (e.g., Bulgaria and Greece). Also, armed forces that score low on D/GDP may rank high on the measure 'number of troops deployed' (e.g., Ireland and Luxembourg). The UK's armed forces score high on both measures. Finally, for instance, the armed forces of Malta score low on both the traditional and the modern input dimensions.

According to us, extending insight into the resources, the military abilities and the political willingness of a nation to contribute to crisis response operations necessitates sets of multiple performance measures, instead of focusing on one (i.e., D/GDP) or two measures (i.e., deployability and sustainability). As mentioned before, the indicators we have provided are to be viewed as examples only. To construct a meaningful narrative on EAF's performance on burden sharing behavior the selected indicators, on their turn, should meaningfully characterise the resources, activities and results in relation to the performance of burden sharing.

In view of EAF's current modernisation programmes and the paramount importance of technological superiority in addition to the deployment of troops, our data collection should be expanded to also comprise technological measures instead of measures that focus heavily on the human factor. However, except for the investment measure that indirectly comments on the armed forces' modernisation, measures including technological aspects appear virtually non-existent. Consequentially, the performance of technologically oriented branches such as the air force and the navy, as yet, remains underexposed. Therefore, research into the development of measures to assess the quality of EAF's military equipment seems indicated.

Another future line of research into assessing burden sharing behavior based on sets of multiple performance measures should pay attention to the armed forces' deployment conditions. For instance, the current debate between ISAF coalition partners, instead of focusing on the number of troops and equipment to be contributed, increasingly revolves around the willingness to operate in high-risk areas. In Afghanistan, most troops are needed in the southern and eastern parts where the insurgency is strong and the risk of casualties is correspondingly high. Both 'insurgency' and 'casualties' are amongst the factors determining operational risks and should be included in the burden sharing debate (see also Chapter 4).

Finally, the European Security and Defence Policy shows Europe to be aware that threats of terrorism cannot be countered by military deployment only. Europe opts for a comprehensive approach to operations integrating both military and civilian activities to advance stabilisation and the reconstruction of post-conflict and war-torn societies. Therefore, to compare EAF's performance in the field of crisis response operations meaningfully, integrated measures should be developed to simultaneously assess security, governance and rule of law, justice and reconciliation and socio-economic development. To this effect, close cooperation between host-nation authorities, the domains of defence, foreign affairs, development and financial institutions such as donor organizations is necessary.

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Chapter 4

Chapter 4: Mission Afghanistan: Who Bears the Heaviest Burden?[1]

Introduction

By taking command of the International Security Assistance Force (ISAF) in Afghanistan on August 11, 2003, NATO started operating outside Europe for the first time, giving rise to a renewed burden sharing debate among its members. Burden sharing discussions shifted from the 'old' question of 'how much money is spent on the military?' to questions such as 'are NATO members capable of contributing to out-of-area operations?' Or 'are NATO members prepared to engage in risky operations outside Europe?' In line with such questions on burden sharing behavior the ways in which to measure the various contributions of NATO members in 'out-of-area operations' -the new "good" NATO provides- became subject to debate. Accordingly, NATO has adopted a range of new measures to analyze burden sharing (Ringsmose, 2010). First, during the NATO Riga summit in 2006, NATO countries set 'usability' and 'sustainability' objectives to improve the readiness of alliance members. These measures are focused on the process of preparing units for deployment. Second, NATO also reports frequently on the military contributions of countries to Crisis Response Operations. During the conflicts in former Yugoslavia only a few NATO members took part in combat operations. Some allies were constrained for political reasons. Other allies could not avail of the needed high performance capabilities. Within ISAF, all NATO members deploy forces in Afghanistan – albeit in various numbers. Instead of focusing on the abilities to contribute to ISAF, today's burden sharing debate revolves around the political willingness to contribute and the nature and size of the contribution.

To date, NATO has planned and implemented four stages aiming for the country of Afghanistan to be under NATO's operational responsibility. In 2003-2004 (Stage I) NATO troops, mainly French and German forces, moved into the northern area of Afghanistan. Stage II started in May 2005 when Italian and Spanish forces moved into the western part of Afghanistan. Both parts of Afghanistan were regarded as relatively stable by NATO. Stage III began in July 2006, when US, British, Canadian and Dutch forces moved into the conflict-ridden southern areas of Afghanistan. On 5 October 2006, ISAF implemented the final stage (IV) of its expansion by taking responsibility for the entire country (NATO, 2006).

Since 2005, NATO officials have experienced difficulties persuading their member states' governments to supply forces for ISAF: the attack on the Norwegian-Finnish Provincial Reconstruction Team in 2006 informed some governments to the continuing threat posed by

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instability and the insurgency (Morelli and Belkin, 2009: 18). Also, the restrictions - 'national caveats'- national governments impose on their deployed armed forces cause problems for NATO commanders. For example, German troops were only authorized to operate in the northern parts of Afghanistan. They were not allowed to patrol without armoured personnel carriers nor to leave their bases at night (Feickert, 2006).

According to Sperling and Webber (2009), national differences in exposure to risk have marked the alliance throughout its history, but this became a divisive issue during the International Security Assistance Force (ISAF) operations in Afghanistan. There are, for example, only a few countries willing to fight the Taliban in the risky southern and eastern parts of Afghanistan, while other countries openly admit they are only willing to send troops to safer parts of Afghanistan (NRC, 2008). In this regard, the US Minister of Defence Gates warned for a "two-tiered alliance", in which only a limited number of countries are willing to fight and die for security (Guardian, 2008) as is illustrated by an appeal by the American Supreme Allied Commander Europe for 2,500 extra troops to fight alongside the American, British, Canadian and Dutch soldiers in the southern parts of Afghanistan that was rejected by most of the European countries (The Times, 2006).

Allies commanding forces operating under difficult circumstances in the southern part of Afghanistan have been known to criticize other allies for not sending combat forces to areas where the Taliban are more active. For example, in 2008, the Canadian government threatened to withdraw its forces by the end of 2009 if a commitment of at least 1,000 new combat troops was not made by other allies (Morelli and Belkin, 2009: 19). The Minister of Defence of Australia warned NATO that Australia would no longer risk its soldiers' lives capturing territory when other NATO allies did not demonstrate a willingness to do more and embrace new strategies for Afghanistan (Nicholson, 2008). Poland's Minister of Foreign Affairs warned for "free-riding" within the alliance (Reuters, 2008). These examples indicate that politicians consider risk sharing an important issue in the analysis of burden sharing. In this respect Sperling and Webber (2009) and Ringsmose (2010) include risk sharing as a key aspect in order to compare burden sharing in out-of-area-operations. They describe differing dimensions of risk, using combat fatalities as a parameter for risk sharing.

Against this background, this chapter aims to contribute to the existing literature concerning burden sharing behavior in specific crisis response operations (Bennett et al. 1997; Chalmers, 2000; Cimbala and Forster, 2010; Shimizu, 2005). By selecting, defining, measuring and interpreting a number of burden sharing measures from differing dimensions we aim to provide a quantitative expression of burden sharing behavior of the different NATO and Non-NATO allies during the International Security Assistance Force (ISAF) operations in Afghanistan from 2001-2010. In so doing we pay special attention to the various contributions of the US and other NATO Europe partners to analyze the burdens of these transatlantic

partners. Please note that we aim to quantify the burden sharing behavior of NATO allies and other coalition members within ISAF. We do not endeavour to explain the allies' and coalition partners' behavior in terms of national self-interests (Gaibulloev et al, 2009) or free-riding (Ringsmose, 2011). Moreover, this chapter does not explore potential benefits of contributing to ISAF, nor the valuation of such benefits (Berkok and Solomon, 2011). Finally, we do not try to find out whether some members are over-contributing or under-contributing (see for instance Kim and Hendry, 1998; Kollias, 2008). We feel that benefits that may be gained during deployments in out-of-area-operations should be evaluated from an outcome perspective, e.g. by assessing: (1) the appreciation of the population in mission areas, (2) the appreciation of the home base population, (3) as well as international political appreciation (Beeres and Bogers, 2012).

To this end we have structured the chapter as follows. The next section discusses the issue of burden sharing in combination with the concept of risk sharing. The third section explains the research methodology. Next, in section four, we compare the military contributions of the US and NATO Europe partners during the ISAF operation in Afghanistan. The last section summarizes our findings.

Burden sharing

Measures for burden sharing show how costs and risks associated with providing international collective goods are allocated among its members (Hillison, 2009; Thielemann, 2003). Allocation of the collective burden to individual members has been discussed since the establishment of NATO (1949). Pivotal in this discussion has been the US' observation, that regarding the production of collective defence, in comparison to their allies, the US contributed relatively more - and perhaps even too much. Olson and Zeckhauser (1966) delivered a classic contribution to this discussion by modelling NATO as a provider of a pure public good (i.e., a good which, according to the Samuelson definition (1954: 387) "all enjoy in common in the sense that each individual's consumption of such a good, leads to no subtraction from any other individual's consumption of that good"). When out-of-area-operations are viewed as pure public goods (i.e., goods characterized by non-rivalry and non-excludability) these missions would be the subject of fierce international debate and probably be quite undersupplied (as larger states contribute more than small states to operations and small states have an incentive to ride free). As the goal of the ISAF mission is to prevent Afghanistan from once again becoming a haven for terrorists and to help provide security (NATO, 2012), which benefits all nations world-wide the operations in Afghanistan may be seen as a public good.

Also, as Ringsmose (2011: 320) notes "it is hardly surprising that the mission to Afghanistan has generated heated and contentious deliberations about solidarity and the fair sharing of the financial, political, and human sacrifices". However, Ringsmose adds (2011: 320) "What is puzzling, however, is that the alliance has in fact succeeded in deploying almost 100,000 troops to one of the most inhospitable countries of the world". So, the out-of-area-operations might not be a real pure public good and could be viewed as "a blend of "publicness" and "privateness" (Hudson and Jones, 2005: 268). For instance, contributing states may value out-of-area-operations differently because some governments may consider terrorist attacks less threatening to their country. The involvement in ISAF also holds several private benefits for contributing nations. For instance, nations may contribute to maintain good relationships with the US in order to obtain the benefits of its economic and military aid (Ashraf, 2011). Or else, some countries may feel that they are part of a 'compulsory club membership' (Berkok and Solomon, 2011). In sum, the operations in Afghanistan may 'blend' several public and private benefits for contributing countries and may be located somewhere "along a spectrum that runs between the two opposite poles of "pure" public goods and "pure" private goods" (Hudson and Jones, 2005: 267-268). As we mentioned in the introduction in this chapter, however, this chapter does not attempt to look at the benefits nor tries to value these. We will, therefore, assume that the coalition partners in ISAF share the burden to prevent Afghanistan from once again becoming a haven for terrorists and to help provide security (NATO, 2012). The remainder of this section addresses the issue of quantifying the costs and risks to measure the various contributions of the US and other NATO Europe partners to analyze the burdens of these transatlantic partners.

During the Cold War, contributions to NATO were expressed in terms of the growth of defence expenditures. This measure typically visualizes the means available to the military and not the *output* generated. Usage of such a measure can be explained by the fact that in that period the build-up of the defence forces was aimed at deterring instead of actually striking the enemy. In 1989, President Gorbachev and President George H.W Bush declared the Cold War to be over. These developments drastically changed the security situation of Central and Eastern Europe. Furthermore, from that time NATO transformed from a supplier of deterrence and defence to an exporter of stability and democracy outside the members' territory.

Against this background, Beeres and Bogers (2012) measured the contributions of the European armed forces during crisis response operations (CRO) on the basis of a model of the production process of the armed forces (see Figure 11). Figure 11 visualises this production process of an EU (or NATO) member state. It shows that the *production process* of the armed forces can be divided into two sub-processes. The first sub-process - steps (1) to (3) - is directed at preparing units for deployment (home-based).

Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 5**	**Step 6**	**Step 7**
Input	Throughput	Output	Input	Throughput	Output	Effect
Resource indicators	*Activities Indicators*	*Result Indicators*	*Resource indicators*	*Activities Indicators*	*Result Indicators*	*Effect Indicators*
Defence budget	% Personnel % Investment	% Deployable units % Sustainable units	# Deployed units # Sustained units	# Foot patrols # offensive operations by NATO # security forces present at elections	# IED detected # insurgents captured # incidents at elections	# casualties by IED # security incidents in region % participation voters in election % Afghan people believes security situation has improved
Preparing for deployment			Generating crisis response performance			

FIGURE 11: The Armed Forces' 'production process' (adapted from Beeres and Bogers, 2012)

The second sub-process - steps (4) to (7) - is directed at the actual deployment of these units (based in-theatre). The latter sub-process regards deployed units to be the inputs into the mission, whereas the outputs depend on potential consequences impacting the country in which the mission takes place (e.g., peace) as well as the consequences affecting the deploying country (e.g., increased or decreased political support). By adopting various measures, Beeres and Bogers (2012) compared the performance of different EU countries in terms of burden sharing behavior on differing dimensions focusing on the steps (1) to (4) of Figure 11.

In this chapter we aim to include the other steps 5, 6 and 7 of Figure 11 in order to say more about the burden sharing behavior in-theatre. Because the discussion in Afghanistan revolves around the willingness of NATO countries to operate under 'difficult and dangerous' (i.e., risky) circumstances, we use some effect indicators to analyze the security level of the different provinces in which the troops are operating. The various activities performed by ISAF troops may affect the security levels within the provinces. For example, offensive operations executed by the ISAF troops (step 5) can result in a decline of the presence of insurgents (step 6) which may have an impact on the security level measured by the number of security incidents (step 7). The security level, on its turn, has an impact on the activities

that can be executed by ISAF as well as the related outputs. For example, reconstruction tasks can only be performed in relatively safe areas. In troubled areas more offensive operations are carried out with the risk of casualties. This chapter holds risk sharing to be an important mission-specific issue in the analysis of burden sharing behavior within ISAF. In the next section, we address the way in which risk sharing in Afghanistan can be measured.

Risk sharing

Kaplan and Garrick (1981) define risk as a trinity of 'scenario' (i.e., what can happen?), 'likelihood" (i.e., how likely is it that it will happen?) and 'consequence' (i.e., what are the losses that can occur?) For NATO member states participating in ISAF there are several risks to distinguish. In this chapter we look at 'risk' in terms of events that actually occurred and their consequences. In order to examine the burden sharing behavior of the coalition partners, we will evaluate the burden sharing behavior of coalition members in Afghanistan expressed: (1) in the number of deployed military personnel, (2) the number of military hostile fatalities and (3) the exposure of soldiers to risks during the operations in Afghanistan. For the comparison of the number of deployed personnel we use both absolute and relative indicators of a selected set of countries' contributions to ISAF from 2007 to 2010. These contributions are also related to the size of the armed forces, the population size and Gross Domestic Product (GDP) for each country. Then we concentrate on the losses that occurred by analyzing the number of military hostile fatalities (2001-2010). We relate these fatalities to the number of troops deployed and the number of inhabitants per country. To further analyze the burden sharing behavior of coalition partners, and in particular the willingness of risk sharing during operations, we evaluate the security levels of the different areas in Afghanistan, by using various parameters, and combine this information with figures regarding the location of NATO allies operating in Afghanistan. In the next section we will first explain the research methodology.

Research Methodology

The parameters we used for analyzing the burden sharing behavior of the US and different European countries during the ISAF mission are selected based on:

(1) the literature regarding burden sharing and terrorism risk (Kaplan and Garrick, 1981; Bennett *et al*, 1997; Hartley and Sandler, 1999; Garrick *et al*, 2004; Sperling and Webber, 2009; Ringsmose, 2010; Cimbala and Forster, 2010)
(2) NATO reports; and
(3) the availability of reliable data underlying the parameters.

Table 8 summarises the measures to express the burden sharing behavior of ISAF coalition partners. Furthermore, Table 8 extends an overview concerning the period of data collection, data sources, and the tables that hold the results.

TABLE 8 Summary of measures

Burden sharing	*Measures*	*Period*	*Source*	*Table*
Measures for burden sharing of coalition members	Deployed troops ISAF	2007-2010	NATO(2011) IISS(2001-2010) World Bank (2010) CIA (2011)	9
	Military hostile fatalities ISAF	2001-2010	ICASUALTIES (2011) CIA (2011) NATO (2011)	10
Measures for security levels for each regional command	Military fatalities per regional command	2001-2010	ICASUALTIES (2011)	11
	Attacks on non-combatants by terrorist organizations	2004-2010	WITS (2011)	12
	Number of non-combatants killed by terrorist attacks	2004-2010	WITS (2011)	13
	Number of non-combatants injured by terrorist attacks	2004-2010	WITS (2011)	14
	Number of non-combatants kidnapped by terrorist organizations	2004-2010	WITS (2011)	15
	Number of hectares of poppy cultivation	2002-2010	UNODC (2007-2011)	16

Burden sharing: comparing deployed personnel

Table 9 describes the military contributions to ISAF of 48 coalition members (NATO EU: 20 countries; NATO NON-EU: 8 countries; and NON-NATO: 20 countries) using a number of measures covering the period from 2007 to 2010. For reasons of readability, Table 9 explicitly presents three NON-NATO countries. Australia, New Zealand and Sweden contributed the most among the NON-NATO coalition partners. The remaining 17 contributing NON-NATO partners are included in the category 'Other NON-NATO'. The first measure is the average number of troops deployed (column 1). Since the number of troops deployed may fluctuate through time, we also present the standard deviation of this measure (column 2). Figures of countries which had only small numbers of troops deployed in Afghanistan relative to

the ISAF total are not listed separately but included in the row '*Other*' in Table 9. Included in the category 'Other' of NATO EU are Estonia, Latvia, Lithuania, Luxembourg, Slovakia and Slovenia. Included in the category 'Other' of NATO NON-EU are Albania, Croatia, Iceland and Norway.

TABLE 9 Deployed troops ISAF (2007-2010)

Country	**1**	**2**	**3**	**4**	**5**	**6**
Belgium	427	97	1.09	0.66	1.14	1.49
Bulgaria	437	132	1.04	0.68	0.78	0.15
Czech Republic	368	128	1.64	0.57	1.12	0.60
France	2,478	1,163	0.82	3.84	7.16	8.38
Germany	3,649	628	1.99	5.66	8.93	10.53
Greece	127	35	0.12	0.20	1.18	1.04
Hungary	293	94	0.98	0.45	1.09	0.41
Italy	2,631	537	1.42	4.08	6.69	6.68
Netherlands	1,583	422	3.95	2.46	1.85	2.50
Poland	1,521	755	1.69	2.36	4.21	1.36
Portugal	115	42	0.30	0.18	1.18	0.74
Romania	900	357	1.24	1.40	2.40	0.51
Spain	912	345	0.56	1.41	5.12	4.62
UK	8,196	1,316	4.63	12.71	6.87	6.87
Other NATO EU	671	187	1.66	1.04	1.64	0.86
NATO EU	***24,308***	***5,145***	***1.59***	***37.71***	***51.35***	***46.74***
Canada	2,652	234	4.13	4.11	3.73	4.22
Denmark	655	138	2.26	1.02	0.61	0.98
Turkey	1,087	485	0.75	1.69	8.63	1.94
United States	34,873	28,657	2.34	54.10	34.32	44.64
Other NATO NON EU	888	131	2.16	1.38	1.37	1.48
NATO NON EU	***40,155***	***29,425***	***2.26***	***62.29***	***48.65***	***53.26***
NATO TOTAL	***64,463***	***34,099***	***1.96***	***100.00***	***100.00***	***100.00***
Australia	1,101	353	2.07			
New Zealand	156	47	1.70			
Sweden	357	94	2.72			
Other NON NATO	629	593	0.06			
NON NATO TOTAL	***2,243***	***1,057***	***0.19***			
ALL NATIONS	***66,706***	***35,147***	***1.49***			

1) Average number of troops deployed for ISAF (absolute);
(2) Standard deviation of 1 (absolute);
(3) Number of troops deployed relative to the number of active military personnel of that country (%);
(4) Number of troops deployed relative to the total of troops deployed to ISAF by the selected countries (%);
(5) Population size relative to the total population of the selected countries contributing to ISAF (%);
(6) GDP relative to total GDP of the selected countries contributing to ISAF (%).
Sources: CIA (2011), NATO (2011), IISS (2001-2010) and World Bank (2010)

When focusing on the absolute number of troops deployed, the United States (US) without a doubt contribute most to ISAF. The standard deviation is also highest for the US with 82%. This can be explained by the rise in troops deployed from 15,000 in 2007 to 90,000 at the end of 2010 during the Obama administration. Based on the figures in column (1) and (2) we conclude that the military contribution of the US outnumbers the military contributions of NATO EU. Within the EU the United Kingdom has the highest average contribution of 8,196 soldiers during the period 2007-2010. In the category NON-NATO most of the troops are deployed by Australia, New Zealand and Sweden.

The third column in Table 9 describes the number of troops deployed relative to the active military personnel of the country. This column shows that the US contribution is relatively large (2.3%) compared to the EU contribution (1.6%). However, when we compare the US contribution with the contributions of individual EU countries on this parameter we conclude that the Netherlands, Canada and the UK surpass the US. Column 4 contains the number of troops deployed per country relative to the total number of troops deployed by NATO to ISAF. The NON NATO countries are not included in this calculation, because NATO article 5 does not apply to them. For the US this measure equals 53%. However, by sole use of this measure it is hard to say whether the countries' contributions suffice. Therefore, in burden sharing literature (e.g., Kollias, 2008; Sandler and Hartley, 2001) this measure is often related to the relative population size (column 5) and size of the economy (column 6).

Comparing the relative number of troops deployed and population size (column 4 and 5), we see that 34% of the total population size of the NATO partners in Table 9 live in the US while the US delivered 57% of the troops. From this comparison it follows that the relative US contribution to ISAF of the NATO partners exceeds its relative population size. The EU-contribution (38%) is well below its population size (51%). In the EU only the relative contributions of the UK and the Netherlands exceed their relative population sizes.

From a cross-analysis of column 6 (relative GDP) with column 4 (relative troop contribution to ISAF), we conclude that the US contribution over the period 2007-2010 was also relatively large. Germany, France, Italy, Spain contribute relatively less to the ISAF total (column 4) than could be expected from their economic position (column 6). According to column 6 the countries of the European Union together produce more goods and services compared to the US, but relatively contribute fewer troops to Afghanistan.

From these comparisons, we conclude that the contributions of the US, the UK, Canada, Denmark and the Netherlands, exceed or are in line with their relative population size and size of the economy. Please note that throughout the paper we use the 'relative population size' and the 'size of the economy' as a reference point to assess the contribution of coalition partners. We do not imply to say anything about the performance of coalition members

(e.g., if some members are under-contributing or over-contributing). In order to assess the performance the benefits for each coalition partner should be taken into account. We return to this issue in the conclusion of the chapter.

Burden sharing: comparisons based on risk sharing in Afghanistan

Since NATO conducts out-of-area-operations, the burden sharing discussion is not merely concerned with quantitative assessments of contributions to NATO but also with the risks the coalition partners share (Ringsmose, 2010; Sperling en Webber, 2009). In the analysis presented in the previous section, we did not take into account the circumstances and associated risks under which each country operates in Afghanistan. In this section, we do. Sperling and Webber (2009:507) suggest analyzing the following dimensions for this purpose: (1) the number of combat deaths, (2) stationing of troops either in relatively 'safe' as opposed to 'dangerous' regional commands within Afghanistan; and (3) the politically determined national caveats. These caveats restrict deployment options. For example, German troops stationed in the north of Afghanistan were only allowed to conduct operations during daytime no further than two hours distance from a military hospital (Feickert, 2006). Apart from this example, most caveats are classified and therefore not available for publication. So, in the following, we concentrate on the first two separable dimensions of risk previously mentioned.

For each of ISAF coalition members, Table 10 contains a quantitative overview of the military hostile fatalities. The number of military hostile fatalities we collected from ICASUALTIES (2011). We selected the absolute numbers of casualties due to hostile attacks in Afghanistan, excluding Operation Enduring Freedom casualties. Columns 1 and 2 present military fatalities from 2001-2006 and from 2007-2010. From a comparison of both periods it appears that most countries suffered considerably more casualties in the latter period. The third column contains the total sum of column 1 and 2. Column 4 provides an insight in the country's share in the total number of soldiers killed of the selected ISAF coalition countries. This column shows that the US (63%), the UK (17%) and Canada (8%) bear most of the casualties. Next, columns 5 and 6 relate military casualties to the number of troops deployed and the population size. Our results (column 5) reveal that the US (2.6%) has more casualties relative to the number of troops deployed than the EU (1.8%). Similar conclusions can be drawn when comparing the military hostile fatalities with the population size of the countries. It also illustrates that Denmark, UK and Canada rank high on both measures.

TABLE 10 Military hostile fatalities ISAF (2001-2010)

Country	**1**	**2**	**3**	**4**	**5**	**6**
Belgium	0	0	0	0.00	0.00	0.0
Bulgaria	0	0	0	0.00	0.00	0.0
Czech Republic	0	2	2	0.11	0.54	0.2
France	9	33	42	2.35	1.33	0.6
Germany	6	23	29	1.62	0.63	0.4
Greece	0	0	0	0.00	0.00	0.0
Hungary	0	4	4	0.22	1.36	0.4
Italy	4	20	24	1.34	0.76	0.4
Netherlands	0	19	19	1.06	1.20	1.1
Poland	0	21	21	1.18	1.38	0.5
Portugal	1	0	1	0.06	0.00	0.1
Romania	4	13	17	0.95	1.44	0.8
Spain	1	9	10	0.56	0.99	0.2
UK	23	286	309	17.31	3.49	4.9
Other NATO EU	0	11	11	0.62	1.64	0.7
NATO EU	***48***	***441***	***489***	***27.39***	***1.81***	***1.0***
Canada	39	97	136	7.62	3.66	4.0
Denmark	0	33	33	1.85	5.04	6.0
Turkey	0	0	0	0.00	0.00	0.0
United States	196	922	1,118	62.63	2.64	3.6
Other NATO NON EU	1	8	9	0.50	0.90	0.7
NATO NON EU	***236***	***1,060***	***1,296***	***72.61***	***2.64***	***2.9***
NATO TOTAL	***284***	***1,501***	***1,785***	***100.00***	***2.33***	***2.0***
Australia	1	17	18		1.54	0.8
New Zealand	0	1	1		0.64	0.2
Sweden	2	3	5		0.84	0.6
Other NON NATO	0	8	8		1.27	0.0
NON NATO TOTAL	***3***	***29***	***32***		***1.29***	***0.1***
ALL NATIONS	***287***	***1,530***	***1,817***		***2.29***	***1.6***

(1) Military fatalities period 2001-2006 (absolute);
(2) Military fatalities period 2007-2010 (absolute);
(3) Military fatalities period 2001-2010 (absolute);
(4) Military fatalities relative to total fatalities of the selected countries 2001-2010 (%);
(5) Military fatalities relative to number of troops deployed 2007-2010 (%);
(6) Military fatalities per million inhabitants.

Sources: ICASUALITIES (2011), CIA (2011), NATO (2011)

ISAF's most important task is to create safety to allow reconstruction and development in Afghanistan. NATO (2009) describes Afghanistan's security situation in 2008 as "mixed". The level of violence has increased in the parts of southern, south-eastern and south-western Afghanistan, whereas large parts in the north, middle and west of Afghanistan have remained fairly stable. Against this background, we now focus on the second dimension that, according to Sperling and Webber (2009), is relevant to assess the risk of the operations in Afghanistan. This dimension involves the security situation of the location where a contributing country stations its troops. Useful data for this purpose would be data concerning the security levels per province. In this regard, the United Nations (UN) gathers data of the security situations in Afghanistan's provinces using indicators like security incidents, political stability and number of operations conducted by ISAF (Trofimov, 2010). Unfortunately, this UN data is classified and, therefore, not available to us.

In order to gain some insight in risk sharing among contributing countries we use data covering the ISAF Regional Commands (RC) of different selected measures, comprising military fatalities, the number of attacks on non-combatants by terrorist groups, the number of non-combatants killed, injured and kidnapped by terrorist groups and the number of hectares of poppy cultivation. The first measure, presented in Table 11, indicates that the provinces located in the areas of RC South West, RC South and RC East are most unsafe. In absolute terms, fewer soldiers died in the north and west of Afghanistan from 2001 to 2010. According to these figures the province of Helmand (618 fatalities), where Task Force Helmand was established by the UK in April 2006, is the most dangerous province of Afghanistan. Under the supporting nations in the province of Helmand the US and Denmark also bear a high burden in this province. The province of Kandahar, where Canada was lead nation, follows with 289 fatalities. In this province the US and Canada bear the heaviest burden. In RC East, the province of Kunar scores high on the number of fatalities. Most of these were US fatalities (121 fatalities; untabulated results).

The largest increase of military fatalities took place in RC North (fourth column, Table 11). Focusing on the province of Kunduz, we see a considerable increase of military fatalities during 2008-2010. This may indicate a deteriorated security situation in this province once known for its relatively safe circumstances.

The next measure we selected as an indicator of the security situation in Afghanistan's regions and provinces is the number of attacks on non-combatants by terrorist organizations. This data is from the World Wide Incident Tracking database (WITS, 2011) and consists of all incidents in which sub national or clandestine groups or individuals deliberately attacked civilians or non-combatants. Terrorist must have initiated and executed the attack to be included in the tables; failed or foiled attacks, as well as hoaxes, are not included. Because of the difficulty of gathering data in Afghanistan the figures underestimate the number of attacks and people deaths, injured and kidnapped.

