

Fair Share or Freeride: Burden Sharing in Post-Cold War NATO

A Monograph

by

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14. ABSTRACT NATO has endured beyond the end of the Cold War by shifting its focus from collective defense to out of area operations. The United States provides a large proportion of NATO forces and resources and, thus, has been very interested in getting members to contribute more. In his book, <i>The Logic of Collective Action</i> , Mancur Olsen found that smaller alliance members tend to freeride after meeting minimum costs, while larger members contribute disproportionately large shares. Most studies of NATO burden sharing measure the proportion of GDP spent on defense. The problem with this measurement is that it evaluates members based on how much they spend on their own national defense, not on how much they contribute to the alliance. Thus, the question is, do NATO members contribute adequately to the alliance? Alternative ways to measure NATO member contributions were investigated to answer that question. Proportionality is the most important principle for defining how member nations share the burden, but NATO does not have a formal system for determining shares. Bases for apportionment were created to determine fair shares based on national capacity in terms of GDP and population. By comparing financial contributions to NATO common funding and troop contributions to NATO's three largest out of area operations (Bosnia, Kosovo, and Afghanistan) in relation to GDP and population-based shares, clear trends emerged. Analysis leads to the conclusion that most members contribute effectively and proportionally toward NATO funding and operations. Collective action theory only partially applies to NATO; the smallest members tend to contribute equal or greater amounts, proportionally, than their larger counterparts. Furthermore, all members, especially the United States, tend to adjust contributions based upon national interests. Finally, if NATO wishes to better assess and distribute the burden, it must first develop a formal system to apportion it.					
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Abstract

Fair Share or Freeride: Burden Sharing in Post-Cold War NATO, by MAJ Matthew P. McQuilton, United State Army, 85 pages.

NATO has endured beyond the end of the Cold War by shifting its focus from collective defense to out of area operations. NATO exists only through the voluntary contributions of its members. The United States provides a very large proportion of NATO forces and resources and, thus, has been very interested in getting members to contribute more. In his seminal book, *The Logic of Collective Action*, Mancur Olsen found that smaller alliance members tend to freeride after meeting the minimum cost, while larger members contribute disproportionately large shares to the collective good.

Most studies of NATO burden sharing measure the proportion of GDP spent on defense. The problem with this measurement is that it evaluates members based on how much they spend on their own national defense, not on how much they contribute to the alliance. Thus, the question is, do NATO members contribute adequately to the alliance? Alternative ways to measure NATO member contributions were investigated to answer that question. Proportionality is the most important principle for defining how member nations share the burden. Members can only be rightfully accused of freeriding if they fail to provide their apportioned share, but NATO does not have a formal system for determining shares. Bases for apportionment were created to determine fair shares based on national capacity in terms of GDP and population.

By comparing financial contributions to NATO common funding and troop contributions NATO's three largest out of area operations (Bosnia, Kosovo, and Afghanistan) to GDP and population-based shares, clear trends emerged in contemporary NATO burden sharing. Analysis of the various alternative measures leads to the conclusion that despite the failure of most NATO member nations to spend the agreed two percent of GDP on defense, they do contribute effectively and proportionally toward NATO funding and operations. Collective action theory only partially applies to NATO; the smallest members tend to contribute equal or greater amounts, proportionally, than their larger counterparts. Furthermore, all members, especially the United States, tend to adjust contributions based upon national interests. Finally, if NATO wishes to better assess and distribute the burden, it must first develop a formal system to apportion it.

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Acronyms

CSDP	Common Security and Defense Policy (EU)
DoD	Department of Defense
EU	European Union
GDP	Gross Domestic Product
IFOR	Implementation Force (Bosnia)
ISAF	International Security Assistance Force (Afghanistan)
JALLC	Joint Analysis and Lessons Learned Centre
KFOR	Kosovo Force
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organization
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
SFOR	Stabilization Force (Bosnia)
UN	United Nations
UNSCR	United Nations Security Council Resolution

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“Since 1949, the United States has committed itself to defending its European allies in the North Atlantic Treaty Organization (NATO), regarding any attack on those countries as an attack on itself. But some Members of Congress have questioned whether this country has borne an unfair share of the burden of the common defense.”

—John J. Lis, and Zachary Selden, *NATO Burden-sharing After Enlargement* (2003)

Introduction

The North Atlantic Treaty Organization (NATO) was formed in 1949 in response to the emerging Soviet threat.¹ NATO has endured beyond the end of the Cold War by increasing its membership from 12 to 28 nations and shifting its focus from the collective defense of central Europe to out of area operations. NATO exists only through the voluntary financial, manpower, and military contributions of its members. NATO does not tax its members and possesses no forces, equipment, or infrastructure beyond that contributed by its members.² Because all the member nations contribute to collective security, the individual nations judge the contributions of others. The United States provides a very large proportion of NATO forces and resources and, thus, has been very interested in getting members to contribute more; that is sharing the burden. Burden sharing can be defined as “the distribution of costs and risks among members of a group in the process of accomplishing a common goal.”³ Burden sharing is NATO’s primary means of accomplishing its goals.

However, not all members value these contributions equally. Most prominently, the United States claims it bears a disproportionate share of the burden and criticizes other members for under-participating in operations and for failing to invest sufficiently in defense capability. In his farewell address, former Secretary of Defense Robert Gates admonished NATO for failing to

¹ Sarwar A. Kashmeri, *NATO 2.0 Reboot or Delete?* (Washington DC: Potomac Books, 2011), 22-24.

² With a few exceptions such as NATO AWACS and some headquarters facilities.

³ Peter K. Forster and Stephen J. Cimbala, *The US, NATO and Military Burden-Sharing* (New York: Frank Cass, 2005), 164.

meet its troop requirement in Afghanistan. Mr. Gates remarked, “if an alliance of the world’s greatest democracies cannot summon the will to get the job done in a mission that we agree is morally just and vital to our security, then our citizens may begin to question both the worth of the mission and the utility of the 60 year old trans-Atlantic security project itself.”⁴

In his seminal book, *The Logic of Collective Action*, Mancur Olson described the behavior of groups founded to further the common interests of their members through the production of a public or collective good.⁵ He observed that members tend not to share a common interest in resourcing the collective good. Olson found that smaller members tend to stop contributing after meeting the minimum cost, while larger members who derive the greatest benefit contribute disproportionately large shares to the collective good. He calls this “exploitation of the great by the small;” others refer to this behavior as freeriding.⁶

Because alliance members are not equal, how NATO allocates contributions is an important issue. Proportionality seems to be the most important principle for defining how member nations share the burden. Like most groups, NATO’s members are heterogeneous; they vary considerably in wealth, population, geography, and other factors. Though all have an equal vote on the North Atlantic Council (NAC), NATO has never expected its members to contribute equal shares; to do so would have been simply unrealistic. Members can only be rightfully accused of freeriding if they fail to provide their apportioned share. Fair share, also known as equity of effort, is a member’s ability to contribute based on national capacity.⁷ Most studies of

⁴ Andrew R. Hoehn, *Risking NATO*, Rand Corporation, 58.

⁵ Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, MA: Harvard University Press, 1965), 6 and 15.

⁶ *Ibid.*, 21, 29, and 31.

⁷ Joel R. Hillison, *Stepping Up: Burden Sharing By NATO’s Newest Members* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2014), 2.

NATO burden sharing define the fair share based on the proportion of the national gross domestic product (GDP) spent on defense. NATO has called percent of GDP “the best-known, most easily understood, most widely used and perhaps the most telling input measure.”⁸ Members have agreed to spend a minimum of two percent of GDP on defense; a commitment the majority consistently fails to meet. The problem with this measurement is that it does not separate private goods from collective goods. Percent of GDP evaluates members based on how much they spend on their own national defense, not on how much they contribute to the alliance.⁹ Although it is troubling that members fail to meet the two percent benchmark, this single statistic is an inadequate measure with which to assess burden sharing within the alliance. Furthermore, as Keith Hartley and Todd Sandler note, “nations will select the indicator(s) which show that they are bearing an ‘unfairly’ high burden.”¹⁰ Only by analyzing the contributions to collective actions such as operations and financing can it be determined if NATO members effectively share the burden. Since defense spending as a percentage of GDP is a poor measure of burden sharing, those nations that complain that other members are not contributing enough really do not know whether the other members are contributing enough. Thus, the question is, do NATO members contribute adequately to the alliance? That question cannot be answered without first investigating alternative ways to measure NATO member contributions to the alliance.

Interestingly enough, NATO does not have a system for determining shares. NATO has a standard that members contribute at least two percent of GDP to defense, and a further standard

⁸ NATO Defence Planning Committee, *Enhancing Alliance Collective Security: Shared Roles, Risks, and Responsibilities in the Alliance* (Brussels: North Atlantic Treaty Organization, 1988), 10.

⁹ Hillison, 21-24.

¹⁰ Keith Hartley and Todd Sandler, “NATO Burden-Sharing: Past and Future,” *Journal of Peace Research* 36, no. 6 (London: Sage Publications, November 1999): 665.

that equipment expenditures make up at least twenty percent of defense spending, but neither of these metrics assign a share. The only instance of a NATO-assigned share is common funding, which NATO supposedly apportions according to members' GDP.¹¹ It is, therefore, necessary to create bases for apportionment based on national capacity. The predominant measure in burden sharing studies is GDP, which is a snapshot into a nation's financial capability. It is possible to calculate a member's share based on the ratio of its GDP compared to the sum of all members' GDPs expressed as a percentage. Additionally, national capacity might be understood in population terms. The size of a nation's population is a direct reflection of the quantity of people who receive the benefits of NATO membership in that nation, as well as the human resources available for military service. It is possible to calculate a member's share based on the ratio of its population compared to the total NATO population expressed as a percentage. It could be argued that GDP basis favors less wealthy nations by apportioning larger shares to wealthier nations, while population basis does the opposite. A compromise can be reached by averaging the GDP and population bases into an average basis, accounting for both the relative wealth and population of a member. GDP basis, population basis, and average basis are three easily calculable methods to fairly apportion the burden.

This monograph measures financial and operational contributions to determine if NATO members share the burden proportionally. It first provides an overview of previous NATO burden sharing literature and a detailed explanation of the methodology to answer the sub-question, *How does NATO determine members' shares?* It then examines defense spending, equipment expenditures, and contributions to NATO common funding to answer the sub-question, *Do members contribute proportionally to financial burden sharing?* It lastly analyzes troop

¹¹ NATO, "NATO Funding," North Atlantic Treaty Organization, last updated September 17, 2014, accessed October, 2014, http://www.nato.int/cps/en/natolive/topics_67655.htm.

contributions to the three largest NATO out of area operations (Bosnia, Kosovo, and Afghanistan) to answer the sub-question, *Do members contribute proportionally to operational burden sharing?* The conclusion addresses the final sub-questions: *Which members tend to contribute above their share? Which members tend to freeride on the contributions of others? Does NATO burden sharing reflect Olson's collective action theory?* This monograph focuses on specific contemporary events and issues and is not exhaustive. It would be impossible to quantitatively measure every aspect of NATO burden sharing, and equally so to account for qualitative differences. However, by measuring and comparing NATO member financial and operational burden sharing behavior it is possible to gain significant insight into contemporary NATO burden sharing trends.

Analysis of the various alternative measures leads to the conclusion that despite the failure of most NATO member nations to spend the agreed two percent of GDP on defense, they do contribute effectively and proportionally toward NATO funding and operations. The United States appears to be bearing a disproportionate share because NATO has no consistent method of assigning shares to its members. When considering financial contributions to NATO common funding and troop contributions to NATO operations, members tend to contribute their fair share relative to GDP and population. Furthermore, all members, especially the United States, tend to adjust their operational contributions based upon the operation's significance in regard to their national interests.

Methods to Assess Contributions

There have been numerous studies of NATO burden sharing, but most focus on defense spending and do not provide useful alternative ways for measuring contributions. However, seven studies provide insight into this problem. Olson's *The Logic of Collective Action* is the impetus for most scholarly studies of the subject. Collective action theory suggests that groups produce a public or collective good to further the members' common interests.¹² Members are rational actors who contribute to the collective good in accordance with self-interests.¹³ Larger members potentially receive the greatest benefit and tend to contribute disproportionately more than smaller members who tend to freeride on the collective good once they have provided a minimum contribution.¹⁴ Olson and Richard Zeckhauser applied collective action theory to NATO burden sharing, using defense spending as the measurement of contribution. Olson and Zeckhauser claim that large members, especially the United States, contributed proportionally greater shares to collective defense.¹⁵ A series of studies by various authors validated and expanded on Olson's work.¹⁶ Keith Hartley and Todd Sandler disputed the accuracy of determining burden sharing

¹² Olson, *The Logic of Collective Action*, 6 and 15.

¹³ *Ibid.*, 11.

¹⁴ *Ibid.*, 21, 29 and 31.

¹⁵ Mancur Olson and Richard Zeckhauser, "An Economic Theory of Alliances," *Review of Economics and Statistics*, (1966), 274 and 278.

¹⁶ Some include: John R. Oneal and Mark A. Elrod, "NATO Burden Sharing and the Forces of Change," *International Studies Quarterly* 33, no. 4 (December 1989): 435-456; John R. Oneal, "The Theory of Collective Action and Burden Sharing in NATO," *International Organization* 44, no. 3 (Summer 1990): 379-402; Keith Hartley and Todd Sandler, "NATO Burden-Sharing: Past and Future," *Journal of Peace Research* 36, no. 6 (November 1999): 665-680; Hirofumi Shimizu and Todd Sandler, "Peacekeeping and Burden-Sharing, 1994-2000," *Journal of Peace Research* 39, no. 6 (November 2002): 651-668, Shimizu and Sandler, "Recent Peacekeeping Burden Sharing," *Applied Economics Letters* 17 (2010): 1479-1484, Shimizu and Sandler, "NATO Burden Sharing 1999-2010: An Altered Alliance," *Foreign Policy Analysis* 10 (2014): 43-60. See Hillison 4-7, 12, and 18-24 for a complete list.

behavior by measuring defense spending. Hartley and Sadler found that defense spending represents a combination of collective and private goods, also known as mixed goods or the joint product model, and is, therefore, a poor measure of collective contribution.¹⁷ Hirofumi Shimuzi and Sandler suggested that measuring contributions to peacekeeping operations. They defined peacekeeping as a purely public collective good and, thus, argued it was more representative of burden sharing.¹⁸

Burden sharing is not just a topic of academic study. It is a practical problem for NATO members, some of whom have conducted their own studies. From 1982 to 2004 the United States Department of Defense (DoD) released an annual report that rank-ordered NATO members and other American allies on defense metrics and contributions compared to their ability to contribute.¹⁹ The DoD reports were more useful to the United States than the alliance because they included nations that have no formal relationship with NATO. Those reports are significant because they measured contributions based on GDP and population.²⁰ John Lis and Zachary Seldon applied a similar model, measuring and comparing member contributions to NATO operations in Bosnia and Kosovo relative to population size.²¹ Joel Hillison expanded this concept by creating population-based shares and measuring members' relative contributions to

¹⁷ Keith Hartley and Todd Sandler, "NATO Burden-Sharing: Past and Future," *Journal of Peace Research* 36, no. 6 (London: Sage Publications, November 1999): 667.

¹⁸ Hirofumi Shimizu and Todd Sandler, "Peacekeeping and Burden-Sharing, 1994-2000," *Journal of Peace Research* 39, no. 6 (London: Sage Publications, 2002): 655.

¹⁹ Department of Defense, *2004 Statistical Compendium on Allied Contributions to the Common Defense: Covers Allied Contributions in 2003*, (Washington DC: United States Department of Defense, 2004), 1-2, B, and C; Simon Lunn, *Burden-Sharing in NATO*, (London: The Royal Institute of International Affairs, Routledge & Kegan Paul Ltd, 1983), 57.

²⁰ NATO, *Enhancing Alliance Collective Security*, 6.

²¹ Lis and Seldon, Preface, x-xv, 13.

several NATO operations.²² Hillison's work is unique in that he blends the straightforward approach common in government studies with the scholarly approach of collective action theory.

NATO headquarters recognizes its lack of useful burden sharing measurements and has periodically directed studies to determine how to best share roles, risks, and responsibilities within the alliance.²³ Most recently, NATO's Joint Analysis and Lessons Learned Centre (JALLC) conducted a comprehensive study to determine easily measurable defense metrics as directed by the 2011 NATO Political Guidance.²⁴ The JALLC proposed a series of useful measurements of defense spending, readiness, sustainability, and participation in operations that facilitate peer comparison and measuring progress.²⁵ A sequel JALLC paper introduces a more sophisticated approach involving composite metrics that combine multiple metrics into a single score. The most relevant is "relative force share" that measures operational contributions.²⁶ While the JALLC provides useful metrics that NATO should implement to assess and compare national defense readiness and capabilities, they fail to assign members shares from which to judge their contributions.

Considering that NATO lacks a comprehensive system for apportioning the burden, and that most studies have neglected this aspect by over-relying on defense spending as the single-

²² Hillison, XXV and 29.

²³ NATO, *Enhancing Alliance Collective Security*, i.

²⁴ Eaton et al., *Motivating Improved Contributions to the Alliance*, iv.

²⁵ *Ibid.*, 3. Complete list of recommended metrics: % GDP on defense, % defense expenditure on major equipment, % defense expenditure on R&D, % land forces at high readiness, % airframes at high readiness, % vessels at high readiness, % land forces sustainable, % airframes sustainable, % vessels sustainable, % progress towards on national targets, % NATO command structure fulfillment, % immediate response force fulfillment, % personnel deployed on international operations.

²⁶ Jacqueline Eaton, et al., *Defence Measurements: The Composite Metrics Approach* JALLC/CG/11/218 (Monsanto, Portugal: NATO Joint Analysis Lessons Learned Centre (JALLC), 2011), 12, B-1, and B-12.

most significant indicator, it is appropriate to investigate various methods for determining members' shares. The primary difficulty is determining how NATO should divide the burden. Given a membership as diverse as small yet wealthy Luxembourg, as populous as Turkey, and containing a superpower, the United States, it is obvious that contributions cannot simply be carved into 28 homogeneous slices. Since NATO regards money and people as the two most significant defense resources, GDP and population are natural starting points.²⁷

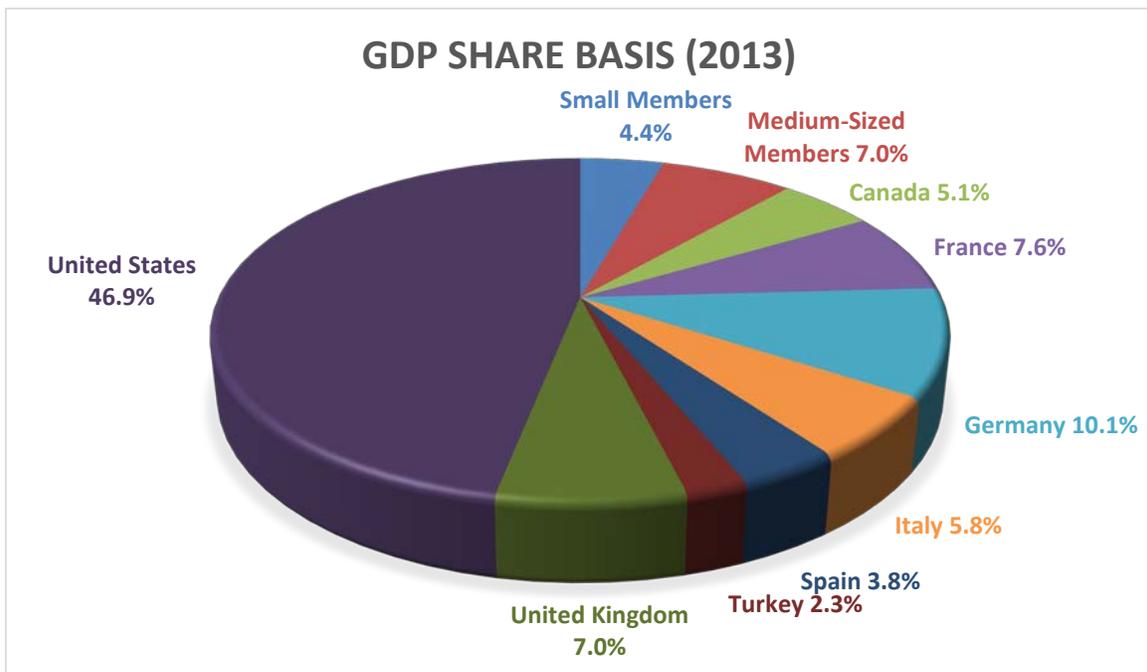


Figure 1: GDP Share Basis (Based on 2013 Data).

Source: Data from World Bank, figure by author.

NATO already measures GDP in its annual financial reports and considers it the primary basis for apportioning NATO common funding.²⁸ It is an ideal basis for determining financial shares, but could also be used for operational shares such as troop contributions because a

²⁷ NATO Defence Planning Committee, *Enhancing Alliance Collective Security*, 10.

²⁸ NATO, "NATO Funding."

nation's ability to project and maintain a force is based, in large part, on its ability to fund it. A GDP basis can be created by calculating the percentage of each member's GDP in relation to the total NATO GDP, as was suggested in the United States DoD statistical compendium.²⁹ As depicted in figure 1, the United States makes up nearly half of NATO by the GDP basis and the next seven largest members make up most of the remainder. If shares are apportioned based on GDP, the vast majority of the burden is allocated to a relatively small group of members.³⁰

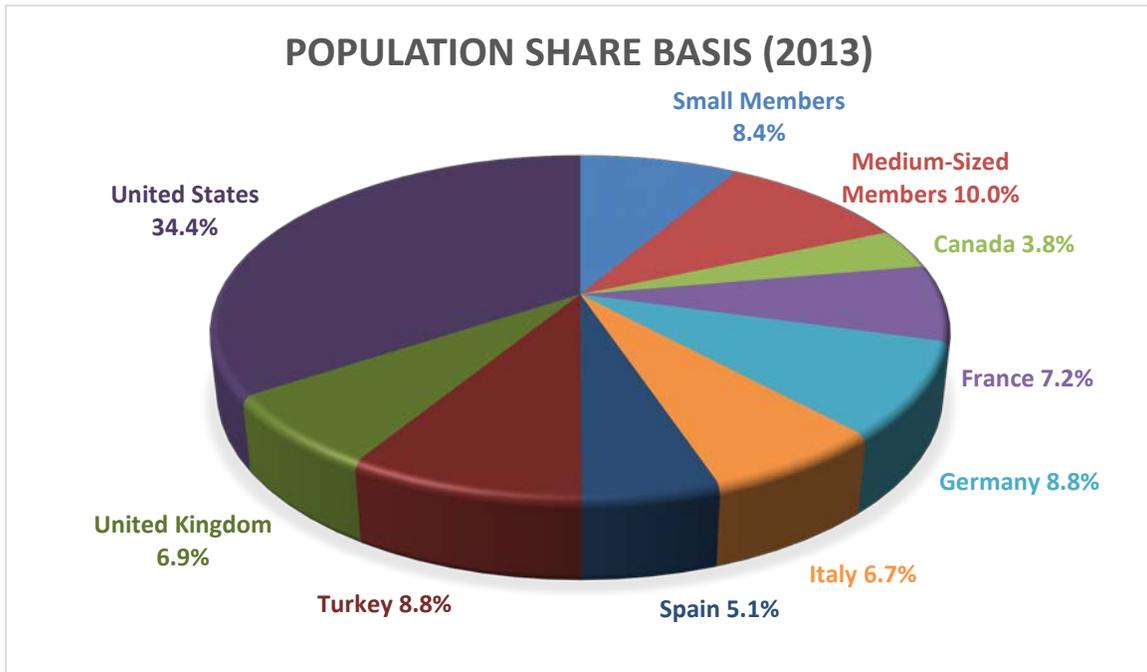


Figure 2: Population Share Basis (Based on 2013 Data).

Source: Data from U.S. Census Bureau, figure by author.

While GDP is indicative of national force projection potential, the size of a nation's population is important to its ability to man its military. Population might also represent the per-capita benefit of NATO membership. It is, therefore, reasonable to apportion shares through a

²⁹ Department of Defense, 1.

³⁰ See table 1 in appendix A for more detailed GDP-based shares.

population basis by calculating the percentage of each member's population of the total NATO population. Population basis can be used to measure proportional contributions to NATO operations, as suggested by Lis and Seldon and expanded upon by Hillison.³¹ At first glance, a population-based apportionment (figure 2) distributes shares more evenly than GDP basis (figure 1), but otherwise does not seem to alter the share distribution significantly; many of the larger European members such as France and the United Kingdom see very little change. However, members with low per-capita GDP take on a much greater share. Turkey, whose population-based share is nearly four times its GDP-based share, is the best example.³²

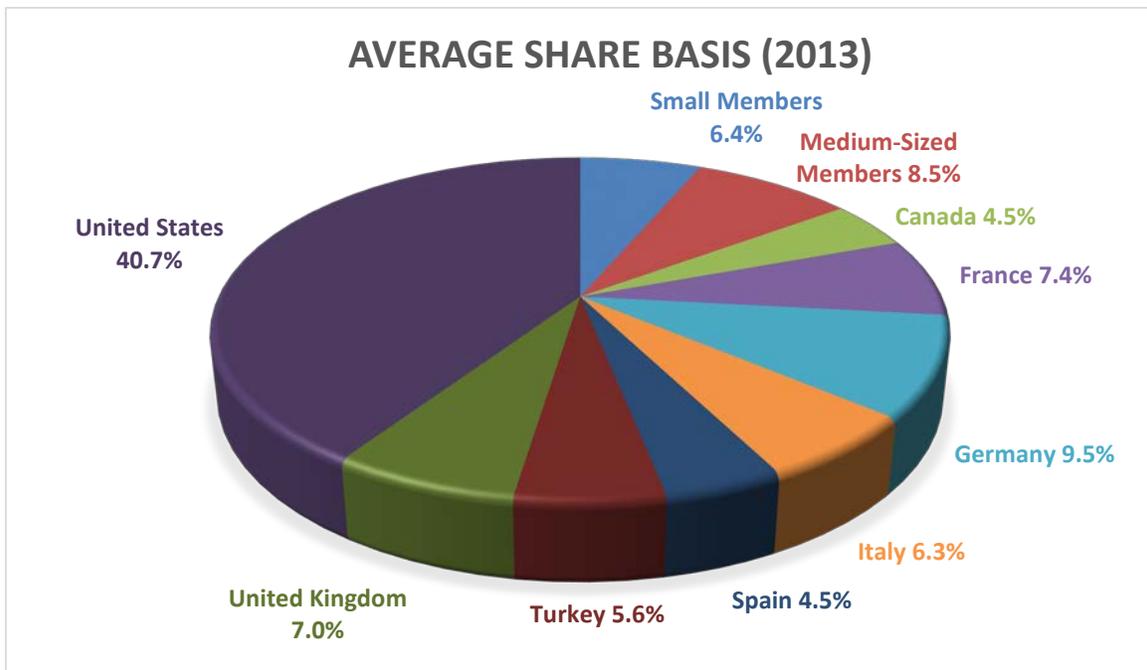


Figure 3: Average Share Basis (Based on 2013 Data).

Source: GDP data from World Bank, population data from U.S. Census Bureau, figure by author.

³¹ Lis and Seldon, 14; Hillison, 108.

³² See table 2 in appendix A for more detailed population-based shares.

If population is indicative of ability to man armed forces and GDP represents ability to project and sustain those forces, then members with low per-capita GDP have an inherent limitation on their ability to contribute forces proportional to their population size. NATO recognizes that “an underlying tenet of the NATO Strategic Concept is that Allies need to provide modern, deployable forces to the whole spectrum of NATO operations.” Smaller, professional forces are generally more desirable than larger forces that are comparatively less trained, less well equipped, and less deployable³³ Therefore, a purely population-based methodology for troop contributions, as employed in some previous studies, may not yield realistic or desirable expectations for members with low per-capita GDP. As depicted in figure 3, a third share basis category can be created by averaging the percentage shares for GDP and population bases.³⁴ This average basis provides a more holistic approach that is most applicable to troop contributions to NATO operations.³⁵

Contributions to NATO can be assessed relative to GDP, population, or an average of the two, but, with such a heterogeneous membership, it is first necessary to categorize the members into a few peer groups. Members and non-members European Union (EU) might be two groups, but it is an arbitrary distinction as the vast majority of the nations are members of both organizations and the non-members are otherwise dissimilar. Geography is similarly arbitrary. The United States and Canada are the only non-European members, and dividing Europe into geographic regions is likely to create unnatural groupings. Duration of membership is a useful distinction. Hillison’s work in burden sharing among new (former Warsaw Pact and Yugoslav)

³³ Eaton, et al., *Defence Measurements: The Composite Metrics Approach*, 1.

