THE US DEMAND FOR DEFENSE SPENDING:

AN EMPIRICAL INVESTIGATION FOR THE POST-COLD WAR ERA

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THE DEGREE OF MASTER OF SCIENCE

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I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

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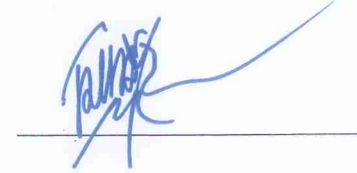
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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

THE US DEMAND FOR DEFENSE SPENDING: AN EMPIRICAL
INVESTIGATION FOR THE POST-COLD WAR ERA

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Based on Smith (1989)'s neoclassical framework, the US demand for defense spending as a share of GDP (defense burden) is estimated by employing a relatively newly developed method called Me-boot rolling windows analysis using quarterly BEA and SIPRI data for the Post-Cold War times. While institutional inertia plays an important role in determining the US defense burden in general, there is no conclusive result concerning the growth rate since positive, negative, and insignificant effects were all observed for different time periods. The US defense burden was found to be well correlated with the price ratio of defense goods to civilian goods during times of high military mobilization probably due to the increasing demand for defense goods. The price effect in Smith's original theory that has been omitted in previous empirical studies due to data unavailability was, thus, confirmed. Both Russian and Chinese defense burdens were found to be important determinants of the US defense decisions after the 2nd millennium. However, since the implementation of the US new Asia-Pacific rebalance policy in 2012, no significant result was reported concerning the Russian threat while there was evidence towards a rising rivalry between the US and China in great extent. This, in turn, suggests that the US military policy follows its foreign policy closely in a very dynamic way.

Keywords: Defense demand, the US, Russia, China

ÖZ

ABD'NİN SAVUNMA HARCAMASI TALEBİ: SOĞUK SAVAŞ SONRASI İÇİN
AMPİRİK BİR ÇALIŞMA

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Bu çalışmada, Smith (1989)'in ortaya koyduğu neoklasik çerçevede, ABD savunma yükü talebi tahmin edilmeye çalışılmıştır. Veriler, BEA ve SIPRI'den elde edilmiş olup, tahmin yöntemi için nispeten yeni bir metot olan ME-boot kayan pencereler yöntemi kullanılmıştır. ABD'nin savunma harcamalarının GDP'deki payının (savunma yükü), kendi gecikmesi, ekonominin büyüme hızı, nispi savunma maliyeti, Rusya ve Çin savunma yükleri ile anlamlı bir ilişki içinde olduğu saptanmıştır. ABD savunma yükü talebinde kurumsal bürokratik durağanlığın büyük bir rol oynadığı görülmüş, farklı zaman aralıklarında saptanan pozitif, negatif ve anlamsız sonuçlardan dolayı büyümenin etkisi için kesin bir yargıya varılamayacağı belirtilmiştir. Savunma fiyatlarının sivil fiyatlara oranı, ABD savunma yükünün belirlenmesinde genel olarak pozitif bir etkiye sahipken, bu etkinin yüksek askeri hareketlilik dönemlerinde artış içinde olduğu gözlemlenmiştir. Smith'in orijinal teorisinde bulunan ve veri eksikliğinden dolayı geçmiş ampirik çalışmalara dâhil edilmemiş olan fiyat etkisi, bu çalışma sayesinde görülebilmiştir. 2000 yılından itibaren Rusya ve Çin savunma yüklerinin, ABD askeri kararlarına olan pozitif etkisi tespit edilmiştir. Ne var ki ABD'nin 2012 yılında itibaren uygulamaya koyduğu yeni Asya-Pasifik denge politikası sonrası, günümüze Rusya'nın artık önemli bir tehdit olmaktan çıktığı, Çin'in ise askeri alanda ABD'nin yeni büyük rakibi olduğu tespit edilmiştir.

Anahtar Kelimeler: Savunma Talebi, ABD, Rusya, Çin

To my lovely wife, Naciye Cihan Tüzün.

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I would like to thank my thesis supervisor Assoc. Prof. A. Talha Yalta of the Economics Department at TOBB Economics and Technology University. The door to Mr. Yalta's office was always open whenever I ran into a trouble spot or had a question about my research or writing. He consistently allowed this paper to be my own work, but steered me in the right direction whenever he thought I needed it.

I must also express my very profound gratitude to my spouse and to my parents for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. Thank you.

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ABBREVIATION LIST

ADIO   : Australia's Defence Intelligence Organisation

APEC   : The Asian Pacific Economic Cooperation

ARDL   : Auto regressive distributed lagged

ARMA   : Autoregressive moving average

AU   : African Union

BRICS   : Brazil, Russia, India, China, South Africa

CELAC   : Community of Latin American and Caribbean States

CIS   : The Commonwealth of Independent States

CISFTA   : Commonwealth of Independent States Free Trade Area

CSTO   : The Collective Security Treaty Organization

DoD   : Department of Defense

EAEU   : Eurasian Economic Union

FCSL   : Fixed-coefficient spatial lag fixed-coefficient spatial lag

GDP   : Gross Domestic Product

ISAF   : International Security Assistance Force

MAD   : Mutual Assured Destruction

Meboot   : Maximum Entropy Bootstrap

Milex   : Military expenditure

NATO   : North Atlantic Treaty Organization

NSSR   : National Security Strategy Report

PPP   : Purchasing Power Parity

R&D   : Research and Development

RSM   : Resolute Support Mission

SADC   : South Africa Development Community

SAARC   : South Asian Association of Regional Cooperation

SCO   : Shanghai Cooperation Organization

SIPRI   : Stockholm International Peace Research Institute

SURE   : Seemingly Unrelated Regression Equations

UK   : United Kingdom

UN   : United Nations

Union State   : Union State of Russia and Belarus

UNPREDEP   : United Nations Preventive Deployment Force

UNSC   : United Nations Security Council

URNG   : Unidad Revolucionaria Nacional Guatemalteca

US   : United States

USA   : United States of America

USAN   : Union of South American Nations

USSR   : Union of Soviet Socialist Republics

VAR   : Vector Auto Regression

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CHAPTER I

INTRODUCTION

To investigate the determinants of demand for defense spending, variety of models have been developed according to different theories about the decision-making mechanism of national defense that encompasses influence of economic, political, and military parameters (Nikolaidou, 2008). Using diverse methodological approaches, past empirical studies of demand for defense spending have focused on individual or group of countries such as NATO members or Asian states, where the US military figures were incorporated into models as explanatory variables. However, almost no study has been conducted to understand the demand for defense spending of a super power such as the United States (US) in Post-Cold War time frame. In the present study, determinants of the US defense spending will be investigated for the Post-Cold War times using a relatively new method, called rolling windows ME-boot analysis developed by Vinod (2004, 2006) (Vinod & de-Lacalle, 2009). The theoretical approach will be based on Smith (1989)'s neoclassical perspective where demand for defense burden is determined by internal economic, political, and military factors as well as external ones such as defense spending of rivals and/or alliances (Na, 2009).

Aggregate defense spending of three great powers –the USA, China, and Russia combined was approximately equal to the rest of the global defense spending in the beginning of the 1990s. Although "pursuit of peace dividends" was observed after the Cold War, great powers' defense spending has increased by around 54% compared to a 39% increase in defense spending of the rest of the world from 1992 to 2016. Around 15% difference between these two figures hint that some military competition might have been in effect between the US, China, and Russia after the Cold War.
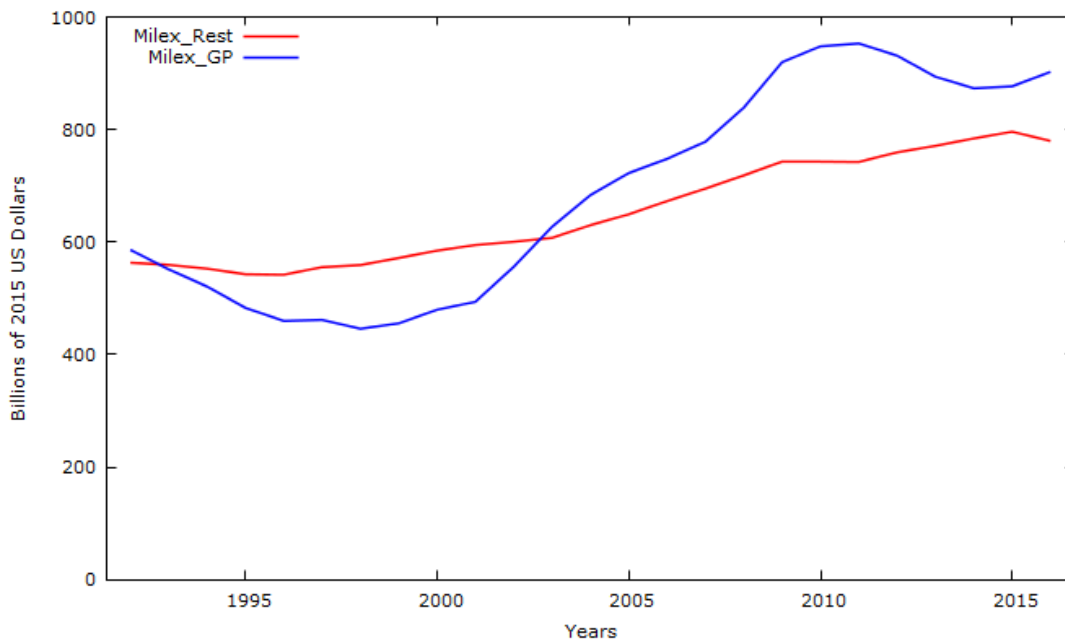
Graph 1.1. Total defense spending of great powers compared to the rest of global defense spending (Constant 2015 prices, SIPRI)