TABLE 11 Military fatalities per Regional Command (RC) (2001-2010)

ISAF RC	(1)	(2)	(3)	(4)
RC North	5	59	64	400
Kunduz	1	24	25	350
RC East	134	430	564	47
Ghazni	5	27	32	57
Kunar	40	85	125	325
RC South	102	351	453	136
Uruzgan	19	44	63	27
Kandahar	61	228	289	98
RC South West	33	588	621	267
Helmand	33	585	618	266
RC West	4	70	74	47
Herat	2	10	12	233

(1) Military fatalities 2001-2006 (absolute);
(2) Military fatalities 2007-2010 (absolute);
(3) Military fatalities 2001-2010 (absolute);
(4) Increase of military fatalities in 2010 compared to 2008 (%)
Source: ICASUALITIES (2011)

TABLE 12: Attacks on non-combatants by terrorists (2004-2010)

ISAF RC	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RC North	**104**	**79**	**94**	**320**	**611**	**1,208**	**19**
Kunduz	*12*	*14*	*28*	*99*	*128*	*281*	*67*
RC East	**732**	**607**	**635**	**973**	**1,368**	**4,315**	**37**
Ghazni	*133*	*137*	*139*	*143*	*284*	*836*	*77*
Kunar	*47*	*51*	*36*	*91*	*96*	*321*	*32*
RC South	**423**	**203**	**210**	**350**	**625**	**1,811**	**85**
Uruzgan	*59*	*29*	*31*	*56*	*119*	*294*	*86*
Kandahar	*242*	*117*	*128*	*197*	*363*	*1047*	*98*
RC South West	**220**	**138**	**161**	**206**	**313**	**1,038**	**102**
Helmand	*203*	*119*	*120*	*143*	*214*	*799*	*93*
RC West	**119**	**93**	**114**	**271**	**408**	**1,005**	**13**
Herat	*54*	*36*	*50*	*121*	*174*	*435*	*24*

(1)Number of attacks 2004-2006 (absolute);
(2)Number of attacks 2007 (absolute);
(3)Number of attacks 2008 (absolute);
(4)Number of attacks 2009 (absolute);
(5)Number of attacks 2010 (absolute);
(6)Number of attacks 2004-2010 (absolute);
(7)Number of attacks per 100.000 inhabitants.
Source: WITS (2011)

Table 12, column 6 shows that most of the attacks on non-combatants by terrorist organizations took place in the eastern part of Afghanistan (4,315 attacks). However, from column 7 we conclude that the number of attacks per 100,000 inhabitants of Afghanistan is the highest in the southern (85 attacks) and south-western (102 attacks) parts of Afghanistan. According to Table 12, column 7, the province of Kandahar and Helmand are the most dangerous Afghan provinces. These provinces have the highest attack rate per 100,000 inhabitants.

In the Tables 13, 14 and 15 we look further into the consequences of the attacks. The WITS database provides figures on the number of Afghan people killed, wounded and kidnapped for each terrorist attack.

TABLE 13: number of non-combatants killed by terrorist attacks (2004-2010)

ISAF RC	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RC North	**92**	**159**	**91**	**229**	**455**	**1,026**	**16**
Kunduz	*23*	*30*	*20*	*66*	*158*	*297*	*71*
RC East	**651**	**821**	**819**	**1,104**	**1,026**	**4,421**	**37**
Ghazni	*119*	*157*	*182*	*128*	*209*	*795*	*73*
Kunar	*67*	*69*	*43*	*78*	*52*	*309*	*32*
RC South	**784**	**495**	**622**	**703**	**877**	**3,481**	**162**
Uruzgan	*141*	*98*	*87*	*121*	*170*	*617*	*180*
Kandahar	*484*	*294*	*454*	*450*	*512*	*2,194*	*205*
RC South West	**501**	**282**	**331**	**440**	**512**	**2,066**	**204**
Helmand	*467*	*246*	*232*	*375*	*403*	*1723*	*200*
RC West	**179**	**194**	**134**	**287**	**332**	**1,126**	**14**
Heart	*61*	*54*	*44*	*94*	*157*	*410*	*23*

(1) Number of non-combatants killed 2004-2006 (absolute);
(2) Number of non-combatants killed 2007 (absolute);
(3) Number of non-combatants killed 2008 (absolute);
(4) Number of non-combatants killed 2009 (absolute);
(5) Number of non-combatants killed 2010 (absolute);
(6) Number of non-combatants killed 2004-2010 (absolute);
(7) Number of non-combatants killed per 100.000 inhabitants.
Source: WITS (2011)

Table 13, columns 1-6 indicate that the number of non-combatants killed by terrorist organizations for all regions has increased during the period of 2004 to 2010. In Kandahar province most people died due to terrorist attacks (2,194 casualties) followed by the province of Helmand (1,723 casualties). Based on the figures in column 7 the south and south-western regions of Afghanistan have most of the casualties per 100,000 inhabitants (respectively 162 and 204 casualties). According to the figures in Table 12 and 13 we conclude that the attacks by terrorists in these regions have the largest consequences. Based on these measures we consider the south and south western to be the most risky regions of Afghanistan.

TABLE 14: number of non-combatants injured by terrorist attacks (2004-2010)

ISAF RC	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RC North	**172**	**284**	**98**	**249**	**756**	**1,559**	**24**
Kunduz	*40*	*74*	*23*	*77*	*361*	*575*	*138*
RC East	**1,372**	**1,146**	**1,573**	**2,381**	**2,028**	**8,500**	**72**
Ghazni	*103*	*126*	*162*	*241*	*373*	*1,005*	*92*
Kunar	*101*	*129*	*72*	*192*	*115*	*609*	*62*
RC South	**1,116**	**477**	**677**	**853**	**1,115**	**4,238**	**198**
Uruzgan	*139*	*113*	*131*	*159*	*132*	*674*	*197*
Kandahar	*812*	*292*	*452*	*495*	*799*	*2,850*	*266*
RC South West	**334**	**310**	**337**	**395**	**644**	**2,020**	**199**
Helmand	*294*	*276*	*243*	*316*	*513*	*1,642*	*191*
RC West	**217**	**185**	**206**	**314**	**337**	**1,259**	**16**
Heart	*148*	*37*	*69*	*134*	*175*	*563*	*31*

(1)Number of non-combatants injured 2004-2006 (absolute);
(2)Number of non-combatants injured 2007 (absolute);
(3)Number of non-combatants injured 2008 (absolute);
(4)Number of non-combatants injured 2009 (absolute);
(5)Number of non-combatants injured 2010 (absolute);
(6)Number of non-combatants injured 2004-2010 (absolute);
(7)Number of non-combatants injured per 100.000 inhabitants.
Source: WITS (2011)

Table 14 illustrates the number of non-combatants injured due to terrorist attacks during the period 2004-2010. Column 6 shows that the eastern region has most of the injuries caused by terrorist attacks. If we divide the total number of injured people by the number of inhabitants, we conclude that the south and south-western regions score high. Considering the figures of the provinces we conclude that most people got injured in the province of Kandahar (2,850 injured). Based on Table 13 and 14 we regard the province of Kandahar as the most dangerous province of Afghanistan.

Since the fall of the Taliban regime in 2001, the kidnapping for ransom and the illegal drug business became one of the most profitable businesses in Afghanistan (Beeres et al., 2012). In 2011, the ransom rate reached up to US$ 200,000 and became a method for the insurgents to raise money to finance their insurgency battle (Daily Times, 2011). The kidnapping of non-combatants is common in many parts in Afghanistan. Considering the information about the number of non-combatants kidnapped by terrorists in Afghanistan (Table 15) we notice a slight difference in the results, comparing them with the measures in Table 13 and 14. According to Table 15 the provinces of Ghazni (227 people kidnapped) and Kunar (213 people kidnapped) in the eastern part of Afghanistan are the most dangerous provinces of

Afghanistan followed by the province of Kandahar (197 people kidnapped). Particularly the number of kidnapping incidents in the province of Kunar has doubled in recent years. Poland and the US contribute most of the troops in these provinces and, according to this indicator, bear the heaviest burden.

TABLE 15: number of non-combatants kidnapped by terrorists (2004-2010)

ISAF RC	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RC North	**1**	**12**	**13**	**90**	**250**	**366**	**6**
Kunduz	*0*	*0*	*3*	*16*	*19*	*38*	*9*
RC East	**125**	**175**	**259**	**291**	**375**	**1,225**	**10**
Ghazni	*25*	*81*	*47*	*28*	*46*	*227*	*21*
Kunar	*7*	*13*	*28*	*53*	*112*	*213*	*22*
RC South	**124**	**46**	**62**	**49**	**95**	**376**	**18**
Uruzgan	*5*	*8*	*1*	*37*	*3*	*54*	*16*
Kandahar	*74*	*17*	*25*	*6*	*75*	*197*	*18*
RC South West	**35**	**43**	**14**	**60**	**18**	**170**	**17**
Helmand	*25*	*26*	*2*	*39*	*15*	*107*	*12*
RC West	**25**	**15**	**252**	**129**	**214**	**635**	**8**
Herat	*4*	*4*	*37*	*48*	*56*	*149*	*8*

(1)Number of non-combatants kidnapped 2004-2006 (absolute);
(2)Number of non-combatants kidnapped 2007 (absolute);
(3)Number of non-combatants kidnapped 2008 (absolute);
(4)Number of non-combatants kidnapped 2009 (absolute);
(5)Number of non-combatants kidnapped 2010 (absolute);
(6)Number of non-combatants kidnapped 2004-2010 (absolute);
(7)Number of non-combatants kidnapped per 10,000 inhabitants.
Source: WITS (2011)

The final measure indicator we selected to assess the security level in Afghanistan is the opium cultivation (Donkersloot et al., 2011). According to NATO (2009) opium cultivation is an important source of revenue for the Taliban. NATO also claims that there is a correlation between opium cultivation and the level of violence per region. Table 16 contains an overview of the development of the hectares used for poppy cultivation per ISAF Regional Command.

TABLE 16: number of hectares of poppy cultivation (2002-2010)

ISAF RC	(1)	(2)	(3)	(4)	(5)	(6)
RC North	**25,181**	**9,735**	**966**	**557**	**1,100**	**14**
Kunduz	*133*	*0*	*0*	*0*	*0*	*0*
RC East	**21,129**	**21,081**	**1,461**	**725**	**1,259**	**-14**
Ghazni	*12*	*0*	*0*	*0*	*0*	*0*
Kunar	*1,871*	*446*	*290*	*164*	*154*	*-47*
RC South	**18,650**	**30,776**	**29,170**	**33,181**	**35,202**	**21**
Uruzgan	*7,010*	*9,204*	*9,939*	*9,224*	*7.337*	*-26*
Kandahar	*7,518*	*16,615*	*14,623*	*19,811*	*25,835*	*77*
RC South West	**34,917**	**109,277**	**109,793**	**70,261**	**67,084**	**-39**
Helmand	*34,100*	*102,770*	*103,590*	*69,833*	*65,045*	*-37*
RC West	**10,933**	**22,112**	**15,863**	**18,372**	**17,870**	**13**
Heart	*1,385*	*1,525*	*266*	*556*	*360*	*35*

(1)Average number of hectares of poppy cultivation 2002-2006;
(2)Number of hectares of poppy cultivation 2007;
(3)Number of hectares of poppy cultivation 2008;
(4)Number of hectares of poppy cultivation 2009;
(5)Number of hectares of poppy cultivation 2010;
(6)Increase/decrease in 2010 compared to 2008.
Source: UNODC (2007-2011)

Column 1 shows that from 2002 to 2006 on average most poppies were cultivated in the north and south west of Afghanistan. From 2007 onwards, the number of hectares of poppy cultivated in the north and east of Afghanistan decreased sharply. Column 5 illustrates that in 2010 most poppies were cultivated in the south and southwest of Afghanistan. Moreover, in 2010, more than 90 per cent of the poppy cultivation was located in only four provinces: Helmand (53%), Kandahar (21%), Farah (12%) and Uruzgan (6%). Based on these figures the province of Helmand is considered to be the most dangerous province. Column 5 also shows in 2010 relatively few poppies were grown in the north and east of Afghanistan. In its latest report the UNODC (2011) declares the north of Afghanistan "poppy-free". Please note that this label only concerns poppy cultivation, not drugs laboratories and drugs trafficking. The processing laboratories tend to be located near the external borders of Afghanistan. External trafficking routes lead from the southern markets in Helmand and Kandahar directly to Iran, Baluchistan, Pakistan; eastern markets (mostly in eastern Badakshan) are linked to the frontier areas of North West Frontier Province, Pakistan; and northern markets (Baikh, Faryab and parts of Badakshan provinces) to the Central Asian states (Taylor, 2006). In this way large quantities of opiates to be sold in central Asia pass through and leave Afghanistan via the north-eastern provinces.

Based on a combination of differing measures of security as presented above, we conclude the south and south-western parts of Afghanistan to constitute the most risky regions as they score high on all measures. Over the period of 2007-2010, the US, UK, Canada, Australia as well as the Netherlands have acted as lead nations in these regions. Most military casualties occurred in the southwest, especially in the province of Helmand and thus, the UK, US and Denmark have been bearing heavy burdens operating in this province. The majority of attacks on non-combatants per 100,000 inhabitants also occurred in the south and south-western regions. Besides Helmand province the province of Kandahar scores high on the number of terrorist attacks on non-combatants and the number of non-combatants killed, injured or kidnapped. Canada and the US bear a heavy burden carrying out dangerous missions in this province. Last, within both southern provinces vast amounts of land are dedicated to poppy cultivation.

Our results demonstrate the US, the UK, Australia, Canada, Denmark and the Netherlands to have operated under risky circumstances in the southern and south-western parts of Afghanistan. With regard to the measures of security we have used in this chapter, other European countries (e.g., Germany, France, Italy, Norway, Spain and Sweden), from 2007 until 2010, operated under less demanding circumstances in the northern, eastern and western parts of Afghanistan.

Conclusion

By selecting, defining, measuring and interpreting a number of burden sharing measures on differing dimensions, this chapter sets out to provide a quantitative expression of burden sharing behavior amongst various NATO allies and other coalition members during the International Security Assistance Force (ISAF) operations in Afghanistan from 2001-2010.

We conclude the military contributions of the US, as expressed by the average number of troops deployed for ISAF, to surpass the total contributions of the NATO EU and NON-NATO countries. The US have operated in the most-risky parts of Afghanistan, while most European countries operated in more stable regions. However, the relative contribution of the UK, as expressed in terms of relative population size and GDP, exceeds the contribution of the US. Based on the number of military hostile fatalities we conclude the numbers of casualties of a few European countries (UK and Denmark) as well as Canada relatively exceed the burden of the US. Table 10 (column 5) serves to illustrate this conclusion: a Danish soldier is facing a 5% probability to be killed in action, whereas, in case of a US soldier this probability amounts to 2.6 %. Per million (home-based) inhabitants, military fatalities amount to 4.9 for the UK; 4.0 for Canada and 6.0 for Denmark compared to 3.6 for the US. As to Australia, contributing most non-NATO soldiers to ISAF, these measures amount to respectively 1.5% and 0.8 soldiers per million inhabitants.

As time draws near for the international community to prepare to exit - or partially withdraw - from Afghanistan (Beeres et al., 2012: 327ff) the ensuing debate revolves around questions such as: has it been worth it? Provided all necessary data are made available and admissible, calculating costs and relative burdens of ISAF coalition partners are useful to provide part of the information needed in a meaningful debate. Taken on their own, however, calculations such as ours cannot be used to answer whether "it has been worth it" and, moreover, in doing so the debate would be reduced to gross simplifications and illusions of transparency. Indeed, the performance of the coalition partners and –ultimately- the success of the mission only be investigated by taking into account alternative allocations of the resources devoted to the mission. Costs are benefits lost, or, quoting Coase (1993:10), "cost (the price of the resources) *is* opportunity cost". Regarding the ISAF mission in Afghanistan, it may prove quite challenging to measure the benefits. First, as Hartley (2012) argues, the costs of conflicts are related to a "finite period", while most of the benefits "extend over long future periods". Second, valuing benefits is subjective to a high extent. For instance, concerning the expenditures for military operations in Iraq and Afghanistan, Stiglitz en Bilmes (2008) conclude: 'There is … little doubt that had we spent one to two trillion dollars differently, we would actually be more secure…had we spent the money in investments in education, technology, and research, growth would have been higher, and we would have been in a far stronger position to meet future challenges'. Therefore, Stiglitz and Bilmes suggest military operations in Iraq and Afghanistan to have harmed US 's national security. Former president George W. Bush, however, is of another opinion altogether. According to him, military missions in Iraq and Afghanistan have benefitted the national security of the US: "Afghanistan has gone from a nation where the Taliban harboured al Qaeda and stoned women in the streets to a young democracy that is fighting terror and encouraging girls to go to school. Iraq has gone from a brutal dictatorship and a sworn enemy of America to an Arab democracy at the heart of the Middle East and a friend of the United States. There is legitimate debate about many of these decisions. But there can be little debate about the results. America has gone more than seven years without another terrorist attack on our soil" (The New York Times, 2009).

Further research into the benefits gained during deployments in out-of-area-operations appears necessary. We suggest for future research along these lines to take into account, amongst others (1) the –long term- appreciation of benefits from the perspectives of the population in mission areas, (2) the appreciation of benefits according to the various home base populations, and (3) the (inter)national political appreciation of benefits gained.

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Chapter 5

Chapter 5: Burden sharing for global cooperation on security and safety[1]

From its inception in 1949, the topic of military burden sharing behaviour has featured among NATO member states, at time covertly but often prominently. Former U.S. ambassador to the European Union (EU), Anthony Gardner, has argued burden sharing discussions should not only focus on military expenditures alone, but should include soft power issues, such as immigration and climate change as well. In its reaction, the Trump administration stated that it is not pursuing burden sharing agreements regarding soft issues (CNBC, 2017).

According to Cottey (2007), global security threats refer to multiple public goods ranging across widely divergent realms, such as environment, health, mass migration and transnational organized crime. Depending on what multiple public goods they contribute to, states may under-contribute in one realm and over-contribute in another. In developing a two-country, two-public good model allowing for trade-offs between alliance members, Boyer broadened the scope of the burden sharing debate beyond "the narrow military approach" (Boyer, 1989; 1990). Testing the model empirically by analyzing member states' contributions to military expenditure and foreign aid, Boyer finds different policy preferences among states to be beneficial as it allows for specialized contributions to alliance security (Boyer, 1989). Adding states' contributions to the United Nations (UN) and to CO_2 reduction on top of the parameters defence expenditures and development aid, Chalmers (1993, 2000) extends Boyer's research. More recently, instead of analyzing national contributions to various dimensions of safety and security separately, Sandler and Shimizu (2014) used a broader security burden sharing measure, totaling all expenditures on defence, peacekeeping and foreign aid per ally.

Against this background, this chapter investigates national contributions to common safety and security dimensions, comprising defence, terrorism, irregular migration, poverty and climate change. As such, the chapter builds on Boyer's and Chalmers' previous work. In contrast to Sandler and Shimizu (2014), we do not provide an overarching burden sharing yardstick on safety and security. Neither do we provide, for each state, the sum of its contributions to various dimensions. One reason for this is that to obtain insight into how burdens are being shared, we will not analyze financial contributions only but other measures as well. Moreover, we consider adding weighting factors to divergent security dimensions for the purpose of generating an overarching burden sharing yardstick questionable.

1 This chapter is an updated and enlarged version of the following article:
Bogers, M., R. Beeres, and M. Bollen. 2019. "Burden-sharing for global cooperation on safety and security." *Economics of Peace and Security Journal*, 14(1):27-38, doi.org:10.15355/epsj.14.1.27

The normative use of language in this chapter is grounded in our hope to help recast the burden sharing debate, however slightly. To do so necessarily requires a "what should be measured" criterion. This is not to say that the particular measures we put forward are the only ones worth considering. On the contrary, we acknowledge that our indicator choices are indicative and are meant to help start a broadened discussion.

The remaining part of this chapter is structured as follows. The next section explains our method of inquiry and presents the data sources. This is followed by a descriptive record of national contributions to international safety and security on five dimensions: military contributions, foreign aid, combating terrorist finance, carbon dioxide reduction and refugee protection. Although this could be extended to comprise all countries in the world, we limit it here to NATO member states (as of 2015, hence excluding Montenegro which accessed in 2017) as these are part of an alliance and data are readily available. The section thereafter uses pairwise Spearman rank correlation tests to analyze relations between states' contributions to the five dimensions. We find that member states not only contribute differently but that each state appears to prefer investments in specific dimensions over other dimensions. In the concluding section we argue that acknowledging and allowing for a degree of complementarity amongs member states regarding their national preferences, the debate on burden sharing behaviour could be transformed into one that emphasizes 'benefit sharing behaviour'. Thus, it may become possible to value every contribution and, building on national strengths, to further cooperation for safety and security on all necessary dimensions.

Methodology

We cannot analyze the vast array of all possible contributions to international safety and security and limit ourselves to just five: military contributions (defence expenditures), foreign aid (overseas development aid, ODA), combating terrorist finance (compliance with financial standards), carbon dioxide reduction (metric tons of CO_2 reductions) and refugee protection (asylum acceptance, or recognition rates). Selected in accordance with threats mentioned in various national strategy documents, these compromise threats posed by states, terror, irregular migration, poverty, and climate change.

Between and among these threats causalities appear. For instance, the UN Intergovernmental Panel on Climate Change (IPCC) reports that if baseline global warming exceeds 1.5 degrees Celsius, droughts, floods, extreme heat, and poverty will increase significantly, potentially affecting the livelihoods of hundreds of millions of people and causing uncontrollable migrant flows. Similarly, Carleton et al. (2016) find that climatological factors relate to a range of conflict outcomes across the globe. As mentioned, the specific measures we use are merely indicative and primarily serve to broaden the debate. Taking foreign aid as an example: In the U.S. it is argued that as private-sector foreign aid flows are relatively large as compared to public ODA flows, the sum total of private and public funding used for foreign aid purposes would constitute a better measure. Whether to use the broad or the narrow measure is debatable. Meanwhile, for each safety and security dimension, Table 17 shows our preferred measure, the time period, data source, and the specific tables with the data details per NATO member state.

TABLE 17: Burden sharing parameters

Dimension	Measure	Period	Source	Tables
Military contribution	Defence expenditure as a percentage of GDP	2005-2015	NATO (2017)	Table 18
Foreign aid contribution	Overseas development assistance as a percentage of GNI	2005-2015	OECD (2017)	Table 19
Combating terrorist financing	Compliance rate combating terrorist financing standards	Last available	FATF (2017)	Table 20
Carbon dioxide reduction	Metric ton of CO_2 reduction	2005-2015	EU (2017)	Table 21
Refugee protection	Recognition rates	2005-2015	UNHCR (2017)	Table 22

On some dimensions (e.g., military contribution, CO_2 reductions, refugee protection) multi-criteria burden sharing measures are available. Compared to single criterion measures, these are less sensitive to special circumstances characterizing individual states (Kawashima, 1996). However, an analysis based on multiple measures is complex. Different measures will result in different rankings and outcomes, and it is not clear what weighting factors to apply. For simplicity, we apply a single burdensharing measure to each dimension, underpinned by literature, and for which data covering reasonably long time periods are available.

Results

In this section an analysis of empirical findings aims to provide insight into the burden sharing behaviour displayed by 28 selected states regarding their delivery of public goods intended for international safety and security. We will do so according to each dimension and corresponding measure presented in Table 17.

Military contributions

Researchers have studied burden sharing behaviour regarding military contributions using dissimilar methods (Olson and Zeckhauser, 1966; Sandler, Cauley and Forbes, 1980; Oneal 1990; Khanna and Sandler, 1996; Sandler and Murdoch, 2000; Solomon, 2004; Sandler, 2005; Sandler and Shimizu, 2014). We use the within-ally parameter to measure burden sharing behaviour as the ratio of defence spending to GDP (Sandler and Hartley, 2001). In the Wales Summit Declaration of 2014, NATO member heads of state committed themselves formally to aim for a minimum of defence spending of two percent of their GDP, including a minimum of twenty percent of the defence budget on major new equipment. States failing to comply would be allowed one decade of time to increase defence expenditures and investment in major weapon systems accordingly (NATO, 2014).

For the period 2005-2015, Table 18 shows defence expenditures as a percentage of GDP. In 2015, five states meet the two per cent goal: Estonia (2.07%), Greece (2.38%), Poland (2.23%), the UK (2.09%) and the US (3.59%). The US bears the heaviest burden. In 2015, states that contributed less than one percent were Luxembourg (0.43%), Belgium (0.91%), Spain (0.92%), Hungary (0.94%) and Canada (0.98%). The average contribution of the European states (1.33%) was lower than that of the North American states (2.29%).

TABLE 18: Defence expenditures as a percentage of Gross Domestic Product

	2005-2009	2010	2011	2012	2013	2014	2015	Rank
Albania	1.52	1.56	1.53	1.49	1.41	1.34	1.16	14
Belgium	1.11	1.08	1.05	1.05	1.01	0.97	0.91	23
Bulgaria	2.53	1.67	1.33	1.35	1.46	1.32	1.29	12
Croatia	1.62	1.54	1.60	1.53	1.47	1.41	1.37	10
Czech Republic	1.56	1.29	1.07	1.06	1.03	0.96	1.06	17
Denmark	1.33	1.41	1.30	1.34	1.23	1.16	1.14	16
Estonia	1.70	1.70	1.68	1.89	1.90	1.94	2.07	5
France	2.34	1.96	1.87	1.87	1.86	1.84	1.80	6
Germany	1.34	1.35	1.28	1.31	1.23	1.19	1.19	13
Greece	2.78	2.64	2.38	2.29	2.22	2.22	2.38	2
Hungary	1.25	1.04	1.05	1.04	0.95	0.87	0.94	21
Iceland	-	-	-	-	-	-	-	-
Italy	1.56	1.35	1.30	1.24	1.20	1.09	1.02	19
Latvia	1.48	1.06	1.02	0.89	0.93	0.94	1.04	18
Lithuania	1.15	0.88	0.79	0.76	0.76	0.88	1.14	16
Luxembourg	0.52	0.47	0.39	0.38	0.38	0.39	0.43	24
Netherlands	1.46	1.34	1.25	1.23	1.16	1.15	1.16	15
Norway	1.49	1.52	1.51	1.47	1.48	1.51	1.47	8
Poland	1.80	1.77	1.72	1.74	1.72	1.85	2.23	3
Portugal	1.57	1.49	1.49	1.41	1.44	1.30	1.32	11
Romania	1.63	1.24	1.28	1.22	1.28	1.35	1.45	9
Slovakia	1.56	1.27	1.09	1.10	0.99	0.99	1.14	16
Slovenia	1.52	1.61	1.30	1.18	1.06	0.98	0.94	21
Spain	1.19	1.03	0.94	1.04	0.92	0.91	0.92	22
Turkey	1.99	1.93	1.76	1.76	1.75	1.70	1.67	7
U.K.	2.42	2.51	2.42	2.20	2.30	2.20	2.09	4
Europe	**1.62**	**1.47**	**1.38**	**1.35**	**1.33**	**1.30**	**1.33**	
Canada	1.28	1.16	1.23	1.10	0.99	1.02	0.98	20
U.S.	4.28	4.81	4.77	4.42	4.09	3.78	3.59	1
North America	**2.78**	**2.99**	**3.00**	**2.76**	**2.54**	**2.40**	**2.29**	

Source: NATO (2017).

Foreign aid contribution

At least as from 1945 onward, when the United States initiated its Marshall Plan to help rebuild war torn Western European economies, thereby preventing the region to be unduly affected by communist influence, financial aid has been seen as serving a security function, at least in part. During the 1950s and 60s, US financial foreign aid mainly aimed to fortify Cold War allied partners in Europe and East Asia; in contrast, Western European states spent much of their foreign aid to protect economic interests in (former) colonial territories (Chalmers, 2000).

In 1961, the Organisation for Economic Cooperation and Development (OECD) was founded. It commissioned its Development Assistance Committee (DAC) to provide a framework for distributing foreign aid burdens more equally among donor countries. By the mid-1980s, DAC, excluding the U.S. and Switzerland, agreed on a target of spending 0.7 per cent of Gross National Income (GNI) on development assistance. Little empirical research exists on the burden sharing behaviour of national governments regarding their expenditures on foreign aid (e.g., the amount of funding spent to benefit aid agencies) (Boyer, 1989; Chalmers, 1993; Khanna and Sandler, 1997; Addison et al, 2004). Table 19 shows overseas development assistance as a percentage of GNI for NATO states. For 2015, the table shows five states scoring above the 0.7% target: Norway (1.05%), Luxembourg (0.95%), Denmark (0.85%), The Netherlands (0.75%) and the UK (0.70%). The lowest scoring states comprise former Warsaw Pact members: Bulgaria (0.09%), Latvia (0.09%), Romania (0.09%), Poland (0.18%) and Slovakia (0.10%). The average foreign aid contribution of European member states (0.34%) surpasses the US contribution (0.17%). European member states, and particularly northern European nations, bear the heaviest burden.

TABLE 19: Overseas Development Assistance as a percentage of Gross National Income

	2005-2010	2011	2012	2013	2014	2015	Rank
Albania	-	-	-	-	-	-	-
Belgium	0.49	0.54	0.48	0.45	0.46	0.42	8
Bulgaria	0.09	0.09	0.08	0.10	0.09	0.09	19
Croatia	-	-	-	-	-	-	-
Czech Republic	0.10	0.13	0.12	0.11	0.11	0.12	17
Denmark	0.87	0.85	0.83	0.85	0.86	0.85	3
Estonia	0.09	0.12	0.11	0.13	0.15	0.15	15
France	0.42	0.46	0.45	0.41	0.37	0.37	9
Germany	0.33	0.39	0.37	0.38	0.42	0.52	6
Greece	0.18	0.15	0.13	0.10	0.11	0.12	17
Hungary	0.08	0.11	0.10	0.10	0.11	0.13	16
Iceland	0.23	0.20	0.20	0.23	0.22	0.24	11
Italy	0.19	0.20	0.14	0.17	0.19	0.22	12
Latvia	0.06	0.07	0.08	0.08	0.08	0.09	19
Lithuania	0.08	0.13	0.13	0.11	0.10	0.12	17
Luxembourg	0.89	0.97	1.00	1.00	1.06	0.95	2
Netherlands	0.80	0.75	0.71	0.67	0.64	0.75	4
Norway	0.93	0.96	0.93	1.08	1.00	1.05	1
Poland	0.07	0.08	0.09	0.10	0.09	0.10	18
Portugal	0.28	0.31	0.28	0.23	0.19	0.16	14
Romania	0.08	0.09	0.09	0.07	0.11	0.09	19
Slovakia	0.07	0.09	0.09	0.09	0.09	0.10	18
Slovenia	0.13	0.13	0.13	0.13	0.13	0.15	15
Spain	0.33	0.29	0.16	0.17	0.13	0.12	17
Turkey	0.10	0.17	0.32	0.40	0.45	0.50	7
U.K.	0.42	0.56	0.56	0.71	0.70	0.70	5
Europe	**0.30**	**0.33**	**0.32**	**0.33**	**0.32**	**0.34**	
Canada	0.29	0.32	0.32	0.28	0.24	0.28	10
U.S.	0.17	0.20	0.19	0.18	0.19	0.17	13
North America	**0.23**	**0.26**	**0.26**	**0.23**	**0.22**	**0.23**	

Source: OECD (2017).