³⁴ Averaging GDP and population shares is a very simple technique; by this logic a more sophisticated system of calculating shares could also be developed.

³⁵ See table 3 in appendix A for detailed average-based shares.

NATO members reveals that new members tend to contribute at or above the level of similarly-sized long-standing members.³⁶ Duration of membership is sometimes important to consider, but the long-standing members are still too dissimilar to compare as peers. collective action theory is based primarily on the relative size of members. Size is the most useful distinction because it facilitates grouping members with similar national capacity. Since collective action theory is based on the relative size of members, grouping members by size also facilitates comparison of differently-sized members. By using the average basis, it is possible to capture both the economic size (GDP) and population size of the members and group them into peer categories.

Members can be grouped by size into four categories. The mean share for a 28 member NATO is 3.5%, while the median share is approximately 1%. By using these values as parameters, NATO members can be categorized as very large (United States only), large (above 3.5% share), medium-sized (1% to 3.5% share), and small (below 1% share) based on average-based shares.³⁷ The United States is in a category by itself because it is several times larger than any other member and is considered the reason that NATO is a uniquely privileged group.³⁸ The large members are Germany, France, the United Kingdom, Italy, Spain, Canada, and Turkey. These members are all capable of leading NATO operations and should be expected to take a

³⁶ Hillison, 307-313. Long-standing members are original members and expansion one through three; new members are expansion four through six. Long-standing members: original members (1949): Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, United Kingdom, United States; expansion one (1952): Greece and Turkey; expansion two (1955): Germany (then West Germany; reunification 1990); expansion three (1982): Spain. New (former Warsaw Pact and Yugoslav) members: expansion four (1999): Czech Republic, Hungary, and Poland; expansion five (2004): Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia; expansion six (2009): Albanian and Croatia.

³⁷ Using the average basis allows for distinct grouping; some members, particularly those with low per-capita GDP, would be in one category in the GDP basis and another in the population basis.

³⁸ Olson, 49-50; Oneal, 389.

large part in the leadership of the alliance.³⁹ The medium-sized members are Belgium, Netherlands, Norway, Poland, and Romania. While these members are not necessarily large enough to lead NATO operations, they can offer a sizeable contribution. The 15 remaining are the small members. According to collective action theory, they would be most likely to freeride and “find that even large sacrifices on their part have little effect on the global balance.”⁴⁰

NATO acknowledges “that it is difficult to assess and meaningfully compare the relative weights of defence contributions made by individual members [but that] does not mean that the subject cannot or should not be dealt with.”⁴¹ However, NATO seems to be focusing on measuring the wrong things. The tendency to focus on GDP is widespread in the literature. Consider the following statement, “As operational demands in Afghanistan increase, some would expect such demands to increase defense spending; however, the absence of, and, in some cases, the reverse of such a trend may be viewed as an indicator of a lack of support for the mission in Afghanistan and may endanger the cohesions of the alliance more broadly.”⁴² Statements like this may cause many to question NATO’s utility, but defense spending and troop contributions to Afghanistan are two different things. By apportioning shares based on GDP and population, NATO might be able to resolve its long-standing debate on how to divide the burden and instead focus on how members fulfill their shares. Collective action theory asserts that smaller members will tend to freeride if given the opportunity to determine their own contribution.⁴³ It is quite possible that members who tend to under-contribute would be more likely to pull their weight if

³⁹ All but Canada host a NATO deployable corps headquarters. All but Spain and Turkey are also members of the “Group of Eight” (G8) leading world economic powers, and all are members or permanent guests of the larger “Group of Twenty” (G20).

⁴⁰ Olson and Zeckhauser, 6.

⁴¹ NATO Defence Planning Committee, *Enhancing Alliance Collective Security*, 5.

⁴² Hoehn, 65.

⁴³ Mancur Olson, “Increasing the Incentives for International Cooperation,” *International Organization* 25, no. 4 (Madison, WI: University of Wisconsin Press, 1971): 871.

their shares were defined. It is, therefore, necessary to measure member contributions to determine how contemporary NATO shares the burden.

Financial Burden Sharing

Since it is necessary to measure member contributions, financial matters are the logical place to start considering the attention that defense spending receives. All NATO funding comes from its members' contributions, of which there are two main types: direct and indirect contributions. Direct contributions are funds paid directly to NATO by its members. Indirect contributions include all spending by members that indirectly benefit the alliance. Most indirect contributions are unique to their nation and not easily measureable, but defense spending, though limited in its utility as a burden sharing measure, is a reasonable proxy. NATO common funding is the best example of a direct contribution as it represents direct, albeit relatively small, payments towards NATO collective expenses. An assessment of defense spending and common funding provides a snapshot by which to determine if members share the financial burden proportionally.

NATO's two percent of GDP benchmark for defense spending is clearly the best-known financial measure. NATO formally adopted that benchmark in 2006, but it has been in place informally for much longer.⁴⁴ The 2011 Political Guidance also stipulates that members should spend 20% of their defense budgets on major equipment.⁴⁵ NATO tracks these and other spending figures through its annual financial report.⁴⁶ In recent years, most NATO members have fallen well short of these goals. The United States and United Kingdom were the only two members to meet both benchmarks in 2013.

⁴⁴ NATO, "NATO Funding;" Hillison, 30. Hillison attributes the establishment of the two percent standard to the 2002 Prague Summit.

⁴⁵ Jacqueline Eaton et al., *Motivating Improved Contributions to the Alliance: Defence Measurements*, JALLC/CG/11/168 (Monsanto, Portugal: NATO Joint Analysis Lessons Learned Centre (JALLC), 2011), 1 and D-1.

⁴⁶ 1999, 2003, 2009, and 2014 reports used as primary sources for this monograph. Complete archive of reports can be found at http://www.nato.int/cps/en/natohq/topics_49198.htm.

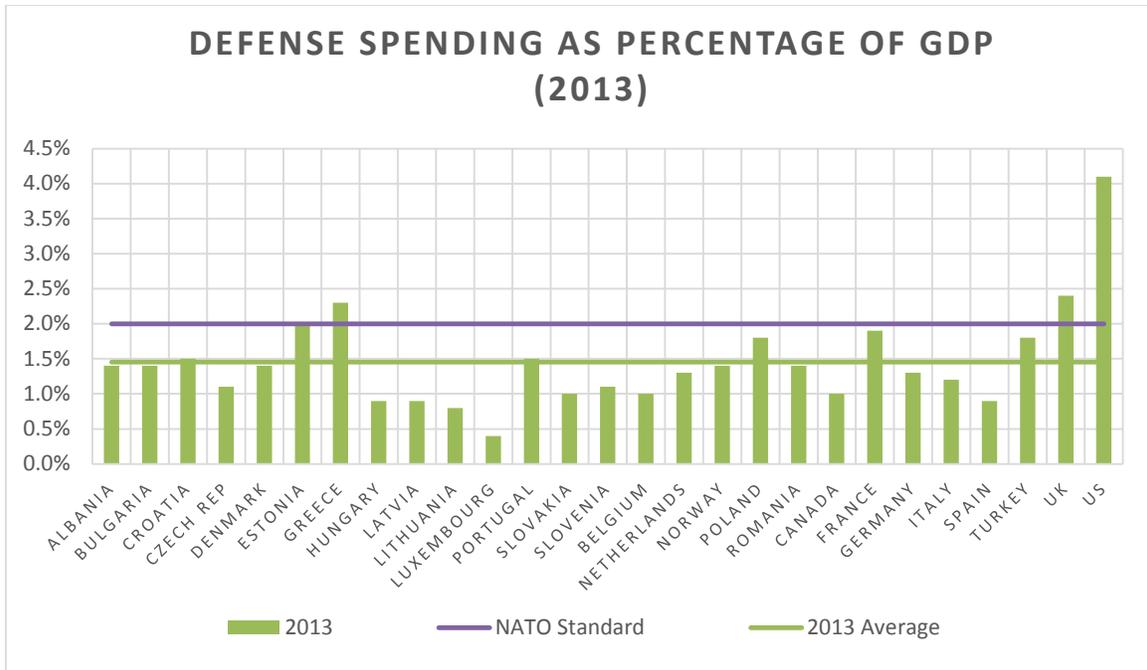


Figure 4: Defense Spending as a Percentage of GDP (2013 Data).

Source: Data from NATO Public Diplomacy Division, figure by author.

Only the United States, United Kingdom, Greece, and Estonia met or exceeded the two percent GDP benchmark in 2013 as depicted in figure 4. Nine members (Belgium, Canada, Hungary, Iceland, Latvia, Lithuania, Luxembourg, Slovakia, and Spain) spent 1% or less. Aside from the United States, the percentage spent has only a slight correlation with size. In 2013, the small members averaged 1.3%, the medium-sized members 1.4%, and the large members 1.5%; both large and small categories had members who spent 2% or more and all categories had members who freerode.

This has not always been the case. Defense spending has steadily declined over the past several decades.⁴⁷ From 1978 to 1988, the average member spent 3.4%, more than double the

⁴⁷ See appendix B for comparative defense spending figures from 1995 to 2013.

2013 average of 1.5%.⁴⁸ The average dropped to 2.4% by 1995 and 2.2% by 2003.⁴⁹ A 2004 change to the criteria for defense spending saw the average drop to below 2%; it has not risen above this level since (figure 5).⁵⁰ The United States has historically spent a larger percentage of its GDP on defense than other members, but defense spending otherwise does not support collective action theory.⁵¹ Some attribute this to the United States' larger global commitments and argue that other members should not be expected to devote the same percentage because their national interests are not as robust.⁵² While it may be true that the United States should not expect its allies to spend an equal percentage on defense, NATO should expect its members to meet the minimum standard.

⁴⁸ NATO, *Enhancing Alliance Collective Security*, 13.

⁴⁹ NATO, "Member Countries" (Last Updated August 20, 2013); NATO Public Diplomacy Division, *Financial and Economic Data Relating to NATO Defence* (Brussels: North Atlantic Treaty Organization, 2014), 2. Averages do not include Iceland, which has no armed forces according to its joining agreement.

⁵⁰ NATO, *Financial and Economic Data Relating to NATO Defence* (2014), 2. The most significant change in 2004 was excluding expenditures for non-deployable paramilitary forces.

⁵¹ Hartley and Sandler, 666 and 667.

⁵² Lis and Selden, x and 11.

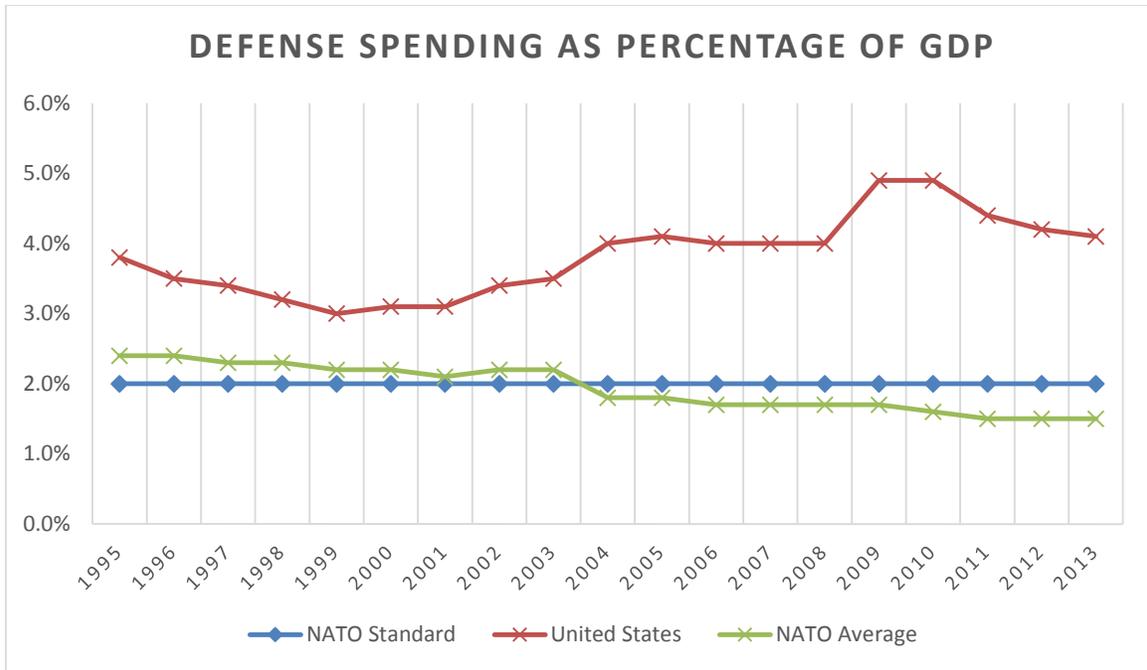


Figure 5: Defense Spending as a Percentage of GDP (United States Compared to NATO Average, 1995-2013).

Source: Data from NATO Public Policy Division, figure by author.

Since most members underfund defense, it could be expected that funding of equipment would follow a similar pattern. Equipment expenditures include purchases and research and development devoted to major equipment.⁵³ In 2013, France, the United States, the United Kingdom, and Turkey met the twenty percent benchmark (figure 6). Nine members (Belgium, Bulgaria, Czech Republic, Denmark, Hungary, Lithuania, Portugal, Slovenia, and Slovakia) fell well short of the benchmark by spending 10% or less on equipment. Members who met the twenty percent benchmark tended to spend more on defense than their peers, suggesting that members who spend less on defense tend to spend the majority of their funds on personnel costs. Unlike defense spending, equipment expenditures support collective action theory. Small

⁵³ NATO, *Financial and Economic Data Relating to NATO Defence* (2014), 8.

members spent the least with an average of 10.2%, medium-sized members 12.7%, large members 19.4%, and the United States 24.7%. The difference is likely due in large part to the absence of research and development spending. Smaller members tend to procure equipment developed elsewhere. It benefits NATO if smaller members freeride on the research and development of larger members and apply the savings towards purchasing more advanced equipment. The data, however, suggests that smaller members are buying less advanced systems and spending the difference elsewhere.⁵⁴

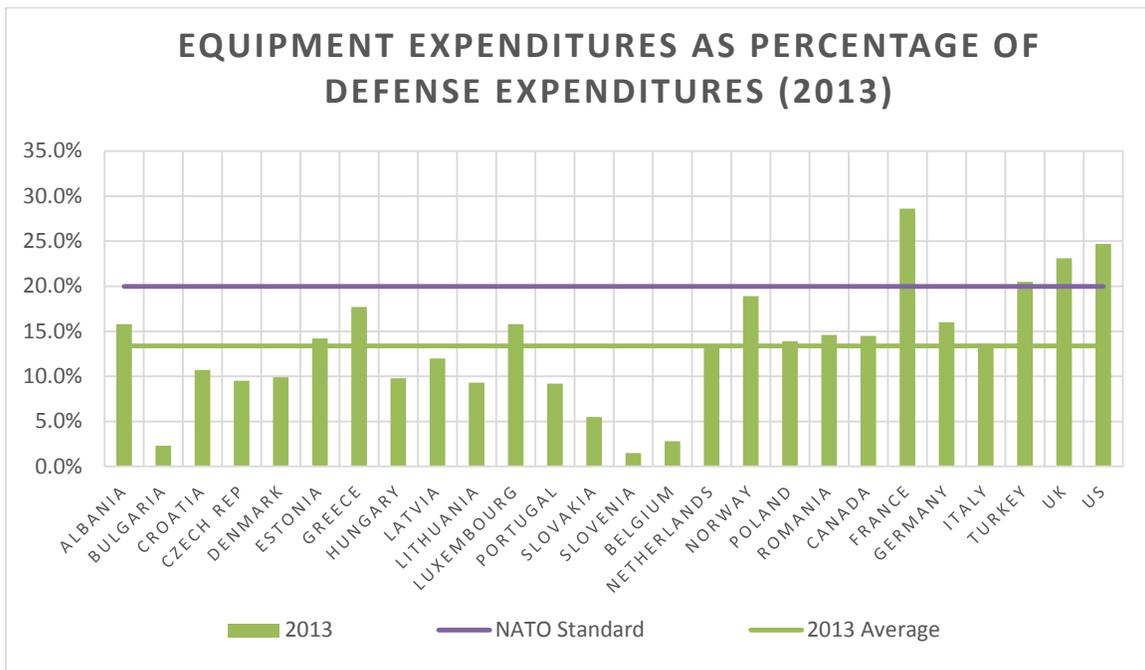


Figure 6: Equipment Expenditures as a Percentage of Defense Expenditures (2013).

Source: Data from NATO Public Policy Division (Spain omitted due to lack of data.), figure by author.

⁵⁴ It is possible that smaller members are equipping their forces with modern, effective systems at a lower cost and are not jeopardizing readiness. If this is the case, however, they are still not meeting the NATO benchmark.

Members could be expected to directly fund NATO in the same proportion that they fund their own defense. Since most do not meet the defense spending benchmarks it is appropriate to determine if there is similar evidence of freeriding in common funding contributions. The costs associated with operating the headquarters, facilities, and equipment that are uniquely NATO are included in three budgets that are collectively referred to as common funding.⁵⁵ The total cost of common funding makes up less than 0.5% of NATO combined annual defense expenditures.⁵⁶ NATO specifically apportions common funding shares to its members based on their GDP, making it a unique and especially important measure.⁵⁷ Common funding contributions are represented as a single figure because members tend to pay the same or very similar percentages to each of the three budgets. By measuring common funding contributions against GDP-based shares it is possible to determine if members are contributing proportionally to NATO direct financing. Share percentages change very little over time and it is only necessary to view the most recent year. Common funding is a purely public good; comparing members' contributions to their

⁵⁵ Lis and Seldon, 25-31. The three types of common funding are: civil budget, which pays the cost of the civilian headquarters in Brussels and NATO's civilian workforce, the military budget, which pays for the cost of the military headquarters and the operation and maintenance of NATO-owned equipment, such as NATO AWACS, and the NATO Security Investment Program (NSIP), also known as the infrastructure budget, which underwrites the cost of support facilities provided for NATO use, including many United States military facilities in Europe.

⁵⁶ Carl Elk, *NATO Common Funds Burdensharing: Background and Current Issues* (Washington DC: Congressional Research Service, 2012), 1.

⁵⁷ NATO, "NATO Funding."

proportional shares shows their willingness to share the collective financial burden.

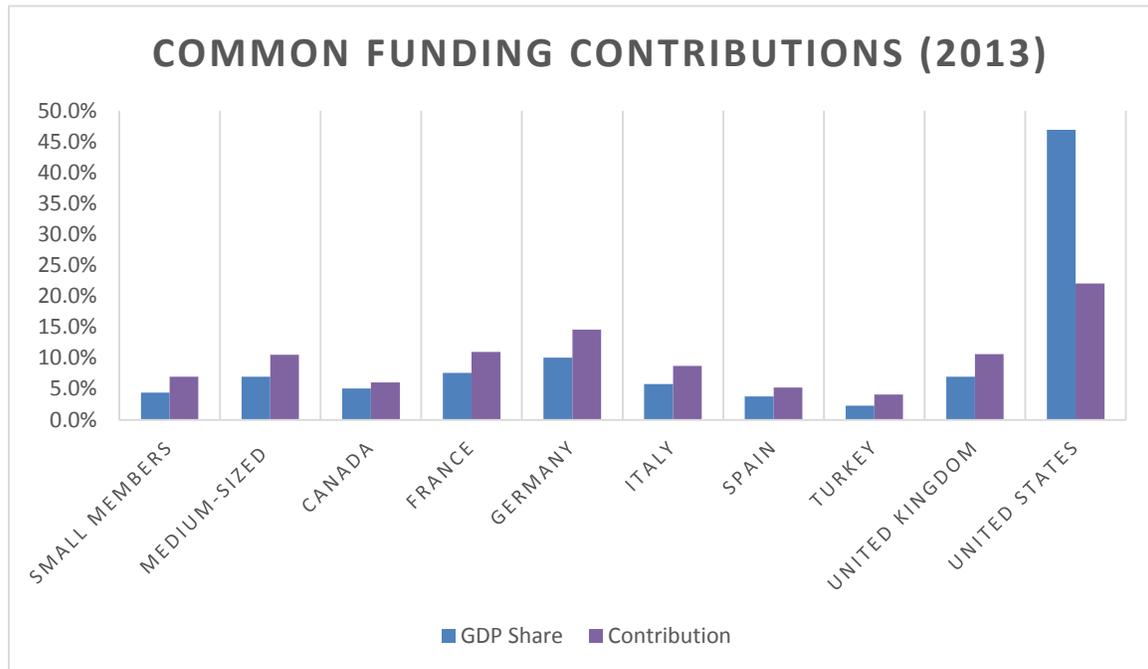


Figure 7: Common Funding Contributions Compared to GDP Basis (2013).

Source: Common funding contribution data from NATO, “NATO Funding,” GDP share data as per figure 1 and table 1, figure by author.

As depicted in figure 7, the United States did not pay its fair share to NATO common funding in 2013. Although its 22% contribution is the largest in NATO, it is less than half the United States’ GDP-based share. This is not a recent phenomenon. The United States’ share has changed little over time because it negotiated a ceiling; it is the only member whose share does not routinely readjust with the changing economy.⁵⁸ With the exception of Luxembourg, all other members exceeded their share.⁵⁹ France, Germany, Italy, and the United Kingdom made up most

⁵⁸ Elk, 7.

⁵⁹ See appendix C for additional common funding figures.

of the difference, but many smaller members contributed at the same or greater proportion to their GDP. As NATO commentator Sarwar Kashmeri plainly states, “The oft-heard criticism in the United States that America’s NATO allies are not spending enough to carry their own weight does not refer to the common funds.”⁶⁰ Discussions of common funding often include polite disclaimers that members consider the apportionment to be fair and attribute the discrepancy in the United States contribution to its worldwide security responsibilities.⁶¹ Regardless of the reason, the United States does not pay its proportional share to common funding.

The United States spends more on defense than the rest of NATO combined, yet pays less than half of its share of common funding. American defense spending is more indicative of private goods and pursuit of national interests than of contributions to the collective good. This is not a unique circumstance. All members who meet one or more of the defense spending standards have national interests that justify it. The United Kingdom meets both the two and twenty percent standards, and tends to fill the role of the United States’ deputy.⁶² France has enduring interests in Africa and Asia and is a leading nation in the EU Common Security and Defence Policy (CSDP). Turkey and Greece have a longstanding dispute with one another over Cyprus and have relatively high threat levels inside and in close proximity to their borders.⁶³ Estonia ramped up its defensive posture following a cyber-attack commonly attributed to Russia.

NATO recognizes that defense spending is “primarily driven by national interests outside of the defence sector.”⁶⁴ Member governments, not militaries, determine how much they will

⁶⁰ Kashmeri, 47.

⁶¹ Kashmeri, 47; Elk, 6.

⁶² Colin S. Gray, *Another Bloody Century: Future Warfare* (London: Orion Books Ltd, 2006), 46.

⁶³ Oneal and Elrod, 447. See figure B4 for comparative defense spending.

⁶⁴ Eaton et al., *Motivating Improved Contributions to the Alliance*, 3.

spend according to their national interests. NATO should retain the two percent standard because it discourages further decline and encourages readiness, but it is clear that, with the lack of a significant existential threat, most member governments are not committed to it. Some view the benchmarks as just stakes in the ground, arguing that there is no evidence that failing to meet them will cause the alliance to fail.⁶⁵ Though it is clear that NATO members view defense spending as a private good and act according to national interests, they are much more willing to meet their share of the collective good, common funding, when it is apportioned to them. A nation that is financing its defense on the cheap would logically tend to under-contribute to common funding. However, with the exception of Luxembourg, that is not the case. Considering that members are rational actors acting with national interests, common funding contributions suggest that most members place a high value on NATO membership. Therefore, most members are willing to pay more than their share to the collective good to receive the benefits of membership, even when their national interests do not support robust defense spending. It is possible that NATO membership, specifically Article V assurance, facilitates decreased defense spending among some members in the absence of an existential threat. As such, financial burden sharing only partially supports collective action theory. Members contribute based on their national interests, but this does not necessarily correlate with size.

⁶⁵ James Hasik, *Is NATO's 2% of GDP a relevant target?* (Atlantic Council, September 8, 2014).

Operational Burden Sharing

Having determined that financial contributions to NATO tend to reflect national interests, but most members meet their share when NATO formally apportions it, it is essential to consider contributions to NATO operations to determine if members still contribute proportionally when shares are not formally apportioned. In the Cold War era, the quantity of aircraft, tanks, artillery, and manpower postured for the defense of Europe were the most important burden sharing metrics.⁶⁶ Today, the size of a member's conventional forces are not as important as how the member employs them. Article V, which declares, "that an armed attack against one or more . . . in Europe or North America shall be considered an attack against them all," is a binding NATO principle and the most quoted article of the Washington Treaty.⁶⁷ However, the lesser-known Article IV, which establishes that "the parties will consult together whenever, in the opinion of any of them, the territorial integrity, political independence or security of any of the parties is threatened," is perhaps more germane to post-Cold War matters. Article IV is the provision that began NATO's practice of collective, out of area operations, and transformed NATO's focus and organization to remain relevant in the post-Cold War order. NATO accepted peacekeeping as an alliance mission set after the Oslo Summit of 1992 and formally adopted it in the 1999 Strategic Concept.⁶⁸ Bosnia was the site of NATO's first out of area operation. Bosnia "helped NATO take the first steps in recognizing that it could move beyond its historical defensive mission and become a force for offensive military interventions beyond its members' borders."⁶⁹ Only a few years later, and while still operating in Bosnia, NATO commenced operations in Kosovo; this mission is still ongoing. These early peacekeeping missions faced challenges in interoperability

⁶⁶ NATO, *Enhancing Alliance Collective Security*, 21.

⁶⁷ NATO, *The North Atlantic Treaty: Washington D.C. – 4 April 1949*.

⁶⁸ Hillison, 112; Kashmeri, 11.

⁶⁹ Kashmeri, 11.

and command and control, but most members, with the exception of the United States, contributed their forces proportionally to collectively share the burden. The 2010 NATO Strategic Concept fully embraced this change as the modern NATO norm, “NATO has unique conflict management capacities, including the unparalleled capability to deploy and sustain robust military forces in the field. NATO-led operations have demonstrated the indispensable contribution the Alliance can make to international conflict management efforts.”⁷⁰

Although NATO had gained great competency as a European peacekeeping force in the Balkans, it was not yet known how it would function further from home or in a more intense operational environment. The answer came soon after when NATO invoked Article V in response to the 2001 terrorist attacks on the United States and committed itself to participate in Afghanistan. Though many members participated in initial operations, NATO did not fully assume control of the mission in Afghanistan until 2006. Afghanistan was more difficult than the Balkans, both from a combat standpoint and from a burden sharing perspective. Many members were reluctant to provide sufficient forces due to commitments in the Balkans, high operational costs, and political differences. The United States provided the bulk of the forces, but concurrent operations in Iraq challenged the United States’ ability to deploy sufficient forces to Afghanistan. Operation Iraqi Freedom (OIF) was not a NATO operation, but it had significant impact on burden sharing during that period. The United States initially invited NATO to participate in OIF, but some members presented significant opposition. France and Germany were the most vocal opponents, arguing that invading Iraq without a UNSCR violated UN protocol, and thus Article I of the Washington Treaty. They also argued that coalitions of the willing undermine NATO’s

⁷⁰ NATO, *Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization; Adopted by the Heads of State and Government at the NATO Summit in Lisbon 19-20 November 2010* (Brussels: North Atlantic Treaty Organization, 2010), 20.

cohesion and effectiveness.⁷¹ Twenty of the current NATO members joined the coalition, with 17 eventually providing troops, and NATO formed the NATO Training Mission-Iraq (NTM-I) to assist the Iraqi Security Forces.⁷² Aside from the United Kingdom, most members provided only token support, meaning that the United States focused the vast majority of its attention on Iraq in 2003 through 2009.⁷³ All other operations, including Afghanistan, were economy of force efforts for the United States during this period. Once OIF was complete, the United States was in possession of a large, experienced counter-insurgency force, that was in turn deployed to Afghanistan in 2010-2013.

Since operations in Bosnia, Kosovo, and Afghanistan represent the most significant collective actions taken by NATO since the end of the Cold War, these are useful case studies to determine if member contributions were proportional. By measuring troop contributions against average-based shares, it is possible to determine if members contributed proportionally to these operations. Troop contributions is the most reliable measure for several reasons. The data set is complete and accessible, and contributions span a lengthy time period. Additionally, all NATO members could and did contribute troops to NATO operations, making it a fully quantifiable and comparable measurement.⁷⁴ Because troop contributions inherently involve political risk, human

⁷¹ Hoehn, 38-39; NATO, *The North Atlantic Treaty: Washington D.C. – 4 April 1949*.