After the collapse of the Union of Soviet Socialist Republics (USSR), most NATO members including the US reduced their percentage of GDP devoted to national defense (defense burden) to pursue peace dividends with the newly-established Russian Republic (George & Sandler, 2018). The defense burdens of the US and Russia were 4.7% and 4.9% respectively about the end of Cold War in 1993. Although both countries reduced their defense burdens for about a decade, they gradually increased their defense spending during the 21st century and their defense burdens again reached the same levels in 2010 for the US and in 2015 for Russia, according to data relieved by the Stockholm International Peace Research Institute (SIPRI) in 2016 (SIPRI Military Expenditure Database). Because both GDP and defense spending of China have risen throughout this time span, Chinese defense burden remained relatively stable around 2% since 1992.
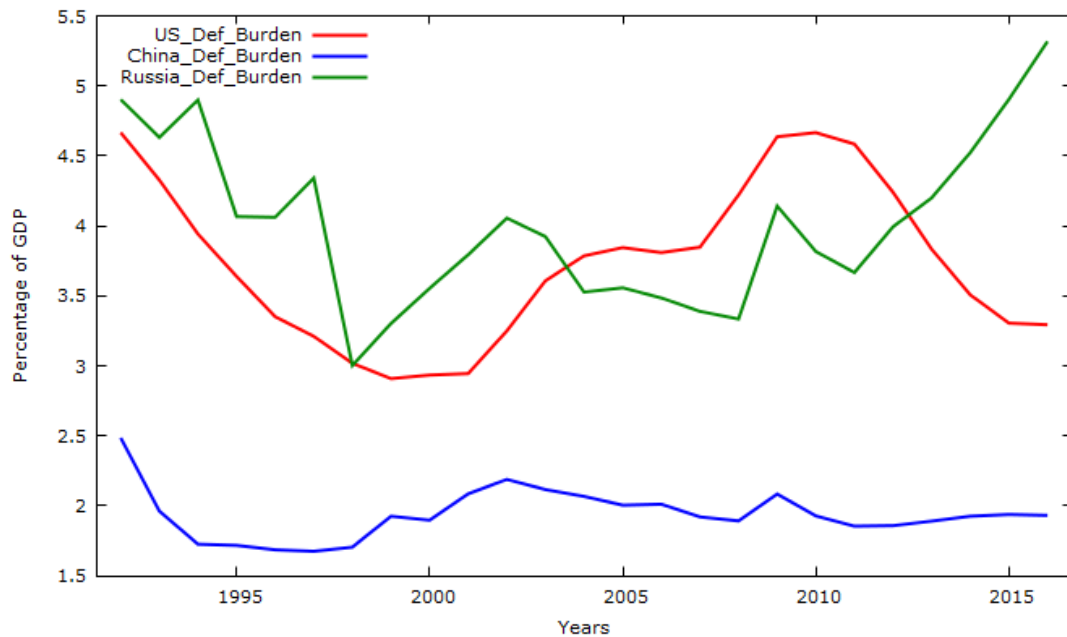
Graph 1.2. Defense burdens of the US, Russia, and China (SIPRI)

However, China has gone under a military modernizations process in the last three decades that manifested itself in aggregate defense spending (Raska, 2014). As of 2016, total defense spending of China and the USA were M$ 515,431 and M$ 225,713

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respectively in constant 2015 prices, according to SIPRI. In terms of aggregate defense spending, although there is still a big gap before China catches up with the US, the gap is closing in a significant pace. China has increased its defense spending by 693% from 1994 to 2016, compared to 17% and 67% increases for the US and Russia respectively. China's per capita military expenditure has also been growing rapidly (Furuoka et al, 2016). From 1995 to 2011, per capita military expenditure had increased tenfold from US$10.4 to US$106.2 (World Bank 2013).
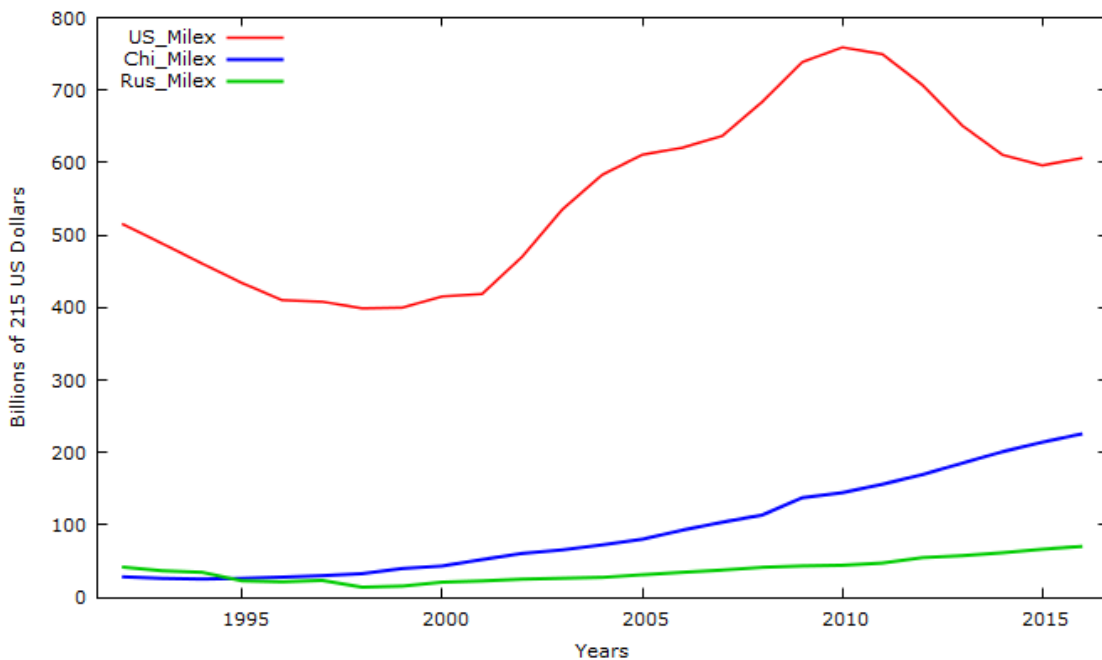
Graph 1.3. Aggregate defense spending of the US, Russia, and China (Constant 2015 prices, SIPRI)

Reasons for such increases might be rooted to conflicts developed in Afghanistan, Iraq, Georgia, and Crimea where interest of the US have confronted with the ones of Russia in the 2000s. Also, there has been an American-led NATO military buildup in Europe and Middle East against the Russian aggression and the Syrian Regime respectively. Chinese belligerence in China Sea against the US-backed Taiwan and North Korea's increased number of nuclear weapon tests have been also considered as political and military

incidents that support increased aggregate defense spending and defense burden of the US throughout the last three decades.

In 2017, National Security Strategy Report (NSSR) issued under Trump administration openly addressed that "China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity". Additionally, then US Secretary of Defense, Jim Mattis, asserted that "great-power competition - not terrorism - is now the primary focus of U.S. national security" as of 2018 and suggested "to prepare the US military for a possible conflict with China and Russia" (Mattis unveils new strategy focused on Russia and China, takes Congress to task for budget impasse, Washington Post, January 19, 2018) (ABD'nin yeni ulusal savunma stratejisi: 'Öncelik terörizm değil güç rekabeti, BBC, January 19, 2018).

The US, China, and Russia are permanent members of the United Nations Security Council (UNSC) that hold veto power for any resolution offered in meetings. With this respect, records of UNSC meetings carry helpful information regarding political confrontations great powers involve in in the international arena. The Veto List of UNSC provides with records regarding the voting behavior of the states in meetings where a veto vote is cast along with favor, against, and abstained votes. The correlation matrix of the votes of the five veto states in total of 35 meetings where resolutions about important global incidents are submitted shows the conflicting political interest between the US, Russia, and China. While the US votes are correlated positively with the votes of the UK and France, the correlations of the US votes with Russia and China are -0.9 and -0.6 respectively.

Figure 1.1. Correlation matrix of votes in UNSC vetoed meetings

Correlation matrix
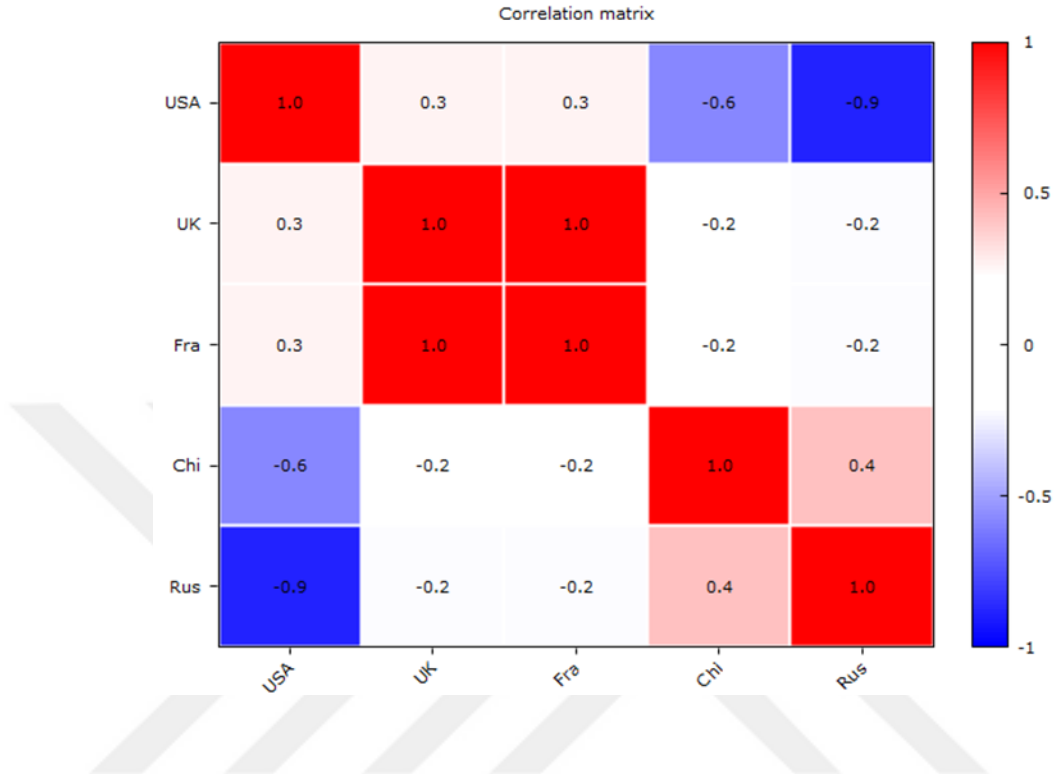
All in all, military data, political confrontations and official reports together hint that the world again show signs of, if not a global war, a developing global political and military crisis and therefore make it crucial to study and grasp the determinants of the US demand for military spending as the biggest player in the game. The rest of the paper is arranged as such: 2. A review of great powers, 3. Literature review, 4. Adopted theory and model, 5. Data and Methodology, 6. Empirical Findings, and 7. Conclusion.