Combating Terrorist Financing

One strategy to eliminate, or at least, to contain terrorist threats is to understand the ways in which terrorist organisations and networks obtain financial resources. Following the money trail can lead to financiers and perpetrators of acts of terror (Beeres and Bollen, 2011). After the 9/11 attacks, the U.N. Security Council adopted resolution 1373, which mandates all UN member states to prevent and suppress the financing of terror acts, to criminalize the provision of funds to terror organisations, and to freeze funds of persons and groups engaged in terror-related activities. Additionally, the Financial Action Task Force (FATF) decided to expand on its 40 standards for combating money laundering with eight standards to fight terrorist financing (in October 2004, an additional, ninth standard was put forward). The standards aim to provide a comprehensive and consistent framework for states to combat money laundering and terrorist financing. Over 190 jurisdictions worldwide are committed to FATF standards and compliance levels of individual states are assessed by experts associated with FATF. In line with FATF assessment methodology, compliance with each standard is validated across four categories. 'Compliant' means that a country observes a standard fully with respect to all essential criteria; 'largely compliant' means there are only minor shortcomings, with a large majority of essential criteria being fully met; the validation 'partially compliant' says that a country has taken some substantive action and complies with some essential criteria; finally, countries assessed as 'non-compliant' on a standard are judged to suffer major shortcomings, with a large majority of the essential criteria not being met. 'Compliant' scores 3 points; 'largely compliant' scores 2 points; 'partially compliant' scores 1 point and 'non-compliant' scores 0 points (Arnone and Padoan, 2008). Table 20 shows the average compliance scores. Numeric column 4 lists compliance ranks using all 49 standards; column 6 does so using only the 40 anti-money laundering standards, and column 8 shows the ranks for the nine anti-terrorist financing standards. On anti-terror financing, three states Albania, Croatia, Iceland score below even the partially compliant level (i.e., <1), indicating major shortcomings. States scoring between 1 and 2 have taken some substantive action in their fight against terrorist financing but, as yet, do not comply with all essential criteria. States, scoring over 2 show minor shortcomings, fully meeting most essential criteria.

TABLE 20: Compliance scores on anti-money laundering and combating terrorist financing

	Report	Year	FATFAT	Rank	FATFA40	Rank	FATFA9	Rank
Albania	MER	2011	1.31	21	1.41	19	0.89	13
Belgium	MER	2015	2.12	5	2.15	4	2.00	5
Bulgaria	MER	2008	1.94	10	1.95	11	1.89	6
Croatia	MER	2008	1.09	22	1.21	22	0.56	14
Czech Republic	MER	2011	1.62	17	1.61	17	1.67	8
Denmark	FER	2010	2.00	8	2.03	7	1.89	6
Estonia	FER	2014	1.92	11	1.97	10	1.67	8
France	MER	2011	1.94	10	1.90	12	2.11	4
Germany	FER	2014	2.00	8	2.00	8	2.00	5
Greece	FER	2011	1.31	21	1.31	20	1.33	11
Hungary	FER	2013	2.40	2	2.51	2	1.89	6
Iceland	MER	2006	1.46	20	1.59	18	0.89	13
Italy	MER	2016	2.20	3	2.20	3	2.22	3
Latvia	MER	2012	2.02	7	2.08	6	1.78	7
Lithuania	MER	2012	1.85	13	1.97	10	1.33	11
Luxembourg	FER	2014	1.31	21	1.28	21	1.44	10
Netherlands	FER	2014	1.82	14	1.75	16	2.11	4
Norway	MER	2014	1.88	12	1.83	14	2.11	4
Poland	MER	2013	1.75	16	1.79	15	1.56	9
Portugal	MER	2006	1.98	9	2.03	7	1.56	9
Romania	MER	2008	1.50	19	1.59	18	1.11	12
Slovakia	MER	2011	1.54	18	1.59	18	1.33	11
Slovenia	MER	2010	2.08	6	2.08	6	2.11	4
Spain	MER	2014	2.55	1	2.60	1	2.33	2
Turkey	FER	2014	1.79	15	1.87	13	1.44	10
U.K.	MER	2009	2.18	4	2.13	5	2.44	1
Europe			**1.83**		**1.86**		**1.68**	
Canada	MER	2016	1.94	10	1.90	12	2.11	4
U.S.	MER	2016	1.98	9	1.98	9	2.00	5
North America			**1.96**		**1.94**		**2.06**	

Source: FATF (2017). FATFAT represents the total average compliance score on all FATF recommendations of a state; FATFA40 is the total average compliance score on the 40 anti-money laundering standards of a state; FATFA9 is the total average compliance score on the 9 special standards to combat terrorist finance of a state; All proxies are continues measures between 0 and 3. MER = mutual evaluation report; FER = follow-up evaluation report.

The UK, Spain, and Italy hold the top spots, followed by Canada and the US. Combating terrorist financing is a weakest-link good in that high-performing states cannot compensate for lower-performing partners. Consequently, higher average performance levels across all states can only be reached by helping weakest-link states to increase compliance levels (Bogers and Beeres, 2013).

Carbon dioxide reduction

Climate change challenges international security. During the 21st UN Climate Conference in Paris, December 2015, 195 states agreed to prevent global average temperature rise to exceed two degrees Celsius and hoping to limit temperature increases to a maximum of 1.5 degrees Celsius. But to reach even the two-degree limit, significant reductions of CO_2 emissions are necessary (Ringius et al, 1998; Ringius et al, 2002; Hof et al, 2010; Clémençon, 2016). Table 21 shows the extent to which states have been doing so, for 2005-2015. Greece, Italy, Spain, the UK and Denmark show the largest reductions, perhaps in part because of economic decline or stagnation in the first three of these, whereas Albania, Bulgaria, Estonia, Iceland and Turkey show increased CO_2 emissions, but except for Turkey, these are on a fairly small scale.

Canada and Germany have reached large absolute emission reductions, yet in percentage terms they are relatively small, perhaps too small to help reach the stated goal of the global climate agreement.

TABLE 21: Reduction of carbon dioxide emissions

	2005 (Metric ton CO2)	2015 (Metric ton CO2)	Change 2005-15 (absolute)	Change 2005-15 (%)	Rank
Albania	4,137	4,439	302	6.80	25
Belgium	116,820	97,002	-19.818	-20.43	10
Bulgaria	52,068	53,432	1,364	2.55	24
Croatia	22,695	20,538	-2,157	-10.50	16
Czech Republic	127,283	111,092	-16,191	-14.57	13
Denmark	50,856	36,908	-13,948	-37.79	5
Estonia	17,769	29,252	11,483	39.26	28
France	410,066	327,787	-82,279	-25.10	8
Germany	830,597	777,905	-52,692	-6.77	19
Greece	103,910	68,292	-35,618	-52.16	1
Hungary	59,607	48,186	-11,421	-23.70	9
Iceland	3,126	3,874	748	19.31	26
Italy	492,898	352,886	-140,012	-39.68	2
Latvia	7,981	7,973	-8	-0.10	23
Lithuania	13,616	12,478	-1,138	-9.12	17
Luxembourg	12,046	10,235	-1,811	-17.69	12
Netherlands	179,600	165,317	-14,283	-8.64	18
Norway	43,291	43,109	-182	-0.42	21
Poland	308,755	294,879	-13,876	-4.71	20
Portugal	67,215	50,792	-16,423	-32.33	6
Romania	104,206	81,247	-22,959	-28.26	7
Slovakia	42,789	36,254	-6,535	-18.03	11
Slovenia	17,738	15,610	-2,128	-13.63	15
Spain	366,314	262,683	-103,631	-39.45	3
Turkey	248,620	357,157	108,537	30.39	27
U.K.	555,007	398,524	-156,483	-39.27	4
Europe	**4,259,010**	**3,667,851**	**-591,159**	**-16.12**	
Canada	557,423	555,401	-2,022	-0.36	22
U.S.	5,886,318	5,172,338	-713,980	-13.80	14
North America	**6,443,741**	**5,727,739**	**-716,002**	**-7.08**	

Source: EU (2017).

Mass migration and refugee protection

Mass migration can endanger international security because of destabilizing effects resulting from refugee flows and border tensions (Thieleman, 2018). Schuck (1997) argues that criteria for allocating refugee burdens across nations should be based on states' capacity to provide refugees with minimal safeguards and comfort to which they are entitled under the Refugee Convention and consequently suggests to apply to national wealth as a criterion for assigning refugees quotas. Using a state's wealth as the sole criterion neglects, however, important factors such as population density, land surface, national cultures and traditions, public support, and/or national labor markets, all of which affect states' willingness and ability to receive and protect refugees, or other migrants (Schuck, 1997).

To investigate burden sharing behaviour, we instead derive recognition rates, i.e., the number of positive asylum decisions divided by the total number of applications. Accordingly, for 2005-2015, Table 22 shows the average number of applications submitted, the average number accepted, and the resulting recognition rates (columns 2, 4, and 6, respectively). Germany, France, and the US score high in absolute numbers on the 'applied' and the 'accepted' parameters, but Germany and France score only average on the relative measure, the recognition parameter. Hungary scores relatively high on the number of submitted applications (rank 8) but has the lowest recognition rate of all states (rank 28). The Netherlands, Canada, Italy, Bulgaria, and the US avail the highest recognition rates.

TABLE 22: Average asylum applications recognition rate

	Average applicants 2005-15 (absolute)	Rank	Average applicants accepted 2005-15 (absolute)	Rank	Recognition (%)	Rank
Albania	125	27	10	23	8.12	23
Belgium	28,637	7	5,501	9	19.21	15
Bulgaria	4,203	16	1,513	12	36.00	4
Croatia	496	21	16	23	3.22	27
Czech Republic	2,135	17	347	16	16.26	18
Denmark	7,097	14	2,411	11	33.97	6
Estonia	64	28	14	23	22.05	13
France	82,217	2	15,043	3	18.30	17
Germany	104,587	1	24,725	1	23.64	11
Greece	19,863	10	1,196	14	6.02	25
Hungary	23,683	8	309	17	1.31	28
Iceland	128	26	15	23	11.82	21
Italy	28,898	6	11,238	4	38.89	3
Latvia	148	25	18	23	12.11	20
Lithuania	280	24	57	21	20.23	14
Luxembourg	1,471	18	269	19	18.31	16
Netherlands	17,447	12	8,954	8	51.32	1
Norway	19,268	11	4,786	10	24.84	10
Poland	9,624	13	1,462	13	15.20	19
Portugal	304	23	79	20	25.98	8
Romania	1,269	19	297	18	23.37	12
Slovakia	1,242	20	77	20	6.18	24
Slovenia	460	22	25	22	5.47	26
Spain	5,438	15	620	15	11.40	22
Turkey	32,498	5	9,412	7	28.96	7
U.K.	42,820	4	11,024	5	25.75	9
Europe	**434,404**		**99,419**		**22.89**	
Canada	22,870	9	9,856	6	43.10	2
U.S.	60,750	3	21,271	2	35.01	5
North America	**83,620**		**31,128**		**37.23**	

Source: UNHCR (2017)

Analysis

Table 23 synthesizes Tables 18-22 and presents both the five lowest as well as the five highest contributors to our five dimensions.

TABLE 23: Contributions to different safety and security dimensions of selected states

Military contribution		Foreign aid contribution		CTF compliance		CO2 reduction		Refugee protection	
5 Lowest contributors	5 Highest contributors	5 Lowest contributors	5 Highest contributors	5 Lowest contributors	5 Highest contributors	5 Lowest contributors	5 Highest contributors	5 Lowest contributors	5 Highest contributors
Luxem-bourg	U.S.	Bulgaria	Norway	Croatia	U.K.	Estonia	Greece	Hungary	Nether-lands
Belgium	Greece	Latvia	Luxem-bourg	Albania	Spain	Turkey	Italy	Croatia	Canada
Spain	Poland	Romania	Denmark	Iceland	Italy	Iceland	Spain	Slovenia	Italy
Hungary	U.K.	Poland	Nether-lands	Romania	Canada	Albania	U.K.	Greece	Bulgaria
Slovenia	Estonia	Slovakia	U.K.	Greece	France	Bulgaria	Denmark	Slovakia	U.S.

On four out of five dimensions, the UK performs in the top-5, whereas the US comes in first on one dimension. Some member states contribute relatively high on one dimension and low on another dimension. Estonia, for example, spends over two per cent of GDP on military contributions, as opposed to 0.15 per cent of its gross national income on overseas foreign aid. It also shows the highest percentage increase in CO_2 emissions. Luxembourg, in contrast, spends little on its military (0.43%), and relatively much on foreign aid (0.95%). Excepting the U.K., it appears that states that devote a large part of their GDP to military contributions do not always contribute as highly to foreign aid, CO_2 reductions, counter terrorist financing compliance and/or refugee protection.

To complement this analysis, we cluster countries with similar behavior on a two-variable chart. In Figures 12-17 each country has been mapped and several clusters are identified. Figure 12 displays countries in a graph, with states' *military contribution year 2005* on the x-axis and states' *overseas development contribution year 2005* on the y-axis. This figure shows that Denmark, Luxembourg, the Netherlands, and Norway score highest on foreign aid while scoring lower

on military contribution. The US performs a class of its own on military contribution. Figure 13, concerning the year 2015, reveals a similar picture. One predominant feature in this figure is that the UK spends relatively more on foreign aid in 2015 than in 2005.

Figure 14 displays countries in a graph, with states' *military contribution year 2015* on the x-axis and states' *combating Terrorist Financing contribution* on the y-axis. This figure shows that UK and US score high on both military contribution and CTF compliance. There is a large cluster of countries that score high on CTF compliance and low on military contribution. Estonia, Poland, and Greece stand out for their large military contribution and average CTF compliance rate. Romania, Albania and Croatia score low on CTF compliance.

Figure 15 displays countries in a graph, with states' *military contribution 2015* on the x-axis and states' *CO_2 reduction 2005-2015* on the y-axis. The figure shows three clusters. Above the horizontal axis two countries, Turkey and Estonia, stand out due to their increase of CO_2 emissions. Below the horizontal axis are countries that managed to decrease their CO_2 emissions in the period 2005-2015. On the right-side Greece and the UK show themselves to be more committed to the reduction of CO_2 emissions and simultaneously spend relatively more on defense than other European countries. Southern European states such as Spain, Italy and Portugal seem to be more willing to reduce CO_2 emissions than several Northern European states (Norway, Germany and the Netherlands), while spending less than 1,5% of their GDP on defense.

Figure 16 displays countries in a graph, with states' *military contribution 2015* on the x-axis and states' *refugee positive decision 2005-2015* on the y-axis. The figure shows that the US and Germany take their responsibility as a large country accepting in absolute terms more asylum seekers than other countries. Eastern European states host only a small number of asylum seekers, while some of these states, Poland and Estonia, spend relatively a lot on defense. Figure 17 displays countries in a graph, with states' *military contribution 2015* on the x-axis and states' *refugee recognition rate 2005-2015* on the y-axis. Except for the US, there is no country performing high on both variables. The application rate of Hungary, Slovenia, Slovakia, Albania, Croatia and Greece is low. It should be noted that since 2015 Greece has been in the frontline of European migration crisis and shoulders much of the burden.

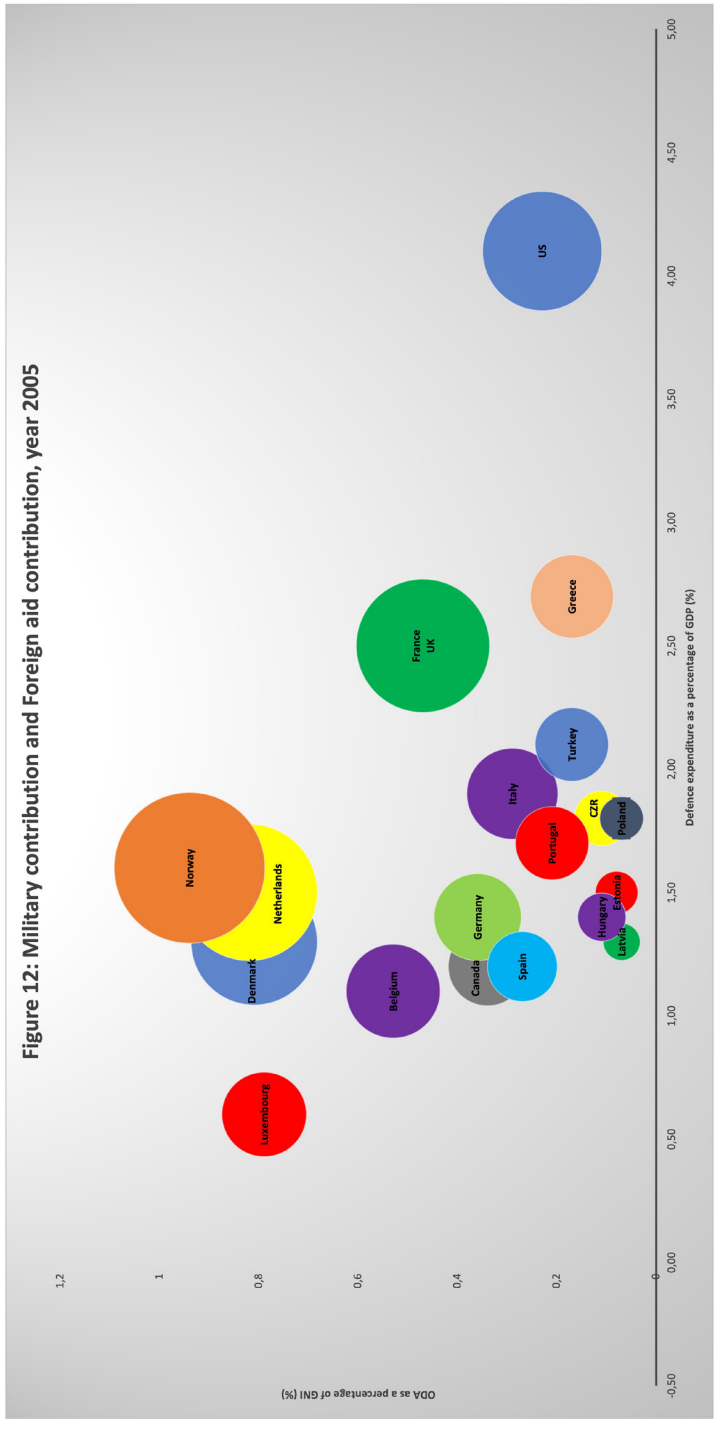


Figure 12: Military contribution and Foreign aid contribution, year 2005
ODA as a percentage of GNI (%)
Defence expenditure as a percentage of GDP (%)
US
Norway
Netherlands
Denmark
Luxembourg
Belgium
Canada
Germany
Spain
France
UK
Italy
Portugal
Turkey
CZR
Poland
Hungary
Estonia
Latvia
Greece

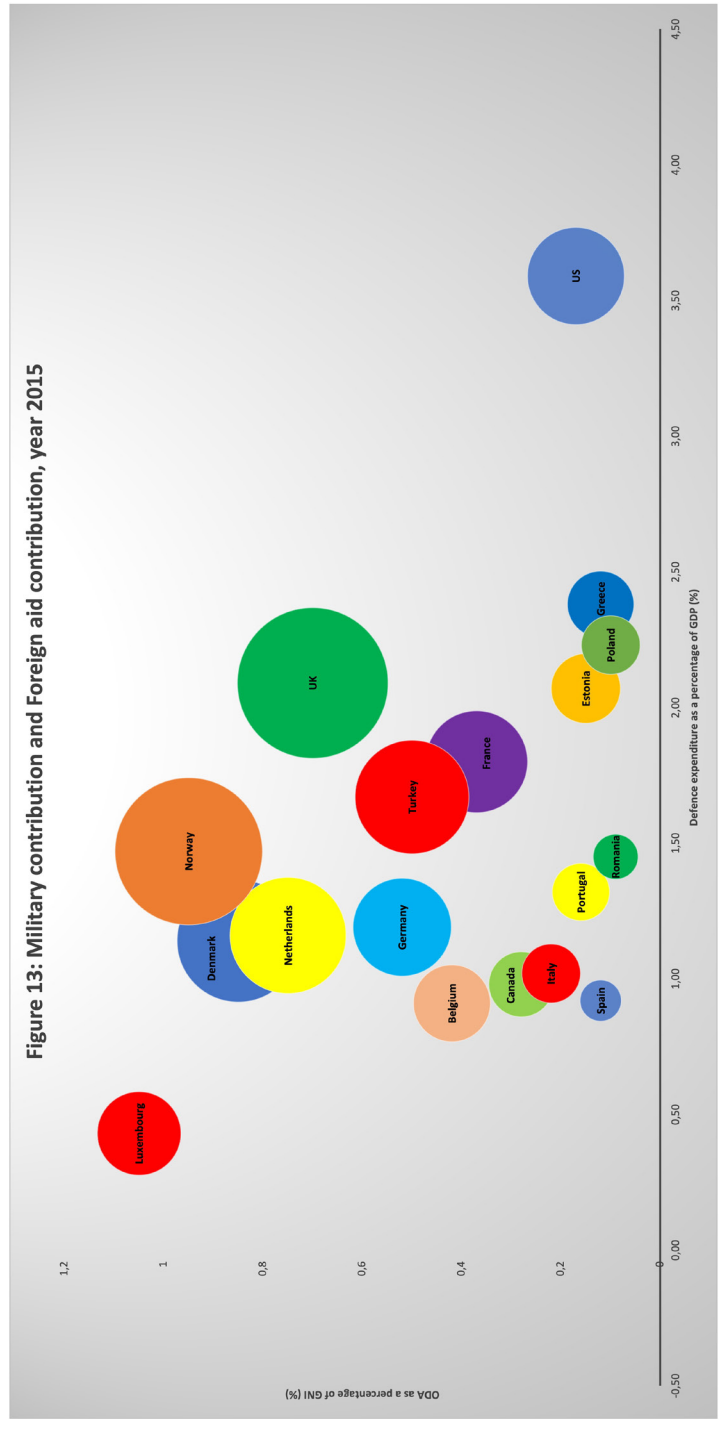


Figure 13: Military contribution and Foreign aid contribution, year 2015
ODA as a percentage of GNI (%)
Defence expenditure as a percentage of GDP (%)
US
UK
Norway
Denmark
Netherlands
Germany
Belgium
Canada
Turkey
France
Italy
Portugal
Spain
Romania
Estonia
Poland
Greece
Luxembourg

Figure 14: Military contribution and CTF compliance

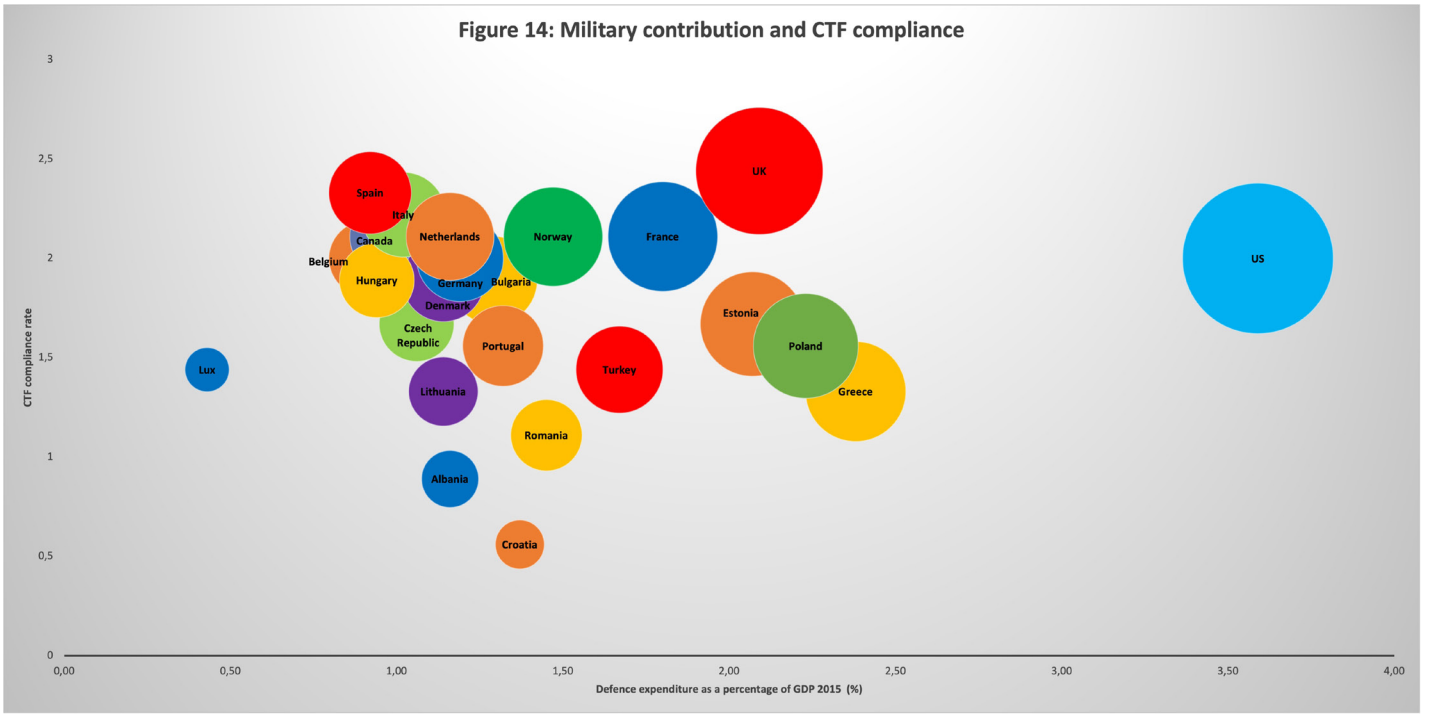
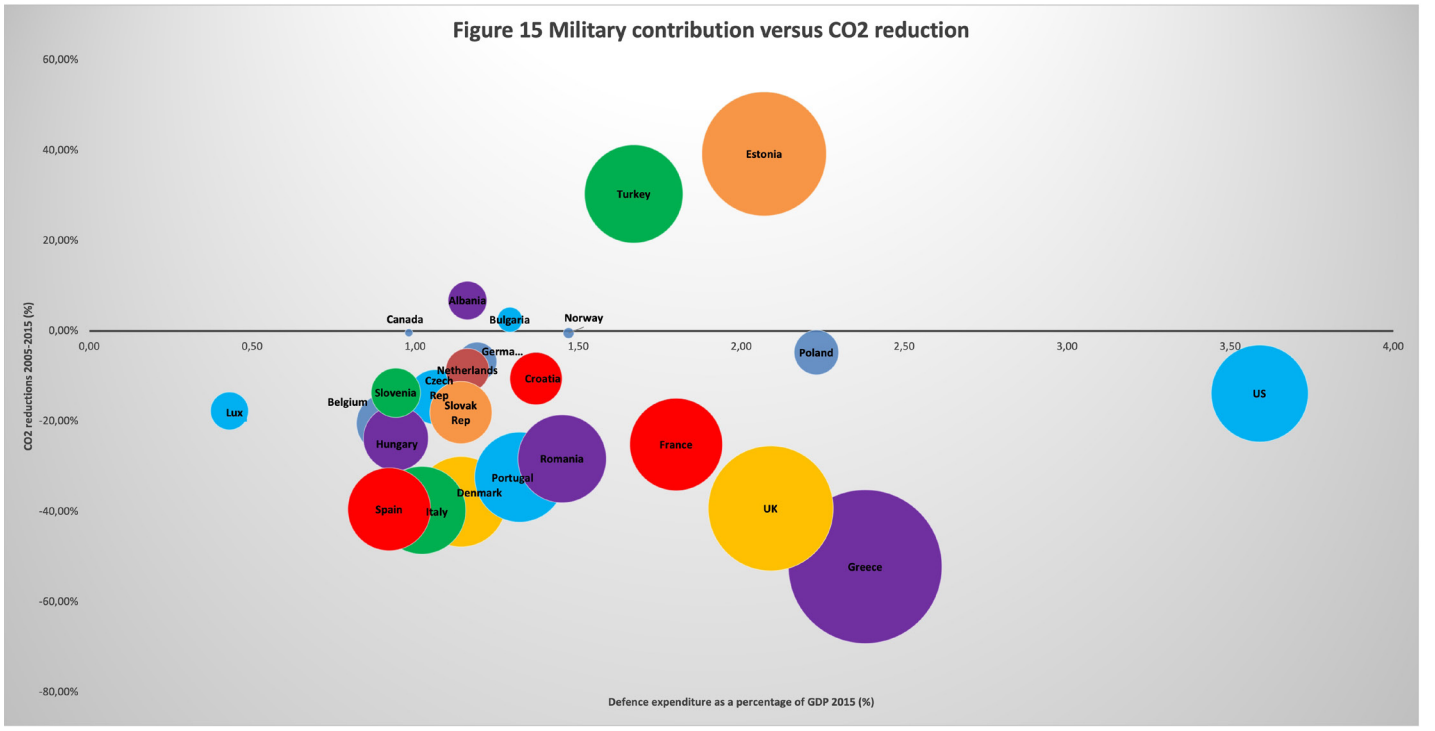