⁷² Jesse Lorenz, “The Coalition of the Willing” (Stanford: Stanford University, June 5, 2003, accessed December, 2014); John Pike, “Iraq Coalition Troops” (GlobalSecurity.org, last modified May 7, 2011, accessed December, 2014). NATO was able to reach consensus on NTM-I’s training mission, but not on participation in OIF.

⁷³ OIF did not end until 2010 and the United States remained in Iraq under Operation New Dawn until 2011. However, the United States significantly decreased its troop strength in Iraq in 2009 and had more forces in Afghanistan than Iraq in 2010 to 2013.

⁷⁴ Iceland does not contribute troops, but does, in some instances, contribute appropriate civilian personnel. Air and naval contributions are often of short duration, not within all members’ means, and involve data that is not always publicly accessible. Therefore, air and naval contribution data is excluded from burden sharing measurements in this monograph. Troop contributions, however, are a reasonable proxy for total military contributions.

cost, and are linked to a common goal, they can be seen as contributing to collective goods more than other measures of contributions, such as military expenditures. Troop contributions also serve as a reasonable proxy for holistic national contributions to an operation.⁷⁵ Smaller NATO operations are omitted because they tend to be air or maritime focused, involve a small number of troops, and, due to smaller scope, do not significantly affect the balance of burden sharing in the alliance.⁷⁶

An assessment of NATO operational burden sharing must begin with Bosnia, NATO's first major operation. The NATO-led Implementation Force (IFOR) and Stabilization Force (SFOR) operations were preceded by significant air campaigns, naval action, and a UN peacekeeping force. NATO stabilized Bosnia from 1996 until 2004 when the EU CSDP assumed the mission.⁷⁷ The initial air campaign is a good example of burden sharing in the air domain. Fourteen of the then sixteen members participated in Operation DENY FLIGHT, contributing proportionally to their GDP-based shares.⁷⁸ However, a much more comprehensive measurement can be taken of troop contributions from 1996 through 2004.⁷⁹ Over the duration of the operation, the majority of members contributed proportionally and a few select members made exceptional contributions, as depicted in figure 8.

⁷⁵ Hillison, 99.

⁷⁶ Other NATO operations not part in this study include: Operation Active Endeavor, Operation Ocean Shield, Operation Unified Protector, Operation Active Fence, and Pakistan Earthquake Relief.

⁷⁷ Hillison, 113-117. NATO operated in Bosnia as IFOR from December 1995 through December 1996 and as SFOR from 1996 through 2004. This monograph refers to both missions collectively as "Bosnia."

⁷⁸ *Ibid.*, 115-116. Hillison finds that the United States and other large powers bore a disproportionate share of the burden during Operations DENY FLIGHT and DELIBERATE FORCE, but notes that "this situation may result more from differing military capabilities than a lack of willingness to assume burdens." The author considers these same contributions to be more-or-less proportional.

⁷⁹ Data from the first month of IFOR in December 1995 is incomplete, and therefore excluded. Data from missions in Bosnia not under NATO control is also excluded.

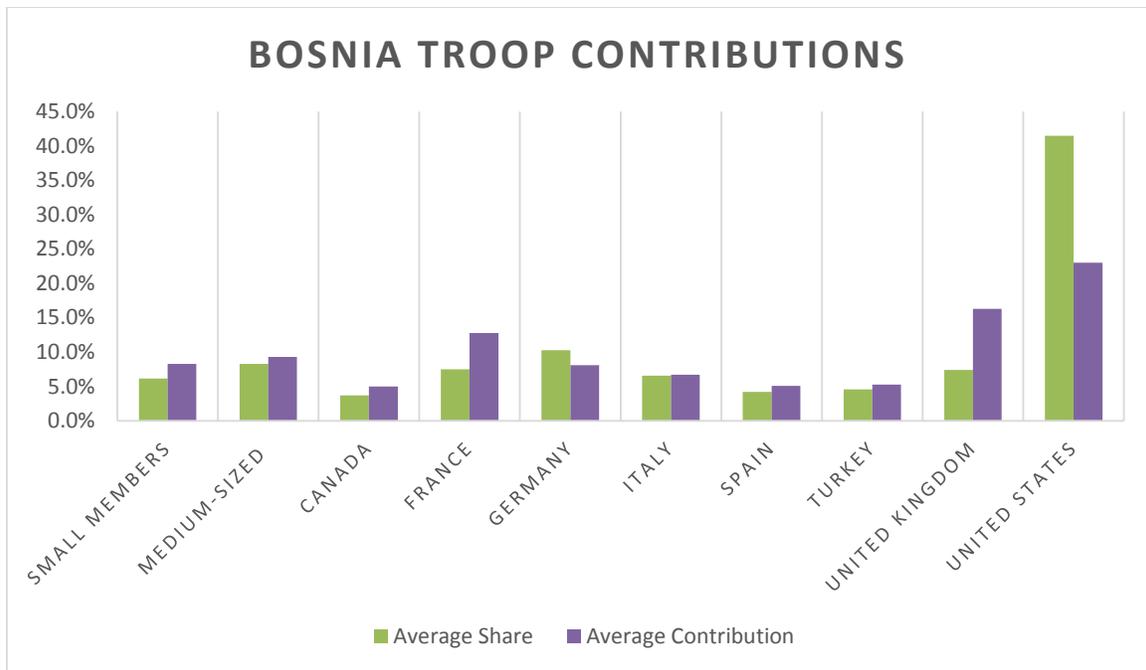


Figure 8: Bosnia Troop Contributions Compare to Average Basis (1996-2004).

Source: Data from 1996-1999 from Lis and Seldon, 2000-2004 from *The Military Balance*, average share basis as per figure 3 and table 3, figure by author.

It was necessary for some members to bear a greater share of the burden because the United States did not meet its share, an omission that attracted criticism from European allies.⁸⁰ The United States initially contributed the largest contingent, 30% of the total force, but this contribution was still not proportional to its share.⁸¹ The American government was reluctant to risk casualties in what it saw as largely a European problem and, thus, substantially under-contributed to peacekeeping operations following the unsuccessful air campaigns.⁸² NATO reduced the size of its force in Bosnia nearly every year, but the United States' contribution

⁸⁰ Hillison, 114.

⁸¹ See figure D2 for historical United States contributions.

⁸² Hillison, 113-114.

continued to decline relative to other members, especially after 2001 and 2003 when the United States initiated operations in Afghanistan and Iraq, respectively.

The large NATO members made up most of the difference, collectively exceeding their share for the duration of NATO operations in Bosnia (figure 8). The United Kingdom provided the most significant contribution, averaging a 16% annual contribution over the nine-year period, more than double its share. France's average contribution of nearly 13% is similarly noteworthy. Germany was the only large member who did not meet its share. The medium-sized members also exceeded their aggregate burden in Bosnia, due mostly to substantial contributions by the Netherlands and Norway. By collective action theory, the small members should have contributed no more than their share, but this is not the case. Collectively, the small members well exceeded their share for the duration of the operation with Denmark making the largest proportional contribution.

Aside from being NATO's first operation, Bosnia was also unique in that it saw the first round of contemporary NATO expansion. It could be assumed that new members would find it much more difficult than the long-standing members to adjust to an expeditionary mission set, contribute forces, and interoperate shortly after joining the alliance. Among the 1999 cohort, small members, Czech Republic and Hungary, immediately contributed above their shares, while medium-sized Poland contributed less than half its share.⁸³ The 2004 cohort provides only one year of data, too little to permit conclusions, but these members tended to fall well short of their share, with Slovenia being a notable exception. This seems to indicate that smaller new members were able to transition to a NATO burden sharing framework faster than their larger counterparts. However, the 2004 cohort took less interest in NATO operations in Bosnia, operations that were

⁸³ See appendix D for additional Bosnia contribution figures.

ending as they were joining, and tended to focus on the newer operations in Kosovo in Afghanistan.

NATO operations in Bosnia were largely successful and validated a new mission set for the alliance.⁸⁴ This first NATO operation featured relatively proportional burden sharing (excluding the United States) despite there being no formal process to assign shares. Collective action theory supposes that size should be the determining contribution factor, but that was clearly not the case in Bosnia. Though the large members, particularly the United Kingdom and France, picked up much of the slack, the medium-sized and small members pulled just as much weight proportionally.⁸⁵ Members who made exceptional troop contributions to Bosnia, particularly early in the operation, seem to be more representative of those who possessed a greater expeditionary capability and mindset, which suggests the pursuit of national interest. Though the United States had the greatest ability to deploy force, it lacked the national interest to do so.⁸⁶

If NATO members in large part based their contributions to operations in Bosnia on national capability to project force, then it should follow that contributions to NATO's second out of area operation in Kosovo would have been more proportional considering greater collective force projection experience, but the opposite is true. The NATO Kosovo Force (KFOR) commenced operations in 1999 and presented NATO with the challenge of managing two major concurrent operations in the Balkans. Operations in Kosovo did not appeal to all members, many of which faced significant domestic political opposition. Additionally, NATO's initial reluctance

⁸⁴ Hillison, 113 and 117.

⁸⁵ Lis and Seldon, xii.

⁸⁶ Hillison, 113-114.

to act, particularly without a UN resolution, brought its relevance into question.⁸⁷ The United States administration was particularly averse to ground operations, preferring to defeat Serbian forces through air power. The United States provided between 60% and 70% of the air sorties for Operation ALLIED FORCE, well above its share, but did not follow-up with proportional ground troop contributions.⁸⁸ KFOR remains a persistent NATO operation and significant insight can be gained by measuring troop contributions from 2000 through 2013.⁸⁹ Contrary to expectations, troop contribution to operations in Kosovo were slightly less proportional than in Bosnia. Collectively, the small members contributed the most and the large members also made substantial contributions (figure 9), but there were several members in each category who did not meet their share.

The United States contributed less than it did in Bosnia, never reaching half its share, and reducing its relative contribution over time.⁹⁰ As in Bosnia, large members made up most of the difference, though not necessarily the same large members. France, Germany, and Italy each contributed more forces than the United States (figure 9). Canada, Spain, Turkey, and the United Kingdom contributed below their shares. The medium-sized members collectively exceeded their share by a small margin, due in large part to substantial contributions by Belgium and Norway, but contributed very little in the later years of the operation. The small members made the greatest proportional contribution to NATO operations in Kosovo. Their combined average contribution of 15.6% was more than double their share and their relative contribution continued

⁸⁷ Hillison, 127-128.

⁸⁸ International Institute for Strategic Studies, *The Military Balance: NATO and Non-NATO Europe 99* (London: Routledge, 1999), 30.

⁸⁹ 1999 and 2014 are excluded due to incomplete contribution data.

⁹⁰ See figure E2 for United States contributions in Kosovo.

to increase over time. Greece made the largest proportional contribution to Kosovo of any member; its nearly 6% contribution was six times its share.⁹¹

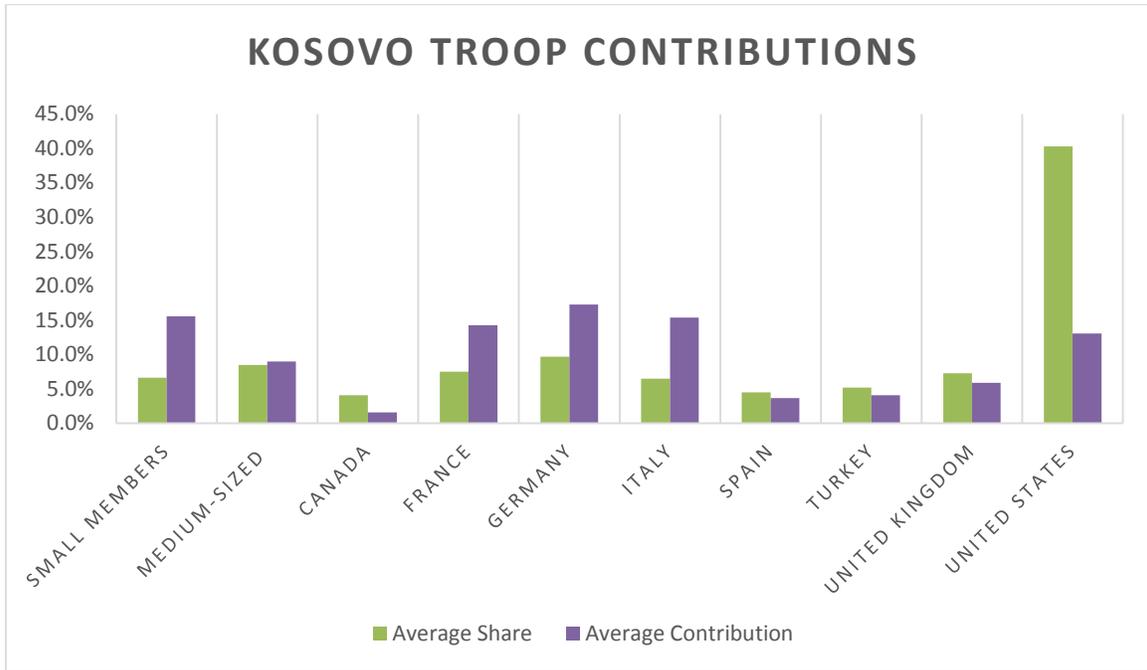


Figure 9: Kosovo Troop Contributions Compared to Average Basis (2000-2013).

Source: Data from *The Military Balance*, average share basis as per figure 3 and table 3, figure by author.

Similar to Bosnia, operations in Kosovo spanned multiple iterations of NATO expansion. It should follow that new members, having gained more experience in NATO, contributed more forces proportionally. For the 1999 cohort, this is true. Czech Republic and Hungary, each of whom contributed above their share in Bosnia, doubled their shares in Kosovo, and Poland came closer to meeting its share. The 2004 cohort had more mixed results, with four out of seven falling short of their share and Slovenia single-handedly making up much of the difference. Albania and Croatia, the 2009 cohort, also fell well short. As was the case in Bosnia, the 1999

⁹¹ See appendix E for additional Kosovo troop contribution figures.

cohort seemed to generate an extensive interest in operations in Balkans, while the later cohorts did not.

Kosovo is perhaps the most comprehensive case study since it is the longest duration NATO operation. It ran concurrently with both Bosnia and Afghanistan and spanned all three enlargements that admitted the former Warsaw Pact and Yugoslav members. It is even more interesting because it has largely been NATO's economy of force mission, having been the largest mission for only a few years (2000 through 2003) and having never been the sole mission. Some smaller NATO and Partnership for Peace (PfP) members provided significantly more than their share of the forces while the United States and other members focused their efforts in Afghanistan. In 2012, PfP nations Austria, Morocco, Switzerland, and Ukraine all contributed larger contingents than most NATO members.⁹² As with Bosnia, operations in Kosovo only partially support collective action theory. Though large members provided a disproportionately large share of the collective good, the small members' collective contributions were proportionally even greater. Troop contributions in Kosovo are more representative of national interests. Many long-standing European members that are located in close geographic proximity to Kosovo, like Greece and Italy, had strong national interests in ensuring the conflict, and potential refugees, did not spread throughout Western Europe. Large members who did not contribute their share, such as Canada, Spain, the United Kingdom, and the United States, are located the furthest from Kosovo. In addition, since Kosovo always overlapped with other operations, some members seemed to have deliberately chosen to weight the bulk of their contributions in a single operation. France and Germany may have opted to contribute greater forces to Kosovo than Afghanistan due to political disagreements with the United States over the conduct of its war on terror. Others, particularly smaller members, such as Greece and Slovenia,

⁹² International Institute for Strategic Studies, *The Military Balance: Europe* 112 (London: Routledge, 2012), 151-152.

may have preferred to contribute troops to Kosovo instead of Afghanistan because they could do so cheaply, thus, contributing a larger amount of troops at a lower cost.

NATO operations in Bosnia and Kosovo share more similarities than differences, resulting in comparable contribution patterns. Afghanistan, however, is an entirely different case, it is the first NATO mission outside of Europe, more combat focused, and directly linked to the United States' national interests. Operations in Afghanistan commenced under United States-led Operation Enduring Freedom (OEF) in 2001. Though NATO had invoked Article V for the first time in history, the United States initially declined NATO assistance, leaving many members to question the American stance on NATO and newfound global assertiveness.⁹³ Secretary of Defense Donald Rumsfeld explained that the United States preferred to operate with only a few select members, in other words “the mission will define the coalition—not the other way around.”⁹⁴ Several members joined the effort nonetheless, and the United States-led coalition quickly defeated the Taliban regime. The December 5, 2001 Bonn Peace Agreement stipulated the creation of the International Security Assistance Force (ISAF) to secure Kabul; though initially not a NATO mission, it was supported by NATO members.⁹⁵ Despite contention among the members, NATO opted to expand its role in Afghanistan by assuming command of ISAF in August 2003.⁹⁶ With UN concurrence, NATO embarked on a four-stage expansion, resulting in ISAF assuming control of all of Afghanistan by 2006.⁹⁷ Five years after the first coalition forces entered Afghanistan, ISAF finally became a completely NATO mission.

⁹³ Kashmeri, 7-9; Hoehn, 30-31.

⁹⁴ Hoehn, 31.

⁹⁵ *Ibid.*, 33-34.

⁹⁶ *Ibid.*, 35-36 and 44.

⁹⁷ *Ibid.*, 44-45.

NATO involvement in Afghanistan has always been a contentious issue. Members debated every aspect of ISAF, including its mission, until finally reaching consensus on “peace-enforcing,” not nearly as combat focused as the United States would have liked⁹⁸ A common sentiment is that “the alliance’s lackluster performance in Afghanistan has left an impression in North America that the Europeans have no desire to engage in military action anymore.”⁹⁹ NATO never reached consensus on how many troops were required or how that burden should be shared and “since the first days in Afghanistan, NATO’s military commanders have felt starved for resources—troops and equipment—although this feeling is not at all new in the history of NATO debates.”¹⁰⁰ The United States called for more support from its allies, but the resulting troop increase did not meet the demand, causing the United States, who had largely completed operations in Iraq, to supply most of the required surge forces itself.¹⁰¹ A comprehensive view of burden sharing in Afghanistan can be gained by measuring troop contributions from 2002 through 2013. The troop contributions show the degree of commitment throughout the various stages of NATO involvement.¹⁰² Breaking the precedent set in the Balkans, most NATO members did not contribute their share to operations in Afghanistan, while the United States contributed the bulk of the forces (figure 10).

The United States’ 62% average contribution well exceeded its share, as depicted in figure 10. The United Kingdom was the only large member to exceed its share, and only a select few small and medium-sized members did the same. The large members had the poorest record of troop contributions in Afghanistan; France, Spain, and Turkey contributed less than half their

⁹⁸ Hoehn, 43.

⁹⁹ Kashmeri, xxi.

¹⁰⁰ Hoehn, 59.

¹⁰¹ *Ibid.*, 63-65.

¹⁰² Troop contributions from 2001 and 2014 are excluded because the data is incomplete. Troop contributions from 2002 through 2006 include forces deployed under OEF and ISAF.

share. Many members contributed just below their shares early in the conflict and met their shares from 2006 through 2009 when the United States' primary focus was Iraq. From 2010 onward, most members' relative contributions dropped to well below their shares concurrent with the United States' significantly increased troop levels.

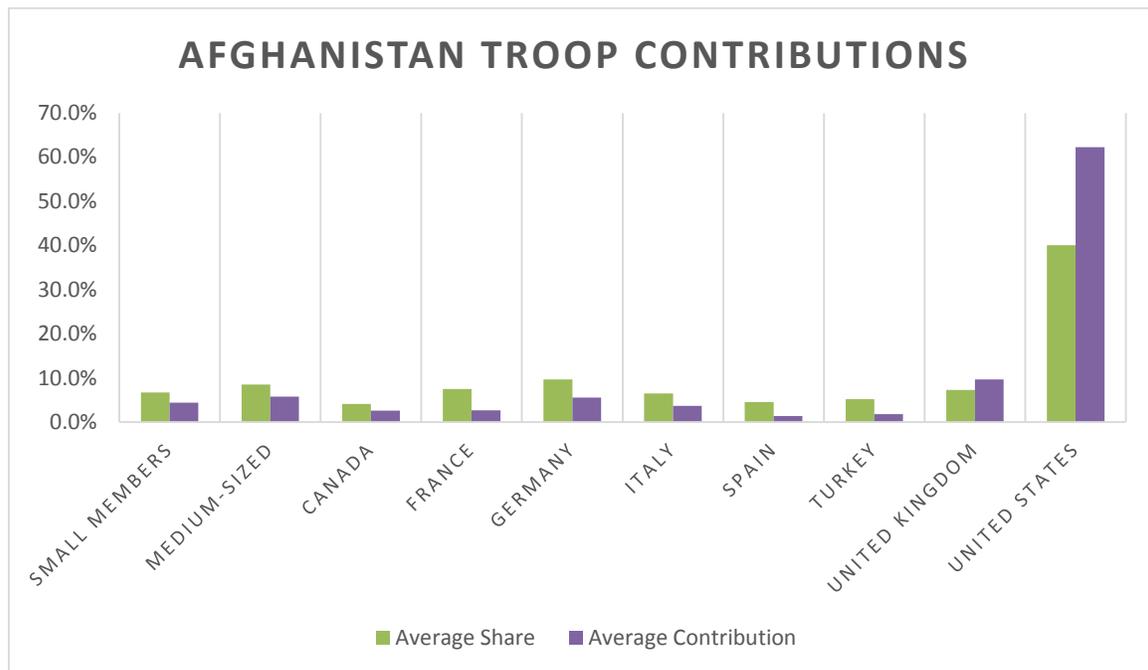


Figure 10: Afghanistan Troop Contributions Compared to Average Basis (2002-2013).

Source: Data from 2002-2005 from *The Military Balance*, 2006-2013 from NATO, *International Security Assistance Force (ISAF): Key Facts and Figures*, average share basis as per figure 3 and table 3, figure by author.

If long-standing members tended to not contribute proportionally to operations in Afghanistan, it might be assumed that new members would follow suit. The 1999 cohort, who contributed significantly in the Balkans, did not meet their shares in Afghanistan.¹⁰³ The 2004 and 2009 cohorts, however, comprise the majority of NATO members who met their troop shares in

¹⁰³ See appendix F for additional Afghanistan troop contribution figures.

Afghanistan, including Romania, the only medium-sized member to meet its share. Albania and Croatia, the 2009 cohort, are perhaps the most impressive. They each exceeded their share from 2009 through 2013, the years in which their shares were the highest in actual troop numbers, and did so immediately after joining the alliance.

It could be argued that NATO contribution shortfalls were the result of the United States' initial rejection of NATO assistance, non-support for operations in Afghanistan, and disagreements with the United States over the invasion of Iraq. While these may have been contributing factors, none seem to be completely true. NATO collectively declared Article V the day after the terrorist attacks on the United States. There was clear alliance support for action.¹⁰⁴ Although the United States was initially opposed to NATO involvement, many members participated in OEF, and it was Germany and the Netherlands, not the United States, who recommended that NATO assume command of ISAF.¹⁰⁵ Though some NATO members strongly opposed military action in Iraq, the alliance collectively increased its troop commitment to Afghanistan in 2006 through 2009 to allow the United States to weight its efforts in Iraq. Operations outside of Europe are a contentious issue for NATO and some members may question the United States' motives, but it does not seem that NATO's failure to share the burden in Afghanistan proportionally is due to disagreement with the United States.

NATO operations in Afghanistan are more representative of collective action theory than in the Balkans, but still only partially validate it. The largest member contributed a disproportionate share of the troops. Other members tended to contribute proportionally until they reached a threshold where further increases would not bring further perceived benefit. After this point they tended to freeride on the United States. However, contrary to collective action theory,

¹⁰⁴ Kashmeri, 2-6.

¹⁰⁵ Hoehn, 35-36.

members from all categories exhibited this behavior and the large members tended to freeride the most, contributing less than half their collective share. Most members seem to have reached this threshold in 2010 when the United States, wielding the hegemonic power of a member who comprises nearly half the alliance, significantly increased its forces. This effectively doubled the total NATO force, thus, doubling the other members' shares. Those who did not increase at the same rate fell below their share.

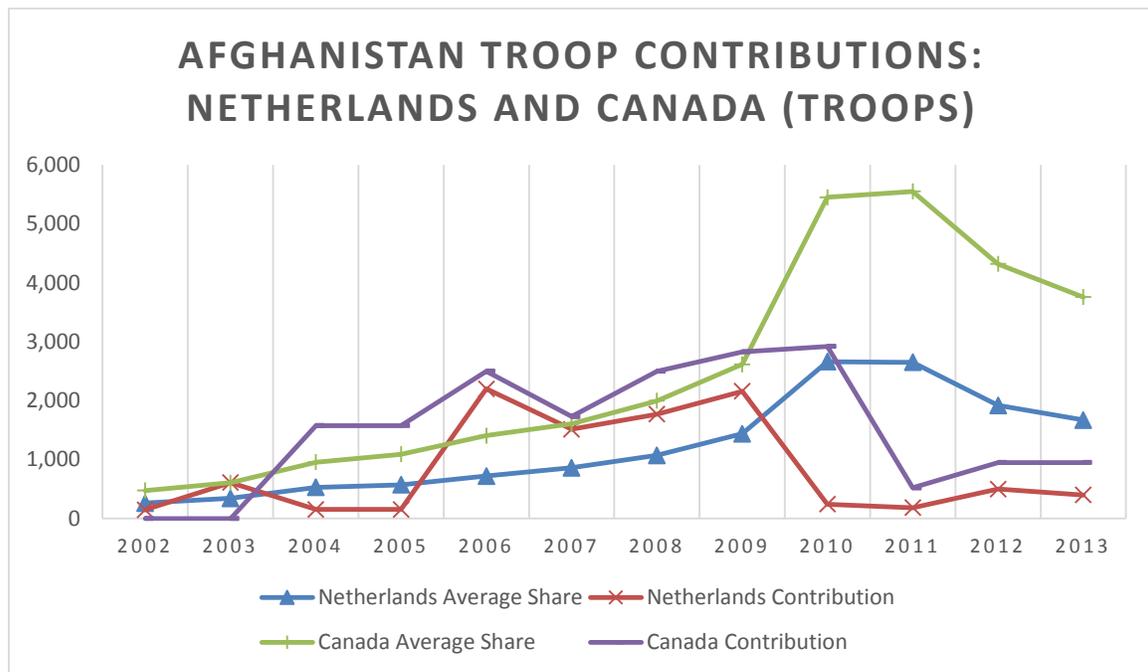


Figure 11: Afghanistan Troop Contributions: Netherlands and Canada Compared to Average Basis (2002-2013, Total Troops).

Source: Data from 2002-2005 from *The Military Balance*, 2006-2013 from NATO, *International Security Assistance Force (ISAF): Key Facts and Figures*, average share basis as per figure 3 and table 3, figure by author.

Canada and the Netherlands present the extreme example. The two nations share many similarities in their position and actions within NATO and are among the most influential members. Figure 11 shows that both members contributed well above their shares in the middle years of the conflict, but their contribution levels sharply declined in 2010 when their shares

steeply rose. Considering that Canada and the Netherlands suffered among the highest casualty rates and had consistently contributed above their shares, it is likely that they lost capacity or national will to continue at greater cost, particularly after the United States demonstrated that it was willing to bear that cost.¹⁰⁶ Like operations in the Balkans, members who contributed disproportionately high or low amounts appear to have done so in accordance with national interests. The United States clearly had the greatest national interest in enforcing peace in Afghanistan and was willing to contribute troops and vast resources. In this case, the United States seems to have produced unintended consequences. Its troop increases should have encouraged other members to do likewise, but it instead challenged members capacity and provided opportunity for freeriding. Many long-standing members, such as France and Germany, did not favor aggressive pursuit of American interests and, consequent, under-contributed to Afghanistan. Similarly, the newest NATO members, who tend to be those most concerned with Article V defense, acted within their national interests by aligning with American expectations and presumably ensuring their security.

¹⁰⁶ Hoehn, 68. Canada's casualty rate was triple that of the United States through 2010.