CHAPTER II

A REVIEW OF GREAT POWERS

2.1. UNSC

The United Nations Security Council (UNSC) consists of representatives from 15 states including five permanent members - the USA, UK, France, Russia, and China (Membership and Election, UN website). The remaining ten non-permanent members are elected in the United Nations General Assembly for a two year term in accordance with the General Assembly resolution 1991 (XVIII) of 17 December, 1963 (Membership and Election, UN website). UNSC functions as a habitat where important worldwide disputes are discussed amongst member states to provide resolutions. UNSC has power to act on behalf of all members of the UN and, in some cases, can resort to imposing sanctions or even authorize the use of force to maintain or restore international peace and security (Functions and Powers of the Security Council, UN Website). An example of this is the deployment of UN Protection Forces in Croatia and in Bosnia and Herzegovina during the wars in Yugoslavia in 1992 (Ramcharan, 2011). Accordingly, all members of the UN are obliged to implement the decisions made by the Security Council as dictated by the UN Charter (Functions and Powers of the Security Council, UN Website).

With all these rules, regulations and requirements, UNSC proves to be the most powerful entity regarding international peace and security. However, this power might not represent all world nations' interest equally. UN Charter requires that "Decisions of the Security Council on all other matters shall be made by an affirmative vote of nine members including the concurring votes of the permanent members", meaning simply that the USA,

UK, Russia, China, and France holds the veto power in the Council. This structure of UNSC translates into that no member of the Council is able to pass a statement, make a decision, or give authorization to a military/political intervention without consulting and complying with these five permanent member states. This situation, in fact, reduces the decision making process of the UNSC from 15 member states to only five and deteriorates the fundamentals of democracy. Even more than a decade ago, privilege of veto power was criticized "anachronistic" in the UN official reports: "We see no practical way of changing the existing members' veto powers. Yet, as a whole the institution of the veto has an anachronistic character that is unsuitable for the institution in an increasingly democratic age and we would urge that its use be limited to matters where vital interests are genuinely at stake." (Report of the High-level Panel on Threats, Challenges and Change, Secretary General of the UNSC, 2004)

Although undemocratic, and controversial, this structure of UNSC also provides us with tangible information regarding the USA's allies and adversaries worldwide, for the purpose of this study.

By consulting to the meeting records and draft resolution details of UNSC, one can rightly infer that the most powerful international entity regarding global peace and security is mostly controlled for the interest of two main grouping among its member states: the USA, UK, France (frequently supported by non-permanent members) on the one side, Russia and China on the other side. With this regard, the Veto List of UNSC meetings displays us a general understanding of the political ambitions of the USA, Russia, China, and NATO members worldwide inferred from the information available in the meeting records and submitted draft resolutions of the UNSC.

Date	Discussion	Region	Favor						Against					Abstaining		
17.11.2017	Renew the mandate of the Joint Investigative Mechanism in Syria	Syria	UK	USA	Fra	Ita	Swe		Rus					Chi		
16.11.2017	Renew the mandate of the Joint Investigative Mechanism in Syria	Syria	Rus	Chi					UK	USA	Fra	Ita	Swe			
24.10.2017	Renew the mandate of the Joint Investigative Mechanism in Syria	Syria	Rus	Chi					UK	USA	Fra	Ita	Swe			
12.04.2017	Condemnation of chemical weapons by Syrian State in Idlib	Syria	UK	USA	Fra	Ita	Swe		Rus					Chi		
28.02.2017	Condemnation of chemical weapons in Syria	Syria	UK	USA	Fra	Ita	Swe		Rus	Chi						
05.12.2016	Iteration of political process, Cessation of hostilities & Cessation of colloboration with ISIL	Syria	UK	USA	Fra	Spa			Rus	Chi						
08.10.2016	Humanitarian aid to Syria & Cessation of military flights over Aleppo	Syria	UK	USA	Fra	Spa			Rus					Chi		
29.07.2015	Downing of Malaysia Airlines flight on 17 July 2014 in Donetsk Oblast, Ukraine	Ukraine	UK	USA	Fra	Spa			Rus					Chi		
08.07.2015	Condemnation of Srebrenica events & Acception of Srebrenica as genocide	Bosnia-Herzegovina	UK	USA	Fra	Lith			Rus					Chi		
22.05.2014	Violation of human rights by Syrian authorities	Crimea	UK	USA	Fra	Lith	Lux		Rus	Chi						
15.03.2014	Noting concern over Crimea referendum & Declaration of the referandum as invalid	Syria	UK	USA	Fra	Lith	Lux		Rus					Chi		
19.07.2012	Breaching of the six-point plan by the Syrian State	Syria	UK	USA	Fra	Ger	Por		Rus	Chi						
04.02.2012	Condemnation of violation of human rights & Demands from Syrian State end of violence against own people	Syria	UK	USA	Fra	Ger	Por		Rus	Chi						
04.10.2011	Condemnation of violation of human rights & Iteration of political porcess & Condemns attacks on diplomatic personell in Syria	Syria	UK	USA	Fra	Ger	Por		Rus	Chi						
18.02.2011	Condemning Israeli settlement activities in the Palestinian Territory	Israel-Palestine	UK	Fra	Ger	Por	Rus	Chi	USA							
15.06.2009	United Nations presence in the region of the Abkhaz/Georgian border	Georgia-Abkhazia	UK	USA	Fra	Tur	Cro		Rus					Chi		

Table 2.1. UNSC Veto Meetings – 1

Date	Discussion	Region	Favor							Against		Abstaining		
11.07.2008	Concern over presidential election in Zimbabwe & Condemning government oppression of own people & Cessation of political violence on oppositions	Zimbabwe	UK	USA	Fra	Ita	Bel	Cro		Rus	Chi			
12.01.2007	Call upon Myanmar authorities to release Daw Aung San Suu Kyi and to stop military attacks to ethnic minorities in the Karen Region	Myanmar	UK	USA	Fra	Ita	Bel	Svk		Rus	Chi			
11.11.2006	Investigation of Beit Hanoun attack & Condemnation of Israeli military attacks in Gaza Strip & Call upon Israel and Palestinian Authority to stop violence	Israel-Palestine	Rus	Chi	Fra	Gre				USA		UK	Dan	Svk
13.07.2006	Calls upon Israel to release Palestinian ministers and officials & Halting of military operations by Israel along Gaza Strip	Israel-Palestine	Rus	Chi	Fra	Gre				USA		UK	Dan	Svk
05.10.2004	Condemning Israeli military incursion around the Jabaliya refugee camp in Northern Gaza Strip & Demands withdrawal of Israeli forces from the area	Israel-Palestine	Rus	Chi	Fra	Spa				USA		UK	Ger	Rom
21.04.2004	Comprehensive Settlement process of Cyrus & Decisions about arms embargo and military restriction on Turkish and Greek Cypriots	Cyprus	UK	USA	Fra	Ger	Spa	Rom	Chi	Rus				
25.03.2004	Condemnation of execution of Sheikh Ahmed Yassin by Israel in Gaza City	Israel-Palestine	Rus	Chi	Fra	Spa				USA		UK	Ger	Rom
14.10.2003	Recognizing the construction of wall by Israel in occupied territories as illegal & Stressing the need to end Israeli occupation begun in 1967	Israel-Palestine	N.A.	N.A.	N.A	N.A.	N.A.	N.A.	N.A.	USA		N.A.	N.A.	N.A.
16.09.2003	Demanding from Israel to cease threats to the elected president of Palestinian Authority	Israel-Palestine	Rus	Chi	Fra	Spa				USA		UK	Ger	Bul
20.12.2002	Concerns over destruction of UN Food Programme warehouse and killings of UN employees by Israeli forces	Israel-Palestine	UK	Rus	Chi	Fra	Nor			USA		Bul		
30.06.2002	Extending the mandate of UNMIBH & Authorization of forces and personell of UN and EU in Bosnia towards peace-keeping objectives	Bosnia-Herzegovina	UK	Rus	Chi	Fra	Nor			USA		Bul		

Table 2.2. UNSC Veto Meetings – 2

Date	Discussion	Region	Favor							Against	Abstaining		
15.12.2001	Resumption of negotiations between Israel and Palestine & Implementation of the Mitchell Report & Demanding return to positions prior to September 2000	Israel-Palestine	Fra	Rus	Chi					USA	UK	Nor	
28.03.2001	Resumption of negotiations between Israel and Palestine & Calls for full cessation of Israeli settlement activities including the ones in Jabal Abu Ghneim & Calls for return to positions prior to September 2000	Israel-Palestine	Rus	Chi						USA	UK	Nor	Fra
25.02.1999	Decision to extend the mandate of UNPREDEP (United Nations Preventive Deployment Force)	Macedonia-Yugoslavia	UK	USA	Fra	Neth	Can	Svn		Chi	Rus		
21.03.1997	Demanding from Israel cessation of construction of the Jabal Abu Ghneim settlement in East Jerusalem	Israel-Palestine	UK	Fra	Por	Pol	Swe	Rus	Chi	USA			
07.03.1997	Calling Israeli settlements as illegal & Concerns over settlement activities by Israel in the Jabal Abu Ghneim area in East Jerusalem & Calls upon the Israel to refrain settlement activities	Israel-Palestine	UK	Fra	Por	Pol	Swe	Rus	Chi	USA			
10.01.1997	Decision to attach 155 military observers to MINUGUA (Comprehensive Agreement on Human Rights in Guatemala)	Gov. of Guatemala & Unidad Revol. Nac. Guatemalteca (URNG)	UK	USA	Fra	Rus	Por	Pol		Chi			
17.05.1995	Confirmation of the invalidity of the expropriated Palestinian land in East Jerusalem by Israel & Calls upon Israel to refrain such expropriation of land in the future	Israel-Palestine	UK	Fra	Ger	Ita	Rus	Chi	Cze	USA			
02.12.1994	Deploring the denial of humanitarian assistance to the Bihac region in Bosnia due to blocking of humanitarian convoys by Serbian forces in Bosnia and Crotia & Demands full application of border rules between Yugoslavia, Bosnia, and Crotia	Bosnia-Herzegovina	UK	USA	Fra	Spa	Cze			Rus	Chi		

Table 2.3. UNSC Veto Meetings – 3

From 1994 to 2017, 35 meetings of the UNSC ended up with an impeded decision due to veto of some permanent members. While 19 out of 35 draft resolutions for different international disputes were vetoed by Russia or China, 16 of them vetoed by either the USA, UK, France or a combination of them. In none of the vetoed resolutions since 1994, did the USA and Russia prevail the same vote as *Favor* or *Against* except the one about Government of Guatemala and the Unidad Revolucionaria Nacional Guatemalteca (URNG) in which both of them voted *Favor,* but it was still vetoed by an *Against* vote by China.