Figure 15 Military contribution versus CO2 reduction



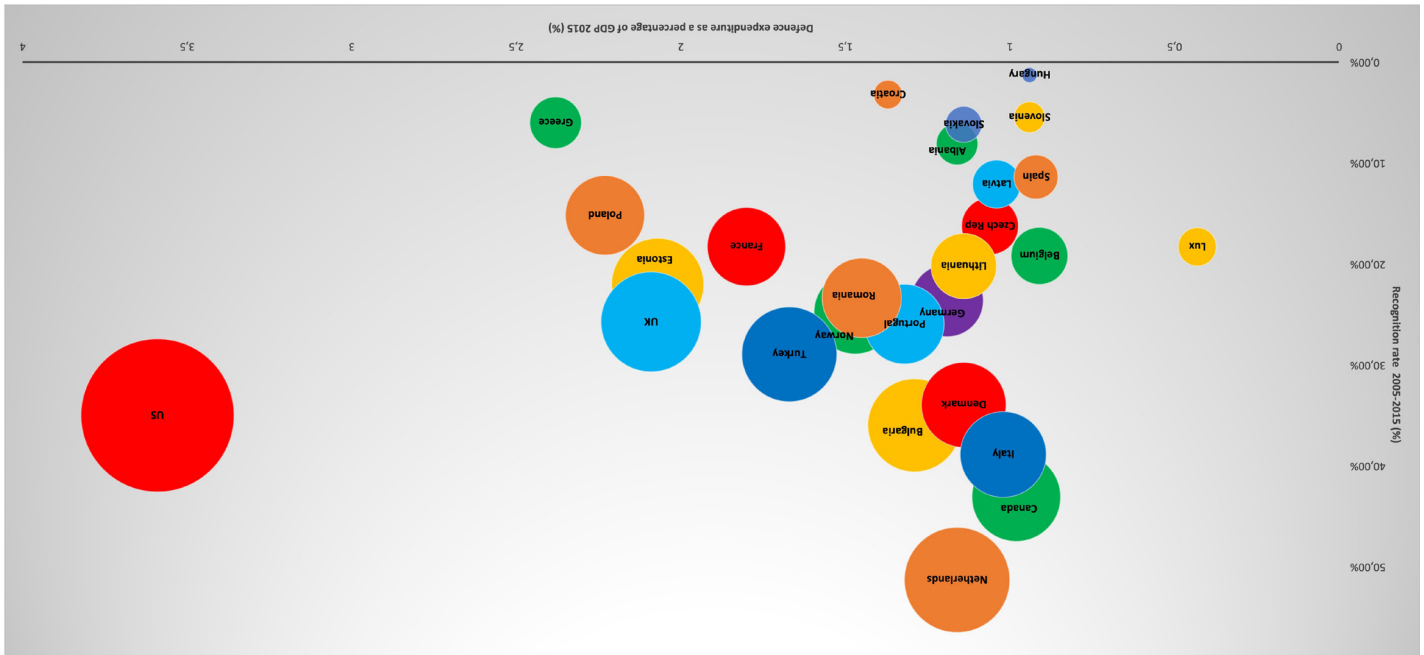


Figure 16: Military contribution and Refugee protection
Average positive decision 2005-2015 (absolute)
30000
25000
15000
10000
5000
0
0
0,5
1
1,5
2
2,5
3
3,5
4
4,5
Defence expenditure as a percentage of GDP 2015 (%)
Luxembourg
Hungary
Spain
Slovenia
Latvia
Czech Republic
Bulgaria
Portugal
Romania
Denmark
Estonia
Poland
Greece
Norway
Belgium
Canada
Netherlands
Italy
Turkey
UK
France
Germany
US

Figure 17: Military contribution and Refugee protection
Recognition rate 2005-2015 (%)
60,00%
50,00%
40,00%
30,00%
20,00%
10,00%
0,00%
0
0,5
1
1,5
2
2,5
3
3,5
4
Defence expenditure as a percentage of GDP 2015 (%)
Hungary
Slovenia
Slovakia
Croatia
Greece
Albania
Spain
Latvia
Czech Rep
Poland
France
Estonia
Lithuania
Belgium
Lux
Germany
Portugal
Romania
Norway
UK
Turkey
Denmark
Bulgaria
Italy
Canada
Netherlands
US

Conclusions

This chapter shows how 28 NATO states contribute, across five dimensions, to global safety and security. We investigated four non-military dimensions, using a limited number of measures. On its own, military expenditure as a percentage of GDP does not take into account political and societal complexities regarding safety and security. We expect therefore that measuring contributions solely in military terms will not deliver meaningful information on burden sharing behaviour. Our findings (Table 23 and cluster analysis) show that member states can and do contribute in different ways to global safety and security. Except for the UK, which scores among the top-5 countries on four of our five dimensions, other states vary the extent to which they contribute across the five dimensions. No one state ranks lowest on all five. Instead, each state appears to invest in some dimension more than in others. As to why states contribute as they do, additional research seems necessary.

From a defence economic perspective, it appears that states do not all value certain public goods equally, nor do they agree on any one particular scenario pursuing shared strategies. As member states seem to hold specific preferences regarding the production of (global) public goods, implicitly and explicitly agreeing on task specialization may ease disputes over burden sharing behaviour and increase mutual understanding and may even offer new opportunities. Any one country could over-contribute to the production of a specific public good while under-contributing to others, presuming that the other states would condone and complement this behaviour along other dimensions.

In terms of today's burden sharing debate, seemingly geared toward the negative (i.e., the costs), this may appear infeasible. At the heart of any burden sharing debate on safety and security, however, there are objectives coveted by all. No single state possesses all of the necessary political, economic, and cultural resources to achieve all of the objectives. If, next to addressing the military costs incurred, states also devote some attention to highly desirable nonmilitary safety and security benefits, the burden sharing debate may transform into a dialogue on benefit sharing behaviour. Using one's own and the other states' strengths to achieve mutual benefits, mutual understanding, and mutual recognition of the value of each other's contributions may sustain cooperation across all dimensions of safety and security.

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Chapter 6

Chapter 6: What is the relation between participation in UN peacekeeping operations and the UNSC elections?

From the 1990s, the United Nations (UN) expanded peace operations and the demand for troop contributions. Currently[1], the UN hosts thirteen peacekeeping operations on three continents. A total of 81,038 peacekeepers from 121 different countries are deployed to bring global peace, security and stability (UN, 2020). Peacekeepers come from different countries; large, small, wealthy and poor. There is no consensus in literature as to why countries contribute troops to peacekeeping operations. Mostly it is explained by a combination of factors (Jakobsen, 2016). Bellamy and Williams (2013) provide an overview of the main categories of rationales (political, economic, security, institutional and normative) and factors that either facilitate or inhibit state's decision to contribute to UN peacekeeping operations._Single country studies provide detailed and contextual analysis of 'why a particular state supplies troops to a specific UN peace operation' (Curan and Williams, 2016; do Céo Pinto, 2014; Jakobsen, 2016; Karlsrud and Osland, 2016; Koops, 2016; Murphy, 1998; Nilsson and Zetterlund, 2016; Tercovich, 2016; Vesa, 2007; van Willigen, 2016). However, such explanations are often difficult to generalize (Velázquez, 2010). Large N-studies allow scholars to observe many variables among many observations and then determine the weight of each of the selected variables across cases. However, most of the large N-studies are unable to illustrate and explain why a particular trend exists and why it occurred at a particular time (Zyla, 2018). As in the case of MINUSMA, why did numerous European states decided to participate in MINUSMA after years of token contributions to UN peacekeeping missions? According to Vermeulen (2013) the Dutch contribution to MINUSMA mission is among other reasons connected to the Dutch governments ambition to occupy the non-permanent UNSC-seat in 2017-2018.

In line with this argument Velázquez suggests that UN peacekeeping operations bring small and middle powers more respect and authority in international institutions, for example the United Nations, allowing them greater voice in international security issues (Velázquez, 2010). Duyvesteyn (2017) argues that military participation in UN peacekeeping operations serves the political interest of obtaining a UN seat. However, according to our literature review quantitative research findings suggest different results. Bove and Elia (2011) find no statistical correlation between UN Security Council candidates and the UN troops provision behaviour of states. Dreher et al. (2014) investigate which states get elected as a non-permanent UNSC member. They found limited support for a statistical correlation between peacekeeping participation and an increased chance of getting elected. Voeten (2014) found support for the hypothesis that states contribute more peacekeepers when elected as non-permanent UNSC members (reversed causality) but found no support for the hypothesis that

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states increase their troop contributions just before the election. Conversely, Duyvesteyn (2017) claims that there are many examples that suggest a relation between peacekeeping participation and UNSC elections. In her view *pure coincidence is unlikely*. Several qualitative country studies (i.e., Portugal; Germany; Ireland; The Netherlands; Indonesia and Italy) also suggest this relationship (Capie, 2016; do Céu Pinto 2014; Koops, 2016; Murphy, 1998; Tercovich, 2016; van Willigen, 2016). So, for some states at a certain point in time it is argued that there is a relation between military participation to UN peacekeeping operations and UNSC elections. However, the evidence for this relation is limited and inconclusive.

One may argue, based on the literature disclosed above, that the studies using either qualitative- or quantitative research methods show different outcomes. We think it is not necessarily the case that one is right, and the other is wrong and search for an explanation for the diverging results. To gain more insight into the relation between UN peacekeeping contributions and UNSC elections, section two describes how the relation has been previously investigated by scholars (variables, sources and data used). From this we conclude that quantitative research does not provide an unambiguous picture of the relation between UN peacekeeping contributions and UNSC elections. It also does not seem to coincide with the repeated claim of qualitative researchers that contributions to peacekeeping operations have been systematically presented as an argument in favor of UNSC candidacy. Subsequently, we set up our own research in section three. We use a multimethod research design, that advances the integration of quantitative and qualitative research findings. We believe this methodology permits a more complete and synergistic utilization of data that could help to better understand the relation between troop contributions and UNSC elections. Our research design contains (1) an initial quantitative analysis, followed by (2) a qualitative interpretation. In this way, we aim to explain our quantitative results in more detail. While benefiting from the strengths of each method and countering the limitations, we first analyze if states with high absolute and/or relative peacekeeping contributions participated and were elected, at some point in time preceding or following up on the decision to contribute, more often than other states.

Second, we investigate how often UN Security Council candidates increase their contributions to UN peacekeeping operations before, during or after the election period. Third, we examine whether there is a recurrent pattern in an individual state's behavior and qualitatively search for other factors that could explain a state's peak in peacekeeping contributions during election time. Section four presents the results. In the final section concluding remarks are presented.

Public and private benefits

We consider peacekeeping as an impure public good with multiple public and country specific benefits. Peacekeeping contributes to global public benefits, such as 'world peace' and 'world stability', benefitting all nations. Peacekeeping can also yield country specific benefits (Shimizu and Sandler, 2002). Bellamy and Williams (2013) distinguish the following private benefits for countries: (1) greater voice/authority or status in international politics, (2) election bid for UNSC, (3) UN reimbursements as economic incentives, and (4) national/regional security interest. Several researchers have already investigated some of these private benefits. Victor (2010) considers UN reimbursement 'a private benefit' and impoverished African countries seem to deploy more peacekeepers to UN missions than the richer African states. Meiske and Ruggeri (2017) explore which states have more interest to send their troops to conflict zones in certain regions in the world than others. They found that European and Asian participation in peacekeeping operations is driven by the conflict's proximity to their own territory.

Various studies investigate state's desire to gain greater voice/authority or status in international politics and sometimes these studies also elaborate on how UNSC membership can contribute to this ambition. According to Larson et al. (2014) status in international politics is about the collective beliefs of a state's ranking on valued attributes as wealth, coercive capabilities, culture, demographic position, socio-political organization and diplomatic clout. 'Status in international politics' is also an attribute of a social role a state fulfills in a group; status informs patterns of deference and expectations of behaviour, rights and responsibilities (Dafoe et al, 2014). Suzuki (2008) explains that great powers consider UN peacekeeping operations useful in allowing them to demonstrate their commitment and willingness to fulfill its responsibility as a legitimate great power. According to Krishnasamy (2001) great powers contribute to peacekeeping operations because they urge to be recognized as a credible candidate for a permanent seat in the UNSC, as is the case with India and Japan. At the same time, peacekeeping operations are a way for great powers to raise their profile as political and military power (Tardy, 2016).

Zisk (2000) suggests that middle powers find in UN peacekeeping missions a niche that brings "greater respect and authority in international institutions, allowing them more voice in international security issues than they otherwise would". According to Do Céu Pinto (2014) middle power Portugal engages in UN peacekeeping operations because policymakers believe it is a way to serve foreign policy goals: increasing its status in international sphere and its influence in international organizations. According to this author a non-permanent UNSC seat is one way to increase influence within the United Nations. Duyvesteyn (2017) argues that the election bid and being elected as non-permanent member of the UNSC is a way for small states to enhance greater voice, authority or status in international politics. She

explains that contributions to UN peacekeeping operations can serve the political interest of obtaining a UN seat.

To the best of our knowledge three quantitative studies survey the relation between UNSC elections and UN-peacekeeping contributions. Bove and Elia (2011) analyze whether UN Security Council candidates are more likely to provide troops to UN operations. The rationale of this is that UNSC non-permanent members are perhaps more committed and willing to participate in peace operations during their membership as they established the mission and provided it, through a mandate, with its tasks and rules of engagement. The authors use static discrete choice models to analyze *the probability of participating* and fixed effects and panel regression models for *the contribution*. They also use a dummy for countries elected as a non-permanent member of the Security Council in the subsequent year. Bove and Elia (2011) find no support for the hypothesis 'UN Security Council candidates are more likely to provide troops to UN operations.'

Dreher et al (2014) investigate the relation between state's contributions to UN peacekeeping operations and the likelihood to gain UNSC membership using a multiple discrete choice model to analyze a dataset of 180 elections from 1970 to 2005. They find a positive relation between UN peacekeeping troop contributions and UNSC membership for the continents Asia and Africa. Voeten (2014) examines whether states employ more peacekeepers during their non-permanent UNSC membership compared to the two years preceding and after their membership for the period 1991-2009. He finds support for the hypothesis that (1) states contribute more peacekeepers when they are non-permanent members, and (2) UNSC non-permanent membership increases peacekeeping contributions only temporarily and concludes that there is no evidence of a socialization effect. Finally, Voeten (2014) finds no support for the hypothesis that states increase their troop contributions just before the election.

In summary, quantitative research does not provide an unambiguous picture of the relation between UN peacekeeping contributions and UNSC elections. This can be explained by scholars using different datasets, research models, variables and time periods. It also does not seem to coincide with the repeated claim of qualitative researchers that contributions to peacekeeping operations have been systematically presented as an argument in favor of UNSC candidacy. For example, Do Céu Pinto (2014) argues that peacekeeping contributions have been consistently presented as an asset in Portugal's candidacy for a UNSC seat. Germany's troop contributions to the UN mission in Somalia has also been linked to Germany's bid for Security Council membership (Koops, 2016). And Murphy (1998) explains that peacekeeping contributions have helped Ireland's case to become elected as a non-permanent UNSC member in 1962, 1981-82 and in 2001-02. The literature review shows that there are still certain areas of uncertainty concerning the relation between troop contributions and UNSC

elections. Firstly, it is not clear if states need a long-term pattern of contributing troops to influence their election prospects or that a temporarily boost of contribution is sufficient. Second, there is little knowledge whenever states decide to temporarily boost one's troop contributions before, during or after elections, how this timing works. Third, the relation could also be spurious, states that have a vested interest in an ongoing conflict and are therefore more likely to contribute troops, may also want to have a seat on the UNSC to have a more active role in mitigating the conflict. Fourth, previous research does not give us an insight in which states temporarily rise their peacekeeping contributions before, during or after the elections and if this is a recurrent pattern.

In the next section we explain our multimethod research design to advance the integration of quantitative and qualitative research findings. We believe this methodology permits a more complete and synergistic utilization of data that could help to better understand the relation between troop contributions and UNSC elections.

Research Methodology

Research strategy

The empirical results of our research are structured in two parts. The first part provides a quantitative analysis of states' behaviour. We examine if a long-term pattern of troop contributions influences election prospects. For each continent we assess which countries contributed most troops to peacekeeping operations, in both absolute and relative terms. In this approach both the absolute and relative contributions of states are combined with a states' non-permanent UNSC membership. Due to the size differences of states' armed forces a comparison of states based only on absolute figures seems unfair. A relative comparison provides more insight into the willingness of states to contribute to UN peacekeeping operations. To measure the relative contributions the number of troops deployed to peacekeeping operations is divided by the active armed forces. Based on these figures we investigate if states with higher absolute and relative contributions participated and were elected more often than other states in the UNSC elections.

Subsequently the quantitative analysis examines if states temporarily boost their troop contributions during three different time periods, before election (t-2, t-1), during the election year (t) and two years after the elections (t+1, t+2). We also distinguish between the number of candidates that eventually won and lost the elections. This method makes it possible to obtain more knowledge about which states are temporarily boosting their troop contributions during UNSC elections. For each period we compare a state's contribution to UN peacekeeping with the previous year. A variation < 10 *(number of civilian or military personnel*

contributed to peacekeeping operation) is considered as 'no variation'. The results are categorized per continent to allow statements about similarities and differences of states' behavior between the five continents. For each continent the percentages of states that show 'an increase', 'a decrease' or 'no variation' in their peacekeeping contributions for the different time periods are calculated.

The second part offers a qualitative interpretation of states individual behaviour. The focus is on individual states that (1) show a peak in troop contributions around election time, and (2) have participated more than three times in the UNSC elections. We examine to which peacekeeping operations a state was contributing at the time of the elections. Whether this was a conflict nearby or further away. When available, country studies are used to explain what other motives may have influenced the decision to contribute troops. For the states that participated more than three times in the UNSC elections we analyze whether states' behavior recurs. A recurring pattern occurs when states show repeatedly the same behavior around UNSC elections.

Data collection

The raw data was obtained from the United Nations Peacekeeping website (UN, 2019). From 1990-2018 nations totals are calculated by taking an average of the monthly contributions. Candidates and voting results were collected from the UNSC Report (SecurityCouncilreport, 2021).

Results

Previous research has shown different outcomes for the five continents (Dreher et al, 2014). For this reason, the results of our research are shown per continent. First, an overview is provided of states' absolute and relative contributions to peacekeeping operations. Both the absolute and relative contributions are presented in tables. The second column of each table shows how often a state has participated in the elections (PE) and how often it is elected (E). The time periods in which a state was a non-permanent UNSC member is represented by a shaded area. Based on these tables we investigate if states with higher absolute and relative contributions participated and were elected more often than other states. Second, we examine if states temporarily boost their troop contributions during three different time periods, before election (t-2, t-1), during the election year (t) and two years after the elections (t+1, t+2). For each continent the percentages of states that show 'an increase', 'a decrease' or 'no variation' in their peacekeeping contributions are tabulated. This method makes it possible to obtain more knowledge if states are temporarily boosting their troop

contributions during UNSC elections and whether there is a difference between the elected and non-elected states. Third, a qualitative interpretation of states individual behaviour is provided. The focus is on individual states that (1) show a notable peak in troop contributions around election time, and (2) have participated more than three times in the UNSC elections. For states that show such a notable peak in troop contributions we investigate if this can be explained by a state's contribution in its immediate vicinity. If this is the case the confluence of higher UN peacekeeping contributions and non-permanent UNSC membership is more likely to be based on a coincidence rather than a deliberate intent. Based on the graphs of states that participated more than three times in the UNSC elections we can conclude whether these states show repeatedly the same behavior around election time.

Europe

Quantitative analysis

Table 24 shows the absolute contributions of states and the period a state was elected as a non-permanent UNSC member (*colored grey*). Belgium, Germany, Italy and Spain are the states that most frequently participated and were elected. In the beginning of peacekeeping operations, the contributions of these countries can be considered as average. Since 2005 Germany, Italy and Spain are in the top-10 of most contributing states. Belgium contributes less and is consistently outside the top-10. At the start of peacekeeping operations France, UK, Norway, Poland and Finland contributed most troops. Because France and UK are permanent UNSC members (P), only Poland, Norway and Finland are further examined. From 1990 until 1994, Norway contributed an average of 1,224 troops to peacekeeping operations. This was followed by a period of low contributions and a won election in year 2000, five years after the peak in contribution. After this UNSC membership, Norway did not participate in the elections until 2020 and contributed from 2000-2018 only a few troops. Poland participated three times in the elections and was elected twice. The first time in 1995 the second time in 2017 after seven years of token contributions. Finland participated only once in the elections and was a non-permanent member of the UNSC in 1989-1990. Finland's UNSC membership coincides with a high contribution to peacekeeping operations.

TABLE 24: Absolute contributions of European states

	PE/E	1990-1994	R	1995-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Austria	2/2	927	7	832	5	535	4	435	6	379	4	196	10
Belgium	4/3*	631	13	477	8	17	22	246	11	142	11	34	19
Bulgaria	1/1	389	15	50	20	114	15	49	20	2	24	3	24
Croatia	2/1	0	24	2	25	18	21	80	19	92	13	25	20
Cyprus	0/0	0	24	0	26	0	25	1	25	2	24	2	25
Czech republic	2/1	375	16	192	16	36	18	29	21	8	22	18	21
Denmark	1/1	917	8	311	14	103	16	80	19	88	15	48	17
Estonia	1/0	0	24	25	21	3	24	2	24	2	24	45	18
Finland	1/1	1,070	4	853	4	314	9	98	17	164	10	328	8
France	(P)	3,720	1	1,609	1	473	6	1,553	2	1,237	2	861	2
Germany	4/4*	269	17	186	17	433	8	552	5	248	7	501	4
Greece	3/1	28	22	19	22	29	19	127	14	54	19	78	16
Hungary	3/1	50	20	124	18	158	13	108	15	89	14	88	14
Iceland	0/0	0	24	2	25	3	24	1	25	0	25	0	26
Ireland	1/1	829	10	745	7	484	5	334	8	339	5	462	6
Italy	4/3*	752	11	90	19	233	10	1,753	1	1,453	1	1,120	1
Latvia	0/0	0	24	0	26	0	25	0	26	0	25	3	24
Lithuania	1/1	11	23	12	23	9	23	7	23	3	23	11	22
Luxembourg	1/1	48	21	0	26	0	25	2	24	3	23	0	26
Netherlands	3/2	906	9	392	9	173	12	82	18	125	12	425	7
Norway	1/1	1,224	3	771	6	64	17	105	16	73	17	93	13
Poland	3/2	1,033	5	1,197	3	928	1	853	3	15	21	9	23
Portugal	2/2	114	18	262	15	765	2	250	10	184	8	107	12
Romania	1/1	68	19	391	10	178	11	219	12	79	16	84	15
Slovakia	2/1	470	14	351	12	436	7	265	9	174	9	175	11
Slovenia	2/1	0	24	11	24	24	20	20	22	18	20	18	21
Spain	4/3*	637	12	315	13	134	14	851	4	892	3	633	3
Sweden	4/2	955	6	370	11	178	11	185	13	66	18	291	9
United Kingdom	(P)	1,980	2	1,431	2	610	3	348	7	285	6	481	5

*Most elected non-permanent UNSC members during research period; Belgium was also a non-permanent member of the UNSC during 2019-2020

Due to the size differences of states' armed forces a comparison of states based solely on absolute figures seems unfair. A relative comparison provides more insight into the willingness of states to contribute to UN peacekeeping operations. Table 25 shows the relative contributions of states and the period a state was a non-permanent member (*colored grey*). Ireland, Finland, Austria and Slovakia contributed, relatively, most troops to UN peacekeeping operations. Ireland, Finland and Slovakia were elected once during the research period, while Slovakia participated twice in the elections. Austria was elected twice. Table 25 shows that these states, despite their higher relative contributions, were not rewarded more often than other small or middle European states.

TABLE 25: Relative contributions of European states

	PE/E	1990-1994	R	1995-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Austria	2/2	1.92%	7	1.87%	4	1.50%	5	1.20%	3	1.58%	2	0.90%	6
Belgium	4/3*	0.78%	12	1.10%	5	0.04%	25	0.64%	7	0.43%	11	0.12%	18
Bulgaria	1/1	0.47%	14	0.05%	22	0.19%	15	0.11%	22	0.01%	25	0.01%	22
Croatia	2/1	0.00%	24	0.00%	24	0.05%	24	0.42%	12	0.52%	8	0.16%	17
Cyprus	0/0	0.00%	24	0.00%	24	0.00%	27	0.01%	26	0.02%	24	0.01%	22
Czech republic	2/1	0.94%	10	0.30%	15	0.08%	21	0.13%	21	0.03%	23	0.08%	19
Denmark	1/1	3.16%	5	1.08%	6	0.47%	10	0.31%	15	0.50%	9	0.30%	14
Estonia	1/0	0.00%	24	0.60%	11	0.06%	23	0.04%	25	0.04%	22	0.70%	7
Finland	1/0	3.35%	4	2.71%	2	1.07%	6	0.35%	14	0.74%	5	1.50%	2
France	(P)	0.86%	11	0.46%	14	0.18%	16	0.53%	10	0.54%	7	0.42%	10
Germany	4/4*	0.06%	21	0.06%	21	0.15%	18	0.22%	18	0.12%	20	0.28%	15
Greece	3/1	0.02%	23	0.01%	24	0.02%	26	0.08%	23	0.04%	22	0.05%	21
Hungary	3/1	0.08%	20	0.25%	16	0.48%	9	0.36%	13	0.34%	13	0.32%	13
Iceland	0/0		24		24	4.47%	2	0.57%	8	0.24%	18	0.00%	23
Ireland	1/1	6.39%	1	6.20%	1	4.63%	1	3.19%	1	3.55%	1	5.02%	1
Italy	4/3*	0.23%	17	0.03%	23	0.11%	19	0.76%	5	0.80%	4	0.65%	8
Latvia	0/0	0.00%	24	0.00%	24	0.00%	27	0.00%	27	0.00%	26	0.05%	21
Lithuania	1/1	0.21%	18	0.12%	20	0.07%	22	0.06%	24	0.03%	23	0.06%	20
Luxembourg	1/1	5.99%	2	0.00%	24	0.00%	27	0.19%	19	0.28%	16	0.00%	23
Netherlands	3/2	1.02%	9	0.66%	9	0.33%	12	0.17%	20	0.33%	14	1.20%	3
Norway	1/1	3.77%	3	2.57%	3	0.24%	14	0.49%	11	0.29%	15	0.39%	11
Poland	3/2	0.44%	15	0.49%	13	0.57%	8	0.68%	6	0.01%	25	0.01%	22
Portugal	2/2	0.20%	19	0.50%	12	1.72%	4	0.57%	8	0.45%	10	0.36%	12
Romania	1/1	0.04%	22	0.18%	17	0.18%	17	0.28%	17	0.11%	21	0.12%	18
Slovakia	2/1	2.50%	6	0.81%	7	1.79%	3	1.53%	2	1.09%	3	1.10%	4

Slovenia	2/1	0.00%	**24**	0.12%	**19**	0.33%	**11**	0.30%	**16**	0.24%	**17**	0.25%	**16**
Spain	4/3*	0.28%	**16**	0.17%	**18**	0.09%	**20**	0.54%	**9**	0.65%	**6**	0.52%	**9**
Sweden	4/2	1.51%	**8**	0.67%	**8**	0.59%	**7**	0.85%	**4**	0.36%	**12**	0.98%	**5**
United Kingdom	(P)	0.69%	**13**	0.66%	**10**	0.29%	**13**	0.19%	**19**	0.17%	**19**	0.32%	**13**

*Most elected non-permanent UNSC members during research period; Belgium was also a non-permanent member of the UNSC during 2019-2020

Table 26 shows that during the electoral phase (t-1) and in the election year (t) more European candidates increase (35%; 36%) their peacekeeping contributions compared to European candidates that decrease their contributions (31%; 31%). In the first year after the elections 47% of all EU candidates show an increase in UN contributions when elected and 38% show a decrease. In the second year after the elections, when a state is elected, there seems to be a reverse pattern, an increase of 31% and a decrease of 59%. From the latter we conclude that some European UNSC non-permanent members seem to increase peacekeeping contributions only temporarily.

TABLE 26: Change in peacekeeping contributions of European candidates around UNSC elections

Contribution	Pre-election			Elected		Not elected	
	(t-2)	(t-1)	(t)	(t+1)	(t+2)	(t+1)	(t+2)
Increase	15	18	20	16	10	7	5
	28%	35%	36%	47%	31%	37%	36%
No change	14	17	18	5	3	7	6
	28%	33%	33%	15%	9%	37%	43%
Decrease	20	16	17	13	19	5	3
	40%	31%	31%	38%	59%	26%	21%
N	49	51	55	34	32	19	14

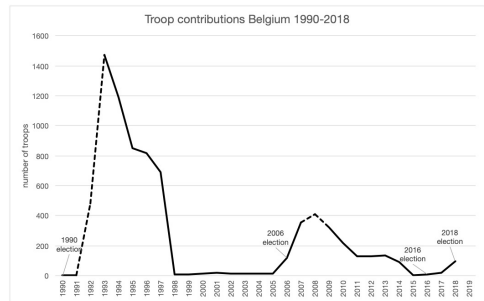
Notes: t = election year; t-1 = one year before election; t-2 = two years before election; t+1 elected = first year being a non-permanent member; t+2 elected = second year being a non-permanent member; t+1 not elected = first year not elected; t+2 not elected = second year not elected; N= the number of European UNSC candidates

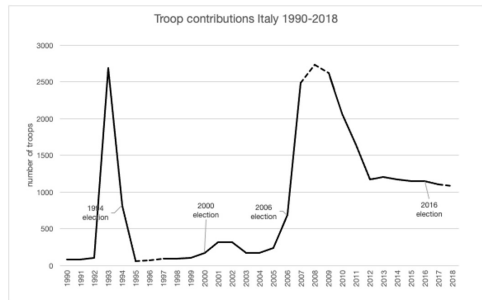
Source: UN (2019); Security Council Report (2021)

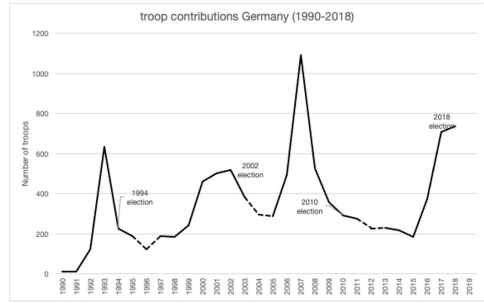
Qualitative interpretation

Germany, Belgium, Italy and Spain were elected three or more times (see Figure 18). Belgium's contribution increases after the election in 1990, 2006 and 2016. Belgium contributes during these periods to UN missions UNPROFOR (former Yugoslavia), UNOSOM (Somalia), UNIFIL (Lebanon) and MINUSMA (Mali). These increases are directly followed by a decrease in contributions after two years of UNSC non-permanent membership. Nevertheless, for Belgium

there seems to be a recurrent pattern. Belgium repeatedly increases troop contributions after UNSC elections. After a peak in Italy's contribution in 1993 (UNOSOM, ONUMOZ) the contribution to peacekeeping operations is low during their UNSC membership in the period 1995-1996. Before the election in the year 2006 the contribution rises and during Italy's UNSC membership in 2007-2008 it contributes its highest level ever, 2700 troops (mostly UNIFIL). Before and after the election in 2000 and 2016 Italy's contribution stays relative stable. Italy does not show the same behaviour around each election.