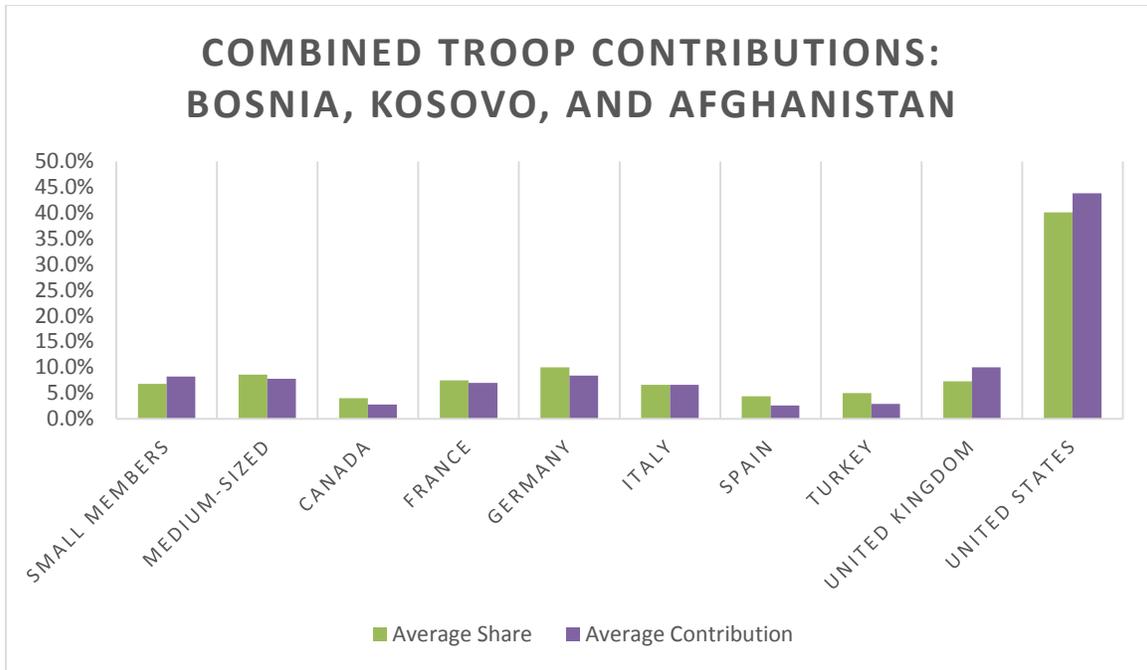


Figure 12: Combined Troop Contributions: Bosnia, Kosovo, and Afghanistan Compared to Average Basis (1996-2013).

Source: Contribution data as per figures 8, 9, 10, average basis as per figure 3, figure by author.

Taken together, NATO members contributed proportionally to operations in Bosnia, Kosovo, and Afghanistan despite no formal system for apportioning shares. The large and medium-sized members collectively contributed just below their shares, while the small members collectively contributed in greater proportion than any other group (figure 12). The United States contributed slightly more than its share, with marginal contributions from 1996 to 2009. Though the Iraq War may account for the shortfall in American troops from 2003 through 2009, there is no good explanation for the shortfall in the seven prior years. From 2010 onward, the United States asserted itself as NATO's hegemon and almost unilaterally filled the operational shortfall

in troops in Afghanistan. In describing military capacity, Lis and Seldon were correct in noting “the U.S. contribution to a NATO military mission could be tremendous, if needed.”¹⁰⁷

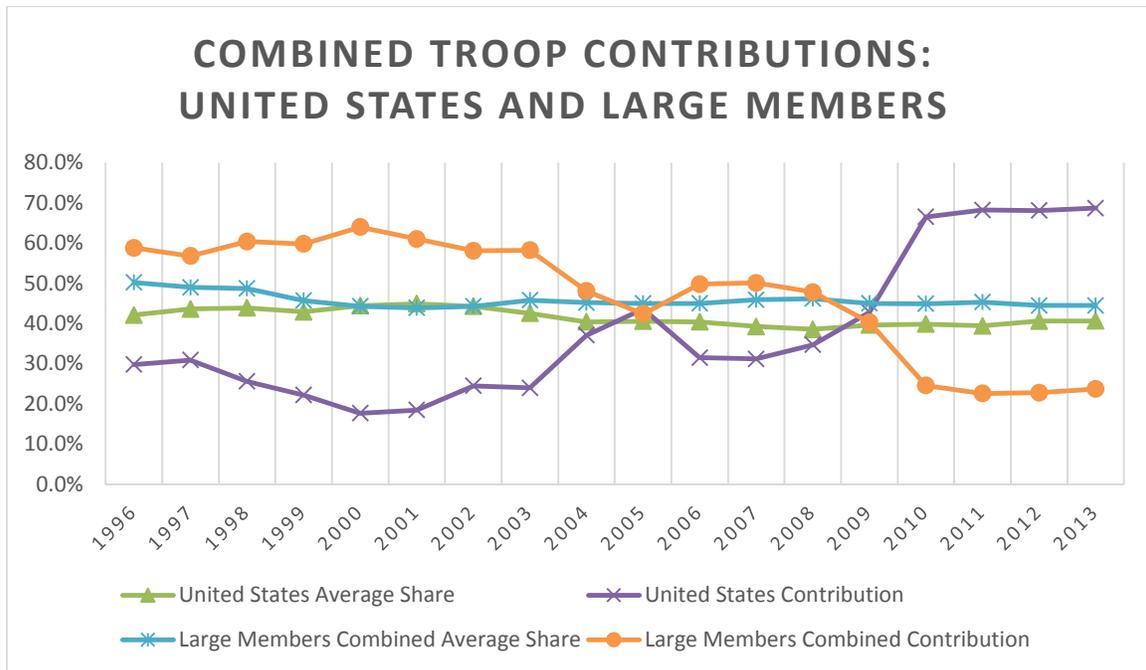


Figure 13: Combined Troops Contributions: Bosnia, Kosovo, and Afghanistan; United States Compared to Large Members (1996-2013).

Source: Contribution data as per figures 8, 9, 10, average basis as per figure 3, figure by author.

Over time, the large members’ contribution, as represented in figure 13, was inversely proportional to the United States contribution, providing the bulk of troops when the United States did not and vice versa. The United Kingdom consistently contributed above its share while other large members tended to weight their efforts in one of the three operations. The medium-sized members followed a pattern similar to their large counterparts. The same can be said for small, long standing members Denmark and Greece, whose contribution patterns are more representative of medium-sized than small members.¹⁰⁸ Denmark contributed consistently to all

¹⁰⁷ Lis and Seldon, 20.

¹⁰⁸ See appendix G for additional combined operational troop contribution figures.

operations while Greece weighted its efforts in Kosovo. New members tended to meet their shares just as often as the long-standing members. When NATO conducts more than one operation concurrently, new members tend to show a preference for the operation that was the priority at the time they joined. The 1999 cohort made strong contributions to Bosnia, and later Kosovo, but under-contributed to Afghanistan. The 2004 cohort joined at a time when the priority was transitioning from Kosovo to Afghanistan. Thus, most of the cohort weighted its efforts in Afghanistan while the remaining two members focused on Kosovo. The 2009 cohort joined when Afghanistan was clearly the priority and thus contributed forces accordingly.

NATO member troop contributions only partially support collective action theory. Most members seem to have a threshold for troop contributions, an unstated level for which they will contribute to the collective good, which they will gladly meet but will not exceed without significant incentive. The United States appears to have a low threshold for commitment to NATO operations, but a large capacity and willingness to exceed that threshold when it suits its interests, as depicted in figure 14. Most other members seem to have a relatively high commitment threshold, but are less likely to exceed it.¹⁰⁹ While there is clear evidence that many members freeride, it is not limited to smaller members as collective action theory indicates. The small members, in fact, seem to freeride the least. Members tend to exceed their shares when doing so suits their national interests and freeride when there is no further perceived benefit or pressure to provide additional forces. This is exacerbated by lack of external pressure since NATO has no formal system to apportion shares.

¹⁰⁹ That is not to say that the United States has a low threshold for troop commitment to operations in general, but rather to NATO operations specifically. This supports a common view that the United States prefers to operate as the lead nation of a coalition verse within the NATO structure.

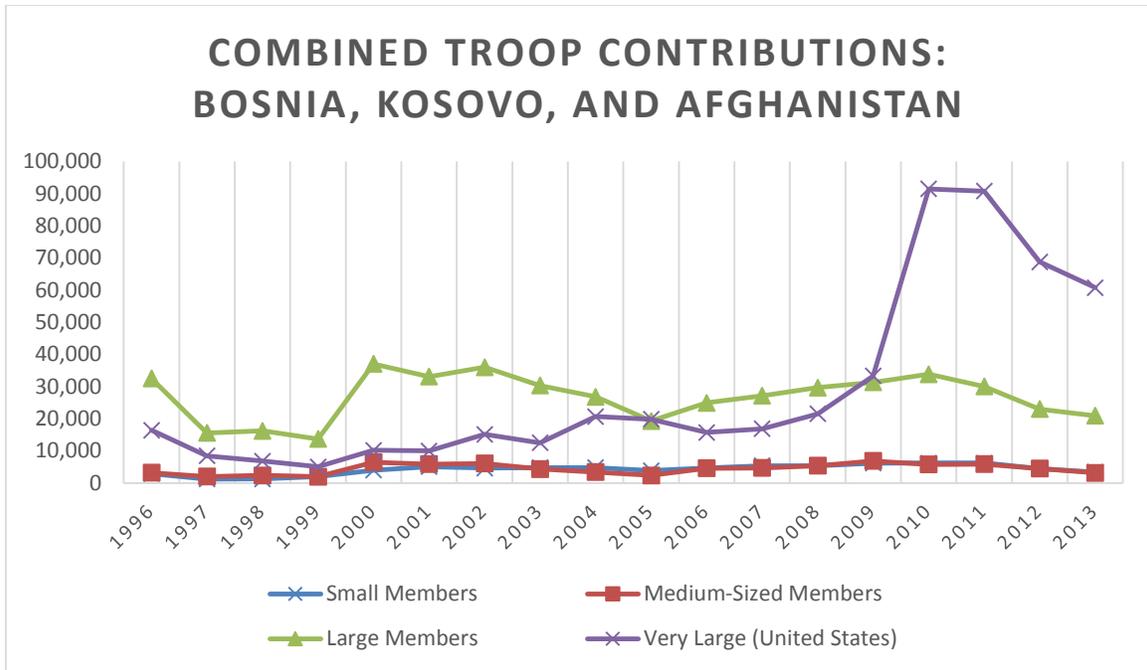


Figure 14: Combined Troop Contributions: Bosnia, Kosovo, and Afghanistan (1996-2013, total troops).

Source: Contribution data as per figures 8, 9, 10, figure by author.

Conclusion

Having measured financial and operational contributions in contemporary NATO, it is reasonable to conclude that NATO members contribute adequately and proportionally to the alliance. The failure of most members to spend at least 2% of GDP on defense in accordance with established standards may reduce NATO's overall readiness, but it is not indicative of lack of commitment to the alliance. When other measures are applied, most members meet their shares. The United States may contribute larger amounts of resources to NATO, but that does not mean that the American contribution is disproportionately larger than the other members because the United States alone comprises nearly half the alliance.

The United States is the least consistent member in terms of burden sharing. It spends more than double the two percent standard on defense, yet pays only half of its GDP-based share to NATO common funding. It contributed less than half its share of troops to operations in the Balkans, and then near-independently doubled the NATO troop strength in Afghanistan in a single year. It is the leader of the alliance, yet pays NATO very little attention; its year-long Army Command and General Staff College does not devote a single hour, or even an elective, to instruction on NATO. The United States' inconsistent contribution patterns are highly indicative of its pursuit of national interests. When the NATO collective good matches American interests, the United States contributes at an unprecedented level. When it has little national interest in NATO affairs, the United States tends to freeride on the contributions of the large European members while it directs its attention to private goods that suit its national interests more.

This is not a behavior unique to the United States; all members tend to act in their self-interest with regard to risk, costs, and benefits. Most instances of excessively large contributions, as well as incidences of freeriding, are indicative of national interests. The large European members had an interest in stabilizing Europe and preventing unwanted immigration through reducing unrest in the Balkans. The United States had the greatest interest in eliminating terrorist

networks from Afghanistan. As a large European member, but also the United States' de facto deputy, the United Kingdom has interest in nearly all affairs and is quite clearly among NATO's leading contributors. The smallest members, particularly those of the former Warsaw Pact and Yugoslavia, tend to be most concerned with Article V assurances, and, thus, contribute at least proportionally to maintain the favor of the larger members, chiefly the United States. Iceland and Luxembourg are very small countries with little to no military infrastructure and no existential threat. Simply belonging to NATO satisfies their interest in cheaply maintaining minimal national defense because all that is required to retain this support is a token commitment. Olson is correct in supposing that NATO members are rational actors who tend to act in their own self-interests, but, contrary to collective action theory, the largest nations do not necessarily contribute the most. Measurements show that the small members collectively contribute proportionally more than their larger counterparts in terms of their GDP and population. The assumption that small members' contributions bear little consequence to the balance of burden sharing in the alliance is not necessarily correct. Each member's unstated commitment threshold represents the amount that they are willing to contribute to the common good in order to reap the benefits of membership. The large members tend to contribute a fairly consistent level of troops and moderately increase or decrease this level inversely to the United States' contribution. If the United States contributes below its share, the large members collectively step up to fill the void, but they tend to maintain the same level or decrease their contribution when the United States makes significant contributions.

Alan Lamborn finds that "coalitions are also affected by perceptions of legitimacy, actors' risk-taking preferences, and how they discount costs and benefits. [A member's] willingness to accept political risk in pursuit of coalition policy will vary with the control they

have over policy choice and implementation.”¹¹⁰ Though heterogeneous in size and capability, all members have an equal seat on the NAC and vote on NATO matters. This does not necessarily mean an equal voice, however, as those members with few resources to contribute are unlikely to oppose the more powerful members on whom their Article V assurances are based. A NATO consensus, therefore, does not always represent universal agreement. Once consensus is reached, members tend to contribute according to national interest. Article V only calls for “such action as [a member] deems necessary.”¹¹¹

The NAC, however, remains an effective governing body and NATO an effective alliance because most members do contribute their fair share. Those who find a particular action not in alignment with national interests tend to contribute more elsewhere. Not all contributions are proportionally equal in the aggregate, though. There remain some members who tend to contribute a minimum amount and freeride on the stronger efforts of others. NATO might mitigate freeriding if it had a system of assigning shares. Hoehn notes:

“Much of the burden-sharing debate stems from the reality that NATO embraced a mission in Afghanistan without a clearly defined strategy and without designating the roles and responsibilities of participating nations. . . . As a result, even seven years into the mission, the roles and responsibilities of individual NATO members and nonmembers are still not clear and are seemingly decided on a short-term basis.”¹¹²

Germany is one example of a member that might contribute more if NATO formerly apportioned shares. As the second largest NATO member, Germany should have the second largest troop commitment. Though it contributed well above its share in Kosovo, it failed to meet its share in Bosnia and (especially) Afghanistan. The ISAF commander publicly criticized Germany in 2010

¹¹⁰ Alan C. Lamborn, “Theory and the Politics in World Politics,” *International Studies Quarterly* 41, no. 2 (The International Studies Association, June 1997): 209.

¹¹¹ NATO, *The North Atlantic Treaty: Washington D.C. – 4 April 1949*.

¹¹² Hoehn, 72-73.

for not accomplishing enough in Afghanistan.¹¹³ However, in response to a request for more troops, the German Defense Minister Franz Joseph Jung replied, “our contribution is excellent.”¹¹⁴ Germany was clearly proud of its contribution to NATO operations, but yet had not met its share. It is worth considering if Germany would have contributed more had NATO better managed and communicated expected contribution levels. The greatest shortcoming of burden sharing in NATO operations is not freeriding by the members; it is NATO’s lack of a system to apportion shares, to set a standard for contribution.

Members consistently fail to meet the benchmark for defense spending, which garners much attention, but this standard has less bearing on collective alliance action than many purport. Defense spending indicates national priorities far more than it indicates commitment to the alliance. In the case of common funding, the sole collective good for which NATO has an established system of apportionment, members meet their share.¹¹⁵ If NATO were to apply a similar methodology to operational shares it would likely find the burden to be divided more proportionally. The research here suggests NATO could do so via GDP or population, but both bases seem to unfairly bias apportionment in terms of national wealth. GDP basis would favor those members with low per-capita GDP by requiring a smaller troop commitment than those nations are capable of, while the population basis would do the opposite. Shimizu and Sandler found that wealthy NATO countries tend to fill a disproportionate share of the peacekeeping burden, but perhaps this will always appear so if only considering population size. Nations with a low per-capita GDP, over half of NATO’s members, do not have the financial resources to deploy

¹¹³ Kashmeri, 98.

¹¹⁴ Hoehn, 62.

¹¹⁵ This is not to say that NATO apportions common funding shares completely fairly. The United States’ share is less than half what it should be by the GDP basis, but, with the exception of Luxembourg, the shares are otherwise divided proportionally.

and sustain force commensurate with their population-based share.¹¹⁶ By averaging these bases, or otherwise calculating shares considering these factors, it may be possible to develop a system of apportionment that equitably distributes shares across the alliance.

If NATO does not create a system to assign shares to its members, critics will likely continue to admonish NATO for not adequately sharing the burden. Studies have tended to rely on defense spending as a percentage of GDP and will likely continue to do so. Any measurement focused on defense spending will show that the United States spends more than other members. Measurements of troop contributions that do not consider proportionality will show that the United States contributes more than other members. Measurements that only consider proportionality in terms of population will show that members with high per capita GDP contribute more than members with low per capita GDP. If NATO wishes to better assess and distribute the burden, it must first develop a formal system to apportion it.

¹¹⁶ Shimizu and Sandler, "Recent Peacekeeping Burden Sharing," *Applied Economics Letters* 17 (Taylor and Francis, 2010), 1483.

Appendix A: Share Basis Tables

Tables 1 through 3 provide additional data used in calculating member shares as depicted in figures 1 through 3. Table 1 represents the GDP basis, table 2 the population basis, and table 3 the average basis. Each show the 2013 share and an average share from the period of 1995 through 2013 for each member and the totals of the medium-sized and small members. New member averages are calculated from the year in which the member joined NATO through 2013.

Table 1: GDP Share Basis (2013 Compared to Average from 1995 to 2013).

	2013		Avg 1995-2013			2013		Avg 1995-2013	
	GDP: (\$ Bil)	Share:	GDP: (\$ Bil)	Share:		GDP: (\$ Bil)	Share:	GDP: (\$ Bil)	Share:
<i>Large Members:</i>					<i>Small Members:</i>				
United States	16,800.0	46.9%	12,259.0	46.7%	Albania	12.9	0.0%	12.4	0.0%
Canada	1,826.8	5.1%	1,116.0	4.2%	Bulgaria	53.0	0.1%	43.5	0.2%
France	2,734.9	7.6%	2,030.3	7.7%	Croatia	57.5	0.2%	59.3	0.2%
Germany	3,634.8	10.1%	2,750.4	10.5%	Czech Republic	198.4	0.6%	144.3	0.5%
Italy	2,071.3	5.8%	1,646.0	6.3%	Denmark	330.6	0.9%	243.5	0.9%
Spain	1,358.3	3.8%	1,010.0	3.8%	Estonia	24.5	0.1%	19.6	0.1%
Turkey	820.2	2.3%	451.1	1.7%	Greece	241.7	0.7%	212.5	0.8%
United Kingdom	2,521.4	7.0%	1,989.3	7.6%	Hungary	130.0	0.4%	103.9	0.4%
					Iceland	14.6	0.0%	11.9	0.0%
<i>Medium-Sized Members:</i>					Latvia	31.0	0.1%	25.0	0.1%
Belgium	508.1	1.4%	363.4	1.4%	Lithuania	45.9	0.1%	37.1	0.1%
Netherlands	800.2	2.2%	597.6	2.3%	Luxembourg	60.4	0.2%	36.2	0.1%
Norway	512.6	1.4%	294.1	1.1%	Portugal	220.0	0.6%	175.3	0.7%
Poland	517.5	1.4%	348.1	1.3%	Slovakia	95.8	0.3%	82.6	0.3%
Romania	189.6	0.5%	154.3	0.6%	Slovenia	46.8	0.1%	44.9	0.2%
Total Medium	2,528.0	7.0%	1,757.6	6.7%	Total Small	1,563.1	4.4%	1,251.9	4.8%

Source: Data from World Bank, table by author.

Table 2: Population Share Basis (2013 Compared to Average from 1995 to 2013).

	2013		Avg 1995-2013			2013		Avg 1995-2013	
	Pop: (1000)	Share:	Pop: (1000)	Share:		Small Members:	Pop: (1000)	Share:	Pop: (1000)
<i>Large Members:</i>									
United States	316,439	34.4%	292,534	33.5%	Albania	3,011	0.3%	2,996	0.3%
Canada	34,568	3.8%	32,175	3.7%	Bulgaria	6,982	0.8%	7,241	0.8%
France	65,952	7.2%	62,772	7.2%	Croatia	4,476	0.5%	4,483	0.5%
Germany	81,147	8.8%	82,005	9.4%	Czech Republic	10,610	1.2%	10,383	1.2%
Italy	61,482	6.7%	59,014	6.8%	Denmark	5,556	0.6%	5,408	0.6%
Spain	47,371	5.1%	43,243	5.0%	Estonia	1,266	0.1%	1,304	0.1%
Turkey	80,694	8.8%	71,509	8.2%	Greece	10,773	1.2%	10,636	1.2%
United Kingdom	63,396	6.9%	60,442	6.9%	Hungary	9,939	1.1%	10,050	1.2%
					Iceland	315	0.0%	292	0.0%
<i>Medium-Sized Members:</i>					Latvia	2,178	0.2%	2,240	0.3%
Belgium	10,444	1.1%	10,328	1.2%	Lithuania	3,516	0.4%	3,561	0.4%
Netherlands	16,805	1.8%	16,180	1.9%	Luxembourg	515	0.1%	462	0.1%
Norway	5,086	0.6%	4,647	0.5%	Portugal	10,799	1.2%	10,488	1.2%
Poland	38,384	4.2%	38,538	4.4%	Slovakia	5,488	0.6%	5,458	0.6%
Romania	21,790	2.4%	22,028	2.5%	Slovenia	1,993	0.2%	2,005	0.2%
Total Medium	92,509	10.0%	91,721	10.5%	Total Small	77,417	8.4%	77,008	8.8%

Source: Data from U.S. Census Bureau, table by author.

Table 3: Average Share Basis (2013 Compared to Average from 1995 to 2013).

	2013			Avg 1995-2013				2013			Avg 1995-2013		
	GDP:	Pop:	Avg:	GDP:	Pop:	Avg:		Small Members:	GDP:	Pop:	Avg:	GDP:	Pop:
<i>Large Members:</i>													
United States	46.9%	34.4%	40.7%	46.7%	33.5%	40.1%	Albania	0.0%	0.3%	0.2%	0.0%	0.3%	0.2%
Canada	5.1%	3.8%	4.5%	4.2%	3.7%	4.0%	Bulgaria	0.1%	0.8%	0.5%	0.2%	0.8%	0.5%
France	7.6%	7.2%	7.4%	7.7%	7.2%	7.5%	Croatia	0.2%	0.5%	0.4%	0.2%	0.5%	0.4%
Germany	10.1%	8.8%	9.5%	10.5%	9.4%	10.0%	Czech Republic	0.6%	1.2%	0.9%	0.5%	1.2%	0.9%
Italy	5.8%	6.7%	6.3%	6.3%	6.8%	6.6%	Denmark	0.9%	0.6%	0.8%	0.9%	0.6%	0.8%
Spain	3.8%	5.1%	4.5%	3.8%	5.0%	4.4%	Estonia	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Turkey	2.3%	8.8%	5.6%	1.7%	8.2%	5.0%	Greece	0.7%	1.2%	0.9%	0.8%	1.2%	1.0%
United Kingdom	7.0%	6.9%	7.0%	7.6%	6.9%	7.3%	Hungary	0.4%	1.1%	0.8%	0.4%	1.2%	0.8%
							Iceland	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Medium-Sized Members:</i>							Latvia	0.1%	0.2%	0.2%	0.1%	0.3%	0.2%
Belgium	1.4%	1.1%	1.3%	1.4%	1.2%	1.3%	Lithuania	0.1%	0.4%	0.3%	0.1%	0.4%	0.3%
Netherlands	2.2%	1.8%	2.0%	2.3%	1.9%	2.1%	Luxembourg	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%
Norway	1.4%	0.6%	1.0%	1.1%	0.5%	0.8%	Portugal	0.6%	1.2%	0.9%	0.7%	1.2%	1.0%
Poland	1.4%	4.2%	2.8%	1.3%	4.4%	2.9%	Slovakia	0.3%	0.6%	0.5%	0.3%	0.6%	0.5%
Romania	0.5%	2.4%	1.5%	0.6%	2.5%	1.6%	Slovenia	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
Total Medium	7.0%	10.0%	8.5%	6.7%	10.5%	8.6%	Total Small	4.4%	8.4%	6.4%	4.8%	8.8%	6.8%

Source: GDP data from World Bank, population data from U.S. Census Bureau, table by author.

Appendix B: Defense Spending Figures

Figures B1 through B10 depict defense spending as a percentage of GDP from 1995 through 2013 to provide further clarification to figures 4 and 5 and illustrate the declining trend. Figure B1 shows average defense spending by large, medium sized, and small member categories. Figures B2 through B10 depict two to four members' spending. Members are generally grouped according to size category and duration of membership. Figures B2 and B3 depict the large members (with the exception of Turkey). Figure B5 depicts the long-standing medium-sized members and figure B6 the long-standing small members. Figures B7 through B10 depict the new members by cohort, beginning with the year the cohort joined NATO. Figure B4 depicts Greece and Turkey who, though dissimilar in size, are grouped together because their defense spending shows a strong correlation due to a long-standing dispute over Cyprus. The decline in most members' defense spending in 2004 is due to NATO's change in accounting criteria that year, as discussed on page 18.

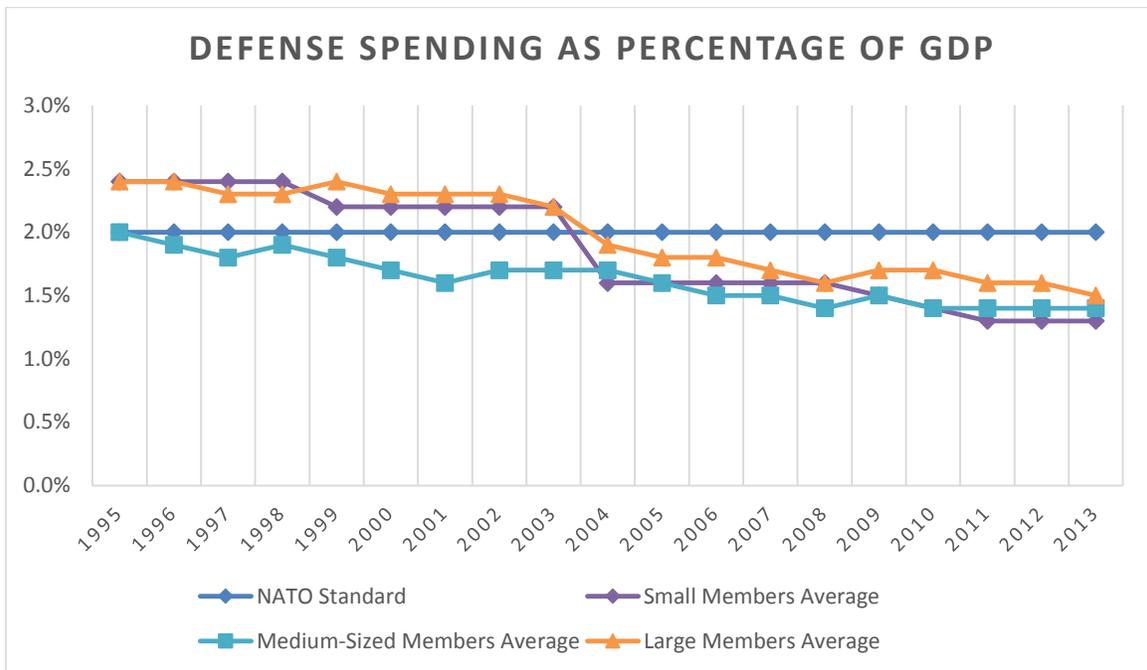


Figure B1: Defense Spending as a Percentage of GDP by Category (1995-2013).

Source: Data from NATO Public Policy Division, figure by author.