It is also worth noting that Russia, along with the USA, had not *Abstain*ed from a vote except only one time, which concerned a decision for the United Nations Preventive Deployment Force (UNPREDEP) to be employed in Macedonia-Yugoslavia conflict in 1999 for an extended time period. Russia always pointed its objection directly and either *Favor*ed or remained *Against* a decision according to the US position in the voting. China positioned itself on Russia's side most of the time, however it displayed a more timid behavior in the recent years. From 2014 on, China *Abstain*ed from the vote 6 times, not giving an open and direct support to Russia.

While the USA, UK, France and other non-permanent members of NATO states moved together against Russia and China in the voting process most of the time, the USA is sometimes left alone and sometimes not given enough support by UK and France when it comes to decisions about Israeli-Palestinian conflict. Five out of 13 such meetings, in which resolutions are vetoed about Israel and Palestine case, the USA remained as the sole member to vote *Against* the decision and vetoed the resolutions alone. On the one hand, UK *Abstained* from the vote six times in Israeli-Palestinian conflict and did not

display its direct support to the USA in the vetoing, France, on the other side, did *Favor*ed 12 out of 13 times and opposed the US in the decision making process of the same topic. Moreover, the US could only get enough support from the non-permanent NATO member states: While Italy, Spain, Portugal, Poland, Greece, Canada, and Czech Republic always placed themselves in the opposing side of the US when it comes to Israeli-Palestinian topic, support of Norway, Denmark, Germany, Romania, Bulgaria and Slovakia only remained as *Abstain*ing from the vote since 1994. What is inferred is that interests of NATO member states could divert from the ones of the USA time to time. Being aware of this, the US might not take the security decisions of NATO members guaranteed, even though they would be official allies under the same organization. This being said, Russian and Chinese adversary seems to be some unchanging ones for the USA since 1994.

UNSC Veto List provides with a general understanding of the alliances and adversaries built on the international stage. To summarize, it is observed that while the USA and NATO member states act towards the same direction most of the time, Russia and China seems to form an alliance on the opposite side. This setting in general sets ground to this study as I am able to identify allies and adversaries of the USA with the help of information provided by UNSC meeting records and vetoed resolutions.

2.2. The US

The US stands out as the greatest military power with respect to its paramount defense expenditure and advanced military technology today. In 2016, the US allocated around $606 billion to defense, while the rest of the world excluding China and Russia spent approximately $ 1385 billion to defense, with constant 2015 prices according to SIPRI.

Moreover, this one half ratio in defense spending has been preserved almost always since the end of Cold-War. When Figure 2.1. is investigated, it is noteworthy to underscore that defense spending of the US and the rest of the world are in an increasing pattern since the beginning of the second millennium, which coincides with the US military intervention in Afghanistan as a response to 9/11 attacks . This coincidence that results with the radical increase in world defense spending signifies a crucial fundamental in defense economics literature. It is academically accepted that states around the world considers a rise in US defense spending as a signal for a regional and/or global uproar and adjust their defensive means accordingly. This brings the idea of the US being the Stackelberg leader in defense spending in the world (Bruce 1990) (Markowski et. al 2017), which gives states an opportunity to free-ride or follow the US as it is the case in Asian countries (George et al, 2018). For this reason, while most of the recent demand for defense spending studies include the US defense spending as an explanatory variable in their models, little has been done to understand the defense behavior of the US itself except for a few within the literature of defense economics.
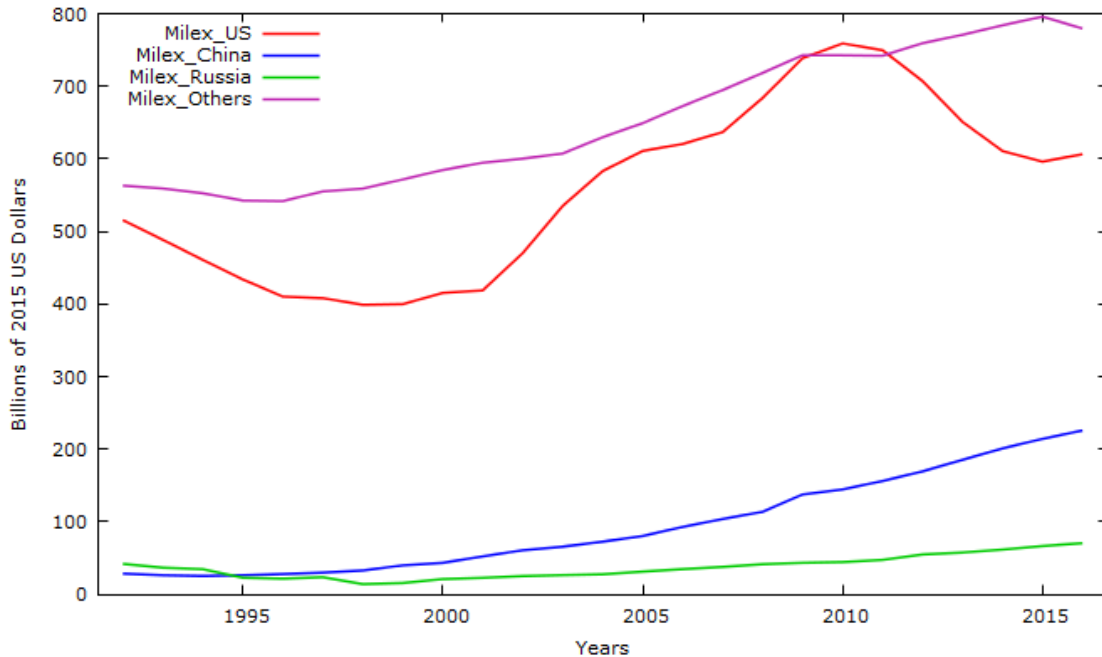
Graph 2.1. The US Military Expenditure Compared to China, Russia, and the Rest of the World for the 1992-2016 period

Excluding war time mobilization, Nincic and Cusack (1979) found out that the main determinants in defense spending dynamics were the anticipated utility of defense spending for aggregate demand stabilization, the political value of the anticipated economic effects due to defense spending, and the pressures arising from institutional-constituency demands (Nincic & Cusack, 1979). Cusack & Don Ward (1981) conducted an empirical investigation regarding demand for defense expenditure of the US, Russia, and China for the Cold War times based on both Ricardson's ams race model and domestic political economy model separately for the purpose of comparison and they reached the conclusion that there exist little evidence of an arms race among these three great powers. Based on domestic political economy model, they found out that change in defense spending of the US depends on electoral cycle, change in aggregate demand, change in military expenditure, and war mobilization (Cusack & Don Ward, 1981). On the contrary,

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Don Ward (1984) validated the existence of an arms race between the US and the USSR employing a continuous time simulation model of the arms expenditure and stockpiles of two countries. He defended that great power states react to the stockpiles of weapons rather than aggregate defense spending of their perceived opponents and claimed that the action-reaction system might need around 3000 years to return to the steady state (Don Ward, 1984). Employing arms race model, Meanna (2004) employed methodologies of Johansen co-integration and error correction together with vector auto regression (VAR) technique, and found out that military spending and economic growth have neither a statistical nor an economic impact on each other for the US for the 1959-2001 time period (Meanna 2004).
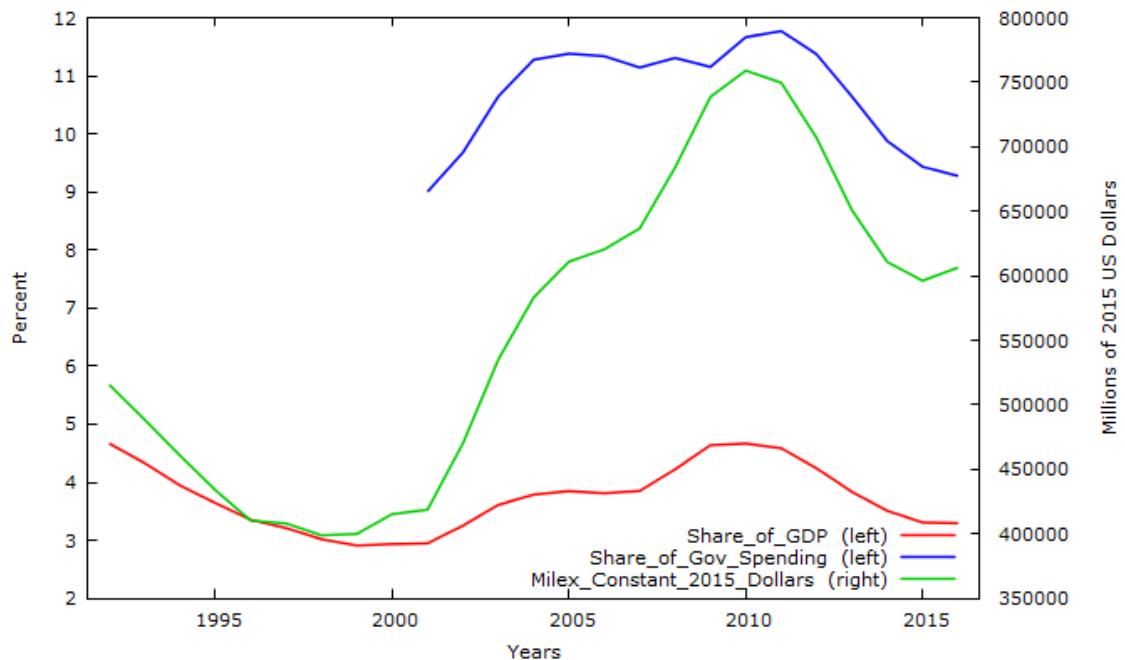
Graph 2.2. US defense spending summary for 1992-2016 time period

According to Professor Jules Dufour, there exist between 700-800 military facilities of the US in 63 countries and 255,065 US military personnel deployed Worldwide according to the data collected between 2001 and 2005 (The Worldwide Network of US Military