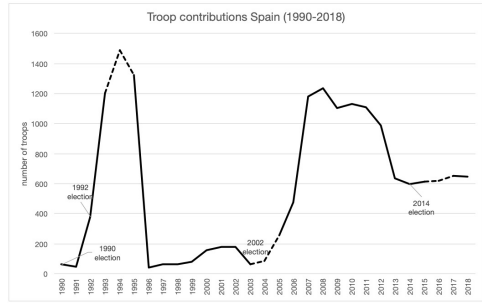


FIGURE 18: Troop contributions of Belgium, Italy, Germany and Spain before, during and after UNSC elections

In the years before the elections of 1994, 2002 and 2018 Germany shows an increase in troop contribution. However, during Germany's UNSC memberships the contribution decreases. After a peak in the contribution in 2007 (UNIFIL, UNMIK) Germany's annual contribution decreases just before the election in 2010. For Germany, there appears to be no recurrent pattern. Spain shows an increase before, during and after the election in 1992, an increase during their UNSC membership 2003-2004 and a decrease in contribution before the election in 2014. Also, for Spain no recurrent pattern is apparent.

Greece and Ukraine show a peak during their UNSC membership (Figure 19). During this period Greece contributes to UNIFIL (Lebanon), a UN mission in the region. This peak in contribution is due to the direct interest Greece has in the stability and safety of Lebanon (MFA, 2021). After the elections in 1999 Ukraine contributes to UNAMSIL (Sierre Leone) and UNIFIL (Lebanon). After its 24 August 1991 independence Ukraine was an active contributor of uniformed personnel to UN-operations. UN peacekeeping was then a source of revenue for the government. In the mid-2000s, during the presidency of Viktor Yushchenko (2005– 2010) its profile changed from a significant troop contributor to a provider of specialist equipment which explains the decrease in troop contributions (Oksamytna, 2021).

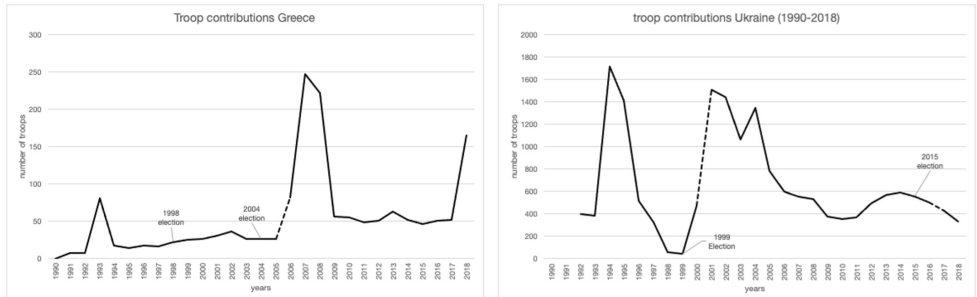


FIGURE 19: Troop contributions of Greece and Ukraine before, during and after UNSC elections

In summary, European states that most frequently participated and were elected are Belgium, Germany, Italy and Spain. In the beginning of peacekeeping operations, the absolute contributions of these countries can be considered as average. Since 2005, Germany, Italy and Spain are in the top-10 of most contributing states. Belgium contributed less and is consistently outside the top-10. European states with higher relative contributions were not rewarded more often with a UNSC seat. In the first year after the elections 47% of all EU candidates show an increase in UN contributions. We conclude that some European UNSC non-permanent members seem to increase peacekeeping contributions only temporarily. Regarding states participating multiple times, only Belgium shows a recurrent pattern indicating that Belgium is perhaps more likely to send troops when elected as a non-permanent UNSC member.

Asia

Quantitative analysis

Table 27 shows the absolute contributions of states and the period a state was elected as a non-permanent UNSC member (*colored grey*). Japan, Indonesia and Pakistan were most frequently elected during the research period. Indonesia and Pakistan are in the top-10 of highest contributors. Japan contributes less and is consistently outside the top-10. Of all Asian countries Bangladesh contributed, in absolute numbers, most troops to UN peacekeeping operations. The country participated in the elections two times during the research period and was elected in 1999. In 2015, Bangladesh withdrew its candidature in favor of Japan as a 'thank you' for Japan's support in Bangladesh's development process (Economic Times, 2014). Pakistan, India and Nepal were also among the highest contributors. Pakistan was elected three times, India two times and Nepal participated in 2006 in the elections but was not rewarded with non-permanent UNSC membership.

TABLE 27: Absolute contributions Asia

	PE/E	1990-1994	R	1995-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Armenia	0/0	0	**19**	0	**15**	0	**19**	0	**26**	2	**24**	35	**17**
Bangladesh	2/1	1,337	**3**	1,477	**1**	4,788	**1**	9,457	**2**	9,490	**1**	7, 607	**1**
Bhutan	2/0	0	**19**	0	**15**	0	**19**	0	**26**	1	**27**	33	**18**
Brunei	0/0	2	**17**	0	**15**	0	**19**	2	**22**	25	**17**	30	**19**
Cambodia	1/0	0	**19**	0	**15**	0	**19**	103	**13**	341	**13**	831	**10**
China	(P)	163	**12**	38	**9**	279	**9**	1,702	**6**	1,998	**6**	2,686	**6**
Georgia	0/0	0	**19**	0	**15**	0	**19**	0	**26**	0	**28**	2	**26**
India	4/2	1,842	**2**	1,016	**3**	2,978	**3**	8,471	**3**	8,226	**3**	7,405	**2**
Indonesia	4/3*	580	**7**	223	**7**	88	**13**	873	**8**	1,796	**7**	2,723	**5**
Iran	4/0	0	**19**	0	**15**	1	**18**	3	**21**	2	**24**	3	**23**
Israel	0/0	0	**19**	0	**15**	0	**19**	0	**26**	3	**21**	0	**29**
Japan	7/5*	211	**10**	32	**19**	267	**10**	35	**17**	298	**14**	159	**14**
Jordan	1/1	1,078	**5**	868	**5**	2,099	**4**	3,349	**5**	3,466	**5**	1,149	**7**
Kazakhstan	1/1	0	**19**	0	**15**	0	**19**	1	**24**	3	**21**	8	**21**
Kuwait	1/1	46	**15**	0	**15**	0	**19**	0	**26**	0	**28**	0	**29**
Kyrgyzstan	1/0	0	**19**	1	**14**	6	**15**	24	**18**	23	**18**	20	**20**

Lebanon	2/1	0	19	0	15	0	19	1	24	0	28	0	29
Malaysia	2/3	1,024	6	382	6	191	11	535	10	1,046	9	873	9
Mongolia	0/0	0	19	0	15	2	16	208	12	581	12	932	8
Myanmar	0/0	0	19	0	15	0	19	0	26	0	28	3	23
Nepal	1/0	1,334	4	896	4	1,271	5	3,642	4	4,569	4	5,353	4
Philippines	2/1	93	13	18	11	439	7	608	9	803	10	108	15
Pakistan	4/3*	2,571	1	1,392	2	4,357	2	10,207	1	9,234	2	6,998	3
Qatar	1/1	0	19	0	15	0	19	56	16	3	21	3	23
Republic of Korea	3/2	56	14	87	8	340	8	223	11	619	11	622	12
Saudi Arabia	1/1	299	8	0	15	0	19	0	26	0	28	0	29
Singapore	1/1	26	16	7	13	103	12	18	19	11	20	0	29
Sri Lanka	1/0	2	17	0	15	72	14	1,010	7	1,140	8	628	11
Tajikistan	0/0	0	19	0	15	0	19	2	22	12	19	1	28
Thailand	1/0	244	9	8	12	521	6	85	15	270	16	47	16
Timor Leste	0/0	0	19	0	15	0	19	5	20	2	24	2	26
UAE	0/0	203	11	0	15	0	19	0	26	0	28	0	29
Vietnam	1/1	0	19	0	15	0	19	0	26	0	28	7	22
Yemen	0/0	0	19	0	15	2	16	95	14	286	15	177	13

Indonesia was also a member of the UNSC in 2019-2020; Japan was a member of the UNSC in 1992-1993, 1997-1998, 2005-2006, 2009-2010, 2016-2017; Saudi Arabia declined to take the seat in 2013

According to Table 28, Bangladesh, Nepal, Jordan and Mongolia contributed, relatively, most troops to UN peacekeeping operations. We already discussed Bangladesh and Nepal. Mongolia never participated in the elections. Jordan participated in 2013 and was elected. For Nepal a higher absolute or relative contribution does not seem to increase the likelihood of a non-permanent UNSC seat.

TABLE 28: Relative contributions Asia

	PE/E	1996-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Armenia	0/0	0.00	13	0.00	17	0.00	23	0.00	24	0.08	18
Bangladesh	1/1	0.87	2	3.71	1	6.66	1	6.04	1	4.84	3
Brunei	0/0	0.00	13	0.00	17	0.03	17	0.35	12	0.42	11
Cambodia	1/0	0.00	13	0.00	17	0.08	15	0.27	13	0.67	9
China	(P)	0.00	13	0.01	16	0.08	15	0.09	18	0.13	14
Georgia	0/0	0.00	13	0.00	17	0.00	23	0.00	24	0.01	22
India	4/2	0.07	6	0.23	6	0.65	7	0.62	9	0.53	10
Indonesia	4/3*	0.04	7	0.03	14	0.29	12	0.51	10	0.69	8
Iran	4/0	0.00	13	0.00	17	0.00	23	0.00	24	0.00	25
Israel	0/0	0.00	13	0.00	17	0.00	23	0.00	24	0.00	25
Japan	7/5*	0.22	8	0.11	10	0.01	22	0.12	17	0.06	19
Jordan	1/1	0.47	3	2.09	2	3.33	3	3.45	4	1.14	5
Kazakhstan	1/1	0.00	13	0.00	17	0.00	23	0.01	22	0.02	20
Kuwait	1/1	0.00	13	0.00	17	0.00	23	0.00	24	0.00	25
Kyrgyzstan	1/0	0.01	9	0.05	12	0.21	13	0.21	14	0.18	13
Lebanon	2/1	0.00	13	0.00	17	0.00	23	0.00	24	0.00	25
Malaysia	2/2	0.10	5	0.18	7	0.49	9	0.96	6	0.79	7
Mongolia	0/0	0.00	13	0.03	14	2.25	4	5.81	2	9.54	1
Myanmar	0/0	0.00	13	0.00	17	0.00	23	0.00	24	0.00	25
Nepal	1/0	1.50	1	2.09	2	4.95	2	4.77	3	5.55	2
Philippines	2/1	0.01	9	0.41	5	0.56	8	0.64	8	0.09	17
Pakistan	4/3*	0.13	4	0.70	4	1.65	5	1.45	5	1.08	6
Qatar	1/1	0.00	13	0.00	17	0.47	10	0.03	21	0.02	20
Republic of Korea	3/2	0.01	9	0.05	12	0.03	17	0.09	18	0.10	16
Saudi Arabia	1/1	0.00	13	0.00	17	0.00	23	0.00	24	0.00	25
Singapore	1/1	0.01	9	0.15	9	0.02	21	0.01	22	0.00	25
Sri Lanka	1/0	0.00	13	0.06	11	0.70	6	0.71	7	0.30	12
Tajikistan	0/0	0.00	13	0.00	17	0.03	17	0.14	16	0.01	22
Thailand	1/0	0.00	13	0.17	8	0.03	17	0.08	20	0.01	22
Timor Leste	0/0			0.00	17	0.40	11	0.17	15	0.13	14

UAE	0/0	0.00	**13**	0.00	**17**	0.00	**23**	0.00	**24**	0.00	**25**
Vietnam	1/1	0.00	**13**	0.00	**17**	0.00	**23**	0.00	**24**	0.00	**25**
Yemen	0/0	0.00	**13**	0.00	**17**	0.14	**14**	0.43	**11**	1.17	**4**

Indonesia was also a member of the UNSC in 2019-2020; Japan was a member of the UNSC in 1992-1993, 1997-1998, 2005-2006, 2009-2010, 2016-2017; Saudi Arabia declined to take the seat in 2013

UN Security Council candidates from Asia are summarized in Table 29. During the pre-electoral phase (t-2; t-1) slightly more candidates show a decrease than an increase in contributions. In the election year the percentage of states that show an increase in their UN peacekeeping contributions is slightly higher than the percentage of states with a decrease. At the time states were elected 46% of the Asian states show an increase in the first year after elections. However, this increase is not continued by most of the states in the second year (t+2) after the elections. Noteworthy, states that were not elected also show higher percentages in the row 'increase' than in the row 'decrease' in the first and second year after the elections, but even more Asian states seem to be stabilizing their contributions. These higher percentages in row 'no change in contribution' are also partly explained by states with a small contribution to peacekeeping operations (Bhutan, Iran, Kazakhstan, Kuwait, Lebanon, Vietnam).

TABLE 29: Change in peacekeeping contributions of Asian candidates around UNSC elections

	Pre-election			Elected		Not elected	
	(t-2)	(t-1)	(t)	(t+1)	(t+2)	(t+1)	(t+2)
Increase	10	11	14	12	7	7	5
	24%	26%	31%	46%	28%	37%	26%
No change	19	19	19	6	8	10	11
	45%	44%	42%	23%	32%	53%	58%
Decrease	13	13	12	8	10	2	3
	31%	30%	27%	31%	40%	11%	16%
N	42	43	45	26	25	19	19

Notes: t = election year; t-1 = one year before election; t-2 = two years before election; t+1 elected = first year being a non-permanent member; t+2 elected = second year being a non-permanent member; t+1 not elected = first year not elected; t+2 not elected = second year not elected; N= the number of European UNSC candidates

Source: UN (2019), Security Council Report (2021)

Qualitative interpretation

Indonesia, Japan, India and Pakistan are regular UNSC candidates. However, they do not demonstrate the same behaviour each time (Figure 20). Japan participated seven times in the UNSC elections and was during the examined period five times a member of the UN Security council. For Japan we found no relation between the UN peacekeeping contribution and their participation in the elections. The peak in Japan's contribution in 1992 and 2002 can be explained by contributions in the region, UNTAC (Cambodia) and UNMISET (East Timor). The peak in 2012 can be explained by contributions to MINUSTAH (Haiti) and UNMISS (South Sudan), both UN-missions outside the continent. The literature suggests that the active participation of Japan in UN peacekeeping operations outside the Asian continent, can be explained by the Japanese intention to secure a UN Security Council's *permanent seat* (bin Shahimi, 2018).

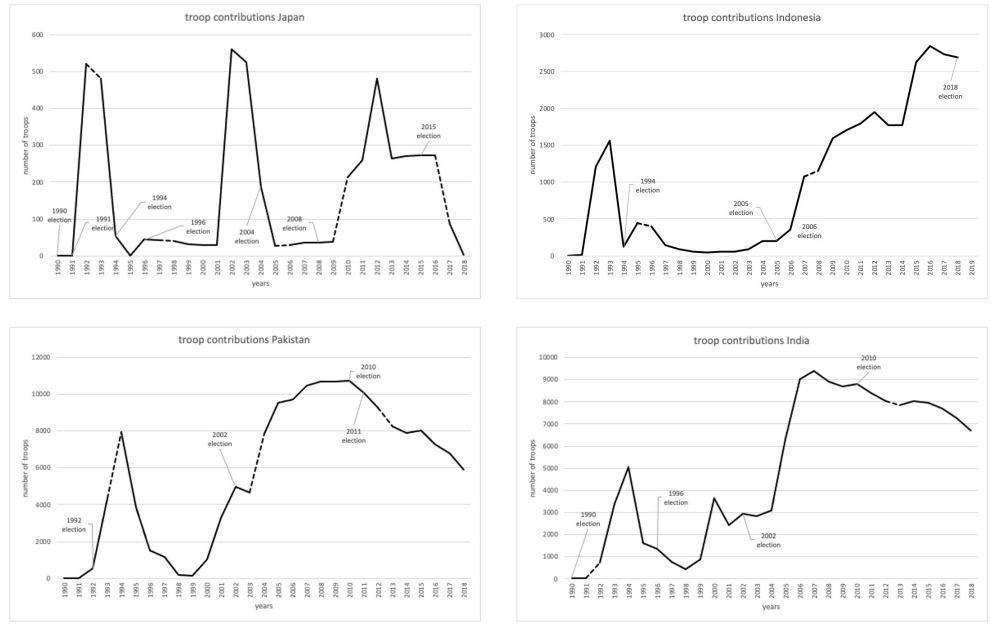


FIGURE 20: Troop contributions of Japan, Indonesia, Pakistan and India before, during and after the UNSC elections

The graphs of Pakistan, Indonesia and India exhibit less pronounced peaks (see Figure 20). Their contributions show a sharp increase in the new millennium. They contribute to multiple

UN missions, often outside the Asian continent. There is no unambiguous relation between the troop contributions of these states and the timing of participation in elections. However, Pakistan, Indonesia and India do contribute significantly to peacekeeping operations. One of the Indonesian political rationales for contributing to UN peacekeeping operations is the ambition to be a significant regional and global power (Hutabarat, 2014; Capie, 2016). India has the ambition to become a 'great' power and to get itself recognized as a credible candidate for a permanent seat in the UN Security Council (Krishnasamy, 2001). Given its economic situation, Pakistan is likely to be motivated by economic rationales. Also, some political rationales seem relevant, such as reshaping its political image, establishing bilateral relations with major powers and the desire to compete with India in UN peacekeeping (Krishnasamy, 2001).

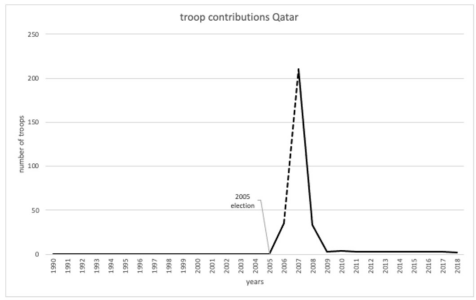


FIGURE 21: Troop contributions of Qatar and Singapore before, during and after the UNSC elections

Throughout the whole period small states Qatar and Singapore contribute less to UN peacekeeping operations, but during election time their contributions to UN peacekeeping (see Figure 21) show a notable peak. Qatar is the first Arab state to commit troops to monitor a tense cease-fire between Israel and Hezbollah, sending about 200 soldiers to UNIFIL (The Dailystar, 2008). Singapore contributes to UNMISET (East Timor) from the start to the end of the mission in May 2005. UNMISET is a mission in the region with direct security interests for Singapore.

In summary, Asian states Indonesia, Japan and Pakistan were elected most often during the research period. Pakistan was in the top-5, Indonesia was in the top-10 of countries that had high absolute peacekeeping contributions. Japan contributed less absolute peacekeeping troops. For some Asian states a higher absolute or relative contribution do not seem to increase the likelihood of a non-permanent UNSC seat, as was the case with Nepal. At the time states were elected, 46% of the Asian states show an increase in the first year after elections. However, this increase is not continued by most of the states in the second year. The graphs of states participating multiple times in UN elections show no direct relation between fluctuations in troop contributions and the time of participating in the elections. Some of the Asian states (Japan and India) may have higher political ambitions, such as UNSC permanent membership.

America

Quantitative analysis

Table 30 shows the absolute contributions of American states and the period a state was elected as a non-permanent UNSC member (*colored grey*). Until 2001 the United States and Canada were, in absolute terms, the largest troop contributors to UN-peacekeeping missions. After this period both countries considerably reduced their contributions and were surpassed by Uruguay, Brazil, Argentina, Peru, Chile and other American countries in the ranking. The larger Southern American states Brazil, Argentina and Chile are among the most elected UNSC non-permanent members during the research period. Peru participated three times during the research period and was elected twice. Peru's UNSC candidacy in 2006-2007 directly followed after a sharp increase in UN peacekeeping contributions. Peru was also a UNSC candidate in 2018-2019. Participating in peacekeeping operations seems to have borne fruit for Peru. Uruguay participated only once and was elected in 2015. Noteworthy is that Costa Rica only had token contributions, the country participated and was elected twice as a non- permanent UNSC member.

TABLE 30: Absolute contributions America

	PE/E	1990-1994	R	1995-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Argentina	8(4)*	673	3	713	3	648	3	913	3	950	3	410	3
Bahamas	0(0)	0	15	7	14	0	17	0	17	0	18	0	20
Barbados	1(0)	0	15	7	14	0	17	0	17	0	18	0	20
Bolivia	2(1)	2	13	13	11	145	6	380	5	253	7	56	11
Brazil	6(4)*	128	5	414	4	243	5	1,293	2	2,050	2	981	2
Canada	2(1)	1,902	1	1,042	2	331	4	199	9	161	9	99	9
Chille	4(3)*	45	8	20	8	88	7	541	4	520	4	266	5
Colombia	4(2)	61	6	4	16	1	16	5	15	25	13	21	13
Costa Rica	2(2)	0	15	0	19	0	17	0	17	0	18	2	18
Cuba	2(0)	1	14	2	17	0	17	0	17	0	18	4	17
Dominican Republic	4(1)	0	15	0	19	7	11	2	16	1	17	5	16
Ecuador	1(1)	15	10	1	18	4	13	89	10	78	12	14	15
El Salvador	0(0)	0	15	2	17	6	12	60	12	100	11	206	7
Grenada	0(0)	0	15	0	19	0	17	2	16	2	16	1	19
Guatemala	2(1)	2	13	21	7	6	12	233	8	309	6	218	6
Guyana	0(0)	6	11	9	13	0	17	0	17	0	18	0	20
Honduras	3(1)	6	11	33	6	12	10	12	14	19	14	40	12
Jamaica	1(1)	0	15	15	10	2	15	17	13	18	15	4	17
Mexico	4(2)	48	7	1	18	0	17	0	17	0	18	16	14
Paraguay	0(0)	0	15	0	19	19	9	67	11	174	8	104	8
Peru	3(2)	5	12	0	19	20	8	239	7	387	5	303	4
Suriname	0(0)	0	15	11	12	0	17	0	17	0	18	0	20
Trinidad and Tobago	0(0)	0	15	17	9	0	17	0	17	0	18	0	20
Uruguay	1(1)	516	4	372	5	1,152	1	2,544	1	2,238	1	1,259	1
USA	(P)	738	2	1,153	1	661	2	276	6	114	10	70	10
Venezuela	5(2)	33	9	5	15	3	14	0	17	0	18	0	20

Uruguay, Argentina, Canada (until 2000), Guatemala (since 2005) and Paraguay (since 2010) are, in relative terms, de largest troop contributors (Table 31). Except for Argentina these countries were elected only once during the research period and participated once or twice. Paraguay never participated in the elections.

TABLE 31: Relative contributions America

	PE/E	1990-1994	R	1995-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Argentina	8(4)*	0.97	3	1.01	4	0.92	2	1.24	3	1.30	4	0.55	5
Bahamas	0(0)	0.00	15	0.36	9	0.00	17	0.00	17	0.00	17	0.00	20
Barbados	1(0)	0.00	15	1.07	3	0.00	17	0.00	17	0.00	17	0.04	13
Bolivia	2(1)	0.01	12	0.04	14	0.46	4	0.87	4	0.55	9	0.16	10
Brazil	6(4)*	0.04	8	0.14	11	0.08	8	0.40	8	0.64	7	0.29	9
Canada	2(1)	2.34	1	1.56	1	0.63	3	0.31	10	0.24	11	0.15	11
Chille	4(3)*	0.05	5	0.02	15	0.11	7	0.80	5	0.87	5	0.40	6
Colombia	4(2)	0.04	7	0.00	18	0.00	17	0.00	16	0.01	14	0.01	17
Costa Rica	2(2)	0.00	15	0.00	20	no data		no data		no data		no data	
Cuba	2(0)	0.00	14	0.00	19	0.00	17	0.00	17	0.00	17	0.01	16
Dominican Republic	4(1)	0.00	15	0.00	20	0.03	12	0.01	15	0.00	16	0.01	15
Ecuador	1(1)	0.03	11	0.00	19	0.01	15	0.16	12	0.13	13	0.03	14
El Salvador	0(0)	0.00	14	0.01	16	0.04	11	0.39	9	0.65	6	0.84	4
Grenada	0(0)	no data		no data		no data		no data		no data		no data	
Guatemala	2(1)	0.01	13	0.05	13	0.02	14	1.40	2	1.89	2	1.21	2
Guyana	0(0)	0.31	4	0.58	7	0.00	17	0.00	17	0.00	17	0.00	20
Honduras	3(1)	0.04	9	0.21	10	0.13	6	0.10	13	0.16	12	0.34	8
Jamaica	1(1)	0.00	15	0.45	8	0.07	9	0.60	7	0.62	8	0.10	12
Mexico	4(2)	0.03	10	0.00	20	0.00	17	0.00	17	0.00	17	0.01	18
Paraguay	0(0)	0.00	15	0.00	20	0.14	5	0.64	6	1.64	3	0.97	3
Peru	3(2)	0.01	13	0.00	20	0.02	13	0.25	11	0.34	10	0.37	7
Suriname	0(0)	0.00	15	0.59	6	0.00	17	0.00	17	0.00	17	0.00	20
Trinidad and Tobago	0(0)	0.00	15	0.79	5	0.00	17	0.00	17	0.00	17	0.00	20
Uruguay	1(1)	2.06	2	1.45	2	4.81	1	10.22	1	9.08	1	5.27	1
USA	(P)	0.04	7	0.08	12	0.05	10	0.02	14	0.01	15	0.01	19
Venezuela	5(2)	0.04	6	0.01	17	0.00	16	0.00	17	0.00	17	0.00	20

Table 32 summarizes the change in peacekeeping contributions of American UNSC candidates. Prior and during elections (t-2, t-1, t) slightly more states show an increase (33%, 31%, 31%) than a decrease (23%, 27%, 22%) in their contributions. In the first year (t+1) after the elections the percentages for increase and decrease are almost identical for elected members. Surprisingly, more non-elected states show an increase than a decrease. The largest category is the group of countries with a 'no change' score. A number of states on this continent do not contribute or contribute less to UN peacekeeping operations (Trinidad and Tobago, Suriname, Mexico, Jamaica, Guyana, Grenada, Dominican Republic, Cuba, Costa Rica, Barbados, Bahamas).

TABLE 32: Change in peacekeeping contributions of American candidates around UNSC elections

	Pre-election			Elected		Not elected	
	(t-2)	(t-1)	(t)	(t+1)	(t+2)	(t+1)	(t+2)
Increase	16	16	17	8	6	9	4
	33%	31%	31%	30%	23%	36%	17%
No change	21	21	25	11	11	13	12
	44%	41%	46%	41%	42%	52%	52%
Decrease	11	14	12	8	9	3	7
	23%	27%	22%	30%	35%	12%	30%
N	48	51	54	27	26	25	23

Notes: t = election year; t-1 = one year before election; t-2 = two years before election; t+1 elected = first year being a non-permanent member; t+2 elected = second year being a non-permanent member; t+1 not elected = first year not elected; t+2 not elected = second year not elected; N= the number of European UNSC candidates

Source: UN (2019); Security Council Report (2021)

Qualitative interpretation

Several American states have participated four or more times in the elections (i.e., Argentina, Brazil, Chile, Colombia, Dominican Republic, Venezuela). Argentina, Brazil and Chile were frequently elected as a non UNSC member (Figure 22). The peacekeeping contribution of Argentina during election time shows a recurrent pattern. In six out of the eight cases this country shows a (slight) increase before the elections and when elected in three of the four cases a decrease. It is notable that when Argentina is not elected, the state participates in next year elections and is often elected. Most of Chili's attempts for a UN seat were during a period of token contributions.