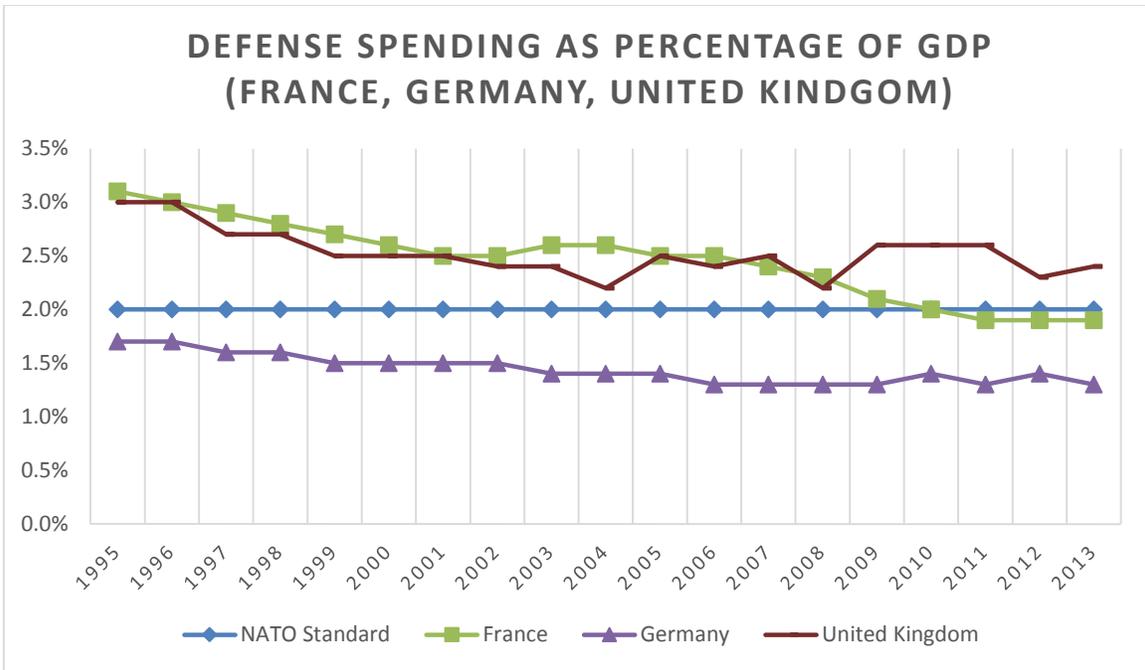


Figure B2: Defense Spending as a Percentage of GDP (France, Germany, and United Kingdom).

Source: Data from NATO Public Policy Division, figure by author.

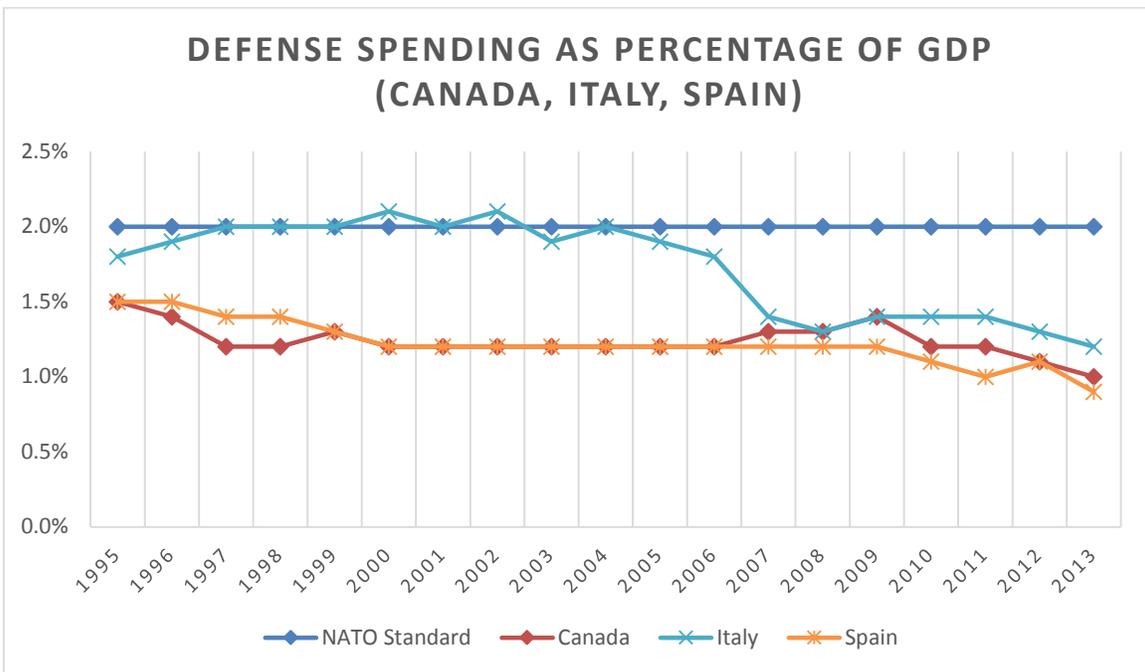


Figure B3: Defense Spending as a Percentage of GDP (Canada, Italy, and Spain).

Source: Data from NATO Public Policy Division, figure by author.

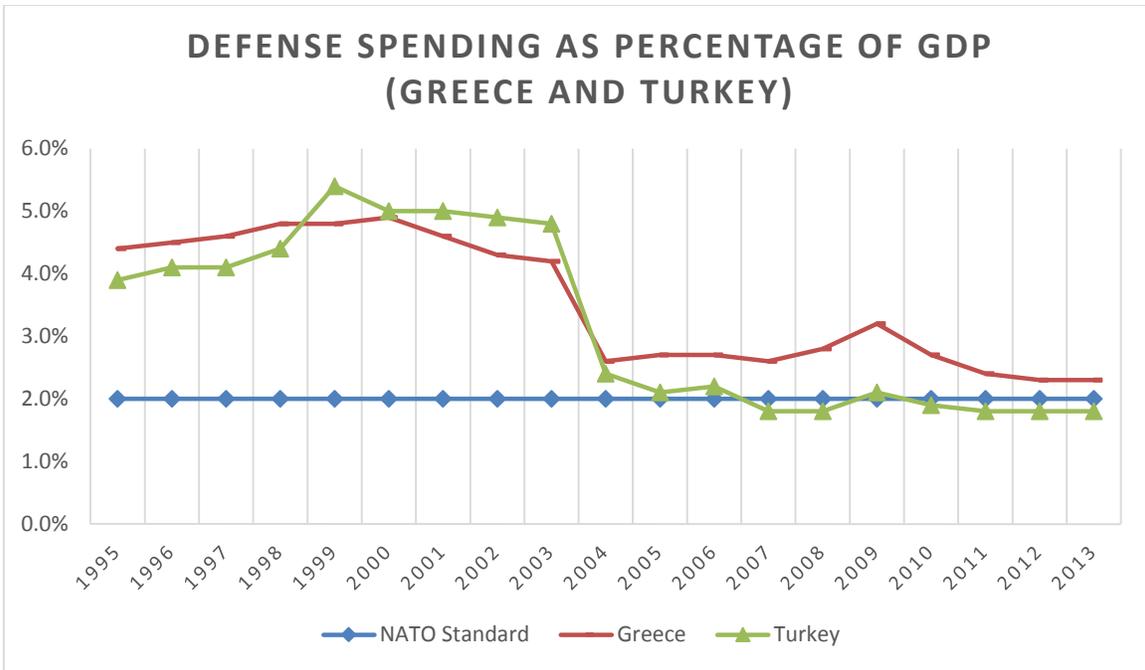


Figure B4: Defense Spending as a Percentage of GDP (Greece and Turkey).

Source: Data from NATO Public Policy Division, figure by author.

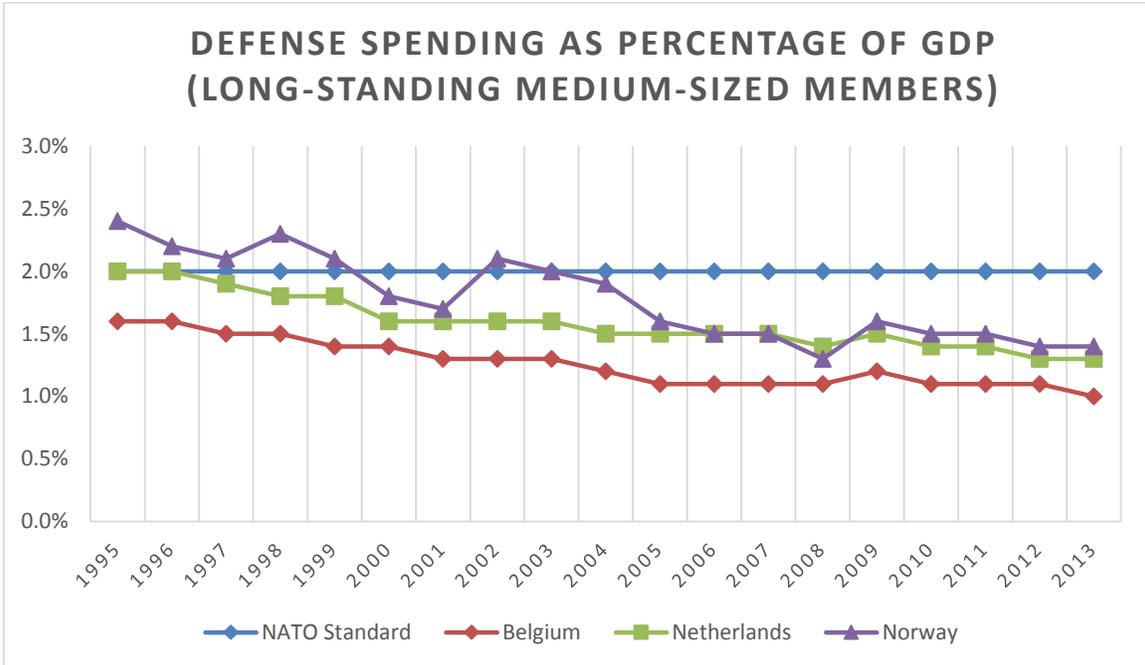


Figure B5: Defense Spending as a Percentage of GDP (Long-Standing Medium-Sized Members).

Source: Data from NATO Public Policy Division, figure by author.

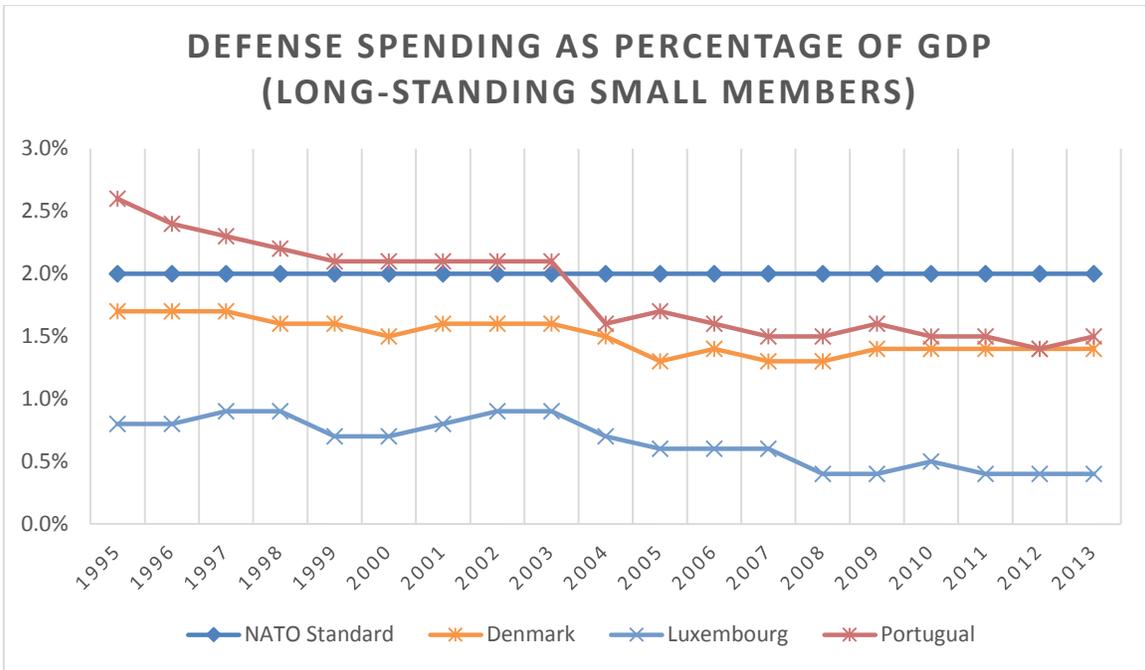


Figure B6: Defense Spending as a Percentage of GDP (Long-Standing Small Members).

Source: Data from NATO Public Policy Division, figure by author.

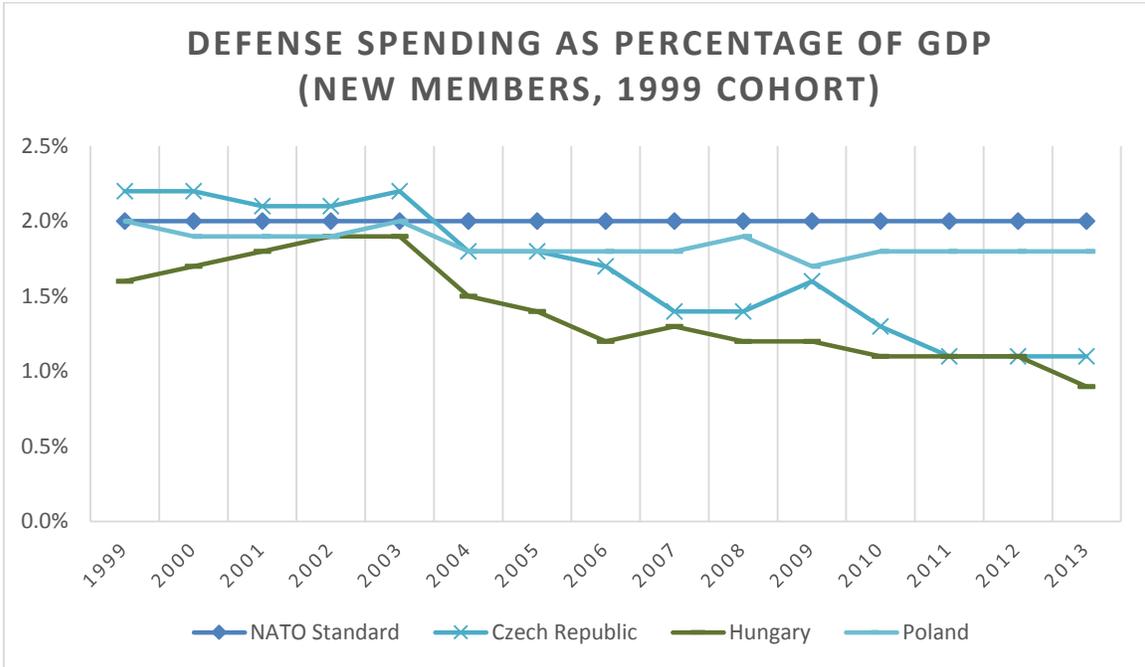


Figure B7: Defense Spending as a Percentage of GDP (New Members, 1999 Cohort).

Source: Data from NATO Public Policy Division, figure by author.

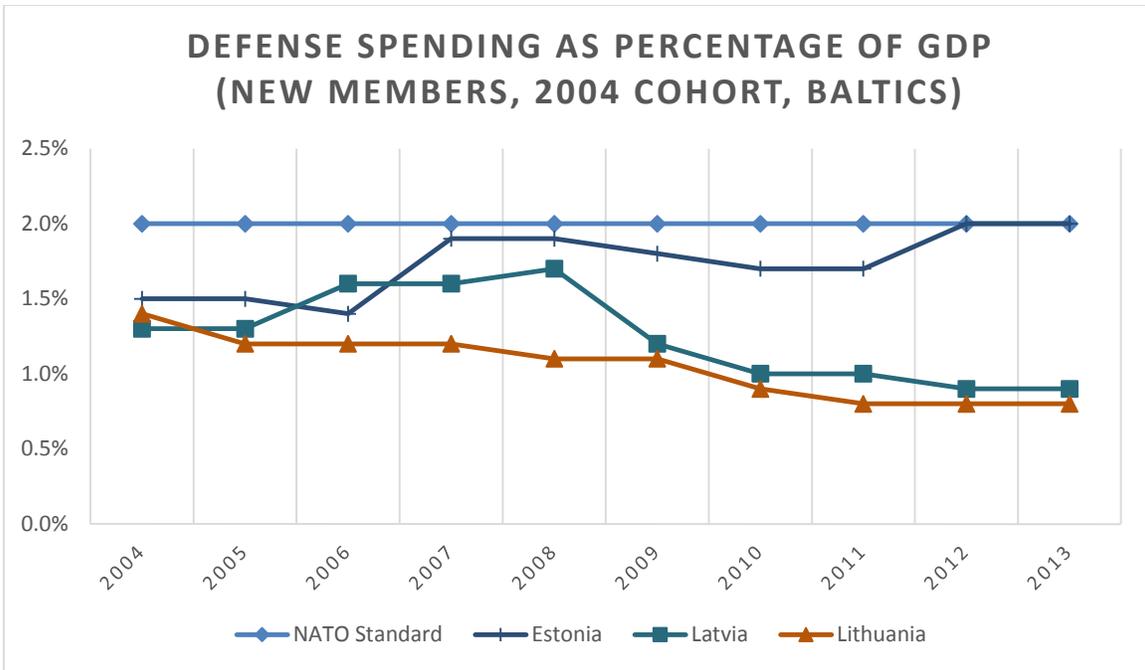


Figure B8: Defense Spending as a Percentage of GDP (New Members, 2004 Cohort, Baltics).

Source: Data from NATO Public Policy Division, figure by author.

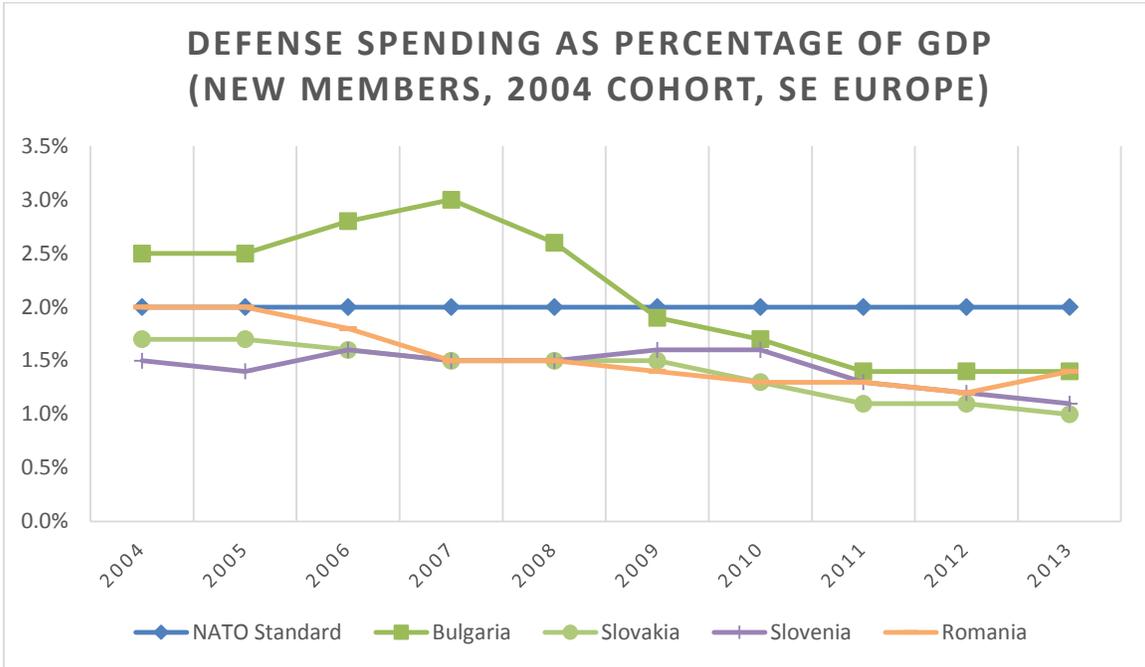


Figure B9: Defense Spending as a Percentage of GDP (New Members, 2004 Cohort, SE Europe).

Source: Data from NATO Public Policy Division, figure by author.

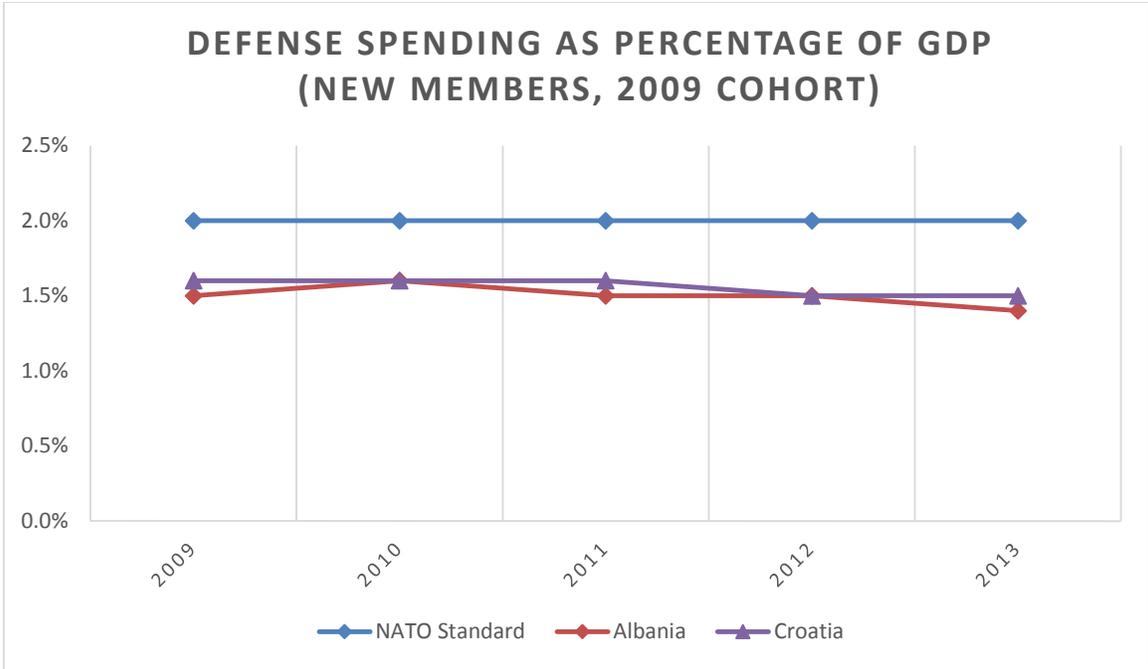


Figure B10: Defense Spending as a Percentage of GDP (New Members, 2009 Cohort).

Source: Data from NATO Public Policy Division, figure by author.

Appendix C: Common Funding Figures

Figures C1 through C4 depict 2013 common funding contributions compared the GDP, population, and average bases to provide additional information not depicted in figure 7. Figure C1 depicts aggregate common funding contributions by the small, medium-sized, large, and very large members. Figures C2 through C4 depict individual member contributions for the large, medium-sized, and small members, respectively.

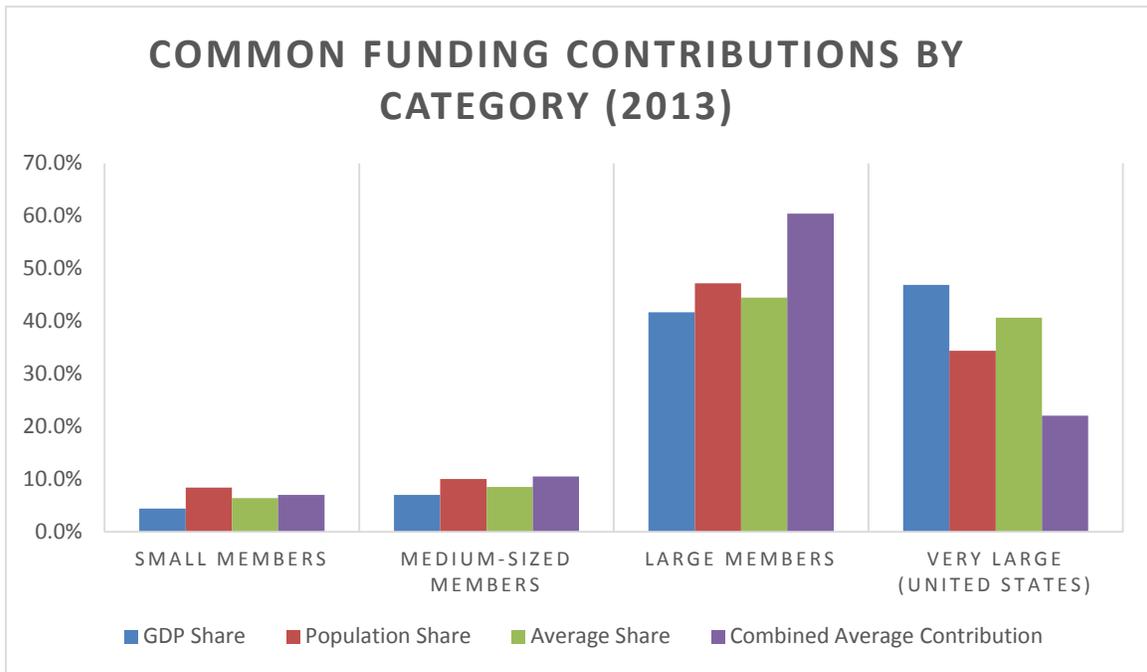


Figure C1: Common Funding Compared to GDP and Population (2013).

Source: Data from NATO, share data as per figures 1-3 and tables 1-3, figure by author.

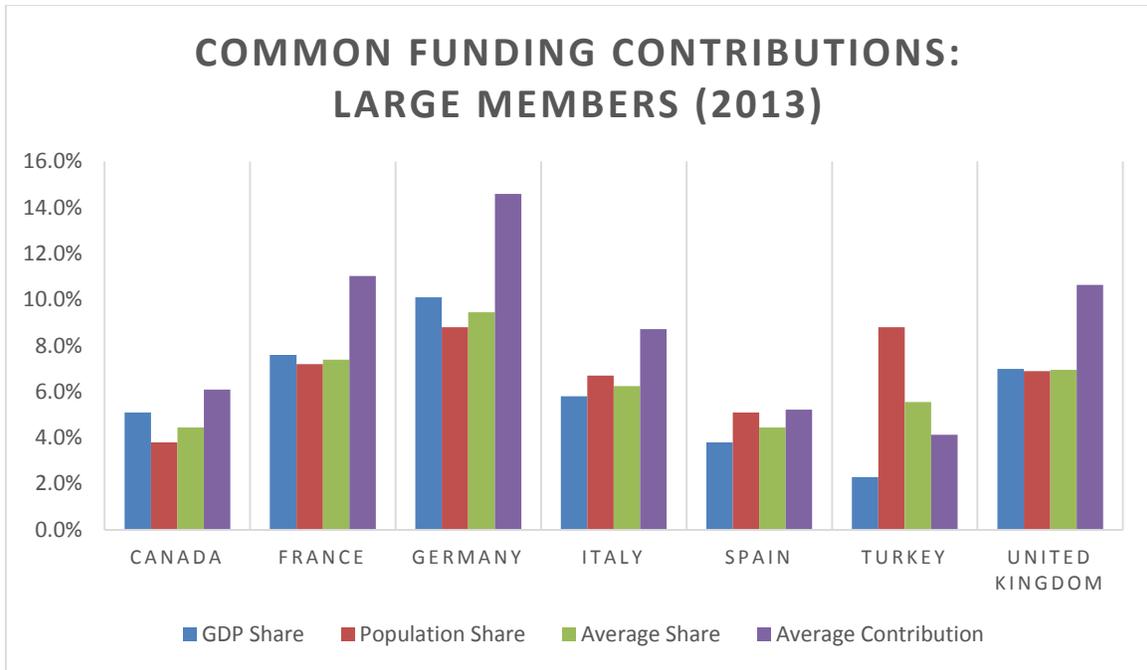


Figure C2: Common Funding Compared to GDP and Population (Large Members, 2013).
 Source: Data from NATO, share data as per figures 1-3 and tables 1-3, figure by author.

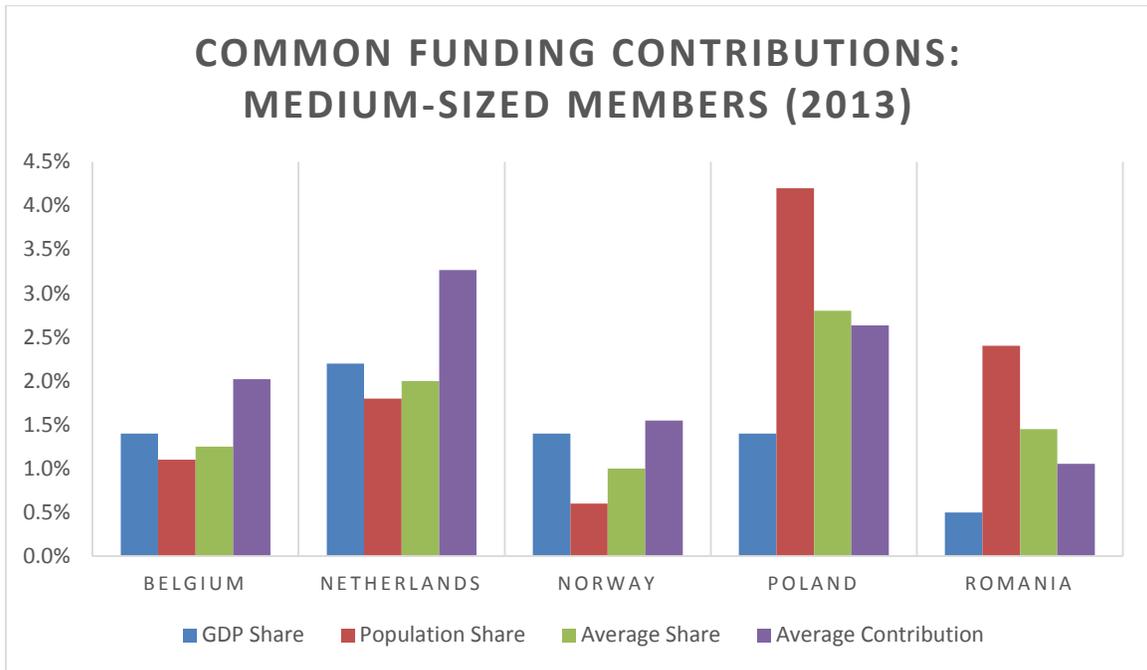


Figure C3: Common Funding Compared to GDP and Population (Medium-Sized Members, 2013).
 Source: Data from NATO, share data as per figures 1-3 and tables 1-3, figure by author.