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Bases, Global Research). Gelman (2007) examined 2005 official Pentagon data and found out that the US owns a total of 737 military facilities overseas. Also counting the military facilities within the boundaries of U.S., land area occupied by US military bases globally covers approximately 2,202,735 hectares in total, which deems the US Department of Defense one of the greatest landowners in the world (Gelman, J., 2007). According to the article published in POLITICO, the US possesses 800 military bases in more than 70 countries and territories abroad, which cost $160 to $200 billion to the US government (Where in the World Is the U.S. Military?, POLITICO, July 2015). Currently, with incomparable defense force, the US owns an exclusive ability to act anywhere in the world with its military pursue US interests and to maintain "full spectrum dominance" (US Military Expansion and Intervention, Global Policy Forum)

Map 2.1. US Military Facilities Around the Globe (Where in the World Is the U.S. Military?, POLITICO, July 2015)
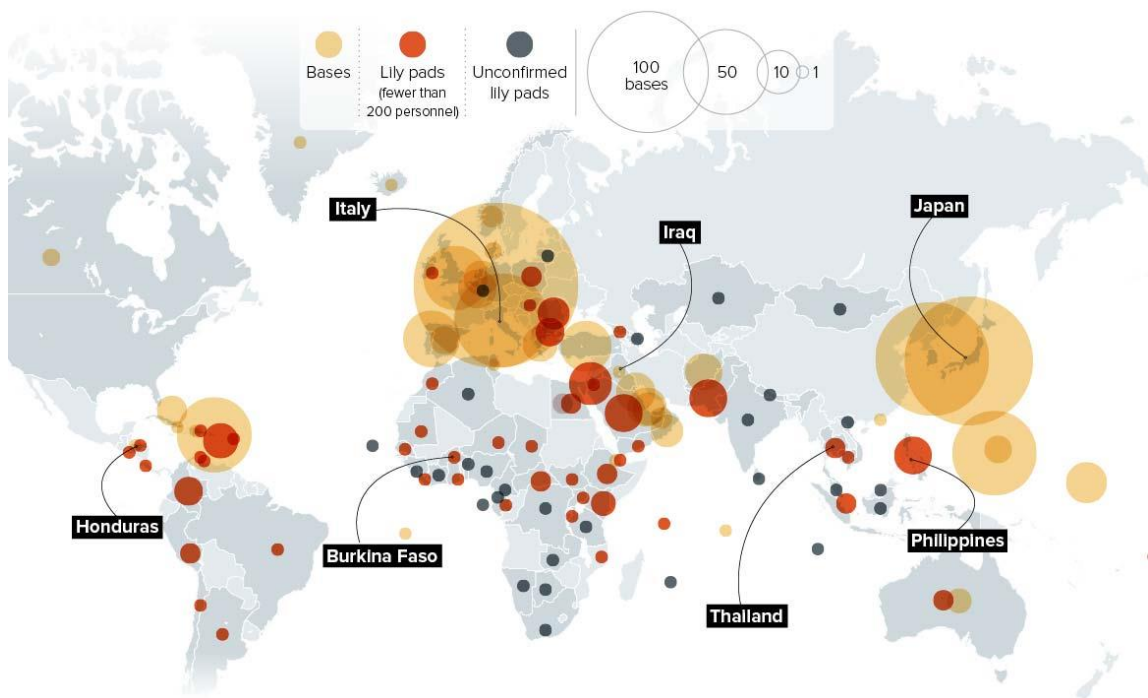
2.3. NATO

NATO's founding treaty was signed in 1949 in Washington D.C. between 12 European and North American states to create a defense pact against Soviet Russia as Russia's ambition of extending its control of Eastern Europe to other parts of the continent became immediate with the Berlin Blockade in 1948, and the 1948 Czechoslovak military coup organized by the Communists (NATO Encyclopedia, 2016). Not so surprisingly, NATO's first Secretary General, Lord Ismay from United Kingdom, stated that a primary goal of the organization was to 'keep the Americans in, the Russians out' (Reynolds, 1994).

From 1949 to 1967, NATO relied mostly on strategic nuclear weapons to avert Soviet expansion grounded on mutual assured destruction (MAD) doctrine, meaning that any territorial expansion of the USSR involving NATO member states would be retaliated with a nuclear attack by means of the nuclear arsenals of the US, the UK, and France (George & Sandler, 2018). This in turn supplied public benefits to allied countries under NATO (Olson and Zeckhauser, 1966) by means of free-ride.

Following Harmel Report issued in 1967, NATO adopted the doctrine of flexible response, whereby NATO would respond in a suitable way to the aggression of the Warsaw Pact (Future Tasks of The Alliance - Harmel Report, 1967). However, Murdoch and Sandler (1984) showed that flexible response was not effective until 1975, the year in which smaller NATO allies that did not have nuclear arsenal really started off building up conventional forces of themselves to defend their states against possible Soviet aggressions.

After the end of the Cold War that resulted with the collapse of the USSR in 1991, the reorganized Russian Federation did not pose danger to European states (George & Sandler, 2018), thus NATO continued its services in Bosnia and Kosovo by providing peacekeeping and humanitarian operations (Gaibulloev et al, 2015). In accordance, Bosnia-Herzegovina operation during the four-year war period when Yugoslavia collapsed was NATO's first operation undertaken as a major crises response (Peace Support Operations in Bosnia and Herzegovina, Encyclopedia of NATO)

Today, 29 independent states are active members of NATO with only the USA and Canada are from outside of the European continent. Even though the founding objective of NATO was to keep the Americans in and the Russians out, 13 member states including Poland and Czech Republic joined the organization after 1999. After 1999, number of NATO members grew by 75% when former members of the Warsaw Pact along with two portions of nonaligned Yugoslavia joined NATO (George & Sandler, 2018). Post-Soviet states like Estonia, Latvia, and Lithuania, however, had not become a member of NATO up until 2004, 13 years after the breakup of the USSR. Yet, Belarus, Moldova, and Ukraine are states who had been established in Europe after the collapse of the USSR and have still not joined NATO till today (Member Countries, NATO website). This might show that although NATO contributed to form an alliance against Russia, Russian impact on the post-Soviet states has lasted more than a decade after the collapse of the Soviet Union and could also be observed today.

As noted in The Independent on February 5, 2017, there are approximately 7200 troops consisting of soldiers and equipment from the USA, UK, Canada, France, Germany, Italy, Spain, Denmark, Norway, Poland, Albania, Slovenia, Croatia, Netherlands, and

Luxemburg across the Western border of Russia. Troops are spread across Russia's western border in Estonia, Latvia, Lithuania, Poland, Romania, and Bulgaria with the support of the local militaries. The largest battalion got located in early 2017 in Poland and led by US with 4000 US troops and 250 tanks. Also, 300 US marine soldiers are on service in Norway sharing border with Russia in the Arctic Circle. The NATO build-up across Russian border is part of a mission, called Operation Atlantic Resolve, and created to exhibit to Russia the commitment of the US to defend its NATO allies (The map that shows how many NATO troops are deployed along Russia's border, The Independent, February 5, 2017). Russian officials claim that this is the largest military build-up since the World War II (US Troops Deployed to Poland in Response to Russian Aggression. The Independent, January 9, 2017).

Although it is seems unfair that the USA shoulders most of the defense burden amongst NATO members with approximately two-third of the total defense spending of NATO (Military Spending by NATO Members, February 16, 2017, The Economist) it cannot be denied that the USA could not be able to encircle Russian western border without the geographical support of the other member states. With this regard, while NATO Declaration after the Wales Summit in 2014 guides all member states to achieve a defense budget equivalent to 2% of their GDP in real terms, the same level of defense burden might still not be a fair contribution to the organization, taking into account the important geo-political location of some states like Poland, Estonia, Latvia and Lithuania bordering Russia. Given that Belarus and Ukraine - other passages to Russia – are not NATO members, only the pure value of the strategic location of these four member states might

exceed any other contribution to the organization since the very existence of NATO is to fight against Russian influence in parts of Europe.

Map 2.2. NATO's Military Build-up in Eastern Europe (The map that shows how many Nato troops are deployed along Russia's border, The Independent, February 5, 2017

NATO's military buildup in Eastern Europe

Estonia

800 troops UK-led battalion and troops from Denmark and France. Baltic Air Policing with 4 German Typhoon jets.

Latvia

1,200 troops Canadian-led battalion and troops from Albania, Italy, Poland, Spain and Slovenia.

Lithuania

1,200 troops German-led battalion with troops from Belgium, Croatia, France, Luxembourg, Netherlands and Norway. Baltic Air Policing with 4 Dutch F-16 jets.

Poland

4,000 US troops* US-led battalion with heavy armour including 250 tanks, Bradley Fighting vehicles and Paladin howitzers.

Romania Southern Air Policing with 4 RAF Typhoon jets**

Bulgaria

* Estonia, Latvia, Lithuania, Poland, Bulgaria & Romania will all receive U.S. troop and hardware rotations.
** Three months from summer 2017.

@StatistaCharts   Sources: NATO, news reports, respective militaries   INDEPENDENT   statista

Spangler (2017) investigated the US effects on European demand for military expenditure using Arellano and Bond method (1991) and found out that a 10% increase in total US defense spending would result in a 3.6% fall in defense spending in Europe. This shows a substitution effect between military expenditures of US and European states, which mostly consist of NATO members in his study. According to his findings, European states might not include number of US military personnel and bases located in the continent in their security considerations, but they do react to threats Russia poses

regionally. An approximately 60% average increase in real military expenditures of the Baltic states - Estonia, Latvia, and Lithuania – from 2013 to 2016 might be an evidence towards Spangler's this finding since annexation of Crimea by Russia could be taken as a significant threat to small countries bordering Russia (Poland Welcomes Thousands of US Troops in NATO Show of Force, CNN, January 14, 2017).

After the 9/11 tragedy happened in 2001 in the US, NATO took part in combating Al-Qaeda in Afghanistan as its longest and most arduous operation until today with troops from NATO and partner states that exceeded 130,000 soldiers in total. NATO led the International Security Assistance Force (ISAF) between August 2003 and December 2014 and conducted security operations in order to help the Afghan nation building up their security forces (NATO and Afghanistan, Encyclopedia of NATO). Although ISAF operation ended, NATO launched, in 2015, a new non-combat Resolute Support Mission (RSM) to train, advice and assist Afghan security forces/institutions. As of November 2017, military contributors of the alliance confirmed that RSM troops will be increased from about 13,000 to approximately 16,000 soldiers (NATO and Afghanistan, Encyclopedia of NATO).