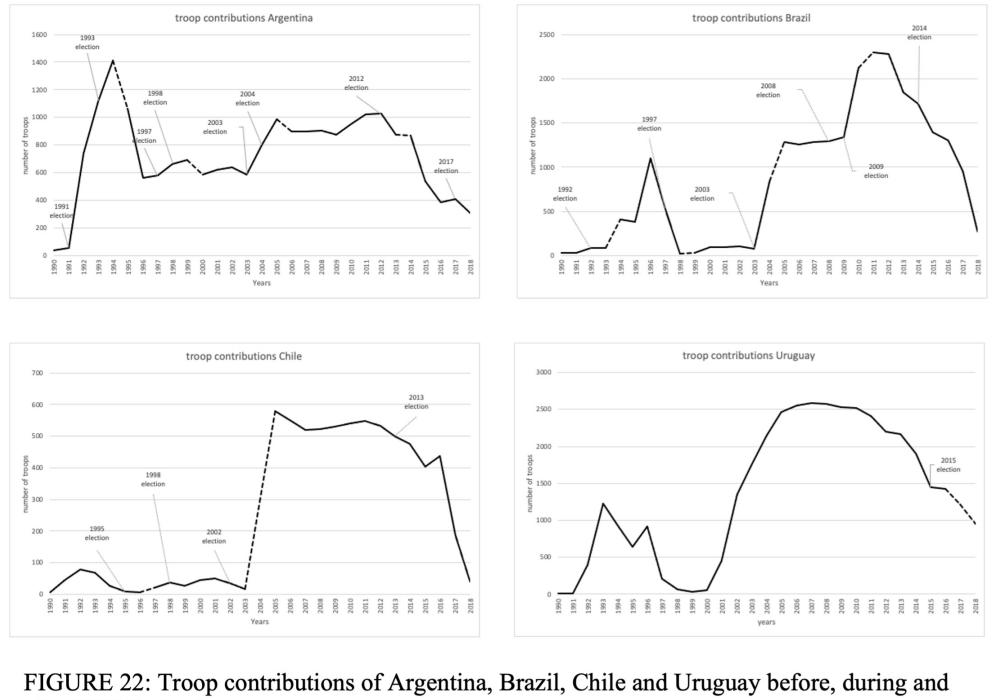
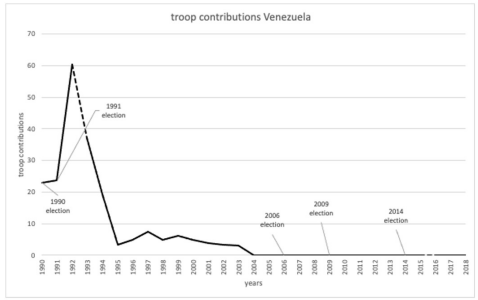


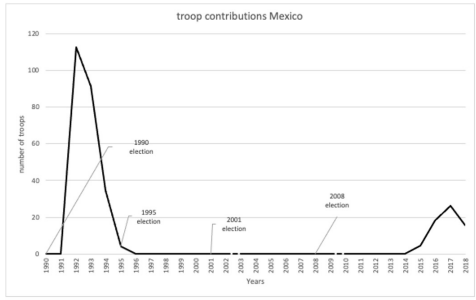
FIGURE 22: Troop contributions of Argentina, Brazil, Chile and Uruguay before, during and after UNSC elections

In three of the six cases the graph of Brazil shows a further upward recurrent trend after the elections and the same applies for Chile in the years 2003-2004. All three states contributed significantly to the UN Stabilisation Mission in Haïti (MINUSTAH, started in 2004), a mission in the region. The growing responsibilities of Brazil in peacekeeping operations during this period is considered essential to support its bid for a permanent seat at the Security Council (Jenne, 2019). Starting from 2000, Uruguay contributes a lot to UN peacekeeping, but participated only once in the elections. Uruguay contributes to multiple missions both inside and outside the American continent. Uruguay's peacekeeping activities are inextricably linked to national defense, since participation increases international prestige and the international community is expected to come to Uruguay's assistance in case of external aggression by the larger neighbors Argentina and Brazil (Jenne, 2019). Uruguay's peacekeeping contribution decreases before and after the 2015 election (see Figure 22).

The peacekeeping contributions of Venezuela, Mexico and Honduras show a noticeable peak during the elections of 1991, 1990, 1994 (Figure 23). The peak of Venezuela and Mexico can be explained by their contribution to the mission ONUSAL (El Salvador). The peak in

contribution of Honduras can be explained by the mission UNMIH (Haïti). Both missions took place on the American continent. During the following elections, Venezuela and Mexico do not contribute troops to peacekeeping operations. Nevertheless, Venezuela was a non-permanent UNSC member in 2015-2016 and Mexico in 2002-2003 and 2009-2010.





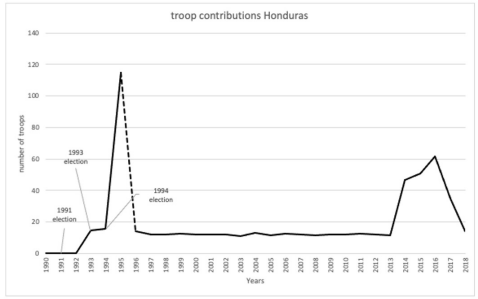


FIGURE 23: Troop contributions of Venezuela, Mexico and Honduras before, during and after the UNSC elections

In summary, for Brazil, Argentina and Chile there may be a relation between their high absolute troop contributions and the chance of getting elected as a UNSC non-permanent member, but more likely is that Brazil's and Argentina's regional power status played a role. Except for Argentina, the graphs of states participating multiple times in UN elections show no relation between troop contributions and the elections. The graphs of Venezuela, Mexico and Honduras show a noticeable peak around election time, all three states contributed to a UN-peacekeeping mission in the region. Participating in peacekeeping operations could have borne fruit for Peru. However, Costa Rica, Mexico and Venezuela achieved the same result with only token peacekeeping contributions.

Africa

Quantitative analysis

Table 33 shows the absolute contributions of states and the period a state was elected as a non-permanent UNSC member (*colored grey*). Nigeria and South Africa were most frequently elected. Throughout the period Nigeria scores a top-10 position, South Africa scores a top-10 position since year 2000. Considering the absolute numbers Ghana contributed most troops to peacekeeping operations. Rwanda, Egypt, Kenya, Senegal, Nigeria, Ethiopia also contributed a lot of troops at least during a certain period. Ghana, Kenya and Ethiopia participated only once in the elections and were elected. UNSC non-permanent membership does not seem to be a driving force behind the peacekeeping contributions of these states. Senegal participated four times and was elected only once as a non-permanent UNSC member. Egypt and Rwanda participated and were elected twice.

TABLE 33: Absolute contributions Africa

	PE/E	1990-1994	R	1995-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Algeria	1/1	51	**12**	12	**21**	17	**25**	11	**33**	5	**36**	4	**36**
Benin	2/1	0	**23**	24	**18**	119	**15**	1,097	**10**	1,127	**12**	1,134	**15**
Botswana	1/1	398	**5**	0	**26**	0	**31**	7	**35**	0	**40**	0	**39**
Burkina Faso	1/1	0	**23**	49	**16**	19	**24**	146	**19**	1,304	**10**	2,515	**6**
Burundi	1/0	0	**23**	0	**26**	0	**31**	21	**31**	188	**22**	987	**16**
Cameroon	1/1	168	**10**	13	**20**	30	**22**	154	**18**	199	**20**	1,203	**14**
Cape Verde	1/1	6	**20**	0	**26**	1	**30**	0	**39**	0	**40**	1	**38**
CAR	0/0	0	**23**	0	**26**	0	**31**	15	**32**	26	**33**	3	**37**
Chad	1/1	26	**15**	55	**13**	4	**27**	33	**28**	405	**16**	1,387	**13**
Congo	1/1	11	**18**	7	**22**	1	**30**	2	**37**	193	**21**	587	**22**
Cote d'ivoir	1/1	0	**23**	92	**12**	7	**26**	64	**25**	193	**21**	138	**29**
Djibouti	1/1	2	**22**	33	**17**	4	**27**	38	**27**	82	**29**	162	**28**
DR Congo	2/0	0	**23**	0	**26**	0	**31**	11	**33**	83	**28**	266	**26**
Egypt	2/2	677	**2**	264	**4**	189	**13**	1,432	**8**	4,013	**4**	2,872	**5**
Ethiopia	1/1	161	**11**	141	**7**	577	**7**	2,484	**3**	5,148	**2**	8,276	**1**
Gabon	3/2	0	**23**	51	**14**	3	**28**	8	**34**	103	**25**	445	**23**
Gambia	2/1	0	**23**	1	**25**	77	**18**	183	**16**	389	**17**	312	**25**
Ghana	1/1	1,248	**1**	947	**1**	2,317	**2**	3,051	**2**	3,070	**5**	2,877	**4**
Guinea	2/1	2	**22**	3	**24**	523	**9**	102	**23**	117	**24**	844	**19**

Guinea Bissau	2/1	35	**13**	23	**19**	260	**11**	0	**39**	4	**37**	1	**38**
Kenya	1/1	530	**3**	218	**5**	1,726	**3**	1,166	**9**	867	**14**	635	**21**
Lesotho	0/0	0	**23**	0	**26**	0	**31**	1	**38**	2	**38**	1	**38**
Liberia	1/0	0	**23**	0	**26**	0	**31**	0	**39**	20	**34**	65	**34**
Libya	1/1	0	**23**	0	**26**	1	**30**	3	**36**	1	**39**	0	**39**
Madagascar	1/0	0	**23**	0	**26**	0	**31**	23	**30**	54	**32**	30	**35**
Malawi	0/0	18	**16**	55	**13**	38	**21**	159	**17**	638	**15**	939	**17**
Mali	1/1	16	**17**	108	**10**	66	**20**	106	**21**	93	**27**	73	**32**
Mauritania	2/0	0	**23**	0	**26**	0	**31**	7	**35**	16	**35**	781	**20**
Mauritius	1/1	0	**23**	0	**26**	2	**29**	2	**37**	0	**40**	0	**39**
Morocco	3/2	302	**8**	0	**26**	532	**8**	1,589	**6**	1,661	**8**	1,829	**9**
Mozambique	0/0	0	**23**	1	**25**	198	**12**	41	**26**	1	**39**	1	**38**
Namibia	1/1	0	**23**	127	**8**	169	**14**	435	**14**	70	**31**	69	**33**
Niger	0/0	9	**19**	7	**22**	87	**17**	550	**11**	1,179	**11**	1,541	**12**
Nigeria	5/3*	433	**4**	166	**6**	3,262	**1**	3,846	**1**	5,196	**1**	1,852	**8**
Rwanda	2/2	0	**23**	0	**26**	0	**31**	1,469	**7**	4,314	**3**	6,265	**2**
Senegal	4/1	33	**14**	117	**9**	587	**6**	1,944	**4**	2,451	**6**	3,183	**3**
Sierra Leone	1/0	0	**23**	0	**26**	1	**30**	32	**29**	264	**19**	90	**31**
South Africa	3/3*	0	**23**	0	**26**	624	**5**	1,871	**5**	2,125	**7**	1,595	**10**
Tanzania	3/1	0	**23**	5	**23**	22	**23**	105	**22**	1,581	**9**	2,396	**7**
Togo	2/1	4	**21**	50	**15**	90	**16**	410	**15**	1,035	**13**	1,594	**11**
Tunisia	3/1	268	**9**	107	**11**	268	**10**	507	**12**	132	**23**	213	**27**
Uganda	1/1	0	**23**	0	**26**	4	**27**	95	**24**	80	**30**	422	**24**
Zambia	1/0	337	**6**	325	**3**	792	**4**	491	**13**	385	**18**	891	**18**
Zimbabwe	2/1	319	**7**	624	**2**	74	**19**	121	**20**	102	**26**	91	**30**

*South Africa was a non-permanent UNSC member in 2019-2020

Gambia, Ghana, Niger and Senegal contributed relatively most troops to peacekeeping (Table 34). Gambia participated twice in the elections and was elected once. In 2013 Gambia was not rewarded for its high relative peacekeeping contributions. Niger did not participate in the elections during the research period. Noteworthy is that in contrast to its high absolute contributions, Egypt contributes in relative terms much less to peacekeeping operations. The same comments can be made about Ethiopia. This can be explained by both countries' large armies. Egypt, Ethiopia, Morocco and Nigeria have the largest armies of the African continent, which clearly influences the relative contribution figures.

TABLE 34: Relative contributions Africa

	PE/E	1996-1999	R	2000-2004	R	2005-2009	R	2010-2014	R	2015-2018	R
Algeria	1/1	0.01	**23**	0.01	**27**	0.01	**38**	0.00	**40**	0.00	**38**
Benin	2/1	0.34	**12**	2.62	**9**	23.17	**2**	20.48	**3**	15.85	**8**
Botswana	1/1	0.00	**24**	0.00	**28**	0.08	**34**	0.00	**40**	0.00	**38**
Burkina Faso	1/1	0.61	**10**	0.17	**21**	1.34	**17**	11.65	**9**	22.45	**4**
Burundi	1/0	0.00	**24**	0.00	**28**	0.10	**33**	0.94	**25**	3.81	**19**
Cameroon	1/1	0.07	**18**	0.13	**22**	1.02	**18**	1.40	**21**	8.26	**13**
Cape Verde	1/1	0.00	**24**	0.07	**24**	0.00	**40**	0.00	**40**	0.04	**36**
CAR	0/0	0.00	**24**	0.00	**28**	0.48	**21**	1.03	**23**	0.04	**36**
Chad	1/1	0.21	**14**	0.01	**27**	0.13	**32**	1.60	**20**	4.57	**18**
Congo	1/1	0.04	**20**	0.01	**27**	0.02	**37**	1.93	**18**	5.87	**16**
Cote d'ivoir	1/1	0.83	**9**	0.05	**25**	0.38	**24**	0.58	**30**	0.55	**31**
Djibouti	1/1	0.19	**15**	0.04	**26**	0.37	**25**	0.78	**28**	1.55	**24**
DR Congo	2/0	0.00	**24**	0.00	**28**	0.01	**39**	0.06	**38**	0.20	**34**
Egypt	2/2	0.04	**20**	0.04	**26**	0.31	**27**	0.90	**26**	0.65	**29**
Ethiopia	1/1	0.00	**24**	0.32	**18**	1.64	**14**	3.73	**12**	6.00	**14**
Gabon	3/2	1.36	**3**	0.05	**25**	0.16	**31**	2.18	**17**	9.46	**10**
Gambia	2/1	0.22	**13**	9.57	**2**	22.87	**3**	48.65	**1**	38.94	**1**
Ghana	1/1	11.49	**1**	33.10	**1**	26.18	**1**	19.80	**4**	18.56	**7**
Guinea	2/1	0.03	**21**	5.39	**4**	0.86	**19**	1.11	**22**	8.71	**12**
Guinea Bissau	2/1	0.14	**16**	2.81	**8**	0.00	**40**	0.08	**37**	0.02	**37**
Kenya	1/1	0.34	**12**	7.12	**3**	4.83	**6**	3.60	**13**	2.63	**21**
Lesotho	0/0	0.00	**24**	0.00	**28**	0.04	**36**	0.12	**35**	0.05	**35**
Liberia	1/0			0.00	**28**	0.00	**40**	0.96	**24**	3.11	**20**
Madagascar	1/0	0.00	**24**	0.00	**28**	0.17	**30**	0.40	**31**	0.22	**33**
Malawi	0/0	0.49	**11**	0.72	**17**	2.99	**13**	12.05	**8**	13.24	**9**
Mali	1/1	1.00	**6**	0.89	**15**	1.45	**15**	1.75	**19**	0.94	**26**
Mauritania	2/0	0.00	**24**	0.00	**28**	0.05	**35**	0.10	**36**	4.93	**17**
Morocco	3/2	0.00	**24**	0.27	**19**	0.80	**20**	0.85	**27**	0.93	**27**
Mozambique	0/0	0.02	**22**	2.07	**10**	0.36	**26**	0.01	**39**	0.00	**38**
Namibia	1/1	2.08	**2**	1.84	**11**	4.73	**9**	0.76	**29**	0.71	**28**

Niger	0/0	0.07	**18**	1.65	**12**	10.37	**5**	22.25	**2**	29.07	**2**
Nigeria	5/3*	0.13	**17**	4.15	**7**	4.79	**8**	6.49	**10**	1.85	**23**
Rwanda	2/2	0.00	**24**	0.00	**28**	4.44	**10**	13.07	**6**	18.98	**5**
Senegal	4/1	1.01	**5**	4.67	**5**	14.28	**4**	18.01	**5**	23.40	**3**
Sierra Leone	1/0	0.00	**24**	0.01	**27**	0.29	**28**	2.52	**16**	1.06	**25**
South Africa	3/3*	0.00	**24**	1.12	**13**	3.09	**12**	3.42	**14**	2.39	**22**
Tanzania	3/1	0.01	**23**	0.08	**23**	0.39	**23**	5.86	**11**	8.87	**11**
Togo	2/1	0.86	**8**	1.05	**14**	4.80	**7**	12.11	**7**	18.64	**6**
Tunisia	3/1	0.06	**19**	0.76	**16**	1.42	**16**	0.37	**32**	0.60	**30**
Uganda	1/1	0.00	**24**	0.01	**27**	0.21	**29**	0.18	**34**	0.94	**26**
Zambia	1/0	1.30	**4**	4.23	**6**	3.25	**11**	2.55	**15**	5.90	**15**
Zimbabwe	2/1	0.99	**7**	0.23	**20**	0.42	**22**	0.35	**33**	0.31	**32**

Contrary to the other continents, Table 35 suggests that more African candidates increase their peacekeeping contributions in the two years preceding the elections (38% and 45%) and in the year of the election (37%). This trend continues in the years after the election for the elected states but not for the non-elected states.

TABLE 35: Change in peacekeeping contribution of African states during the UNSC elections

	Pre-election			Elected		Not elected	
	(t-2)	(t-1)	(t)	(t+1)	(t+2)	(t+1)	(t+2)
Increase	23	28	24	15	18	8	7
	38%	45%	37%	42%	51%	31%	27%
No change	23	18	24	12	10	4	9
	38%	29%	37%	33%	29%	15%	35%
Decrease	14	16	17	9	7	12	10
	23%	26%	26%	25%	20%	46%	38%
N	60	62	65	36	35	26	26

Notes: t = election year; t-1 = one year before election; t-2 = two years before election; t+1 elected = first year being a non-permanent member; t+2 elected = second year being a non-permanent member; t+1 not elected = first year not elected; t+2 not elected = second year not elected; N= the number of European UNSC candidates

Source: UN (2019), Security Council Report (2021)

Qualitative interpretation

Of all African candidates, South Africa and Nigeria were most frequently elected (Figure 24). There is no recurring pattern between South Africa's contributions to peacekeeping and the elections. Nigeria participated five times in the UNSC elections and is elected three times. Nigeria is one of the top contributors to UN peacekeeping operations. Also, for Nigeria we could not find a recurrent pattern between the contributions and the time of the elections.

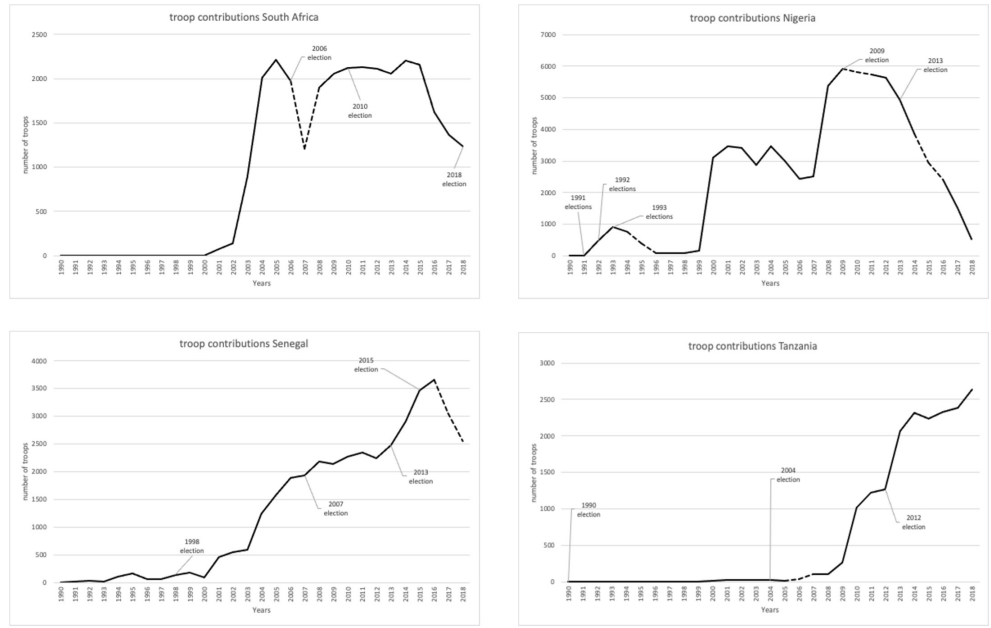


FIGURE 24: Troop contributions of South Africa, Nigeria, Senegal and Tanzania before, during and after the UNSC elections

Senegal participated four times in the elections. Since the millennium the contribution of Senegal increases reaching a peak in 2016. During their non-permanent UNSC membership in 2017-2018 Senegal decreased its contribution for the first time. Tanzania participated three times in the elections showing no relation between both variables (Figure 24).

In addition, there are four African states whose graphs show one or more noticeable peaks during an election period (Figure 25). Guinea participated two times in the elections. During the period before the elections in 2001 and 2017 the peacekeeping contribution of

Guinea shows an increase and after the election in 2001 a sharp decline. Guinea contributes respectively to UNAMSIL (Sierre Leone) and MINUSMA (Mali). The same applies for Congo-Kinshasa (2014) and Gabon (1997). These countries contribute to MINUSCA and MINURCA in the Central African Republic. In sum, the contribution of all three states is related to the deployment of troops in neighboring countries. In these cases, threat perception appears to play a greater role than the UNSC elections. Botswana barely contributes to peacekeeping operations, except during the period 1993-1994. Back then Botswana contributed 1,175 troops to ONUMOZ in nearby Mozambique and to UNOSOM II in Somalia which explains the noticeable peak.

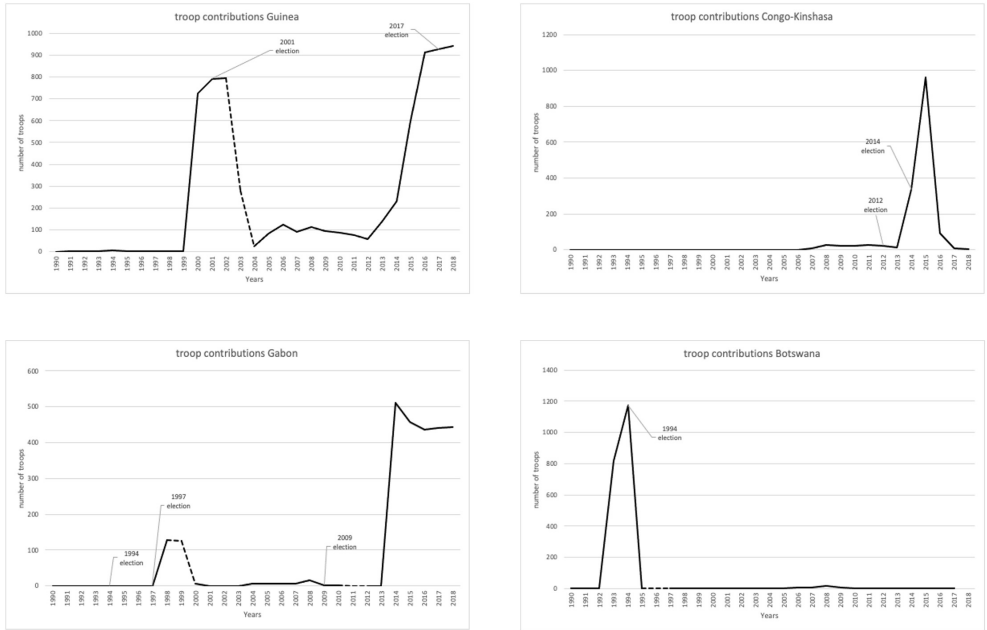


FIGURE 25: Troop contributions of Guinea, Congo Kinshasa, Gabon and Botswana before, during and after UNSC elections

In summary, throughout the research period Ghana contributed most African troops to peacekeeping operations. The country participated only once in the elections and was elected. UNSC non-permanent membership does not seem to be a driving force behind the peacekeeping contributions of Ghana. Senegal was also among the highest absolute contributors. The country participated four times in the elections and was elected only once as a non-permanent UNSC member. Gambia was among the highest relative troop contributors and was not rewarded in 2013 with a UN seat. More African candidates increase

their peacekeeping contributions in the two years preceding the elections (38% and 45%) and in the year of the election (37%). This trend continues in the years after the election for the elected states but not for the non-elected states. There are four African states whose graphs show one or more noticeable peaks during an election period. The contribution of these states is related to the deployment of troops in neighboring countries. In these cases, threat perception appears to play a greater role than the UNSC elections. The graphs of African states participating multiple times in UN elections show no recurrent pattern between fluctuations in troop contributions and the time of participating in the elections. Senegal's graph shows four times an increase before and after the elections, but this does not seem to be a deliberate choice given the continuous upward trend of troop contributions.

Oceania

TABLE 36: Change in peacekeeping contribution of Australia, New Zealand and Fiji around UNSC elections

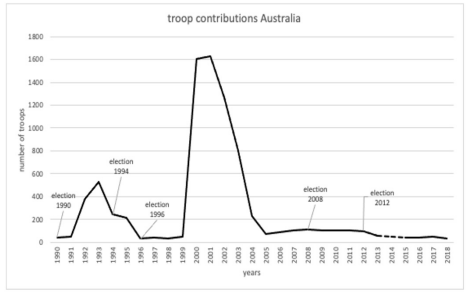
	Pre-election			Elected		Not elected	
	(t-2)	(t-1)	(t)	(t+1)	(t+2)	(t+1)	(t+2)
Increase	2	2	2	1	1	2	3
	29%	29%	25%	33%	20%	40%	60%
No change	4	3	4	1	2	2	2
	57%	43%	50%	33%	40%	40%	40%
Decrease	1	2	2	1	0	1	0
	14%	29%	25%	33%	0%	20%	0%
N	7	7	8	3	3	5	5

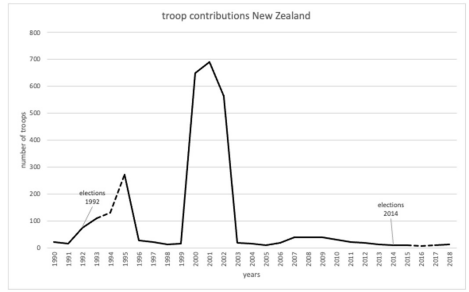
Notes: t = election year; t-1 = one year before election; t-2 = two years before election; t+1 elected = first year being a non-permanent member; t+2 elected = second year being a non-permanent member; t+1 not elected = first year not elected; t+2 not elected = second year not elected; N= the number of UNSC candidacies of Australia, New Zeeland and Fiji.

Source: UN (2019); Security Council Report (2021)

Qualitative interpretation

Because there are only three states, Australia, New Zealand and Fiji (Table 36) within the continent Oceania that contribute to UN peacekeeping operations we directly shift to discuss Figure 26. The peacekeeping contributions of Australia and New Zealand significantly peak in 2002. These peaks can be explained by their contributions to UNMISET (East Timor) and UNTAC (Cambodia), which were both operations in the region. The graphs of Australia and New Zealand do not suggest a relation between troop contributions and UNSC candidacy. Fiji applied its candidacy in 2011 but has never been elected as a non-permanent UNSC member. Fiji's troop contributions slowly rise before election date, suggesting no evident link between the variables.





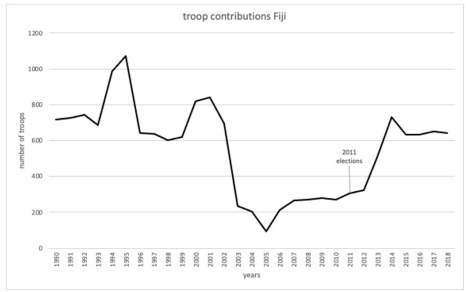


FIGURE 26: Troop contributions of Australia, New Zealand and Fiji before, during and after UNSC elections

Conclusion

As set out in the introduction some researchers link UN-peacekeeping troop contribution to a state's ambition to occupy a non-permanent UNSC seat. These researchers argue that states would deliberately raise their troop contributions in the hope that this would bring more votes. Studies using either qualitative- or quantitative research methods show different outcomes on the relation between both variables. Quantitative research shows no clear evidence of such a relation. Conversely, Duyvesteyn (2017) claims that there are many examples that suggest a relation between peacekeeping participation and UNSC elections. We search for an explanation for the diverging results.

First, we investigated per continent whether states with higher absolute and relative contributions participated and were elected more often that other states. Our results show that major influential states (Italy, Spain, Germany, Pakistan, India, Brazil, Argentina, Chile, Nigeria), in absolute terms, contribute most troops to peacekeeping operations and were more likely to participate and to be elected as a non-permanent UNSC member. Developing African states (Ethiopia, Ghana, Kenya, Senegal) and Asian states (Bangladesh, Nepal) with high absolute peacekeeping contributions are less likely to participate or to be elected

as a non-permanent member. We hypothesize that confounding variables (e.g., wealth and status) may have influenced state's participation and election results, instead of high absolute troop contributions.

Previous studies did not use the 'relative peacekeeping contribution' parameter. This parameter divides state's contribution by the active armed forces. It takes into account that states can only contribute as many forces as it has at its disposal. We believe that the parameter provides more insight into the *ability* and *willingness* of states to contribute to peacekeeping operations. Based on this parameter we conclude that states with higher relative contributions, in general, are not the same states that often participate in the elections and were elected as a UNSC member. We also conclude that states scoring high on the relative parameter are in most cases not the same states that score high on the absolute parameter.

Even though there does not seem to be a clear relation between the number of troops contributed (absolute or relative) and the UN seat, it is possible that temporarily increasing troop contributions has a positive effect on obtaining the UN seat or that states are perhaps more committed and willing to participate in peace operations during their membership. Therefore, second, we examined if states temporarily boost their troop contributions during three different time periods, before election (t-2, t-1), during the election year (t) and two years after the elections (t+1, t+2). From the quantitative analysis of UNSC candidates' behavior we conclude that in the two years *before elections* most candidates (68% and 65%) do not increase their UN peacekeeping contributions. Also, regarding the behavior of states two years after the elections, we conclude that most UNSC members (61% and 68%), do not increase their UN peacekeeping contributions *after the elections*. The UNSC members of the European, Asian and African continent show the largest increase of troop contributions *after being elected* as a non-permanent member. However, the rise in troop contributions of the European and Asian states is more often of a short duration, in the second year after the elections most states decrease their contributions. The increase in contribution after the elections of African UNSC members is of a longer duration, it also continues in the second year after the elections. The findings of this quantitative analysis are in line with the results of previous research of Voeten (2014) and Bove and Elia (2011).