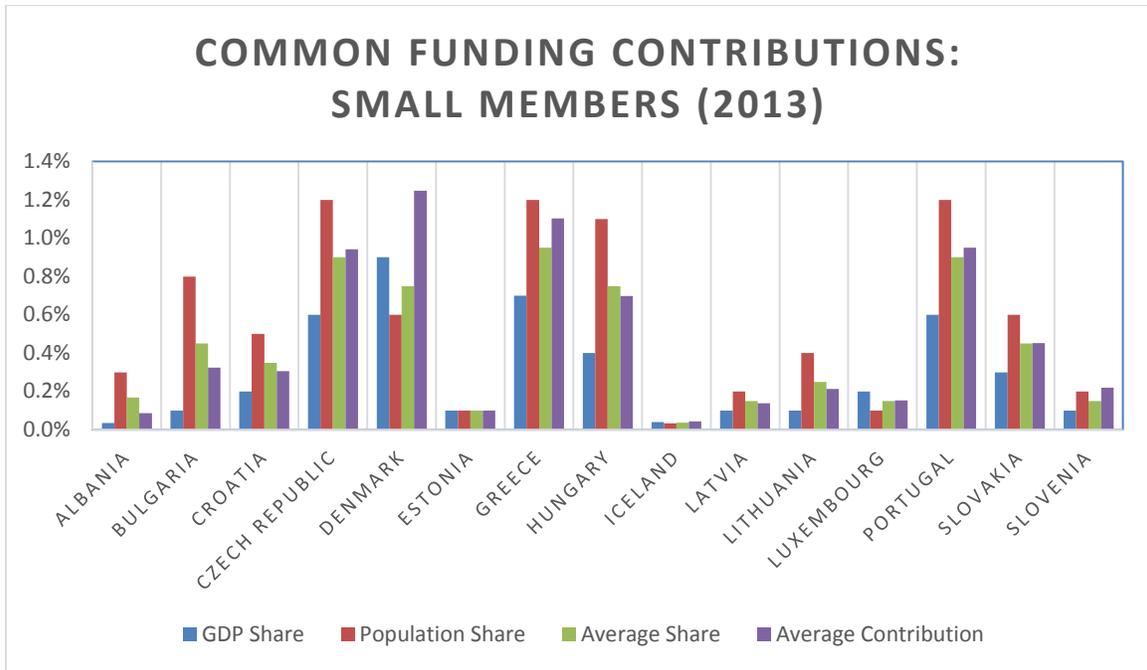


Figure C4: Common Funding Compared to GDP and Population (Small Members, 2013).
 Source: Data from NATO, share data as per figures 1-3 and tables 1-3, figure by author.

Appendix D: Bosnia Troop Contribution Figures

Figures D1 through D8 depict troop contributions to NATO operations in Bosnia compared to the GDP, population, and average bases to provide additional information not depicted in figure 8 and illustrate contribution trends. Figure D1 depicts aggregate troop contributions by the small, medium-sized, large, and very large members from 1996 to 2004. Figure D2 depicts the United States' contribution over time. Figures D4, D6, and D8 depict the aggregate contribution over time for the large, medium-sized, and small members, respectively. Figures D3, D5, and D7 depict the average contribution for each member by category. New member average contributions are calculated from the year the cohort joined NATO through 2004.

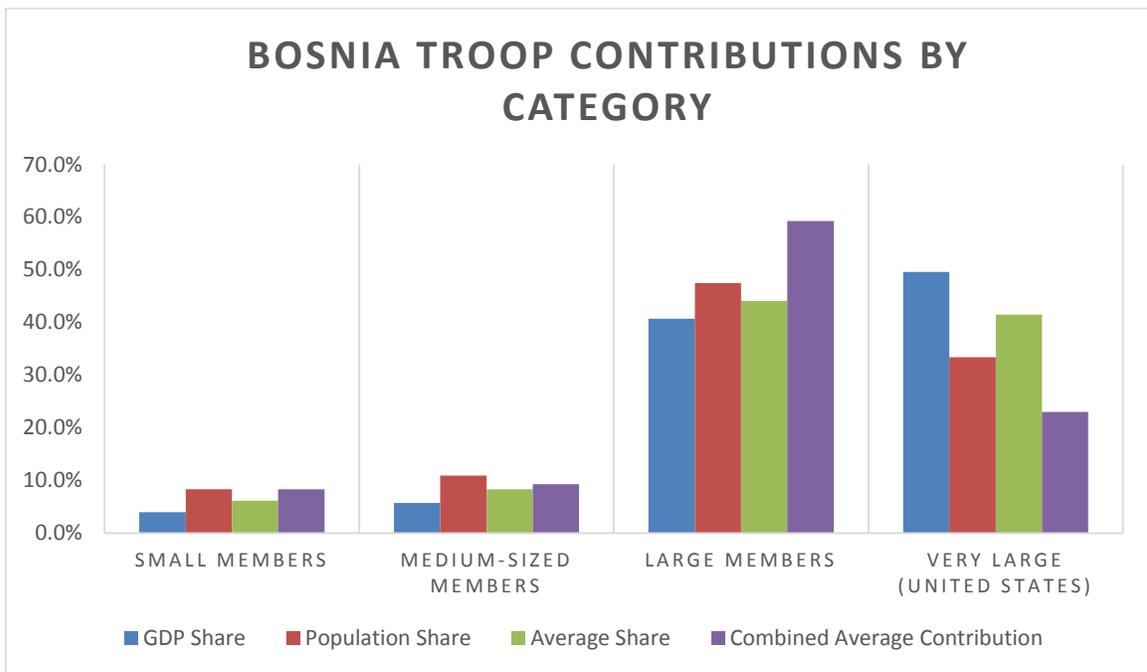


Figure D1: Bosnia Contributions Compared to GDP and Population.

Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

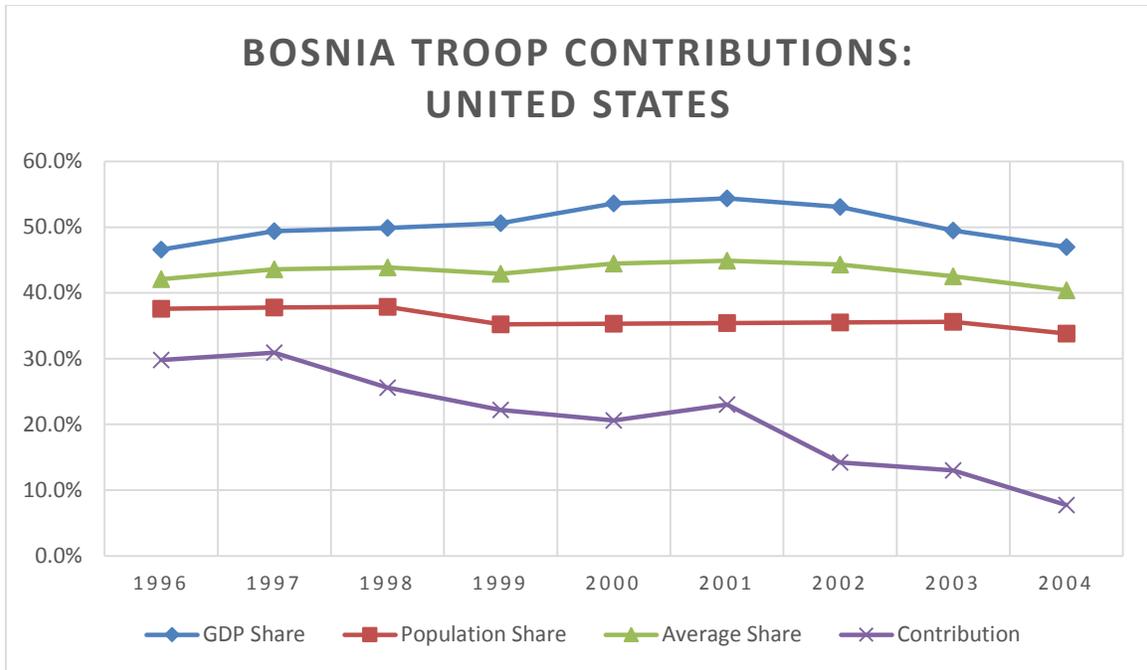


Figure D2: Bosnia Contributions Compared to GDP and Population (United States, 1996-2004).
 Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

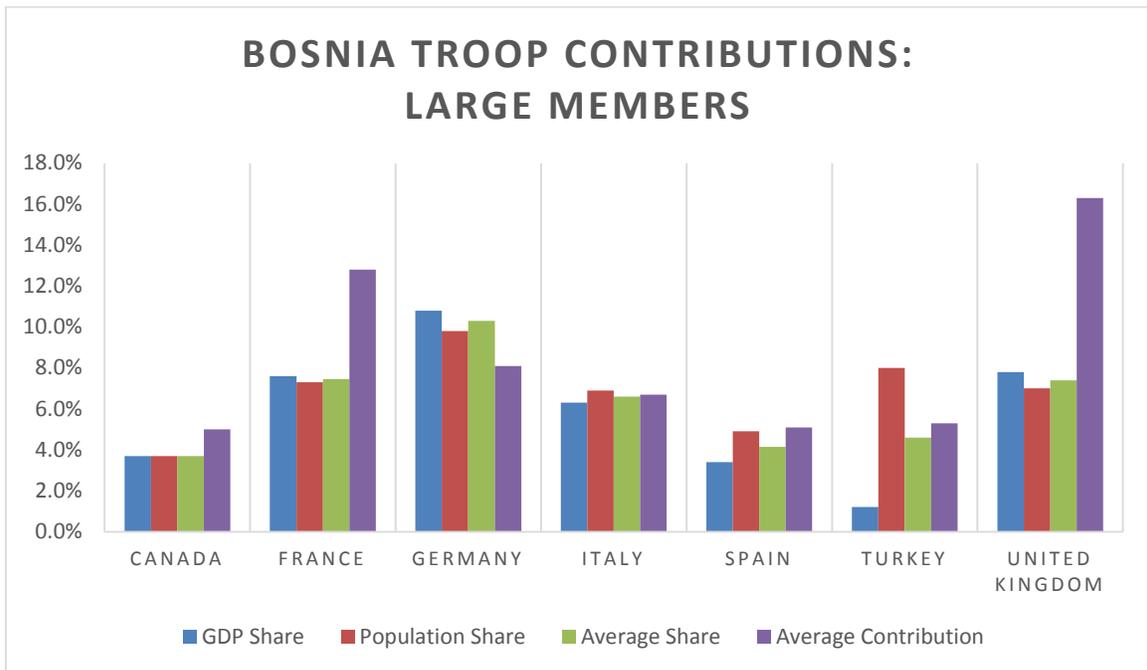


Figure D3: Bosnia Contributions Compared to GDP and Population (Large Members).
 Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

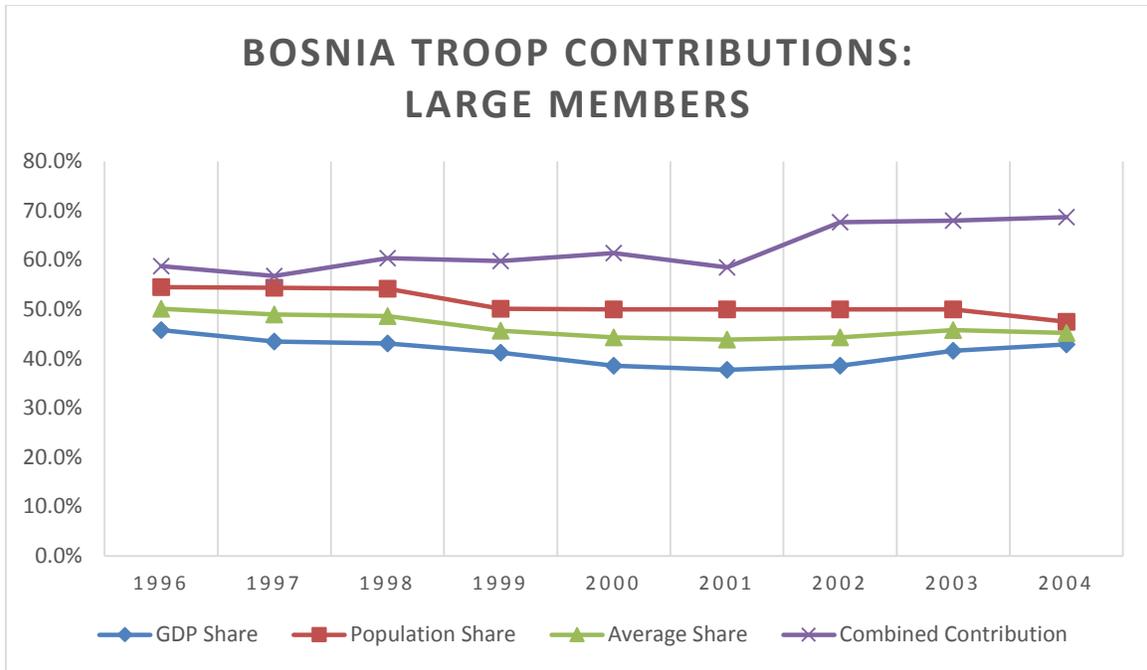


Figure D4: Bosnia Contributions Compared to GDP and Population (Large Members, 1996-2004).

Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

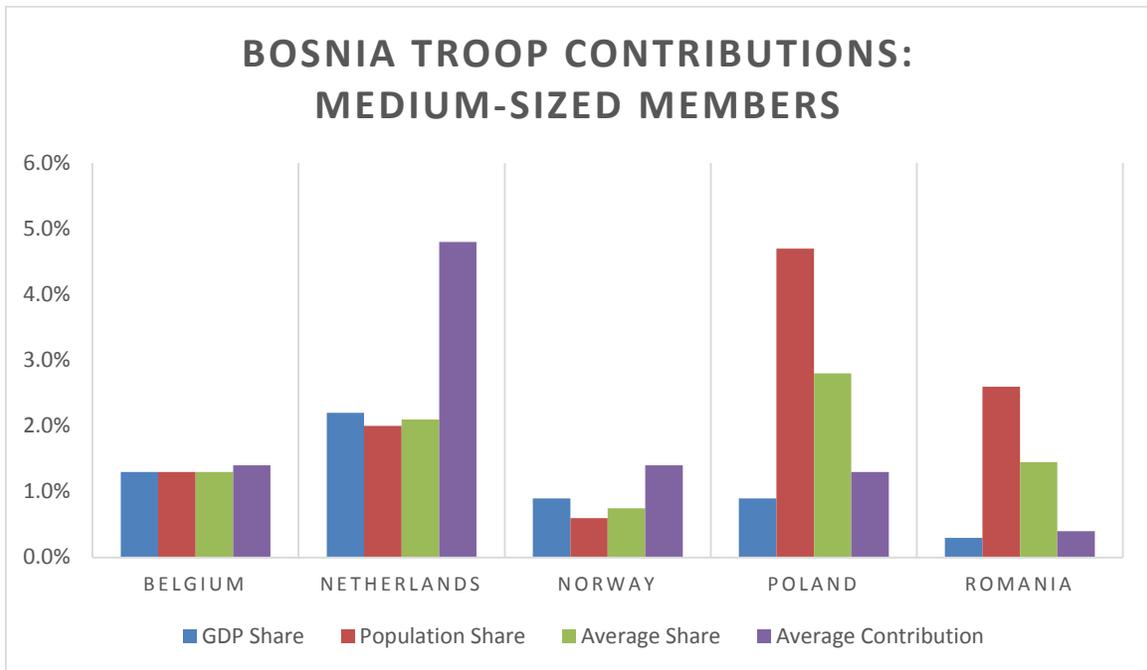


Figure D5: Bosnia Contributions Compared to GDP and Population (Medium-Sized Members).

Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

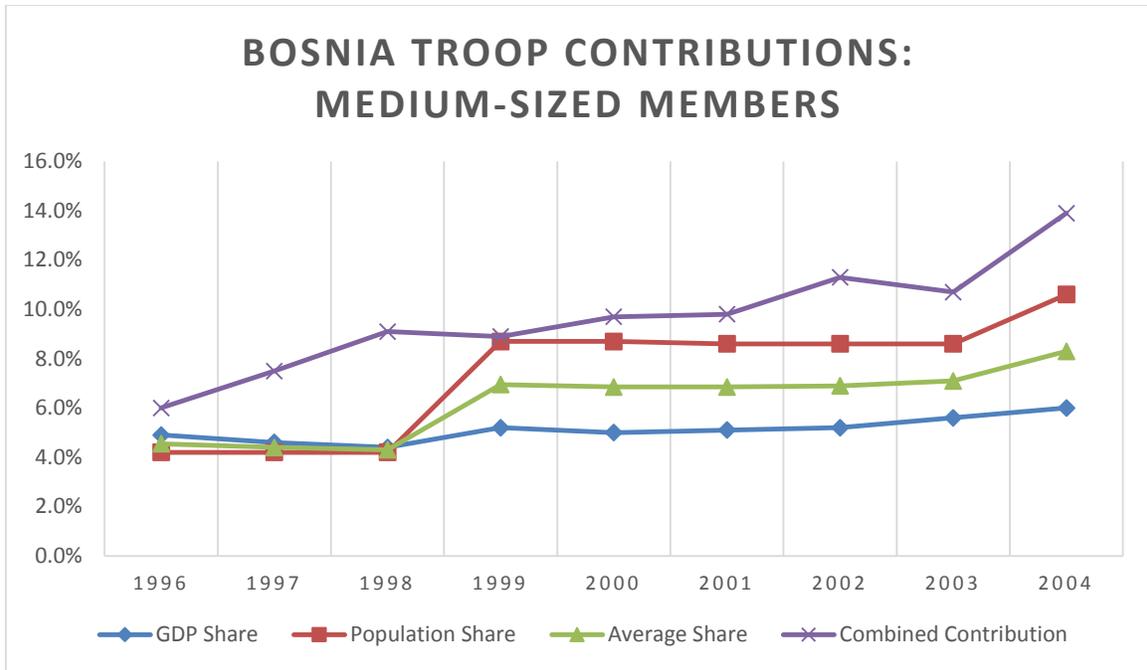


Figure D6: Bosnia Contributions Compared to GDP and Population (Medium-Sized Members, 1996-2004).

Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

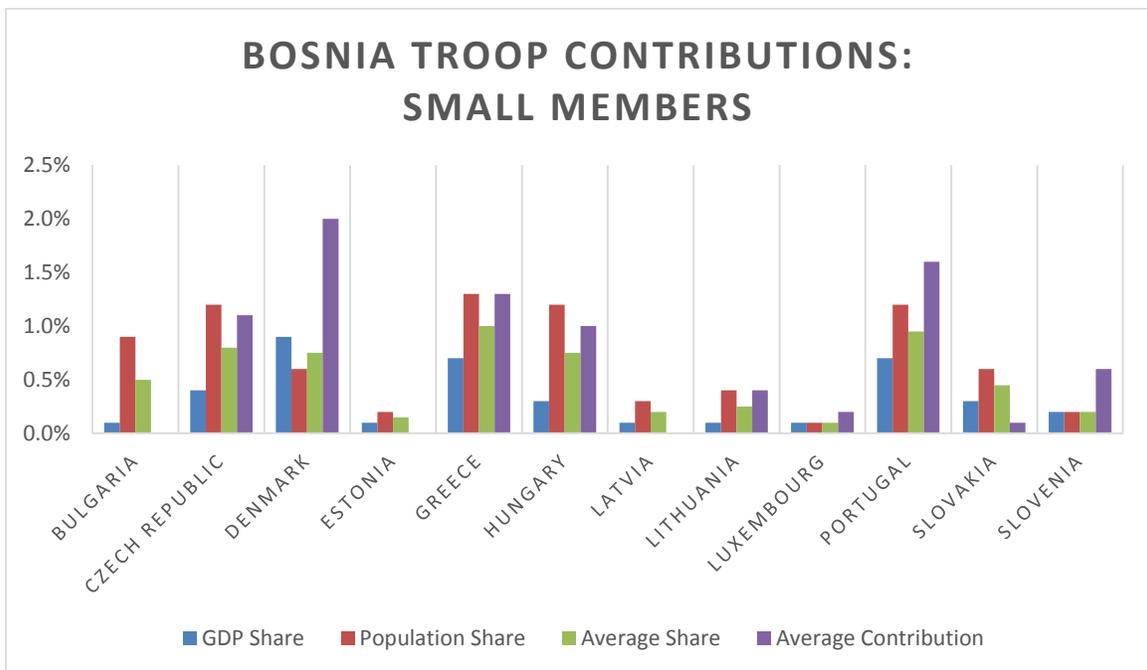


Figure D7: Bosnia Contributions Compared to GDP and Population (Small Members).

Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

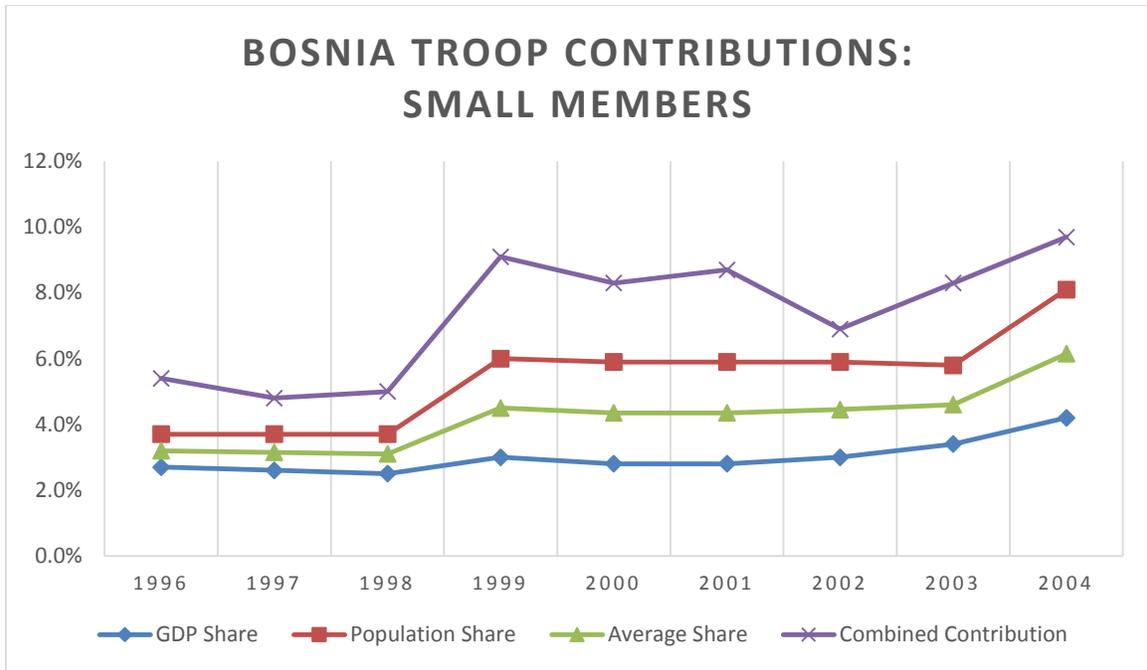


Figure D8: Bosnia Contributions Compared to GDP and Population (Small Members, 1996-2004).

Source: Data from Lis and Seldon and *Military Balance*, shares per figures 1-3, figure by author.

Appendix E: Kosovo Troop Contribution Figures

Figures E1 through E8 depict troop contributions to NATO operations in Kosovo compared to the GDP, population, and average bases to provide additional information not depicted in figure 9 and illustrate contribution trends. Figure E1 depicts aggregate troop contributions by the small, medium-sized, large, and very large members from 2000 to 2013. Figure E2 depicts the United States' contribution over time. Figures E4, E6, and E8 depict the aggregate contribution over time for the large, medium-sized, and small members, respectively. Figures E3, E5, and E7 depict the average contribution for each member by category. The 2004 and 2009 new member cohorts' average contributions are calculated from the year the cohort joined NATO through 2013. Greece is depicted with the medium-sized members in figure E5, instead of with the small members in figure E7, because its contribution was so large; it is still included in the small member aggregate contribution in figure E8.

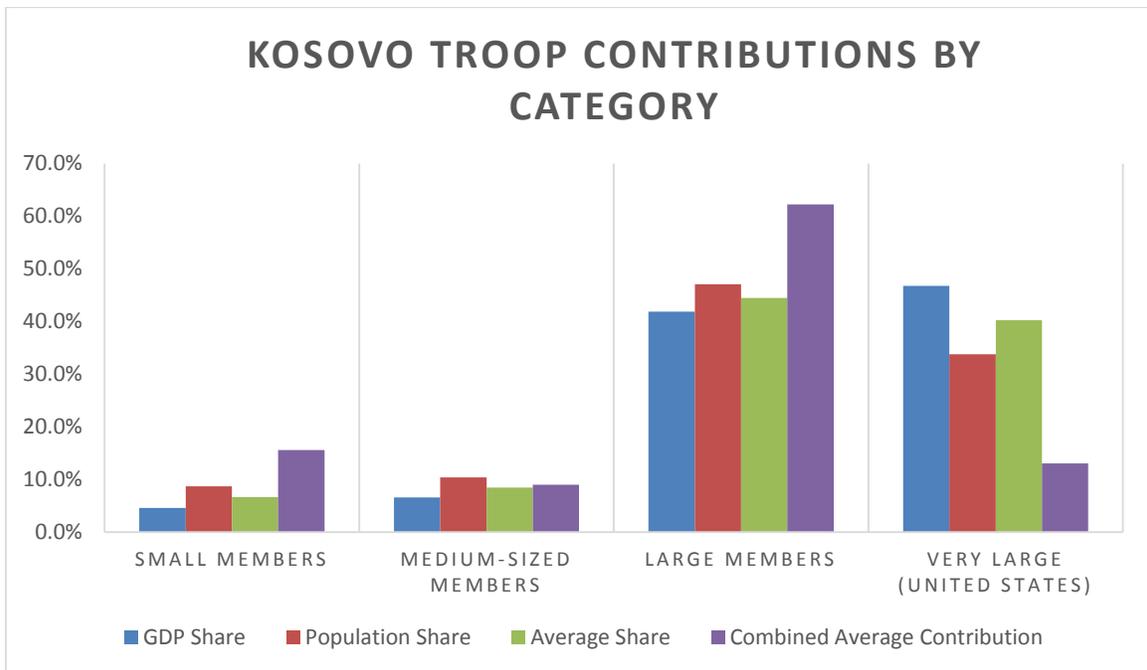


Figure E1: Kosovo Contributions Compared to GDP and Population.

Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

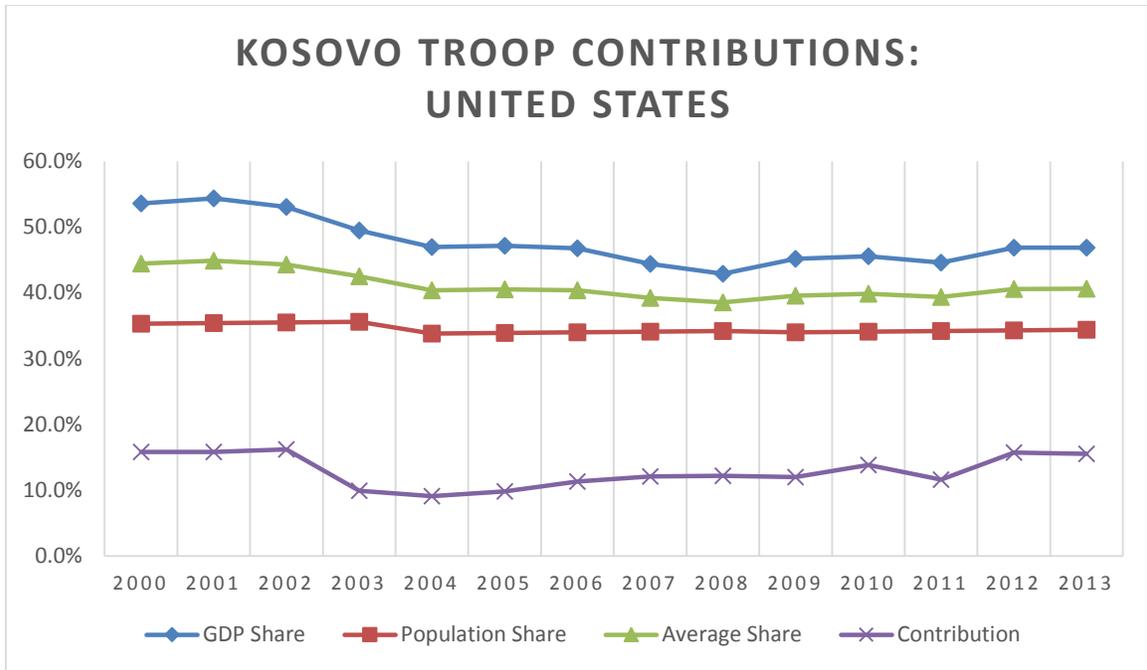


Figure E2: Kosovo Contributions Compared to GDP and Population (United States, 2000-2013).
 Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

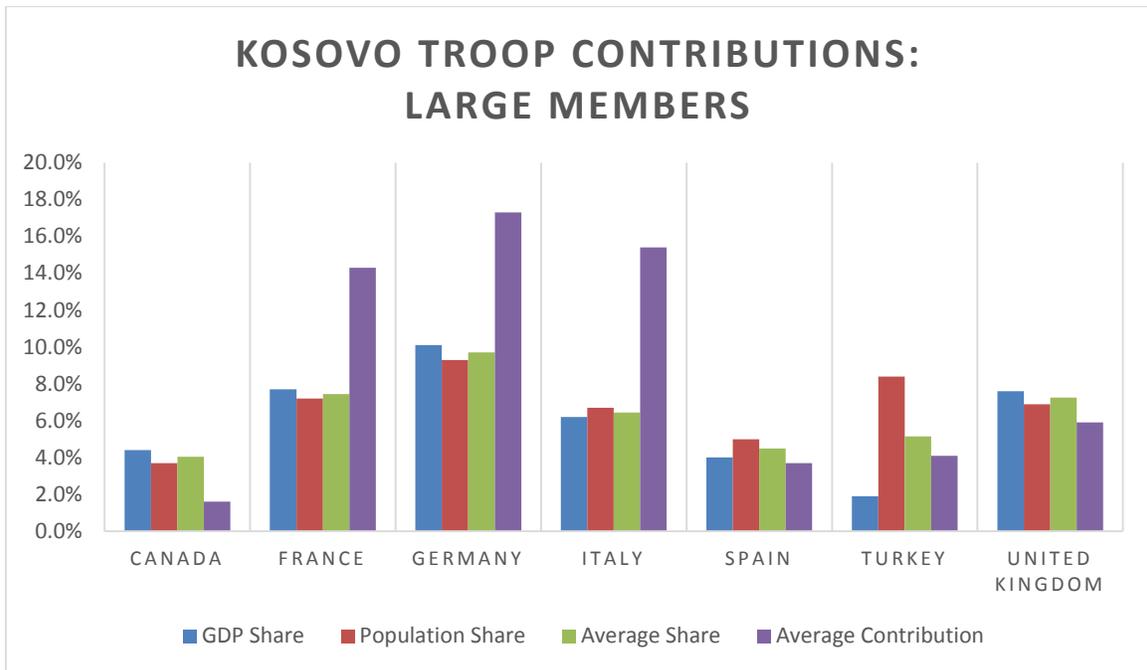


Figure E3: Kosovo Contributions Compared to GDP and Population (Large Members).
 Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

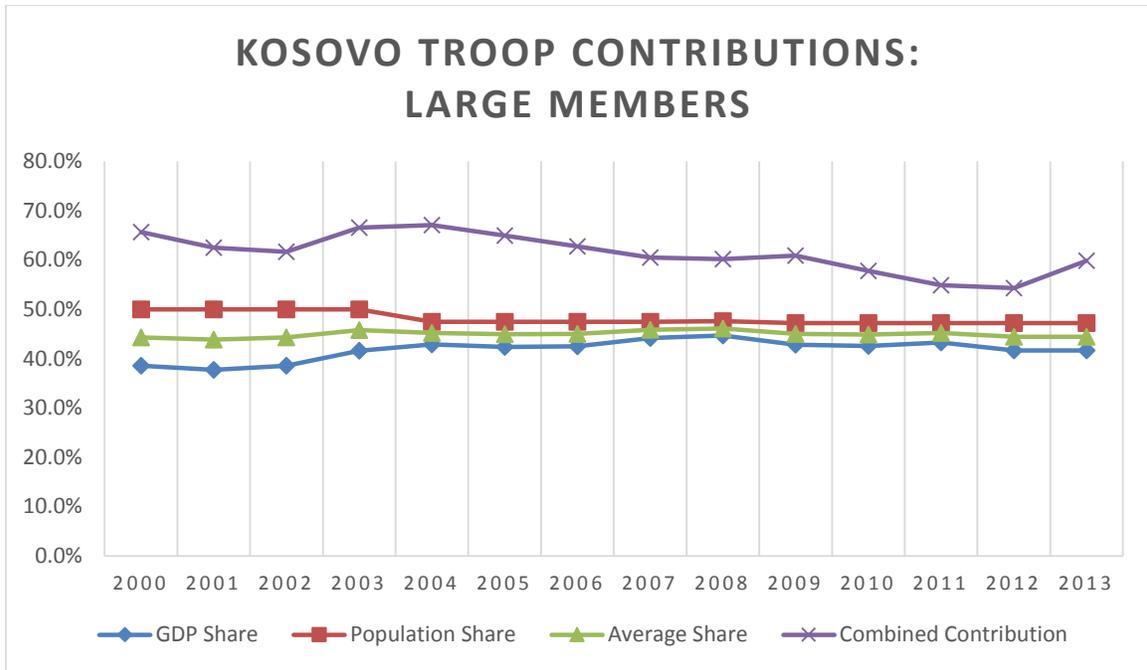


Figure E4: Kosovo Contributions Compared to GDP and Population (Large Members, 2000-2013).

Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

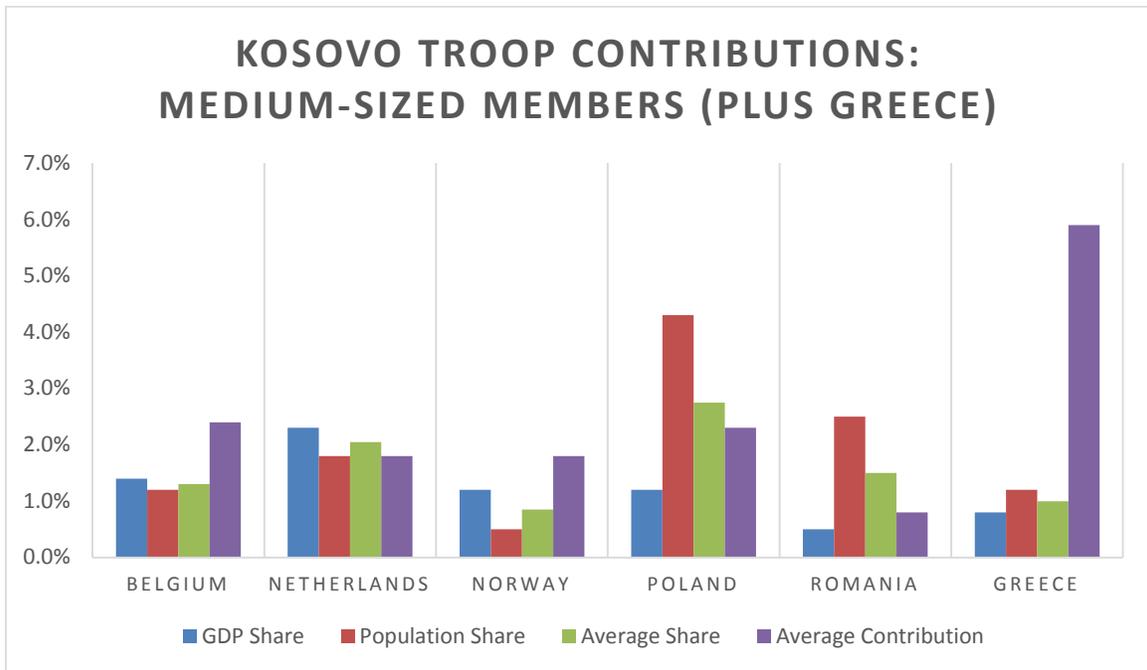


Figure E5: Kosovo Contributions Compared to GDP and Population (Medium-Sized Members).

Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

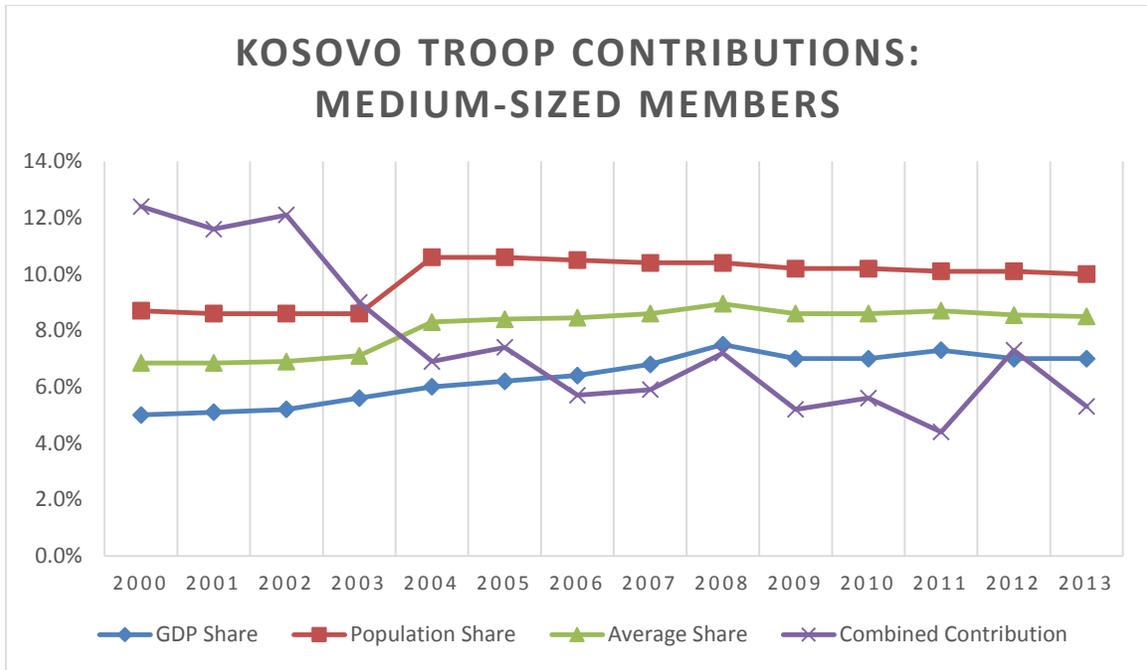


Figure E6: Kosovo Contributions Compared to GDP and Population (Medium-Sized Members, 2000-2013).

Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

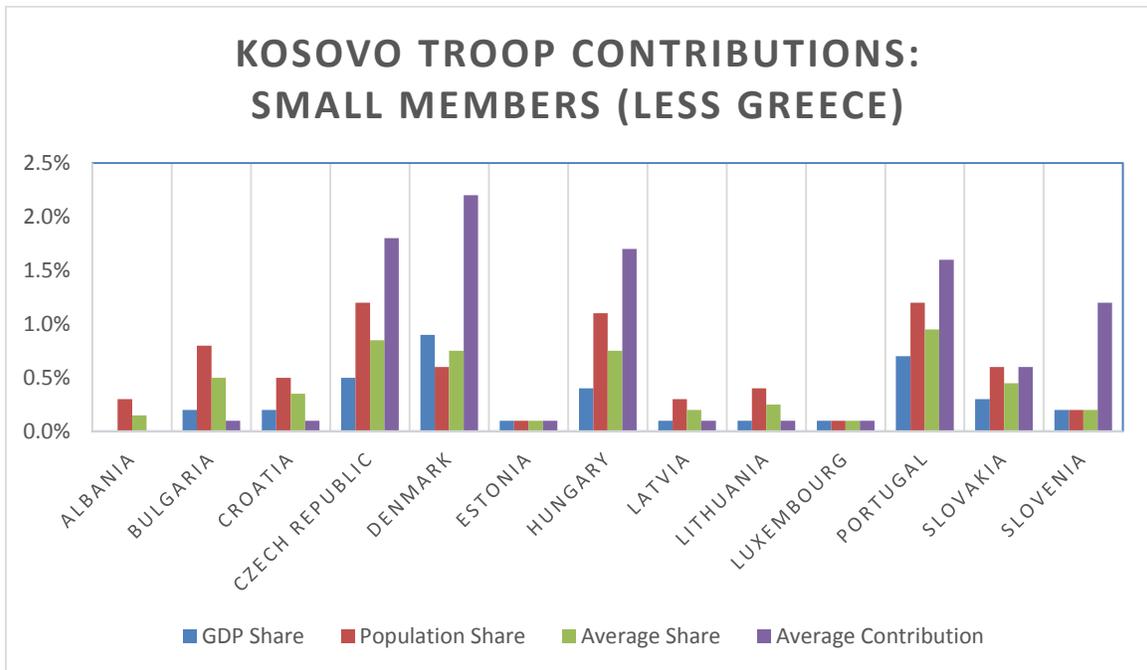


Figure E7: Kosovo Contributions Compared to GDP and Population (Small Members).

Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

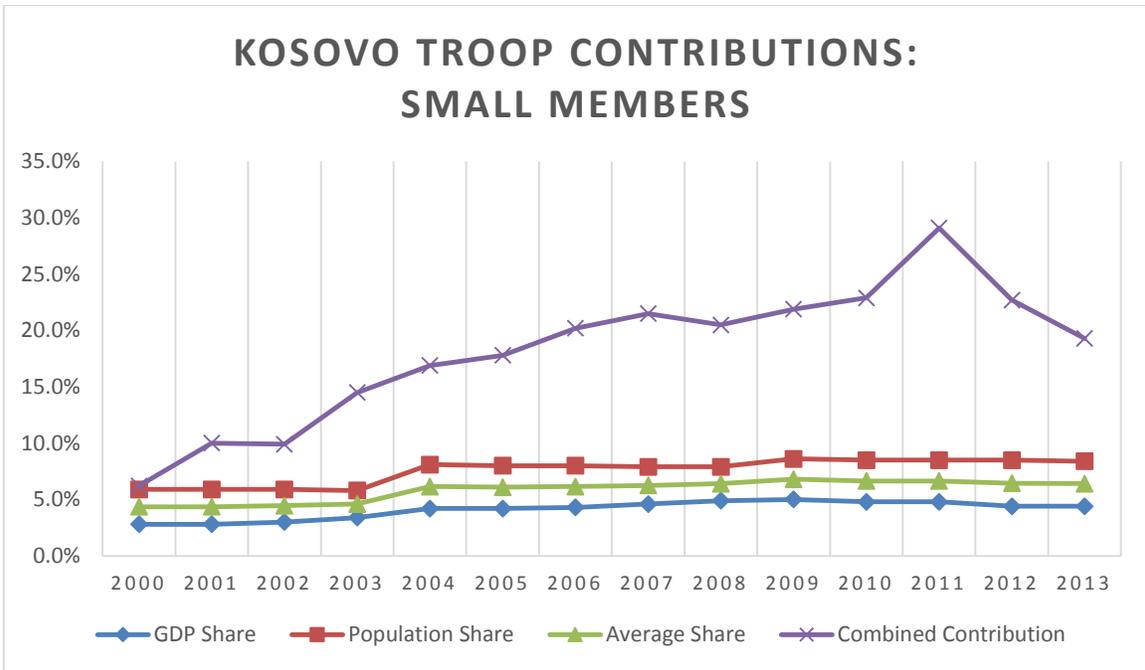


Figure E8: Kosovo Contributions Compared to GDP and Population (Small Members, 2000-2013).

Source: Data from *The Military Balance*, shares per figures 1-3, figure by author.

Appendix F: Afghanistan Troop Contribution Figures

Figures F1 through F8 depict troop contributions to NATO operations in Afghanistan compared to the GDP, population, and average bases to provide additional information not depicted in figure 10 and illustrate contribution trends. Figure F1 depicts aggregate troop contributions by the small, medium-sized, large, and very large members from 2002 to 2013. Figure F2 depicts the United States' contribution over time. Figures F4, F6, and F8 depict the aggregate contribution over time for the large, medium-sized, and small members, respectively. Figures F3, F5, and F7 depict the average contribution for each member by category. The 2004 and 2009 new member cohorts' average contributions are calculated from the year the cohort joined NATO through 2013.

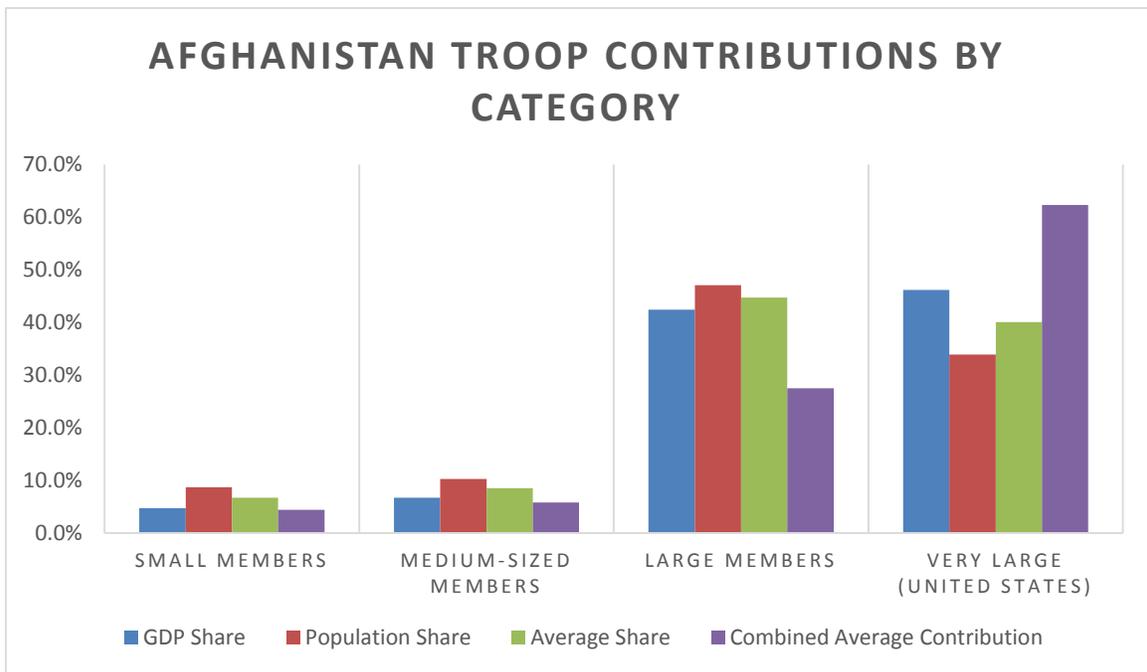


Figure F1: Afghanistan Contributions Compared to GDP and Population.

Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

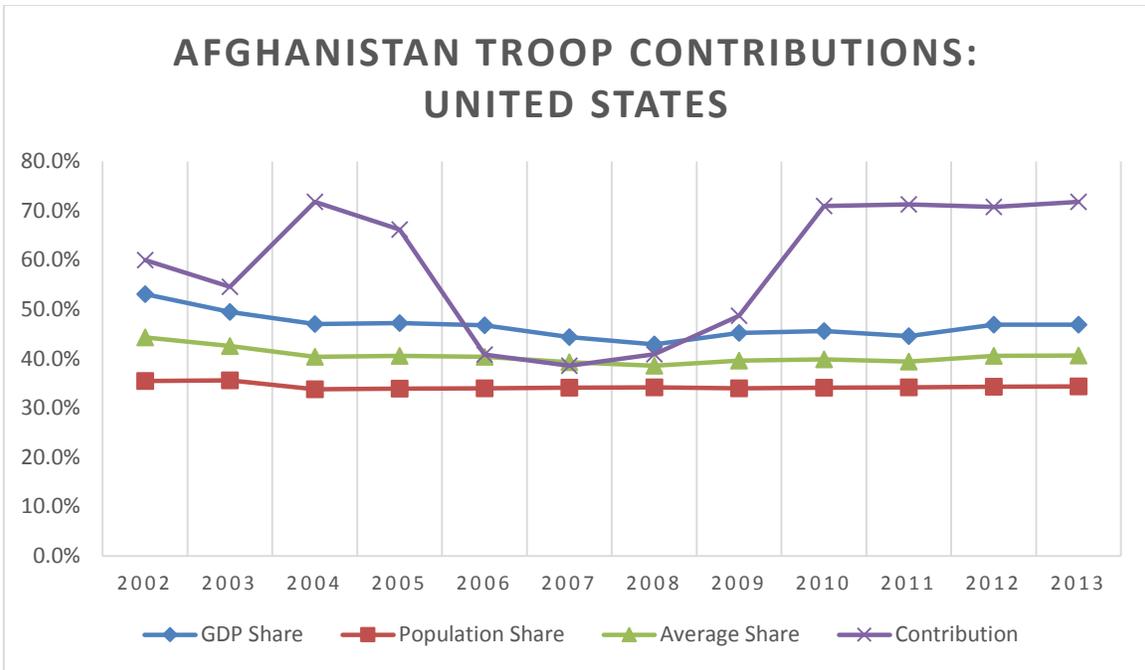


Figure F2: Afghanistan Contributions Compared to GDP and Population (United States).
 Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

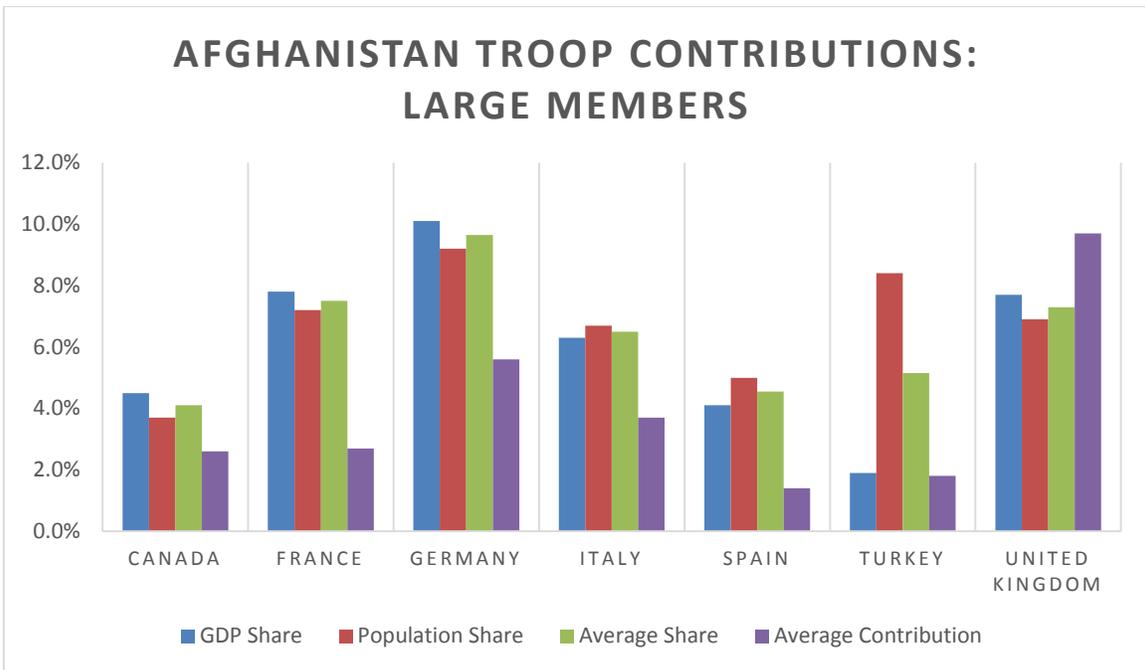


Figure F3: Afghanistan Contributions Compared to GDP and Population (Large Members).
 Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

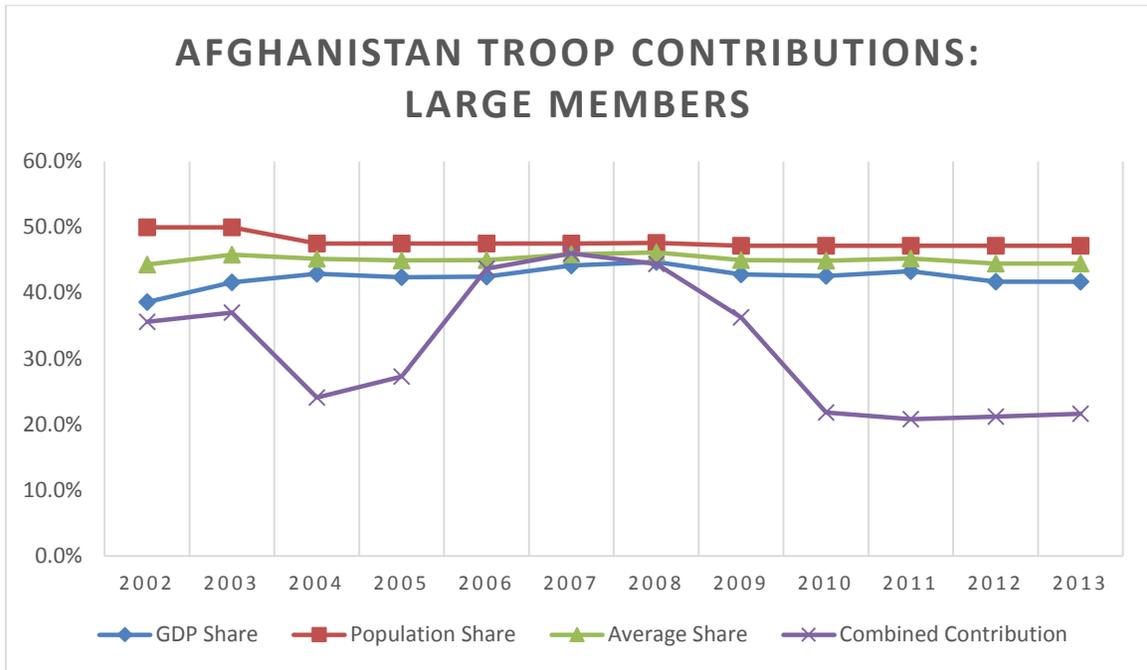


Figure F4: Afghanistan Contributions Compared to GDP and Population (Large Members, 2002-2013).

Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

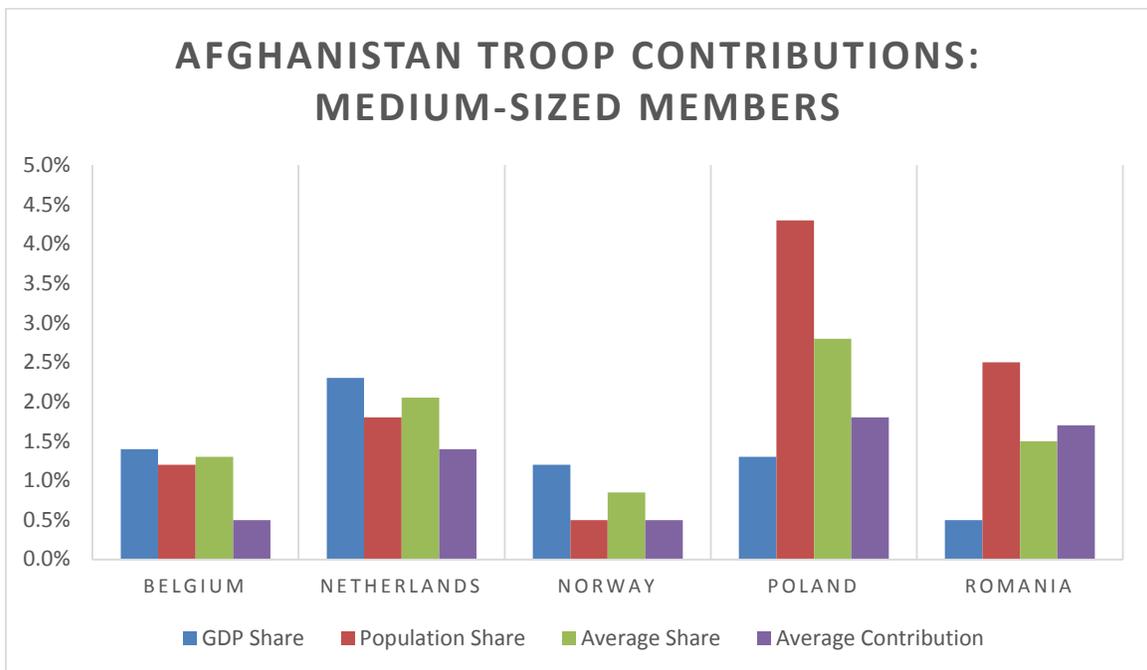


Figure F5: Afghanistan Contributions Compared to GDP and Population (Medium-Sized).

Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

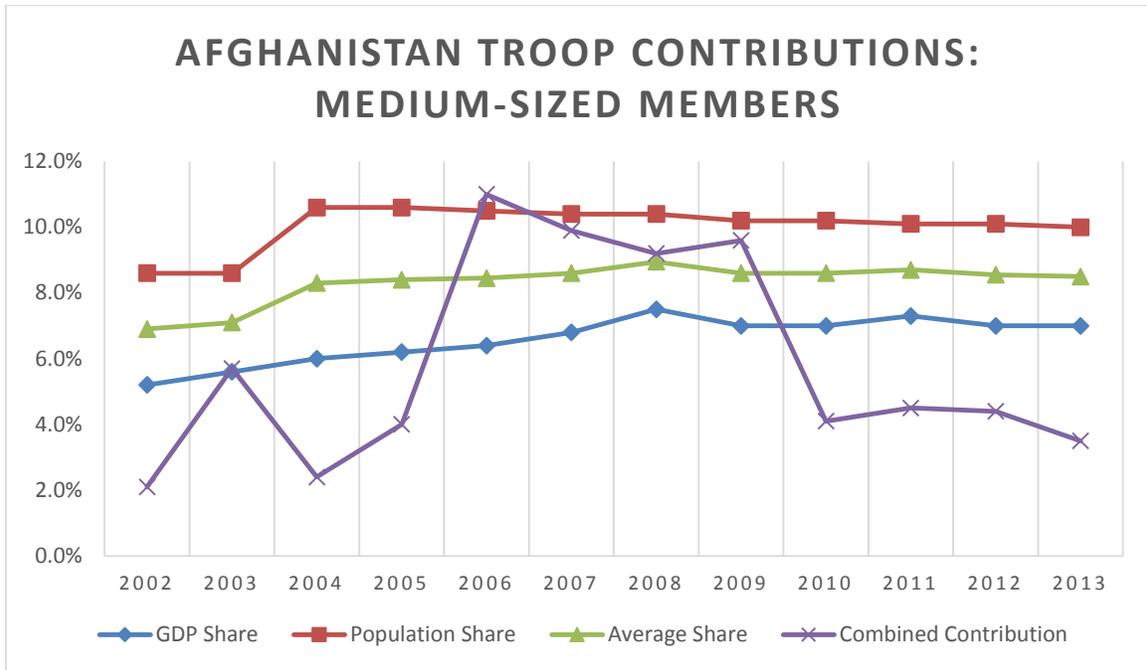


Figure F6: Afghanistan Contributions Compared to GDP and Population (Medium-Sized Members, 2002-2013).

Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

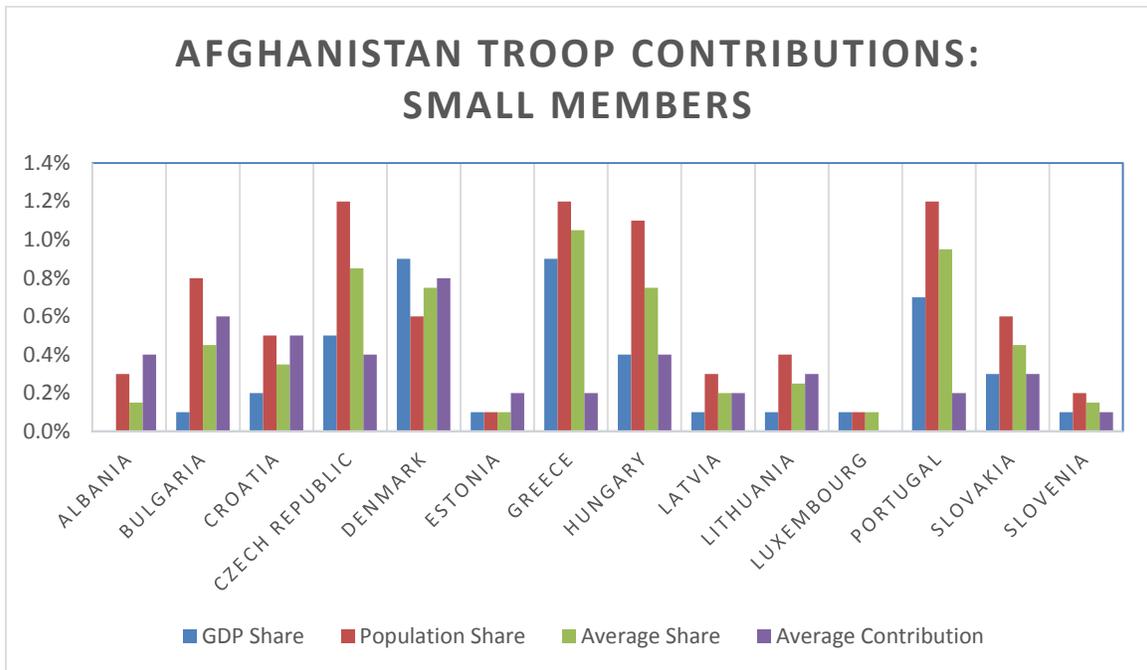


Figure F7: Afghanistan Contributions Compared to GDP and Population (Small Members).

Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

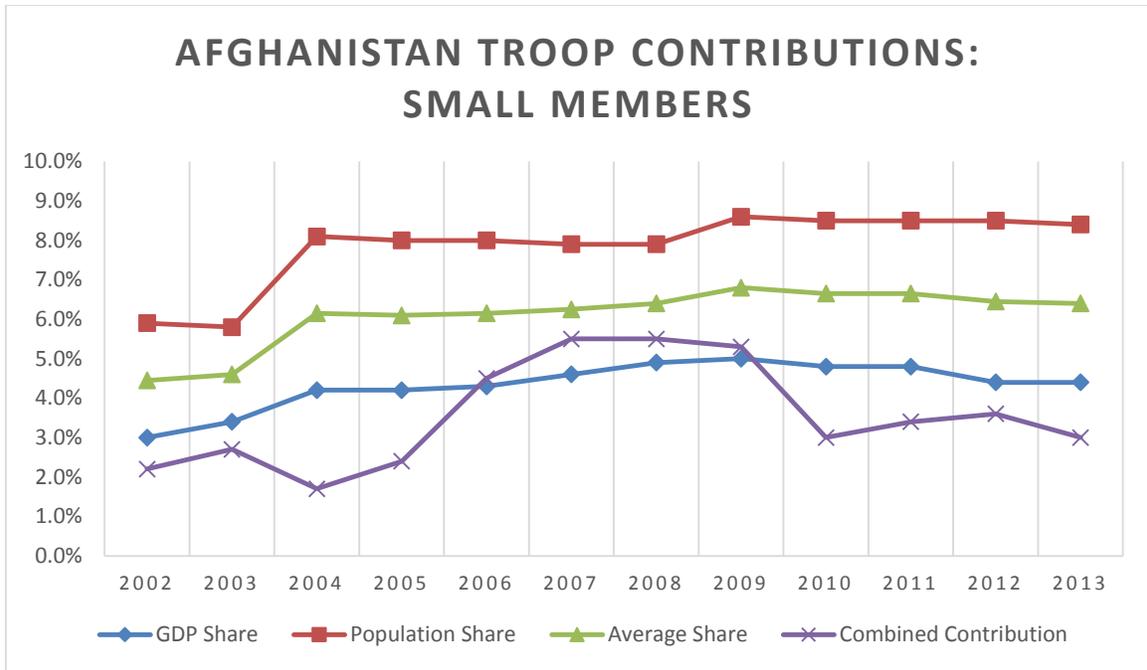


Figure F8: Afghanistan Contributions Compared to GDP and Population (Small Members, 2002-2013).

Source: Data from *The Military Balance* and NATO, shares per figures 1-3, figure by author.

Appendix G: Combined Troop Contribution Figures

Figures G1 through G8 depict total troop contributions to NATO operations in Bosnia, Kosovo, and Afghanistan from 1996 to 2013 compared to the GDP, population, and average bases to provide additional information not depicted in figures 12 through 14 and illustrate contribution trends. Figure G1 depicts aggregate troop contributions by the small, medium-sized, large, and very large members from 1996 to 2013. Figure G2 depicts the United States' contribution over time. Figures G4, G6, and G8 depict the aggregate contribution over time for the large, medium-sized, and small members, respectively. Figures G3, G5, and G7 depict the average contribution for each member by category. New member average contributions are calculated from the year the cohort joined NATO through 2013.

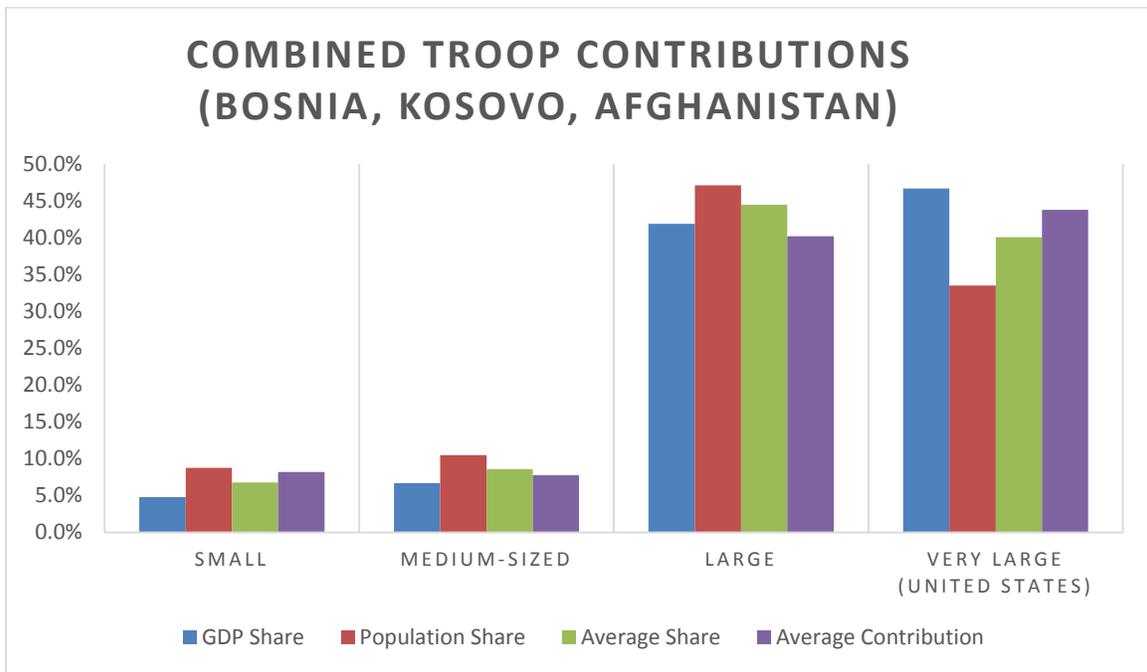


Figure G1: Operational Contributions Compared to GDP and Population (1996-2013).

Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

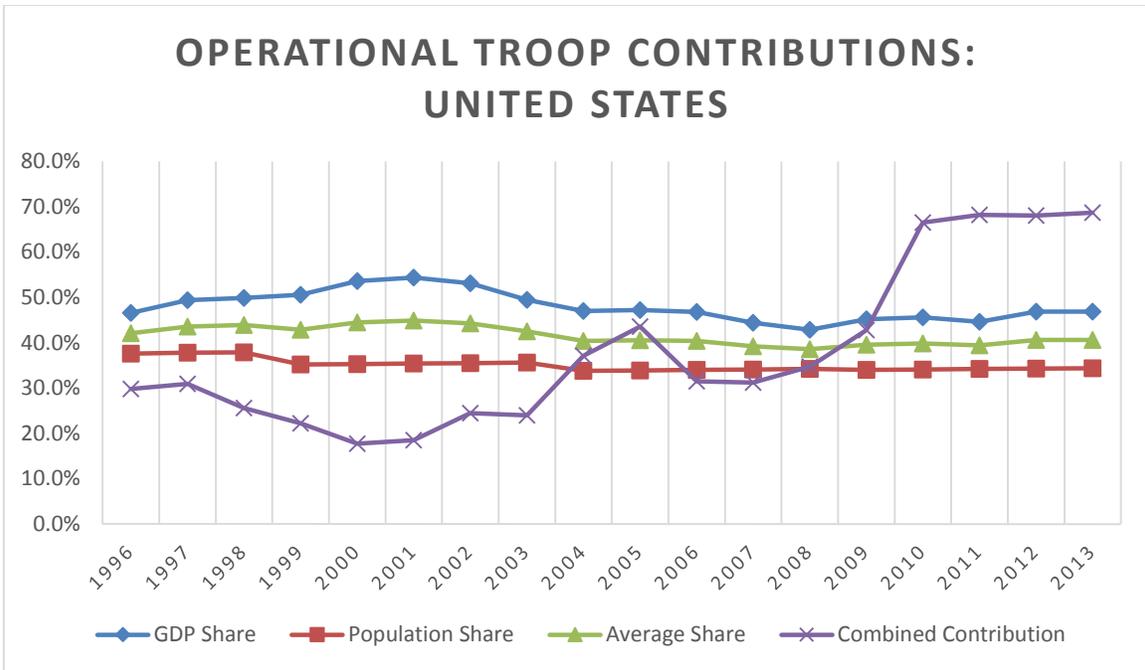


Figure G2: Operational Contributions Compared to GDP and Population (U.S., 1996-2013).
 Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

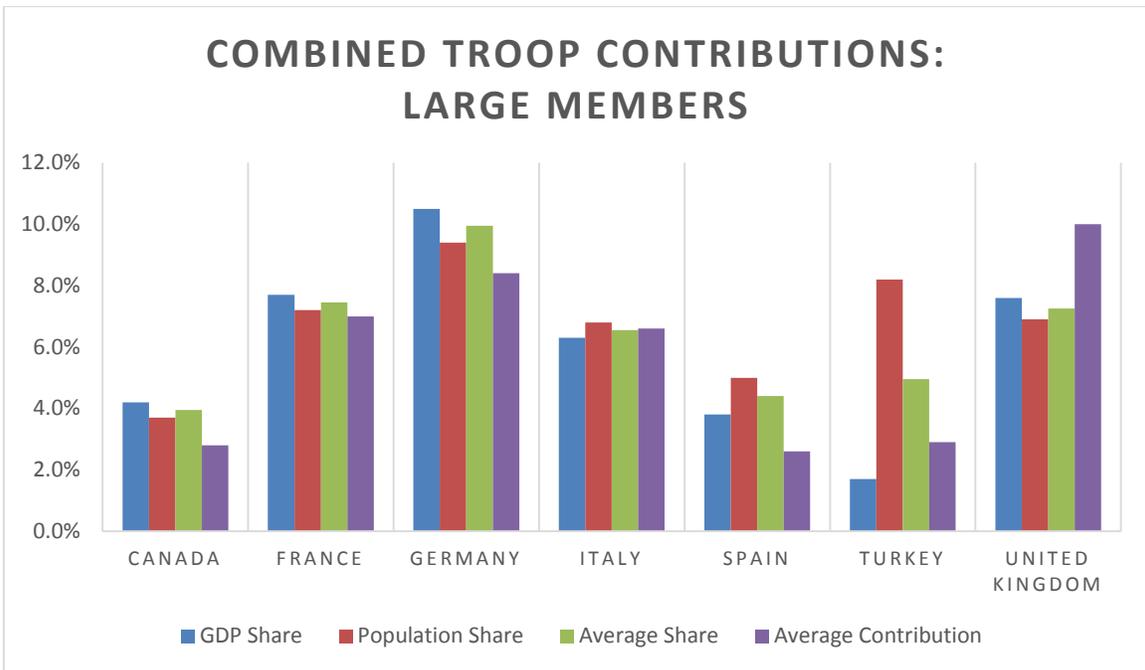


Figure G3: Operational Contributions Compared to GDP and Population (Large Members).
 Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

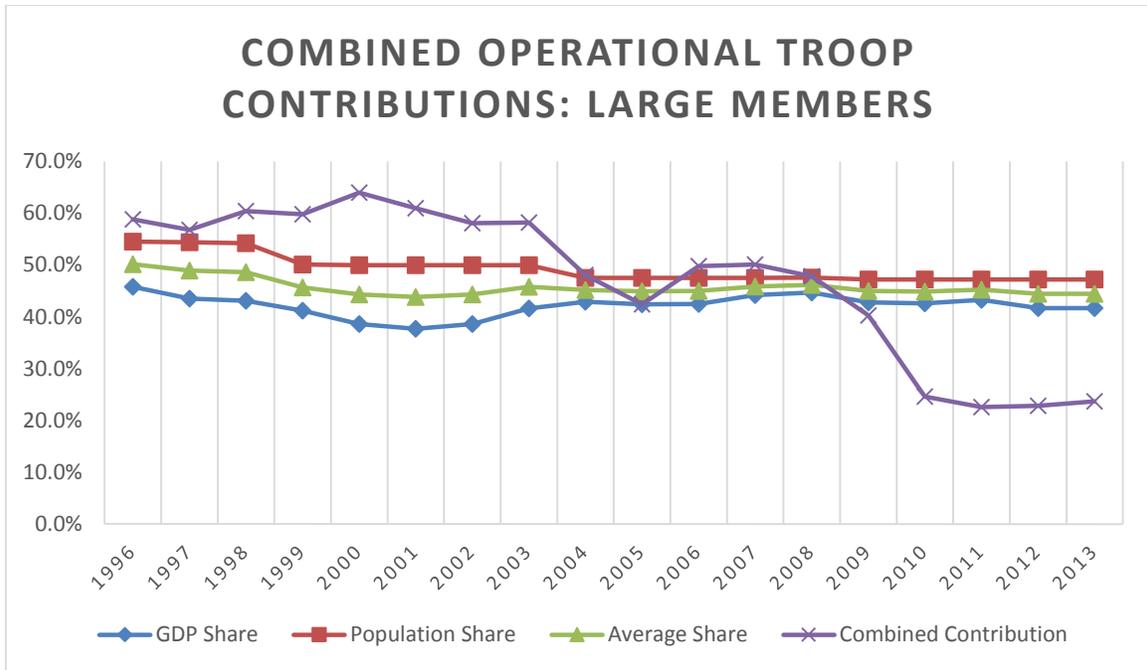


Figure G4: Operational Contributions Compared to GDP and Population (Large Members, 1996-2013).

Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

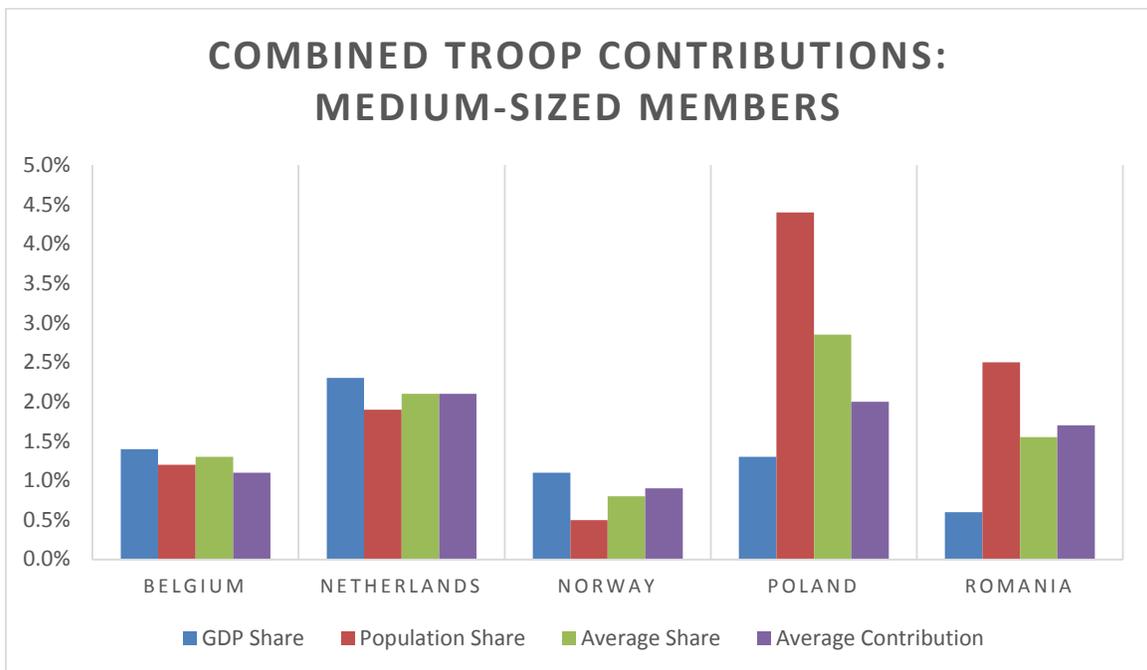


Figure G5: Operational Contributions Compared to GDP and Population (Medium-Sized).

Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

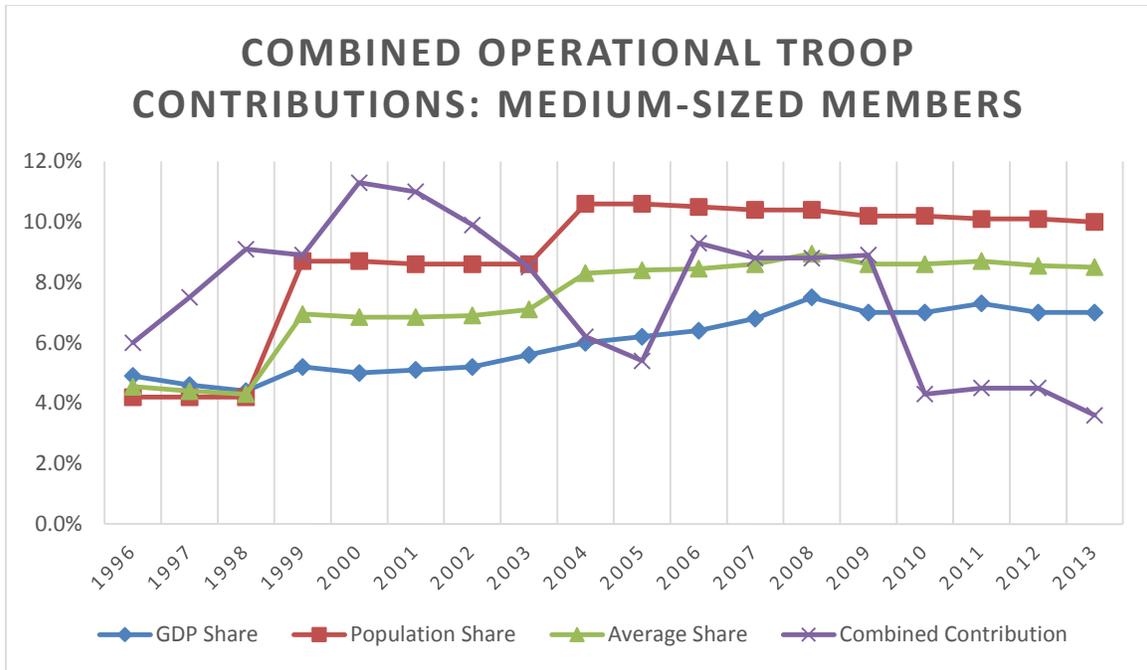


Figure G6: Operational Contributions Compared to GDP and Population (Medium-Sized Members, 1996-2013).

Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

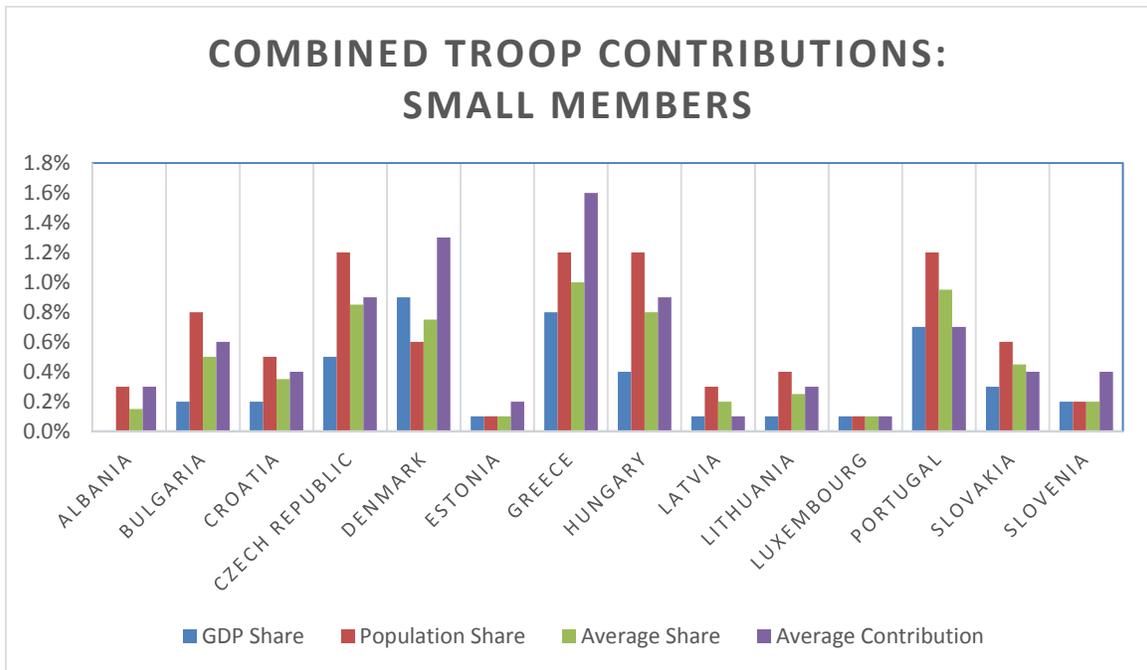


Figure G7: Operational Contributions Compared to GDP and Population (Small Members).

Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

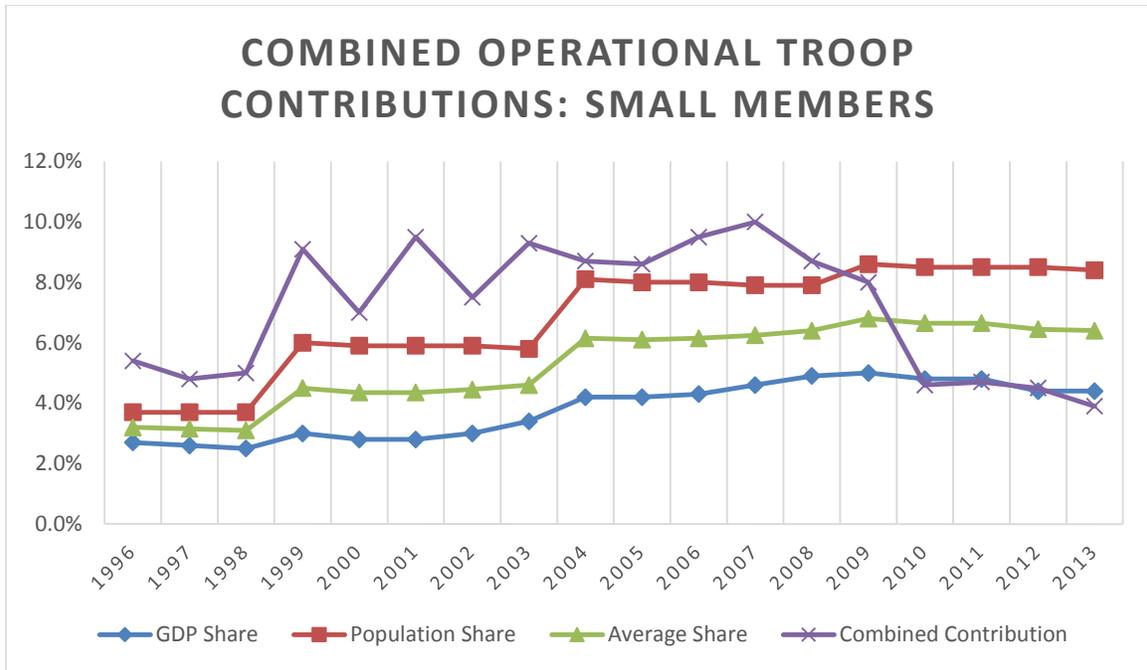


Figure G8: Operational Contributions Compared to GDP and Population (Small Members, 1996-2013).

Source: Data per Appendices D-F, shares per figures 1-3, figure by author.

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