Concerning the Russian annexation of Crimea in 2014, NATO leaders condemned military intervention of Russia in Ukraine and demanded from Russia to withdraw its forces from Ukraine at the NATO Summit in Wales in the same year. However, because Ukraine is not a NATO member, Article 5 of the organization's founding treaty, which follows "an attack against one Ally is considered as an attack against all Allies" did not apply. Instead of direct military intervention, NATO decided to support Ukraine politically by halting all civilian and military cooperation with Russia. After the Wales

Summit, "five trust funds were set up in critical areas of reform and capability development of the Ukrainian security and defense sector, including command, control, communications and computers; logistics and standardization; cyber defense; military career transition; and medical rehabilitation. A sixth Trust Fund on explosive ordnance disposal/counter-improvised explosive devices followed in 2016" (Relations with Ukraine, NATO web site).

With regards to the Syrian war, NATO deployed defensive missile systems across southern border of Turkey to protect the population and territory of a member country against ballistic missile threats from the Syrian crisis in 2012. At the end of 2015, NATO agreed to reinforce support to Turkey in the form of enhanced air patrols, increased intelligence, surveillance and reconnaissance, and a stronger naval presence in the Eastern Mediterranean.

2.4. RUSSIA

Dissolution of Union of Soviet Socialist Republics (USSR) in 1991 resulted with the birth of 15 independent states of which Russian Federation became the successor country of the USSR and inherited the UN Security Council permanent membership. Under different intergovernmental organizations, Russia as the primary mover maintained its political, economic, and military influences on these newly independent states. The list of such organizations are listed below:

Map 2.3. Post-Soviet States and Disputed Areas (Post-Soviet world: what you need to know about the 15 states, The Guardian)

1. <u>The Commonwealth of Independent States (CIS):</u> Founded on 8 December 1991. Aimed at coordination in the areas of trade, finance, lawmaking, security, and cross-border crime prevention. Member states are Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Uzbekistan. While Turkmenistan joined the CIS in the 1993 expansion of the organization, it only remained as an associate state rather than a fully member state today. As one of the founding states of the CIS, Ukraine withdrew from the organization on 19 May, 2018 due to Russian annexation of Crimea. Also Georgia withdrew from the CIS on 18 August, 2008 due to Russo-Georgia War that took place in South Ossetia and Abkhazia.

2. <u>The Collective Security Treaty Organization (CSTO):</u> A military alliance that was signed by six post-Soviet states belonging to the Commonwealth of Independent States on 15 May 1992. Although some other post-Soviet states have joined and left the organization, today, Russia, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan participate as the member states. Afghanistan and Serbia are non-member observer states within the organization. Azerbaijan, Georgia, and Uzbekistan are also former member states that withdrew from the alliance in 1999. The CSTO gives veto right to Russia for the establishment of new foreign military bases in the member states (CSTO tightens foreign base norms, The Hindu, December 22, 2011) , allows all members to purchase Russian weapons at the same price as Russia (Gendarme of Eurasia, Kommersant, October 8, 2007), and handles joint military exercises such as the one that took place in August 2014, with 3,000 soldiers from the members of Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia and Tajikistan participated in psychological and cyber warfare exercises in Kazakhstan (Russia Engages in Military Drills on Europe's Doorstep, The Diplomat, August 25, 2015).

3. <u>Commonwealth of Independent States Free Trade Area (CISFTA):</u> A free trade zone was sought since the breakup of the Soviet Union in 1991, but an agreement could be reached after two decades. On 18 October 2011, Russia, Ukraine, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, Moldova and Armenia signed the FTA agreement (CIS leaders sign free trade deal, Sputnik, October 18, 2011). Today, participating nine member states of the CISFTA are Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, and Uzbekistan. Azerbaijan stands as the only state who is a member of the CIS and still not a member of the CISFTA.

4. <u>Union State of Russia and Belarus (Union State):</u> Although several other treaties were signed for strengthening of the relations between Russia and Belarus since 1996, The Treaty on the Creation of a Union State of Russia and Belarus was signed on 8 December 1999 (Russia and Belarus form confederation, BBC News, December 8, 1999). Apart from aiming for creating a Soviet Union-like federation, with a shared state head, , national constitution, citizenship right, anthem, currency and defense force, most important international effect of the Union lies in Russia's military doctrine, which affirms that "an armed attack on the state-participant in the Union State, as well as all other actions involving the use of military force against it," should be considered as "an act of aggression against the Union State", giving right to Russia to "take measures in response" at the northeastern gate of Europe. Abkhazia, South Ossetia, Kazakhstan, Kyrgyzstan, Moldova, Ukraine, Novorossiya, and Transnistria have shown interest to join the Union State at different occasions (Теміргалієв оголосив про швидке створення "Української Федерації", Ukrainian Truth, 16 April, 2014) (Basora & Fisher, 2014) (East Ukraine separatists seek union with Russia, BBC News, May 12,2 014) (Transnistria or Moldovian Transnistrian Republic: Just Facts, Moldova.org, December 20, 2008) (Belarus to consider recognition of Abkhazia and South Ossetia, Abkhaz World, November 5, 2009) (Moldova ready for Russia Belarus union, BBC News, April 17, 2001) (Järve, 2001). Considering the political and military conflicts happening in these states and autonomous regions together with the Soviet military doctrine, which mirrors the NATO's Article 5, Russia could penetrate politically, militarily, and most importantly formally towards the insides of Europe and the middle Asia if the Union is to be extended.

5. <u>Eurasian Economic Union (EAEU)</u>: EAEU treaty was signed on 29 May 2014 by Belarus, Kazakhstan and Russia, followed by Armenia's and Kyrgyzstan's accessions in October and December 2014 respectively. The EAEU has an integrated single market of 183 million people and a gross domestic product of over 4 trillion U.S. dollars (PPP) according to World Bank data. It is claimed that Putin aims at growing the EAEU into a "powerful, supra-national union" of sovereign states like the EU, uniting economies, legal systems, customs services, and military capabilities to form a bridge between Europe and Asia to balance the EU and the U.S (A brief primer on Vladimir Putin's Eurasian dream, The Guardian, February 18, 2014). Memberships of Tajikistan, Uzbekistan, Moldova, Turkey, Ukraine, Georgia, Transnistria, Donetsk, Luhanks, South Ossetia, and Abkhazia have also been discussed. Moreover, the EAEU reached FTA agreements with nine non-union states, namely Ukraine, Moldova, Uzbekistan, Egypt, Tajikistan, Vietnam, China, Iran, and Serbia.

Figure 2.2. Supranational organizations formed by post-Soviet states
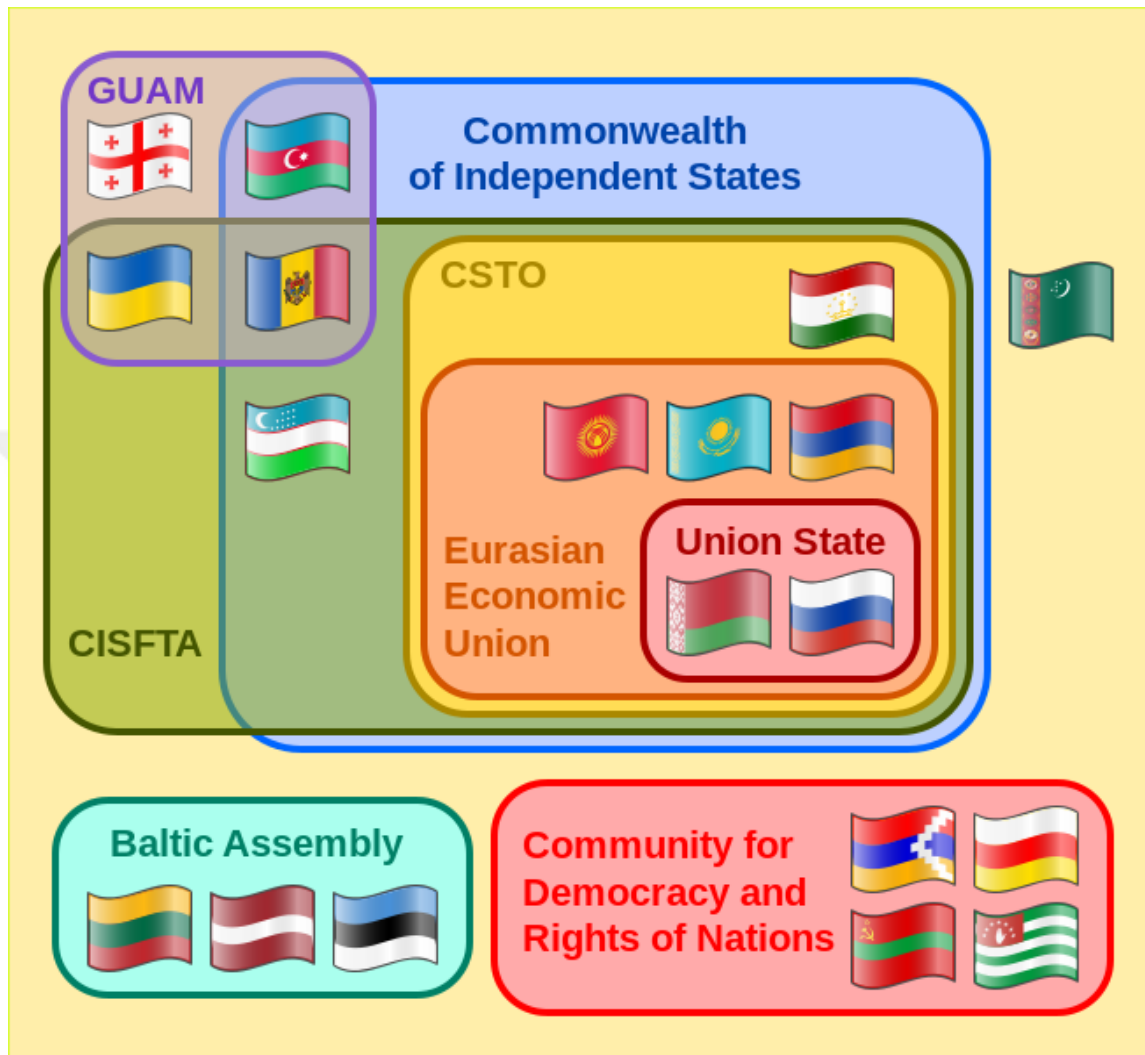
Apart from Russia's attempt to politically, economically, and militarily influence the post-Soviet states through these supranational organizations allows it to have a say in any conflict occurring in Europe, Caucasus, and the Balkans. The Russian support to the Abkhazia and South Ossetia in the Russo-Georgian war in 2008 and the Russian annexation of Crimea in 2014 are nice examples of such power within the proximate region of Russia. However, Russia has also kept serious partnerships with other world states against the NATO pact and the US to have a seat in the global power structure. Most

important initiatives to this end are the foundation of the BRICS, the Shanghai Cooperation Organization (SCO), and the Asian Pacific Economic Cooperation (APEC).