Third, our qualitative analysis resulted in the identification of states with noticeable peaks in peacekeeping contributions around elections (i.e., Greece, Ukraine, Qatar, Singapore, Venezuela, Mexico, Honduras, Guinea, Congo-Kinshasa, Gabon and Botswana). The results show that most of the noticeable peaks in contributions can be linked to troop deployments in neighboring countries. The peaks seem to accidentally coincide with UNSC elections and can be explained by the direct interest states have in the stability and safety of their neighboring countries. Perhaps in some of these cases, the relation worked the other way round, mission

participation raised the ambition level and states believed that UNSC membership became feasible. However, it is expected that this will not be the case for peacekeeping operations that are introduced at a short time, as UNSC candidates announce their campaigning for the Council often years in advance of the election.

Our analysis also resulted in the identification of states that have participated more than three times in the elections during the research period. We conclude that only the peacekeeping contributions of UNSC candidates Belgium and Argentina show a recurrent pattern around the elections. Belgium seems to increase its troop contributions repeatedly during its UNSC membership. In six out of the eight participations in UNSC elections, Argentina increases its troop contributions before the elections. Therefore, we conclude that if the desire to become or being a non-permanent UNSC member influences state's decision to participate in UN peacekeeping missions, or alternatively mission participation raises the ambition level to become a non-permanent UNSC member, most states do not seem to opt repeatedly for this foreign policy tool.

For our research we used a multimethod research design, that advances the integration of quantitative and qualitative research findings. Our results confirm the findings of previous quantitative research. Taking all countries into account there is no clear relation between peacekeeping contributions and the UNSC seat. However, for some countries (i.e., Argentina, Belgium, Finland, Qatar, Peru) over a certain period there could have been a relation, which explains the diverging results between the quantitative and qualitative studies.

One of the advantages of the multimethod research design is that it indicates for which states there seems to be a relation between absolute troop contributions and the UNSC seat. Taking a closer look at the characteristics of these states we hypothesize that confounding variables (e.g., wealth, status) are more important for sending troops than the chance of obtaining a UNSC seat. Another advantage of this method is that in contrast to the large N-studies our multimethod research design was able to illustrate and explain why a particular trend of peacekeeping contributions existed and why it occurred at a particular time. We were able to identify states with noticeable peaks in their contributions around election time. In most cases these peaks could be linked to troop deployments in neighboring countries. The peaks seem to accidentally coincide with UNSC elections and in our view *pure coincidence is more likely*.

A limitation of our method is that the explanation of the individual troop contributions of UNSC candidates is largely based on information available in country studies. Unfortunately, only a few country studies are available. We suggest more country studies, studying individual member states peacekeeping contributions longitudinally as we need to learn more on why states contribute to UN peacekeeping operations.

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Chapter 7

Chapter 7: Burden sharing in combating terrorist financing[1]

The post 9/11 era is characterized by an increasing demand of governments for methods and instruments to identify, prosecute and punish (members of) terrorist organizations and networks in order to "diminish, deny, and destroy terrorist capabilities" (Gardner, 2007:36). The same goes for methods and instruments to deter potential terrorists and to deprive them of their resources (Donohue, 2008: 122). Coping with such demands necessitates international cooperation as can be seen, for instance, in deploying military capabilities during Operation Enduring Freedom (OEF) and during the NATO-led International Security Assistance Force (ISAF). Simultaneously, to cope with terrorist capabilities civilian means and infrastructure are essential (Beeres and Bollen, 2011).

One strategy to eliminate, or at least, contain terrorism is to understand the ways in which the terrorist organizations and networks obtain their financial resources (Adams, 1986; Napoleoni, 2004), specifically, by following the money (i.e., the paper - or preferably the digital) trail that leads from those secretly financing acts of terrorism to the actual perpetrators of terrorist attacks (Raphaeli, 2003). Against this background, financial measures developed in the *Financial War on Terror* play an important role, as they aim to deny potential terrorists to enter into the international financial system.

The Financial Action Task Force (FATF) is a leader in the fight against terrorist financing at an international level (Johnson, 2008). FATF has launched 40 standards against money laundering and issued nine special standards to combat terrorist financing. These standards aim to provide a comprehensive and consistent framework for states to combat money laundering and terrorist financing (FATF, 2012a). Over 180 jurisdictions in the world are committed to FATF standards. The compliance level of individual states is assessed by means of mutual evaluation processes on the basis of FATF's common assessment methodology. Research on combating terrorist financing, predominantly, examines the extent to which various countries act in compliance with the standards of the FATF (Acharya, 2009; Giraldo and Trinkunas, 2007; Jensen and Ann Png, 2011; Johnson, 2008; Verdugo-Yepes, 2008). Some studies (Acharya, 2009; Clunan, 2006) explicitly consider the targeting of terrorist financing to be an international collective action problem, as most states benefit from restraining terrorist's abilities to finance brutal actions. To eliminate terrorism by depriving terrorists of their financial resources, each state should implement the FATF standards as efforts to prevent terrorist financing in one state may relocate terrorist financing actions to other less

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protected states. Therefore, collective action is needed to fight terrorist financing effectively, giving rise to a burden sharing debate among the concerned states.

This burden sharing debate, however, differs from the well-researched burden sharing debate in the context of the NATO alliance (Siroky, 2011). First, in the case of NATO, larger advanced states could compensate for less performing states as allied defence efforts were substitutable. Interestingly, in the fight against terrorist finance efforts are not substitutable (i.e. FATF standards can only be implemented at a national level by a sovereign government). Second, the collective good 'security' gained through fighting terrorist finance is characterized as a weakest link good (Hirshleifer, 1983; Sandler, 2004). This means that the state with the smallest individual contribution determines the quantity of the collective good for the entire alliance. The weakest link principle may affect the behaviour of individual states in different ways. First, states may be more willing to help weaker link states with the implementation of the FATF standards. Second, states may be prepared to take action against non-cooperative states by denying them access to the global financial system.

The weakest link principle in combination with the non-substitutability of combating terrorist financing efforts in our view makes the FATF alliance an appealing case for burden sharing research. With this chapter we aim to contribute to the existing burden sharing literature in two ways. First, we interpret combating terrorist financing as a collective action problem to be able to explicitly address burden sharing issues in the case of the implementation of FATF standards. Second, by measuring the compliance with FATF standards of 174 states we aim to provide a quantitative expression of the burden sharing behavior.

To this end we have structured the chapter as follows. In the next section, we introduce the FATF organization and its standards. Section three interprets the fight against terrorist financing as a collective action problem and develops two hypotheses that attempt to provide an insight into the burden sharing behavior of advanced states and developing states. Section four describes the research methodology. In section five we analyze the level of compliance to the FATF standards for 174 states and test both hypotheses. Section six ends with conclusions and a discussion.

The FATF organization and its standards

The Financial Action Task Force (FATF) is an intergovernmental body established by its member jurisdictions. Its aims are to set standards to combat money laundering and terrorist financing and to promote the effective implementation of these standards. The FATF cannot enforce states to implement these standards, but is only able to call on its member states to apply countermeasures against non-cooperative jurisdictions. In this section we provide a brief overview of FATF's standards.

TABLE 37: Overview of the forty recommendations

Recommendation	
1-3	**Legal System** -Scope of the criminal offence of money laundering -Provisional measures and confiscation
4-25	**Measures to be taken** -Customer due diligence and record-keeping -Reporting of suspicious transactions and compliance -Other measures to deter money laundering and terrorist financing -Measures to be taken with respect to countries that do not or insufficiently comply with the recommendations -Regulation and supervision
26-34	**Institutional and other measures necessary in systems for combating money laundering and terrorist financing** -Competent authorities, their powers and resources -Transparency of legal persons and arrangements
35-40	**International co-operation** -Mutual legal assistance and extradition -Other forms of co-operation

Source: FATF 40 recommendations (FATF, 2012a)

The forty standards against money laundering were drawn up in 1989 as an initiative to combat the misuse of the financial systems by persons laundering drug money. In 1996, 2003, and in 2012, the recommendations were revised to reflect changes in patterns of criminal activities. The standards deal with different topics, for example the adaptation of anti-money laundering policies, change of banking secrecy laws, criminalization of money laundering, legal frameworks for seizure and confiscation, customer identification and recordkeeping rules, and exchange of information. Table 37 provides an overview of the forty standards designed to target money laundering. In the aftermath of the attacks on the New York World Trade Centre on September 11, 2001, FATF expanded its mandate to deal with the issue of financing of terrorist organizations and created eight special standards to combat terrorist financing. These standards contain a set of measures aimed at combating the funding of terrorist acts and terrorist organizations, and are complementary to the forty standards (FATF, 2012). The standards were expanded in October 2004 to the -now- nine special recommendations against terrorist financing by including measures to interdict cross-border cash movements. Table 38 provides an overview of the nine Special Recommendations to combat terrorist financing.

TABLE 38: Overview of the nine special recommendations

Recommendation	
I	**Ratification and implementation of UN instruments**
II	**Criminalizing the financing of terrorism and associated money laundering**
III	**Freezing and confiscating terrorist assets**
IV	**Reporting suspicious transactions related to terrorism**
V	**International cooperation**
VI	**Alternative remittance**
VII	**Wire transfers**
VIII	**Non-profit organizations**
IX	**Cash couriers**

Source: FATF IX Special Recommendations (FATF, 2012a)

Almost all jurisdictions in the world have adopted FATF standards through the global network of FATF-Style Regional Bodies (FSRBs) and FATF memberships. The compliance level of individual states is assessed by means of mutual evaluation processes on the basis of FATF's common assessment methodology (FATF, 2012c). To protect the international financial system FATF encourages more compliance with its standards and supports states with the implementation of the standards. FATF uses a form of coercion to secure state's compliance with its standards. Each year FATF publicly announces high risk and non-cooperative jurisdictions. The FATF also identifies states that have not made satisfactory progress in addressing strategic deficiencies and states with strategic deficiencies that are very committed to solve these deficiencies (FATF, 2012b). In sum, FATF uses both a strategy of legitimization and a strategy of coercion. By promoting their standards as legitimate standards of behaviour, FATF strives for voluntary compliance of states (Gardner, 2007; Hülsse, 2008; Reus-Smit, 2007). By means of identifying states as non-cooperative jurisdiction, it attempts to force states to implement the standards.

Collective action theory and development of hypotheses

In this section, we interpret and discuss combating terrorist financing as a collective action problem in order to develop two hypotheses concerning the compliance level of the FATF

standards for advanced and developing states to test the burden sharing behaviour of states. Collective action theory is concerned with the provision of economic goods whose benefits are non-rival and non-excludable (i.e., pure public goods) (Sandler, 2004). Non-rivalry means, that "each individual's consumption of such a good leads to no subtraction from any other individual's consumption of that good" (Samuelson, 1954). Pure public goods are also non-excludable. That means that no one, not even a nonpayer, can be excluded from using the good.

Using these distinctions, we argue that the benefits of combating terrorist financing are non-rival, because 'diminishing, denying, and destroying terrorist capabilities' leads to more security at a global level, and thus, to more security for alle states. Second, combating terrorist financing, in the sense of limiting the possibilities of terrorist organizations (Kiser, 2005), by an individual state is a non-excludable good, since it is impossible to exclude other states, even if they do not cooperate. Combating terrorist financing, in the sense of making the financial system more secure, however, in our view can be considered an excludable good, because people and organizations from non-cooperative states principally can be banned from using the global financial system. The excludability is illustrated by the United States' (US) sanction to cut off any entity that facilitates the purchases of Iranian oil through the Central Bank or Iran from its financial system (CNN, 2012). It is also illustrated by the call of FATF on its members to apply countermeasures to protect the international financial system from risks emanating from Iran and the Democratic People's Republic of Korea (FATF, 2012b). In sum, we consider combating terrorist financing a global public good combining characteristics of both a pure public good and a club good (Engerer, 2011).

Although it is in the interest of all FATF and FSRB members to protect the financial system from criminals and terrorists, the benefits resulting from the implementation of the FATF standards will vary among states. This makes some states (e.g., targeted countries) more and other states (e.g., non-targeted countries) less willing to comply with the anti-money laundering and combating terrorist financing standards (Sandler, 2004).

Clunan (2006) states that the willingness to combat terrorist financing appears to rise and fall with states' experience of terrorist attacks. Frequently attacked states, or states that border terrorist inflicted states are perhaps more motivated to counter terrorist financing and implement the FATF standards. In addition, some states may have more interest in a secure financial system than other states because of their interconnected financial institutions and trade interests. In this respect, Verdugo-Yepes (2001) suggests that a higher level of economic development is associated with a higher level of compliance with the FATF standards. Lower income countries have fewer resources to finance the implementation of the standards; they often face other more life-threatening problems (e.g., malnutrition, epidemic diseases). Jensen and Png (2011) argue that the developing world perceives combating money laundering

and financing of terrorism as concerns of advanced states. More in particular, they state that developing countries hold that "requirements for anti-financing terrorist measures should not be imposed on developing countries".

States that are less willing or able to carry the burden of implementing FATF standards can undo the efforts of states that do. An example involves the economic sanctions against Iran. Despite these proclaimed sanctions there are still some international banks that facilitate transactions to financial institutions in Iran (CNN, 2012). In this respect, the effectiveness of combating terrorist financing will be determined by its 'weakest link' (Gardner, 2007; Hirshleifer, 1983; Bures, 2012). The weakest link principle helps to explain how individual contributions determine the overall supply of a public good (Sandler, 2004). According to this principle, the smallest contribution level determines the quantity of the public good for the entire group. To eliminate terrorism by depriving terrorists of their financial resources, every state must implement the FATF standards as efforts to prevent terrorist financing in one state may relocate terrorist financing actions to other less protected states. For example, according to Del Cid Gómez (2010) Al-Qaeda was successful in moving a large part of its financial activities through its related groups to areas in Africa, the Middle East and South-East Asia where the authorities often lack effective controls to prevent terrorist financing. Thus, if only one state fails to fulfil its part, terrorists will remain a threat to the other states. The effect of FATF's fight against terrorist financing is dependent, in part, on its weakest members.

The weakest link principle in combination with the fact that efforts are not substitutable (i.e., FATF standards can be implemented at a national level only) implies that other states have incentives to help the weakest link states with the implementation of the FATF standards or to deny them access to the global financial system. Please note that this is contrary to previous NATO burden sharing discussions (Bogers et al, 2012; Ringsmose, 2010; Sandler and Forbes, 1980; Sandler and Murdoch, 2000; Solomon, 2004). In these discussions, larger advanced countries were able to compensate for less performing countries as allied defence efforts were substitutable. For example, during the International Security Assistance Force operations in Afghanistan, the US took over the activities of NATO partners who reduced force levels. Because the efforts for providing this public good are substitutable, the possibility to free ride exists. However, in the case of implementing FATF standards there is no possibility to free ride. As state perceive the threat to be attacked by terrorists differently, the benefits of implementing FATF standards may vary per state. Lower income states also have fewer resources to finance the implementation of the standards. This makes some states more willing and able to carry the burden of implementing the FATF standards than other states.

By means of analyzing the implementation levels of the FATF standards for 174 states we attempt to gain an insight into the individual contribution of states to combating terrorist financing. To measure these contributions, we use two well-known perspectives in the burden sharing literature (Sandler and Murdoch, 2000): (1) ability to pay (Sandler and Forbes, 1980; Olson and Zeckhauser, 1966; Russett, 1970), and (2) the cost-benefit perspective (Sandler and Forbes, 1980; Solomon, 2004; Gaibulloev et al, 2009; Khanna and Sandler, 1996; Kollias, 2008).

The ability to pay perspective suggests that a state's actual contribution to the fight against terrorist financing can be explained by its ability to contribute. Because developing states have fewer resources to implement the FATF standards we assume that their 'absolute level of compliance' with the FATF standards is limited in comparison to more advanced economies. In summary we expect:

Hypothesis 1: advanced economies have on average higher 'absolute' compliance scores than developing economies.

The cost benefit perspective suggests that individual states have incentives to pull their weight in proportion to the obtained benefit and assumes a close equality between the benefits and costs. In our view the 'absolute' compliance rate does not take into account state's individual costs and benefits to comply with the FATF standards. For this purpose, we introduce 'relative' compliance scores to explore the burden sharing behaviour of states. With the relative compliance score we attempt to relate a state's individual benefits of adopting the FATF standards to the costs of implementing these standards. For various reasons we use GDP per capita as a proxy to measure the benefits.

First, GDP per capita is a frequently used measure for benefits in the economics-based burden sharing literature (Sandler and Forbes, 1980; Solomon, 2004; Gaibulloev et al, 2009). A reason to use GDP per capita as a measure for benefits is Krueger and Laitin's (2008) finding that countries with a higher GDP per capita and individuals from rich states are more likely to be the target of international terrorism. Thus, advanced states may be more motivated to implement the FATF standards. A final reason to use GDP per capita as a proxy for benefits is that advanced states may have more interest in a secure financial system than developing states because of their interconnected financial institutions and trade interests. Furthermore, we assume a higher compliance score leads to more costs for a state and use the compliance scores as a proxy for the costs of implementing the FATF standards. Following Sandler and Forbes (1980) we assume a match between "benefits received and burdens carried" (Sandler and Hartley, 2001). We expect:

Hypothesis 2: the relative compliance scores do not systematically differ for advanced and developing economies.

By testing both hypotheses we aim to provide an insight into the burden sharing behaviour of the various states.

Methodology

Variables and data sources
The dependent variable in our study is compliance with the FATF standards. We use three measures for this compliance: FATF (i.e., the total average score of all FATF standards). FATF40 (i.e., the average score on the anti-money laundering standards). FATF9 (i.e., the average score on the standards that concern combating terrorist finance). We use one independent variable in the study: GDP (i.e., the average Gross Domestic Product per capita based on purchasing power parity over the period 2005-2011). The data for calculating the compliance scores come from the 174 mutual evaluation reports. Table 39 gives a summary of variables and the data sources.

TABLE 39: Overview of the variables and data sources

Abbreviation	Variable	Source
FATFAT	Total average score on all FATF recommendations	174 mutual evaluation reports (Mutual Evaluation Reports 2005-2012)
FATF40	Total average score on the 40 anti money laundering recommendations of the FATF	
FATF9	Total average score on the 9 special FATF standards to combat terrorist financing	
GDP	GDP per capita based on purchasing power parity (current international $), average over 2005-2011	World Bank (2012)

The Mutual Evaluation Reports (2005-2012) are available from: www.fatf-gafi.org; www.cfatf-gafic.org; www.eurasiangroup.org; www.apgml.org; www.esaamlig.org; www.gafisud.info; www.giaba.org; www.menafatf.org.

Analysis
According to the FATF's common assessment methodology, each recommendation can be valued in one of the following categories:

C: Compliant (the recommendation is fully observed with respect to all essential criteria);

LC: Largely Compliant (there are only minor shortcomings, with a large majority of essential criteria being fully met);

PC: Partially Compliant (the country has taken some substantive action and complies with some of the essential criteria);

NC: Non-Compliant (There are major shortcomings, with a large majority of the essential criteria not being met);

NA: Not Applicable (a requirement or part of it does not apply, due to the structural, legal or institutional features of a country, e.g., a particular type of financial institution does not exist in that country).

Countries which have ratings as *compliant* and *largely compliant* are in general considered to have accomplished an acceptable level of performance for the particular recommendation. To score the different compliance categories in our database, we have used the valuation measure adopted by Arnone and Padoan (2008). C scores 3 points; LC scores 2 points; PC scores 1 point; NC scores 0 points. When a recommendation is considered not applicable, we attribute to that recommendation the same value of the average score of all recommendations of the country concerned. To calculate the 'absolute' compliance scores of a state we compiled all scores and divide it by the number of recommendations of that state. To calculate the relative compliance score of the states we divided the absolute compliance score of a state by its log GDP per capita.

Results

Table 40 panel A reports the descriptive statistics of our study. The average compliance on all FATF standards is 1.21. Table 40 also shows that on average states score higher on the 40 anti money laundering (1.28) than on the 9 special standards (0.90) to combat terrorist financing. Table 40 panel B provides Pearson correlations (below the diagonal) and Spearmann correlations (above the diagonal) for all variables. All proxies for the dependent variable (compliance with the FATF standards) show a very strong positive association (Davis, 1971).

The selection of a specific proxy makes no difference for analyzing the results. Therefore, we selected FATFAT to test both hypotheses. The correlation of FATFAT with GDP can be characterized as 'substantial' (Davis, 1971).

TABLE 40 Descriptive Statistics and Correlation Analysis

Panel A: Descriptive statistics of variables used						
	Variables	N	Mean	S.D.	Maximum	Minimum
Dependent variable	FATFAT	174	1.21	0.52	2.27	0.20
	FATF40	174	1.28	0.52	2.36	0.24
	FATF9	174	0.90	0.60	2.44	0.00
Independent variable	GDP	158	13,700	14,310	70,251	425.0
Panel B: Correlation analysis dependent variables						
		FATFAT	FATF40	FATF9	GDP	
	FATFAT	1	0.995***	0.923***	0.680***	
	FATF40	0.995***	1	0.886***	0.669***	
	FATF9	0.917***	0.875***	1	0.652***	
	GDP	0.535***	0.518***	0.551***	1	

Notes: FATFAT represents the total average compliance score on all FATF recommendations of a state; FATFA40 is the total average compliance score on the 40 anti money laundering standards of a state; FATFA9 is the total average compliance score on the 9 special standards to combat terrorist finance of a state; All proxies are continues measures between 0 and 3. GDP is the GDP per capita based on the purchasing power parity (current international $) average 2005-2011.
*, **, *** represent statistical significance at 10%, 5%, 1% level, respectively (two-tailed test).

To gain more insight into the individual performance of states we show the average scores of four states with the highest and lowest 'absolute' scores for each continent in table 41. Table 41 reveals that there are no continents that score in total above largely compliant. Europe is the highest scoring continent, followed by America and Oceania. There are some countries in Europe, America and Asia that score above largely compliant. Africa has the lowest score of all continents with an average score of 0.74. Egypt has the highest score of all African states with an average score of 1.60.

Please note that in Asia the compliance with the FATF standards of the most advanced economies (Singapore, Malaysia, and Hong Kong) is higher than for the developing economies in the same region. This provides support for the hypothesis that advanced economies have more resources and interests (because of their higher target-risk and the scale of their financial system) to comply with the FATF standards.

TABLE 41: FATF Average scores

Country	Date report	FATFAT	FATFA40	FATFA9
AFRICA		**0.72**	**0.79**	**0.43**
Egypt	2009	1.60	1.64	1.44
South Africa	2009	1.51	1.53	1.44
Guinea-Bissau	2011	0.27	0.31	0.11
Mozambique	2011	0.28	0.34	0.00
AMERICA		**1.24**	**1.32**	**0.86**
United States	2006	2.10	2.05	2.33
Cayman Islands	2007	2.04	2.13	1.67
St Lucia	2008	0.42	0.49	0.11
Suriname	2009	0.56	0.69	0.00
ASIA		**1.12**	**1.19**	**0.79**
Singapore	2011; 2008	2.22	2.25	2.11
Malaysia	2007	1.84	1.93	1.44
Tajikistan	2008	0.20	0.24	0.00
Maldives	2012	0.27	0.33	0.00
EUROPE		**1.79**	**1.82**	**1.62**
Belgium	2005	2.27	2.31	2.11
Switzerland	2009; 2005	2.23	2.26	2.11
FYR Macedonia	2008	1.04	1.13	0.67
Luxembourg	2010	1.04	1.10	0.78
OCEANIA		**1.17**	**1.22**	**0.96**
Australia	2006	1.57	1.60	1.44
Fiji	2006	1.39	1.53	0.78
Tonga	2010	0.71	0.77	0.44
Papua New Guinea	2011	0.76	0.80	0.56

Notes: FATFAT represents the total average compliance score on all FATF recommendations of a state; FATFA40 is the total average compliance score on the 40 anti money laundering standards of a states; FATFA9 is the total average compliance score on the 9 special standards to combat terrorist finance of a state; All proxies are continues measures between 0 and 3.

We also investigated the question whether or not differences existed between mutual evaluation reports drafted early in the implementation of the standards and more recent reports. A Kruskal-Wallis test shows that there exist no significant differences between the reports of states that are reviewed more recent than the reports of states that were reviewed earlier in the decade (See Table 42).

TABLE 42: Kruskal-Wallis Test Early versus Late Reports

Year	N	Mean Rank	Chi-square	df	Sig
2004	1	142.00	12.51	8	0.13
2005	5	110.40			
2006	19	101.05			
2007	24	78.40			
2008	33	86.50			
2009	37	87.96			
2010	22	104.36			
2011	32	72.56			
2012	1	2.50			
Total	174				

Hypothesis 1: absolute compliance scores

We used the Mann-Whitney U-test to examine our first hypothesis: advanced economies have on average higher absolute compliance scores than developing economies. In order to test this hypothesis, we divided our data in: advanced states and developing states, using the International Monetary Fund (IMF) and World Economic Outlook Index (IMF, 2012). The results in Table 43 show that the absolute compliance scores of advanced economies differ significantly from developing economies on the basis of the IMF categorization.

TABLE 43 Mann-Whitney U-tests for Hypothesis 1

Description	Measure	n	Mean	U-value	Z-value
Advanced economy	IMF-index	34	129.79		
Developing economy	IMF-index	125	66.46	432.0	-7.113***

*, **, *** represent statistical significance at 10%, 5%, 1% level, respectively (two-tailed test)

The average rank number for advanced states (129.79) is higher than the average rank number for developing states (66.46). These results provide support for our first hypothesis. Advanced states have shown more effort to control money laundering and terrorism financing than developing states.

Hypothesis 2: Relative compliance scores

We argued in the previous section that the absolute compliance rate does not take into account the relative benefits and costs for each state to comply with the FATF standards. In order to account for differences in relative benefits and costs of compliance we introduced the relative compliance rate. According to the correlation analysis in Table 40 panel B the compliance scores are positively associated with the economic prosperity score; in our view this implies that a country with higher economic prosperity has both more resources and interest to implement the FATF standards. We divide state's absolute total FATF compliance scores by state's log GDP per capita. Again, we use the Mann Whitney u-test to test our second hypothesis: relative compliance scores do not systematically differ for advanced and developing economies. The results in Table 44 show that the burden for advanced economies differs significantly from developing economies. The average rank number for advanced states (116.89) is higher than the average rank number for developing states (68.20).

These results provide no support for our second hypothesis. The relative compliance scores systematically differ for advanced and developing economies. The value of the mean rankings indicates, that based on these results, advanced economies bear a disproportionally larger share of the collective costs of the financial war on terror than developing economies. This corresponds, however in a different context, to the 'exploitation hypothesis' of Olson and Zeckhauser, where large NATO alliance members bear a disproportionally large share of the collective costs to provide security.

TABLE 44 Mann-Whitney U-tests for Hypothesis 2

Description	Measure	n	Mean	U-value	Z-value
Advanced economy	IMF-index	33	116.89		
Developing economy	IMF-index	123	68.20	762.5	-5.498***

*, **, *** represent statistical significance at 10%, 5%, 1% level, respectively (two-tailed test)

However, as we noted in the previous section, the Olson and Zeckhauser model assumed that allied efforts are substitutable, which is not possible in this specific context. Each state is responsible for the implementation of the standards in their country. This means that weaker states have no possibilities to free ride on advanced states. Terrorists may move their financial activities to states where effective controls to prevent terrorist financing are not implemented. Consequently, there is an incentive for advanced states to assist developing states with the implementation of the standards, because failing to do so makes the total system to fight "the financial war on terror" worse off (Sandler, 2004; Vicary and Sandler, 2002).

Interestingly, with this conclusion we re-introduce the freeriding problem in fighting the financial war on terror by means of implementing FATF standards. Because of the sovereignty of states, states cannot directly compensate for the lower FATF implementation level of weaker states. However, in the case of combating terrorist financing a higher level of the public good can only be reached by improving the FATF compliance rate of weaker states. Because weaker states may have less resources to finance the implementation of the standards and have a lack of knowledge, advanced states ought to channel funds and technical expertise to these states in order to increase the total FATF compliance level.

Conclusion and discussion

The chapter discusses the burden sharing behavior of states in the context of implementing FATF standards to combat terrorist finance. We consider combating terrorist financing a global public good combining characteristics of both a pure public good and a club good. Collective action is necessary to ensure an efficient supply of this public good, because states individual efforts may result in less optimal provision of the good. Although it is in the interest of all states to protect the financial system from criminals and terrorists, the benefits resulting from the implementation of the FATF standards will differ for each state. This makes some states (e.g., targeted countries) more and other states (e.g., non-targeted countries) less willing to comply with the anti-money laundering and combating terrorist financing standards.

Our empirical results show that advanced economies have shown more effort to control terrorist financing than developing states. Consequently, advanced states bear a disproportionally larger share of the collective costs of combating terrorist financing by implementing FATF standards. Unfortunately states that do not contribute, can undo the actions of those that do. The effectiveness of the fight against terrorist finance will be determined by its weakest link. Terrorist may move their financial activities to states where effective controls to prevent terrorist financing are not implemented. Consequently, there is an incentive for advanced states to assist developing states with the implementation of the standards, because failing to do so will make the total system to fight 'the financial war on terror' worse off. Also, there is an incentive and a possibility to deny non-cooperative states access to the global financial system. However, such a policy may aggravate feelings of exclusion among states that are not permitted to join 'the FATF club', giving rise to building economic free havens for terrorists induced by those resenting being barred from the goods provided to 'members only'.