1. <u>BRICS</u>: Founded in 2009 and today consists of China, Brazil, Russia, India and South Africa. BRICS is an important organization that hold significant economic power globally with its members coming from America, Europe, Africa, and Asia. Altogether, "they account for 26.46% of world land area, 42.58% of world population, 13.24% of World Bank voting power and 14.91% of IMF quota shares" (What is BRICS, BRICS 2017 web site). According to IMF's estimates, BRICS countries generated 22.53% of the world GDP in 2015 and has contributed more than 50% of world economic growth during the last 10 years. BRICS countries have been working on common goals together towards "certain regional problems, including the Libyan, Syrian and Afghan problems and the Iranian nuclear programme". "They have also had common agreement on financial and economic issues, including World Bank and IMF reforms, measures to ensure that sufficient resources can be mobilized to the IMF to strengthen its anti-crisis potential, the creation of BRICS Interbank Cooperation Mechanism which provides for Extending Credit Facility in Local Currency and the establishment of the BRICS Exchanges Alliance" (History of BRICS, www.infobrics.org). When considering that the BRICS countries are important members of regional supranational organizations such as the SCO, the APEC, the Union of South American Nations (USAN), the MERCOSUR, the Community of Latin American and Caribbean States (CELAC), the African Union (AU), the South Africa Development Community (SADC), and the South Asian Association of Regional Cooperation (SAARC), the BRICS influence could be interpreted to reach 114 separate states worldwide.

2. <u>Shanghai Cooperation Organization (SCO):</u> A permanent intergovernmental organization created by Russia, China, Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan in 2001. Today, there are eight members of the organization including India and Pakistan. As stated in their official website, among the goals of the organization are "…making joint efforts to maintain and ensure peace, security and stability in the region; and moving towards the establishment of a democratic, fair and rational new international political and economic order" (About SCO, official website).

3. <u>The Asian Pacific Economic Cooperation (APEC):</u> Founded in 1989 by the efforts of then Australian Prime Minister Bob Hawke as a response to the growing interdependence of the Asia-Pacific economies (Elek, 2005). Today, there are 21 members participating under APEC including the USA, Russia, and China. A comprehensive Free Trade Area of Asia-Pacific (FTAAP) agreement has been discussed since the beginning of the APEC, however it is expected to take many years involving essential studies, evaluations and negotiations between member economies (Brilliant, 2007). Under APEC Study Centers Consortium established in 1993, there are more than APEC Study Centers (ASC) operating in member states for the purpose of advancing research and collaboration regarding APEC related issues (APEC Study Centers Consortium, Official website of APEC).

While Russia plays proactive roles under different supra-governmental and intergovernmental organizations for political and economic aspirations regional and global wise, its defensive potential and military involvements around the World has also been increasing since the 1990s that could would found a serious basis to these very political and economic ends.

According to the German Institute for International and Security Affairs, Russia owns nine military bases abroad in the countries Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine, and Syria. Counting the naval resupply bases in Vietnam, naval facility in Syrian Tartus and Russian Black Sea Fleet located in Crimean Sevastopol increases the number to a total of 12 Russian military base abroad, compared to 35 abroad military bases of the US all around the world (Klein, 2009) (Where are US and Russian Military Bases in the World?, Radio Free Europe) (Russian Military Bases Abroad: How Many and Where?, Sputnik, December 19, 2015) (What Should the United States Do about Cam Ranh Bay and Russia's Place in Vietnam?, CogitAsia, Marc 16, 2015).

Russia has carried out several military interventions within the vicinity of its borders in the Caucasus, the Balkans, and the Middle East since its foundation in 1991. Russia had militarily taken action in the regions Moldavian Transnistria, Chechnya, Dagestan, Abkhazia and Ossetia regions of Georgia, Crimean region of Ukraine, and Syria up to day. In the Russo-Georgian War taken place in 2008, Russia sent its military support to the people of Abkhazia and South Ossetia against the Georgian state that resulted with Russian recognition of Abkhazia and South Ossetia as independent republics. Russia, today, de facto occupies some 17 per cent of the country and half its Black Sea coastline (Besemeres, 2016). In 2014, Ukrainian pro-Russian separatists had also received military support of Russia against the government of Ukraine that resulted with the absorption of Crimea into Russia, which Ukrainian officials describe as an annexation (Post-Soviet Russian military interventions, NOW, October 21, 2015). After the annexation of the Crimea, Transnistria, a Russian-supported enclave in mainly Romanian-speaking

Moldova, which shares no common border with Russia, has also indicated its wish to be annexed. Analysts suggest that territorial demands of Russia is not to be over and Russia is expected to be afoot for Moldova (Besemeres, 2016) and Baltic states (Suslov, 2016). According to some academicians, Russia's Crimea move also underscored the end of Post-Cold War period (Suslov, 2016). Columbia University Professor Robert Legvold claims that:

"The crisis in Ukraine has pushed the two sides over a cliff and into a new relationship, one not softened by the ambiguity that defined the last decade of the post–Cold War period …Russia and the West are now adversaries."

Most notable Russian military intervention has begun in 2015 in the Syrian territory after an official request by the Syrian government for military aid to support Syrian government against the Islamic State of Iraq and Syria (ISIS) and the local rebellious groups that demand Syrian president Bashar al-Assad (Russia carries out first air strikes in Syria, Al-Jazeera, September 30, 2015). Russia's direct military intervention marked the first time since the end of the Cold War that Russia entered an armed conflict outside the borders of the former Soviet Union (Ghost soldiers: the Russians secretly dying for the Kremlin in Syria, Reuters, November 3, 2016). Russia has a naval facility in the northwestern Syria bordered to the Mediterranean Sea and it has been used for supplies of Russian armaments and military cargo since June 2012, according to TASS (The point of material and technical support of the Russian Navy in Tartus, TASS, December 13, 2017) (Clashes between Syrian troops, insurgents intensify in Russian-backed offensive, US News, October 8, 2015). Russia has increased its existence when the Syrian civil war emerged and today stands as an important political and military player in the region. The Astana Talks initiated by Russia, Turkey and Iran in December 2016 proved to be a more

productive space than US-led Geneva Talks with at least some results towards peace reached such as a nationwide ceasefire in Syria happened in 2016, and the creation of de-escalation zones in Idlib, Latakia, Homs, Ghouta, and along the Jodan-Syria border (Russia, Turkey and Iran continue cooperation on de-escalation zones in Syria, TASS, June 23, 2017) (Kazakhstan welcomes results of Syria meeting in Astana, as Russia, Iran and Turkey issue joint statement, The Astana Times, March 17, 2017). Many including the US Senator John McCain had interpreted the Syrian civil war as a proxy war between the US and Russia (Shapiro & Estrin, 2014). The New York Times October 12, 2015) (John McCain says US is engaged in proxy war with Russia in Syria. The Guardian, October 4, 2015) (Bremmer, 2018).

The political attempts and military involvements of Russia within the borders pf the former Soviet Union is also ideologically supported by the "Russian World" concept (Suslov, 2018). President Putin of Russia explained at the First World Congress of Russian Compatriots in 2001 that the "Russian world" had always gone beyond the formal borders of Russia as a state because millions of people "who speak, think and – what is perhaps most important – feel in Russian" live outside of Russia, but maintain close ties with it (Putin, 2001).

After the collapse of the Soviet Union, most NATO states including the US reduced their percentage of GDP devoted to national defense (defense burden) to pursue peace dividends with newly-established Russian Republic (George & Sandler, 2018). The defense burdens of the US and Russia were 4.7% and 4.9% respectively about the end of Cold War in 1993. Although both countries reduced their defense burdens for about a decade, they gradually increased their defense spending during the 21st century and their

defense burdens again reached the same levels in 2010 for the US and in 2015 for Russia, according to data relieved by the Stockholm International Peace Research Institute (SIPRI) in 2016. Although Russian percentage of GDP devoted to military expenditure have reached 5%, government expenditure canalized to defense spending have increased from 7% in 1998 to approximately 16% in 2016. To put it in a comparative perspective, the US share of government expenditure devoted to defense was 9.3% in 2016, while it reached its maximum level with 11.8% in 2011. This might show that the Russian political intentions to influence the nations alongside its borders and in the Middle East against the US-NATO pact has also been strongly supported by military means. Percentage increase of aggregate defense spending of Russia is also around fourfold that of the US one from 1992 to 2016. While Russian defense spending rose around 68%, the US defense spending only rose by 18% for the Post-Cold War times. From a study of the Russian federal budget share of defense, Oxenstierna (2016) maintains that "defense still has high priority in terms of a rising share of Russian GDP". Yet, she found out that "there is still a trade-off between defense and other spending in the budget such as health services, support to the economy and environmental protection" (Oxenstierna 2016). Still, Russian President Putin has recently signed a State Armaments Programme, which will allocate approximately $357 billion to defense for the 2018-2027 period (Putin signs new State Armaments Programme, Jane's 360, February 28, 2018). The new state armament program will focus on areas neglected, or perhaps 'jump started' by its predecessor including large-scale acquisition of precision guided munitions, long-range standoff cruise missiles, transport aviation, bomber modernization, expansion of artillery, armor, and missile formations in