A limitation of our study is that in order to measure the burden of combating terrorist financing we had to use a proxy because no data is available on the actual costs of implementing the FATF standards. Our proxy is based on the assumption that a higher compliance score implies higher implementation costs for a state. To us this seemed – and seems – a reasonable assumption. However, in our study we discovered that a state can contribute in two ways to implement the FATF standards. First, the state can adopt these standards itself. Second, it can help other states by means of funding or technical expertise to raise the weaker states compliance levels. For this second way we could find no information. Our results therefore are limited to analysis of the burden of combating terrorist financing by implementing the FATF standards of individual countries, not by supporting other countries.

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Chapter 8

Chapter 8: Conclusions, discussion and future research

The aim of the study is to expand current knowledge about burden sharing behavior in security alliances. Three paradigms in burden sharing research are distinguished in chapter one and elaborated on in chapter two. The paradigms are considered the main questions to be answered to advance our understanding of burden sharing behavior in different security alliances. In chapter three to seven various contributions have been made to the literature linked to these paradigms. This last chapter does not contain a comprehensive summary of the conclusions and recommendations set out in the previous chapters. It reflects, however, on the main conclusions per paradigm. Additionally, possible directions for future research are outlined.

Paradigm one studies the question: *How is the burden distributed?* Within this paradigm, the literature deals with both a theoretical and measurement problem. The JPM model, a commonly used method for measuring burden sharing behavior, has over the years been extended with various benefit parameters. During the era of 'deterrence' and 'defense' the benefits were measured using the parameters '*area*', '*population*' and '*wealth*'. When NATO started to conduct out-of-area operations, other parameters such as '*import/export*' and '*terrorism*' were added to the equation. With the addition of the '*terrorism*' parameter, the benefits are no longer solely based on what needs to be protected, but also what NATO is protected against. In line with this extension of the JPM, it is plausible to add other *new* threats (cyber-attacks, massive immigration flows, disinformation, energy security threats) to the equation as well, however, this has not been done in literature before[1]. Regarding states' contributions to out-of-area operations it is concluded that the strength, efficiency, and output of the armed forces are barely touched upon in burden sharing analysis and the same accounts for the risk sharing behavior of states.

In view of what is stated above, an answer to the question 'why burden sharing literature seems to lag behind current threat developments' seems appropriate. The contribution of countries to countering 'new' threats is difficult to quantify and data is generally lacking or classified, which in turn creates a measurement problem. Despite these difficulties, this study shows the relevancy of using multiple burden sharing parameters. A state scoring high on one parameter, may score lower on other parameters (Beeres and Bogers, 2012, Bogers and Beeres, 2013; Bogers et al., 2019).

1 A first step in this direction was taken by Balcaen et al. (2021) in the article *Sharing the burden of hybrid threats*. The authors suggest several parameters but provide no further empirical research.

As one burden sharing parameter is considered as too myopic, focusing on multiple burden sharing parameters along different safety and security dimensions certainly is a complex task. For example, is it appropriate to give an equal weight to each parameter or should we weigh them differently? A question that is difficult to answer. Another difficulty is how we should balance present contributions against past achievements. Is the Dutch contribution to MINUSMA sufficient to contribute less to peacekeeping for the coming years? It requires to specify for what period of time different burden sharing parameters are to be measured, which is a difficult task itself.

In this study it was never envisaged to build a comprehensive burden sharing framework or to provide an overarching burden sharing parameter on all safety and security dimensions (Bogers et al. 2019). This is considered a mission impossible. The parameters put forward in this study are meant to help start to broaden the burden sharing discussion from a one-sided input approach on the military towards a broader view on burden sharing in security communities (Beeres and Bogers, 2012; Bogers and Beeres, 2013; Bogers et al. 2019). Chapter five shows that nation's contributions to safety and security differ per public good and organization. States, within NATO alliance, do not contribute and value public goods equally. States seem to hold specific preferences regarding the production of common public goods and do not possess all of the necessary political, economic and cultural resources to contribute to all goods at the same level (Bogers et al., 2019).

Alliances, like NATO, tend to be based on a single common interest, which is of sufficient importance to overrule states' differences on other issues. When this common interest weakens, the solidarity, unity and cohesion of the alliance can be undermined. While Europe's government documents, nowadays, cover similar threats, some threats are identified by countries as more urgent than others. Eastern European states perceive Russia most threatening, and southern European states are more concerned about terrorism and the migration crisis (Béraud-Sudreau and Giegerich, 2018). As any threat against an EU member risks escalation in the rest of Europe, all threats on European borders are considered as public goods. However, the line between core national interest and EU interest is contestable and resource constraints urge states to choose between diverse operations. An example, in 2017 former German's Chancellor Angela Merkel experienced little domestic support to boost German defense spending to two per cent of GDP. Her coalition partner, the Social Democratic Party, argues that it is better to spend the money on humanitarian assistance and diplomacy (Reuters, 2017). Their argumentation is that the migration crisis in Europe can't be solved with planes and tanks. Germany seems to give a higher priority to resolving the migration flows than actions against the Russian threat. Everything a nation spends on defense cannot be spend on crisis prevention, overseas development assistance and diplomacy. NATO burden sharing literature lacks a framework to deal with the impact of different threat perceptions on governmental spending and security commitments. It is still

based on the deterrence/balancing role that was ones attributed to the alliance, based on a high degree of solidarity and common interest.

With states that seem to be less worried about a direct conventional threat to NATO territory, the alliance's willingness and ability to undertake non-Article V missions increasingly forms the basis for its existence. Despite, the broad agreement within NATO that the alliance must also undertake non-Article V military operations, recent interventions were based on 'coalitions of the willing', with members free to decide to contribute to a particular mission. Against this background, the second paradigm studies the question: *What are the determinants of burden sharing behavior?* Chapter five shows that different national backgrounds have an impact on states' strategic decision making and influences how nations contribute to common public goods (Bogers et al., 2020; Soeters, 2021). Their contributions are likely to be affected by different national views on notions as 'risk', 'responsibility', 'appropriate strategy' and 'fairness'. A relevant question therefore is, can we urge states to contribute to a public good if they do not feel a necessity to act or when there is no agreement on the strategy? There are plenty of examples, showing that this is not always the case. For example, NATO was divided over US intention to invade Iraq together with the British. The US requested for military aid for a possible war with Iraq, while many NATO countries were still seeking time for weapon inspections and urge for a possible diplomatic solution (NATO, 2013; Ter Wal et al, 2009). NATO members also had different views on the nature and purpose of the mission in Afghanistan. For some members, it was primarily a reconstruction mission, other members' main intent was to fight against terrorism and to defeat Al Qaida and the Taliban (Bakker, 2009). The air campaign over Libya in 2011 was the first NATO mission, in the history of the alliance, where not the US, but the UK and France took the lead. Poland and Germany did not contribute and openly criticized the mission (Hallams and Schreer, 2012). Germany, the largest European member of the alliance, was only willing to support a humanitarian mission in Libya. Poland declared that it had no direct interests in Libya and that a neutral position on the Libyan military intervention would enhance their mediation capacity between Western countries and Arab countries, during their EU presidency (Dylla, 2011). These differences of opinion about risks, task and strategy all have an impact on burden sharing behavior and are difficult to incorporate in an arithmetic equation. Results appearing from research within the first paradigm may be explored by using qualitative research methods that are more prominent in the second paradigm.

Some politicians argue that alliances appear 'anachronistic' (The Economist, 2019). This is reflected in other forms of international cooperation, such as 'coalitions', 'security communities' and 'strategic partnerships' (Wilkins, 2012). It seems that the nature of alignment is changing from formal alliances into informal models of alignment. The question is more about which states are willing to work, fight and cooperate against what threats. It requires a broader view on the security environment and more knowledge about

what drives states. The second paradigm can help to gain more insight into the motives, strengths and weaknesses of countries. It may move the burden sharing discussion from the negative towards the positive. Using one's own and the other states' strengths to achieve mutual benefits, mutual understanding, and mutual recognition of the value of each other's contributions may sustain cooperation across all dimensions of safety and security (Bogers et al., 2019).

Research within the third paradigm studies the question: *how do individual contributions to the public good merge?* As explained in the introduction of this study, today, nations face a broader range of threats and the individual contributions of states to these threats do not always sum-up, instead they can be characterized as a weakest link or best shot good. Chapter seven contributes to this research, while analyzing the burden sharing behavior of 174 states in the case of combating terrorist financing, addressing specific burden sharing issues that can be linked to a weakest link good. According to the collective action literature countries are unlikely to cooperate, unless it is in their interest. However, sometimes it is needed that states contribute to a public good, without it being directly in their interest. If this is the case, it is important to understand how countries can be stimulated to show the desired behavior. What strategies could be adopted to assure that states contribute to the security good, even if this does not serve directly state's own interest? Former US President Trump used coercion, the US would go its own way, if European states would not spend two per cent of GDP on defense (Reuters, 2018; The Guardian, 2017; The New York Times, 2018). But as once argued by Russett and Sullivan (1971), effective coercion, specifically among states, is often not easy to achieve or at best risky, while it is likely to provoke new strains. Rewards may be more effective to stimulate nations to show desired behavior. The FATF-case in chapter seven shows that it is possible to align more than 180 jurisdictions around the world to work together on global issues as money laundering, terrorist financing and actions against proliferation of weapons of mass destruction. These countries are committed to the FATF recommendations through a global network of FSRBs and FATF memberships. The FATF creates incentives (financial support, education) and disincentives (black-listing, sanctions and social pressure) to guide nations towards an effective implementation of the recommendations. International organizations, such as the FATF, facilitate cooperation by helping states acting on collective action problems. Even though international organizations lack substantial resources, they exercise power as they constitute and construct the social world (Finnemore, 1993; Barnett and Finnemore, 1999). International organizations have the ability to propose corrective measures, including appropriate incentives and/or disincentives, to be applied by their members. By my knowledge, not much empirical research has been done on the effectiveness of these alignment tools and how they are used by international organizations. More research is needed to find out how these instruments can be designed and effectively utilized.

While research on weakest link and best shot goods can add to achieve the desired level of the goods, empirical research on this type of goods is still underdeveloped in burden sharing research (Bogers et al., 2020). More empirical research on weakest link and best shot goods is considered a research topic that can make a positive contribution to recent problems surrounding safety and security. A timely example is the COVID-19 pandemic. The director-general of the World Health Organization (WHO), Dr. Tedros Adhanom Ghebreyesus, states "We will only halt COVID-19 through solidarity. Countries, health partners, manufacturers, and the private sector must act together and ensure that the fruits of science and research can benefit everybody" (WHO, 2020). According to scientists COVID-19 is a global problem that can only be solved by a worldwide vaccination program. This is why the COVID-19 crisis shows a number of interesting burden sharing issues as will be explained in the following paragraphs.

The development of a vaccine has the characteristics of a best shot good. Since the emergence of the COVID-19 virus, scientists around the world are working faster than ever to develop a vaccine that can help to stop the spread of COVID-19. At the time of writing 181+ vaccines were explored in lab experiments and ten vaccines are approved and licensed for general use (GAVI, 2021). Companies compete when it comes to find the first effective vaccine. However, this contest is not just between companies alone, it is also between countries. In November 2020 Russia claimed its 'Sputnik V' vaccine to be better than the US produced Pfizer vaccine (Reuters, 2020). The Russian vaccine is named after Sputnik, the first satellite into space in 1957. This unusual branding suggests that Russia's stance is still competitive rather than collaborative. In some situations, competition could improve our welfare, but this does not seem to be the case in controlling the COVID-19 virus. In an ideal situation, scientists of different countries could better share their knowledge and invest together in the most promising vaccines.

However, what we are seeing now is that geopolitical relations influence the development and distribution of COVID-19 vaccines. Western countries receive vaccines developed by Western companies and the Sputnik V vaccine is delivered to Russian allies. Only after it became clear that the vaccines supply of Western pharmacists was delayed, the EU started to think seriously about the use of the Sputnik V vaccine (Trouw, 2021). When global action is necessary (i.c., climate change, pandemic) strong burden sharing mechanisms are needed to overcome politization and ensure that nations pool their expertise and resources to develop and produce a new technology in the most efficient and effective way.

Preventing the virus to spread by introducing a worldwide vaccination plan has the characteristics of another of Hirshleifer's aggregation goods (Hirshleifer, 1983), a weakest link good. UN Secretary General Guterres says: "No one is safe, until everyone is safe" (UN, 2020). A worldwide vaccination program requires a production of about 7.5 billion

vaccines. With previous virus outbreaks rich countries took good care of themselves, poor countries were at the back of the queue. This tendency is once again reflected in WHO director-general Ghebreyesus recent warning for a catastrophic moral failure, because of the unequal international distribution of COVID-19 vaccines. In poorer countries a meaningful vaccination coverage is not expected earlier than 2023 (The Economist, 2021). For the time being it could be questioned how a faire distribution of the vaccine is organized and paid for. The WHO acts as an advisory body, there is no central organization with authority on this topic. While most of the developing world has a lack of resources to pay for the vaccines another interesting question is whether the more advanced states give a high priority to helping the most vulnerable countries of the world and how to distribute this new burden amongst themselves? Which developed states are going to pay for developing states and how and by whom is this organized?

The COVID-19 crisis with activities that have characteristic of best shot goods or weakest link goods show the importance of effective international organizations and the need for supra-national policies. Dealing effectively and efficiently with the COVID-19 crises urges nations not to think only about themselves but to solve problems that go beyond their national borders. It also gives food for thought on other burden sharing challenges in the security field, such as the fight against terrorism, climate mitigation policies and actions against the proliferation of weapons of mass destruction. All these security challenges ask for global cooperation.

The main contribution of this thesis is that although the multi-product and multidimensional character of states' contributions necessitates more comprehensive and integrated research, studies on burden sharing behavior are mostly conducted within one of the three specific paradigms, studying the ensuing main question and following the methodological approach characteristic to the paradigm. To advance our understanding of contemporary burden sharing there is a need for a more interdisciplinary approach integrating main questions and methods to create interaction and leverage between research disciplines. For example, in Chapter five it is argued that task specialization may ease disputes over burden sharing behavior. In such case any one country could over-contribute to the production of a specific public good while under-contributing to others, presuming that the other states would condone and complement this behavior along other dimensions. When task specialization is indeed pursued, future research could try to seek answers to several questions: (1) What kind of specialization is acceptable for states? (2) Which dimensions should be included and how can each dimension be measured? (3) What burden sharing mechanism is considered fair by all states? To examine each question in depth, the research could involve economic and political scientists, philosophers and historians. The role of the political and economic scientists would be to answer how a state's preferences influence its behavior and also to provide expertise to develop an allocation model. Philosophers can challenge claims about 'fairness' that are often made by economic scientists. Historians can contribute to a better understanding of historical burden sharing which may provide relevant information regarding future burden sharing acceptance.

Burden sharing literature can benefit from cross-paradigm fertilization. In my view the process of producing a collective security good, should start with defining the nature of the good (summation, weakest link, best shot) and the burden *(paradigm three)*, before any discussion can take place on the distribution of the burden *(paradigm one)*. A discussion on the distribution of the burden should go hand in hand with an understanding of how states perceive and value collective burdens *(paradigm two)*.

Limitation and avenues for further research.

The difficulty of gaining access to relevant data was an important factor choosing the set-up of the various studies. Data on state's contributions to safety and security is often classified and consequently not publicly available. If the data was available, this was in most cases only for a short time period. Therefore, the burden sharing analysis in the chapters is limited and most of the time prompted by the available data.

The main recommendation of this study is to use a more interdisciplinary approach to advance our understanding of burden sharing. An approach I did not practice myself during the first chapters of this research. There are two reasons for this. The first reason is that as a person who studied Economics, I had a clear preference for a more quantitative approach. It was only when I became acquainted with other research fields that I broadened my horizon. I started to understand that burden sharing is a complex international problem. An analysis solely based on an analytic framework represents a risk of over-simplification. There is a lot more to learn about burden sharing. For example, why do states contribute the way they do? Do states agree on the burden? What is considered to be fair by states and what influences their perception on fairness? The second reason is that combining all three paradigms in each chapter would have been too much for a one-person project. Such an endeavor would require teams from different academic areas and possibly different nations working together.

Further research should focus on the analysis of states' contributions to distinct events (i.e., NATO-, UN-, EU operations) or states' contributions in countering a particular threat (i.e., Cyber, Climate Change, Energy Security, Russia/China threat) using a more interdisciplinary approach. Only a limited number of studies has been done in this area. As the literature review also shows, only a few country studies have been examined and this research is often geared towards one particular mission. It is also recommended to study individual states' burden sharing behavior longitudinally as we need to learn more on whether member states

prefer specific safety and security goods and/or security strategies over others and whether task specialization could allow for varying preferences regarding contributions.

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Summary

Summary

Some safety and security problems require solutions that individual nations cannot solely deliver. We also refer to these goods as International Public Goods (IPG's) or global common goods. Considering that the desired safety and security level cannot be effectively and efficiently produced by individual nations, this may lead nations to decide to develop a collectivity whose main purpose will be the achievement of the desired security good. NATO is an example of such a collectivity. From a practical perspective, states place different values on IPG's. Their willingness to contribute to the cost of the goods will depend on the perceived benefits. The problem with public goods is that everyone shares the benefits produced by the goods, even those states who do not contribute, so the incentive to invest in them are often weak. This also encourages free-riding behavior. It is important for the collective to make decisions regarding the amount of the good and the implementation of a burden sharing mechanism to assure a fair allocation of the costs.

The aim of this study is to broaden the debate on burden sharing in international organizations, by expanding current knowledge about burden sharing behavior. This was driven by some literature gaps, collected from an extensive literature review, and current political debates. Three paradigms in burden sharing research are distinguished. These are considered as the main questions to be answered to advance our understanding of burden sharing behavior in different security organizations. The first paradigm studies the question: *how is the burden distributed?* States' contributions to different public goods are researched in chapter three, four and five. The parameters put forward in these chapters are meant to help start to broaden the burden sharing discussion from a one-sided input approach on the military towards a broader view on burden sharing in security communities. Also, the relevancy of using multiple burden sharing parameters is demonstrated.

The second paradigm, which studies the question: '*why do states over- or under contribute to the collective good?'* can help to gain more insight in which states are willing to work, fight and cooperate against what threats. This paradigm can help to better understand the motives, strengths and weaknesses of countries. It may move the burden sharing discussion from the negative towards the positive. Using one's own and other states' strengths to achieve mutual benefits, mutual understanding, and mutual recognition of the value of each other's contributions. According to the collective action literature states are unlikely to cooperate unless it is in their interest. Some researchers have linked UN-peacekeeping contributions to a state's ambition to occupy a non-permanent UNSC seat. Chapter six investigates the relation between participation in UN peacekeeping operations and the UNSC elections. The results show that if the desire to become a non-permanent UNSC member influences state's decision to participate in UN peacekeeping missions, or alternatively mission participation

raises the ambition level to become a non-permanent UNSC member, most states do not seem to opt repeatedly for this foreign policy tool.

The third paradigm explains *how states' contributions to collective goods merge to determine the overall level of the good available for consumption*. Empirical research on social composition functions, like *best shot goods* and *weakest link goods*, are still under-applied in burden sharing research. Chapter seven contributes to the burden sharing literature by an empirical study of a weaker link good. It provides a quantitative expression of the burden sharing behavior of 174 states in the case of combating terrorist financing. The results show that advanced economies bear a disproportionally larger share of the collective costs of the financial war on terror than developing economies. In the fight against terrorist financing states efforts are not substitutable, consequently the state with the smallest individual contribution determines the level of the collective good for the entire alliance. States that do not implement FATF standards to control terrorist financing, can undo the actions of those that do. The effectiveness of the alliance in their fight against terrorist financing is thereby determined by its weakest link. In this particular case the weaker link principle affects the alliance in different ways and invoke novel burden sharing issues, such as, whether member states agree on how to solve the weaker link, or, how to distribute new burdens among themselves.

The main contribution of the thesis is that although the multi-product and multidimensional character of states' contributions necessitates more comprehensive and integrated research, studies on burden sharing behavior are mostly conducted within one of the three specific paradigms, studying the ensuing main question and following the methodological approach characteristic to the paradigm. To advance our understanding of contemporary burden sharing there is a need for a more interdisciplinary approach integrating main questions and methods to create interaction and leverage between research disciplines. Burden sharing literature can benefit from cross-paradigm fertilization. In my view the process of producing a collective security good, should start with defining the nature of the good (summation, weakest link, best shot) and the burden (paradigm three), before any discussion can take place on the distribution of the burden (paradigm one). A discussion on the distribution of the burden should go hand in hand with an understanding of how states perceive and value collective burdens (paradigm two).

Samenvatting

Samenvatting

Sommige veiligheidsproblemen kunnen individuele landen niet alleen oplossen. We noemen de bijdrage aan deze veiligheidsproblemen ook wel Internationale Publieke Goederen (IPG). Omdat het gewenste veiligheidsniveau niet op een effectieve of efficiënte wijze door een individueel land kan worden gerealiseerd, kan dit ertoe leiden dat landen besluiten een collectief te vormen. De Noord Atlantische Verdrag Organisatie (NAVO) is een voorbeeld van een dergelijke samenwerking. In de praktijk hechten landen niet altijd evenveel waarde aan de totstandkoming van een bepaald goed. De bereidheid van een land om bij te dragen aan het publieke goed hangt samen met de waargenomen voordelen die voortkomen uit de productie van het goed. Echter het probleem met publieke goederen is dat landen die niet bijdragen, niet kunnen worden uitgesloten van het gebruik van het goed. Hierdoor is de prikkel om te investeren in publieke goederen vaak zwak, waarbij er een kans op *free-riding* gedrag van landen aanwezig is. Het is daarom van belang dat landen overeenstemming bereiken over de te realiseren doelstellingen en afspraken maken over de lastenverdeling om zo een eerlijke verdeling van de kosten te bewerkstelligen.

Het doel van dit onderzoek is om bestaande kennis over het lastenverdeling gedrag van landen binnen veiligheidsorganisaties uit te breiden. Het onderzoek is daarmee een antwoord op een aantal lacunes in de literatuur en sluit aan bij het hedendaagse politieke debat. Hiervoor worden drie paradigma's onderscheiden. Deze paradigma's worden beschouwd als de belangrijkste vragen die moeten worden beantwoord om lastenverdeling gedrag binnen veiligheidsorganisaties beter te kunnen begrijpen. Het eerste paradigma bestudeert de vraag: *hoe is de last verdeeld?* De bijdrage van landen aan verschillende internationale publieke goederen wordt onderzocht in hoofdstuk drie, vier en vijf. De parameters die in deze hoofdstukken worden gebruikt hebben als doel de lastenverdeling discussie te verbreden, van een eenzijdige discussie gericht op defensie uitgaven naar een bredere kijk op lastenverdeling. Ook wordt de relevantie van het gebruik van meerdere parameters voor het meten van de lastenverdeling aangetoond.

De samenwerking tussen landen verandert steeds vaker van formele allianties (zoals NAVO) naar samenwerkingsvormen met een meer ad hoc karakter (bijvoorbeeld *Coalitions of the Willing*). Paradigma twee gaat over *'de drijfveren van staten om wel of niet bij te dragen aan het collectief'*. Dit paradigma biedt inzicht in welke landen bereid zijn een bijdrage te leveren aan welke dreigingen en helpt om de motieven, sterke en zwakke punten van landen beter te begrijpen. Wanneer wordt uitgegaan van elkaars sterke punten, en er wederzijds begrip en erkenning is voor de bijdrage die wordt geleverd, kan het de discussie tussen landen over lastenverdeling van het negatieve naar het positieve brengen. Onderzoekers stellen dat het onwaarschijnlijk is dat landen meewerken, tenzij het in hun belang is. Sommige onderzoekers suggereren

een relatie tussen de bijdrage aan VN-operaties en de ambitie van een land om een tijdelijke zetel in de VN Veiligheidsraad te bemachtigen. In hoofdstuk zes wordt deze relatie verder onderzocht. De resultaten van dit onderzoek laten zien dat als de ambitie om een tijdelijke zetel in de VN-Veiligheidsraad te bemachtigen, of een tijdelijke zetel in de VN-Veiligheidsraad te hebben van invloed is op het besluit van een land om deel te nemen aan VN-vredesmissies, het merendeel van de landen er niet voor kiest om hun bijdrage aan VN-operaties te verhogen rond verkiezingstijd. Al met al geven de kwantitatieve en kwalitatieve resultaten geen indicatie voor een causaal verband tussen VN-vredesoperaties en de verkiezingen voor de tijdelijke zetel in de VN-Veiligheidsraad.

Het derde paradigma legt uit *hoe de verschillende bijdragen van landen aan collectieve goederen kunnen worden opgeteld*. Empirisch onderzoek naar *best shot*-goederen en *weakest-link* goederen is schaars in de literatuur. Hoofdstuk zeven draagt bij aan de literatuur over lastenverdeling door middel van een empirische studie naar een *weakest-link* goed. Het levert inzicht in het lastenverdeling gedrag van 174 landen bij de bestrijding van terrorismefinanciering. De resultaten tonen aan dat de economisch ontwikkelde landen een onevenredig groter deel van de collectieve kosten van de bestrijding van terrorisme financiering dragen dan de arme landen. Bij de bestrijding van terrorismefinanciering zijn de inspanningen van naties niet substitueerbaar, en bijgevolg bepaalt de staat met de kleinste individuele bijdrage het niveau van het collectieve goed. Landen die de Financial Action Task Force (FATF) standaarden niet implementeren kunnen de acties van de landen die dat wel doen, ongedaan maken. De effectiviteit van de samenwerking wordt daarmee bepaald door de zwakste schakels. In dit specifieke geval beïnvloedt het *weakest-link* principe de alliantie op verschillende manieren. Het levert nieuwe lastenverdeling vraagstukken op zoals, zijn landen het eens over hoe de zwakke schakel kan worden opgeheven en hoe de hier uit voortvloeiende kosten onder de leden kan worden verdeeld.

De belangrijkste bijdrage van deze studie is dat, hoewel het multi-product en multidimensionale karakter van de bijdragen van staten meer omvattend en geïntegreerd onderzoek vereist, studies naar lastenverdeling meestal worden uitgevoerd binnen een van de drie specifieke paradigma's, waarbij de daaruit voortvloeiende hoofdvraag wordt bestudeerd gebruikmakend van de methodologische benadering die kenmerkend is voor het paradigma. Om ons begrip van lastenverdeling te vergroten, is er behoefte aan een meer interdisciplinaire benadering waarin de belangrijkste vragen en methoden worden geïntegreerd om interactie tussen onderzoek disciplines te bewerkstelligen. De discussie over de totstandkoming van internationale collectieve goederen dient te beginnen met het definiëren van het karakter van het goed (*summation good, weakest link good, best shot good*) en de *last* (paradigma drie), voordat enige discussie kan plaatsvinden over de verdeling van de last (paradigma één). Een discussie over de verdeling van de lasten moet hand in hand gaan met kennis over de mogelijkheid en bereidheid van landen om bij te dragen aan het collectief (paradigma twee).

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Marion Bogers,

Breda, March 2022

Dissemination of Research Findings

Dissemination of Research Findings

In addition to this dissertation, the findings of this study have been disseminated in other ways. The list below presents an overview of the academic publications that directly resulted from this study.

Academic Publications (English)

Beeres, R., and M. Bogers. 2012. "Ranking the Performance of European Armed forces." *Defence and Peace Economics*, 23(1): 1-16, doi.org:10.1080/10242694.2011.578401 (This thesis, Chapter 3).

Bogers, M., R. Beeres and I. Lubberman-Schrotenboer. 2012. "Dutch Treat? Burden sharing in Afghanistan." In *Mission Uruzgan*, edited by Beeres, R., J. van der Meulen, J. Soeters and A. Vogelaar. Amsterdam University Press.

Bogers, M., and R. Beeres. 2013. "Mission Afghanistan: Who Bears the Heaviest Burden?" *Peace Economics, Peace Science, and Public Policy*, 19(1): 32-55, doi.org:10.1515/peps-2013-0002 (This thesis, Chapter 4).

Bogers, M., and R. Beeres. 2013. "Burden sharing in combating terrorist financing." *World Academy of Science, Engineering and Technology International Journal of Humanities and Social Sciences*, 7(12): 2992-2998. doi.org:10.5281/zenodo.1089090 (This thesis, Chapter 7).

Bogers, M., R. Beeres, and M. Bollen. 2019. "Burden-sharing for global cooperation on safety and security." *Economics of Peace and Security Journal*, 14(1): 27-38, doi.org:10.15355/epsj.14.1.27 (This thesis, Chapter 5).

Joosten, E., M. Bogers, R. Beeres and R. Bertrand. 2019. "Predictors for compliance with anti-terrorist financing standards." *Journal of Money Laundering Control*, 22(2), 257-269, doi.org/10.1108/JMLC-02-2018-0011

Bogers, M., R. Beeres and M. Bollen. 2020. "NATO Burden Sharing Research along Three Paradigms." *Defence and Peace Economics*, 1-14. doi.org:10.1080/10242694.2020.1819135 (This thesis, Chapter 2).

Bogers, M., R. Beeres and M. Bollen. 2020. "America First? Ambidexterity in Safety and Security: A Study Across the World's Fifteen Leading Military Powers, 2006-2016. In *The Yin-Yang Military*, edited by Heeren-Bogers J., R. Moelker, E. Kleinreesink, J. van der Meulen, J. Soeters, R. Beeres. Springer, Cham. doi.org:10.1007/978-3-030-52433-3 16

Academic Publications (Dutch)

Bogers, M. and R. Beeres. 2010. "Prestaties van de Nederlandse Krijgsmacht in Europees perspectief." *Militaire Spectator* 179(1), 22-32.

Bogers, M., R. Beeres and I. Lubberman-Schrotenboer. 2011. "Burden Sharing in Afghanistan. Wie draagt de zwaarste last?" *Militaire Spectator* 180(11), 487-501.

Submitted articles

Bogers, M., R. Beeres and J. Soeters. "What is the relation between participation in UN peacekeeping operations and the UNSC elections?" (This thesis, Chapter 6) *submitted.*