the ground forces, more capable drones, and next generation tech like hypersonic weapons (Kofman, 2018).
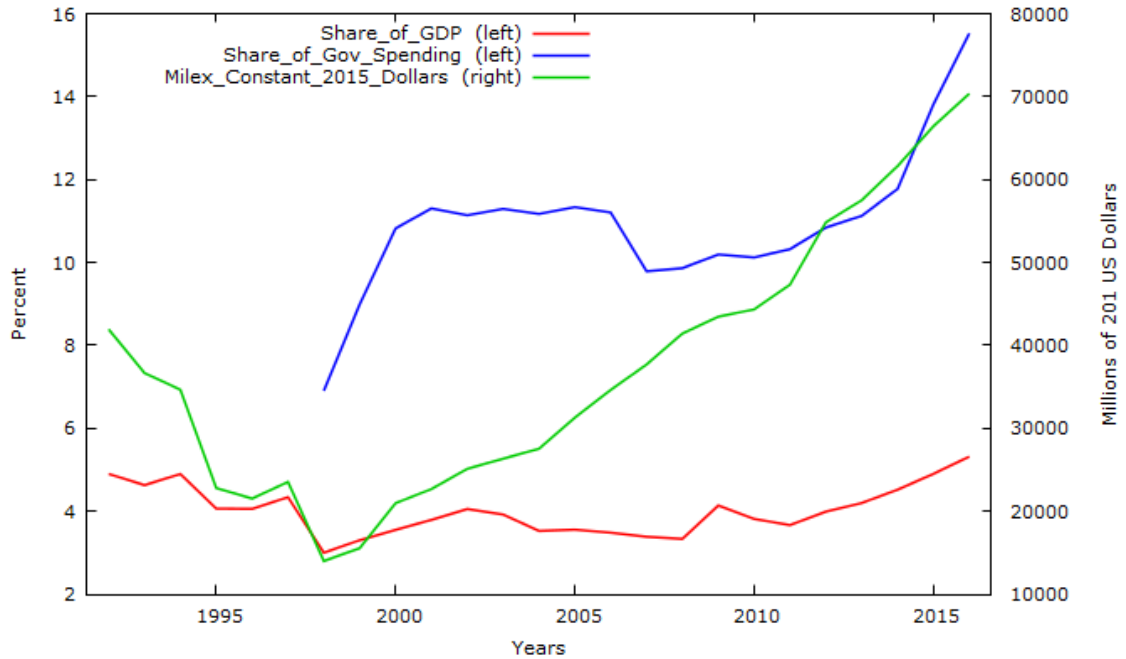
Graph 2.3. Russian defense spending summary for the 1992-2016 time period

Although the rate of increase in defense figures of Russia are much more than that of the US counterparts for the Post-Cold War times, still Russia is far from reaching the US in terms of aggregate defense spending. As of 2016, while defense spending of the US was approximately $606 billion, Russia's total spending on national defense remained only around $70 billion with constant 2015 prices according to SIPRI data. This huge gap in total defense spending shows that although Russia has invested in political and economic organizations since its foundation and heavily involved in military conflicts along/around its borders, it could only be described as a regional power compared to the globally hegemonic power of the US. However, regional power can quake the international order and deteriorate the status and claim of the US as the leader in global security. According to Suslov (2016), Russian political and military interferences

including the one during the annexation of Ukrainian Crimea created a precedent of the US inability to prevent or turn back a serious violation of the established world order by a 'regional power'. He maintains that:

"This presents a challenge to the US' possibility not just to play a role of the global leader, but also even to claim it. Indeed, if the self-proclaimed leader and guarantor of international security is not able to prevent violation of sovereignty of the largest European country and an important 'strategic partner' by a state, which is claimed to aspire for regional dominance, can it guarantee security of its allies and other partners?"

Not surprisingly, the National Security Strategy Report issued in 2017 under Trump administration talks about Russia as a state who is "seeking to restore its great power status", "aiming to weaken the US influence in the world", and "creating an unstable frontier in Eurasia".

2.5. CHINA

Michael Raska (2014) states that China has gone under four steps of defense modernization:

1. The Maoist Era (1949-1976): Dependence on Soviet assistance. Defense sector at the center of the economy.

2. Deng's Demilitarization Era (1980s-1990s): No longer face Cold War threats. Defense industry pursue development of dual-use technologies applicable in both civilian and military needs.

3. Reform Era (1998-2012): Inefficient production due to overstaffing, bureaucracy, lack of cooperation. Reforms made to overcome these inefficiencies based on market-based mechanisms, increased industrial consolidation, and improved R&D resource allocation.

4. Xi Jingping's current Reform Era 2.0 (2012-present): Emphasis on R&D, advancement and expansion of the domestically produced weapons, enhancing military product export.

Lori Robinson, General of The United States Air Force, states that 'the technology gap certainly is closing, there is no denying that …' In a report issued by Pentagon in 2015 also argued that accelerated military modernization of China 'has the potential to reduce core US military technological advantages' (Mathieson, 2016). If both parties continue to increase these figures with the same speed, China will catch up with the USA in less than three decades (*The Diplomat*, March 7, 2013). And if Robertson and Sin's study is taken into account, Chinese catch up would actually happen even in a closer time period.

With its rising economic power and changes in defense policies, twenty-first century China is different from the China of the past such that it is way more effective, decisive, and willing to take action. One can interpret this shift as that China has experienced a transition from operating on defensive realism to the offensive form of it (Basu & Rakhahari 2016). Defensive realism dictates that states aspire for power solely for self-preservation. Offensive realism, however, teaches that nations strive for power in order to "project" it.

As of 2016, total defense spending of the US and China were M$ 606,232and M$ 225,712 respectively in constant 2015 prices, according to SIPRI. Although there is still a big gap before China catches up with the US in terms of aggregate defense spending, the

gap is closing in a significant pace. China has increased its defense spending by 8,5 times from 1994 to 2016, compared to a 1,2 times increase of the US for the same period. Robertson and Sin (2017) also argued that real defense expenditure of China is in fact much greater than computed using exchange rates, and yet greater than computed by PPP rates. By creating a relative military cost price (MCR) index, they found out that Chinese real military spending is 39% and 42% of the US aggregate defense expenditure in 2010 when Törnqvist and Fisher indices are used, respectively. This is an interesting result considering that than standard estimates range from 18% (with market exchange rates) to 33% (with purchasing power parity rates).
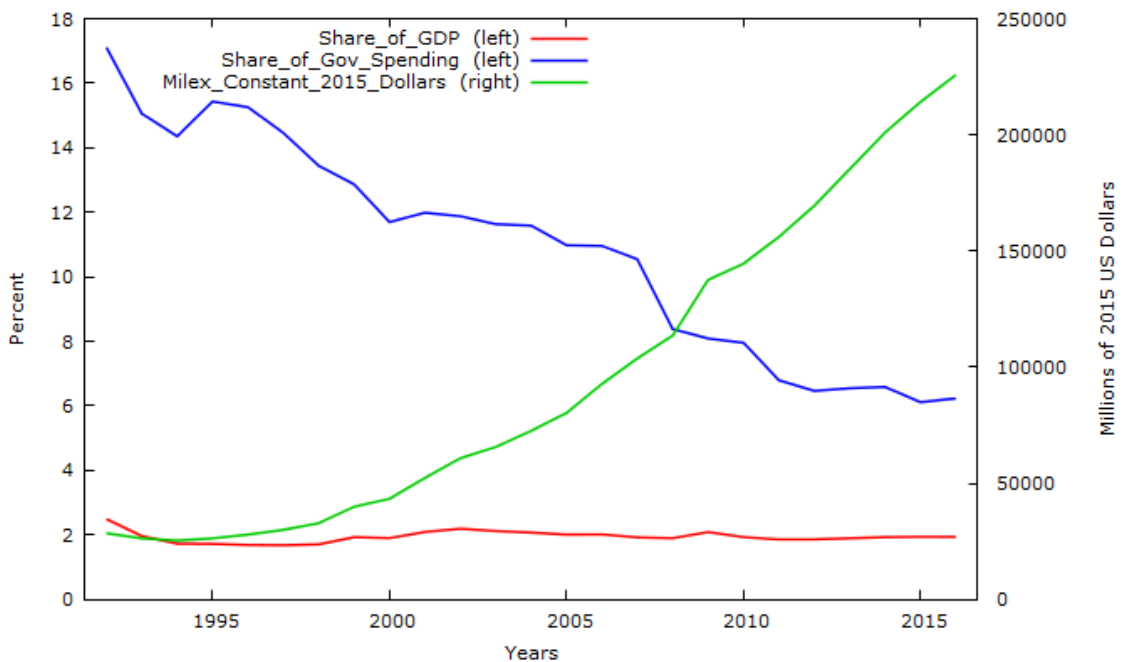
Graph 2.4. Chinese defense spending summary for 1992-2016 time period

China's per capita military expenditure is also growing rapidly (Furuoka et al, 2016). From 1989 to 2011, tenfold. From 1995 to 2011, per capita military expenditure had increased tenfold from US$10.4 to US$106.2 (World Bank 2013).

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Upon the changing pattern of Chinese economy and defense decisions in the last 30 years, the US take on China has also been changed. The traditional National Security Strategy Reports (NSSR) of the US administration hints us this change. A brief summary of these reports regarding the US perception on China is provided below:

1993-2001, Bill Clinton (7 reports):

1. Mostly a friendly tone.

2. Goals of limitation of production, transfer and sale of Chinese weapons.

3. Attempts to connect China with market economies via UN and WTO.

4. Most aggressive word to describe China "authoritative, repressive".

5. China is stated as a "possible" "threat" only in 2001 report. China's increasing defense spending and concerns over People's Liberation Army started to be addressed in 2001.

2001-2009, George Bush (2 reports):

1. Not very friendly tone.

2. Regional threat due to China's increased military capacity is addressed.

3. Criticizes China's political path against democratic rule.

4. Warns of the old pattern of great power competition.

5. Addresses China's need to complete WTO commitments.

6. Concerns over non-transparency in military expansion of China

7. Accuses China over "locking-up" energy resources around the globe.

8. Accuses China over "supporting" some nations without considering the domestic misrule or overseas misbehavior.

9. Indirectly threatens China: "Our strategy seeks to encourage China to make the right strategic choices for its people, while we hedge against other possibilities."

2009-2017, Barack Obama (2 reports):

1. Declares that the US monitors Chinese defense modernization.

2. Declares that the US prepares accordingly to guarantee that U.S. regional and global interests along with its allies are not affected in a negative way.

3. Maritime security in China Sea is addressed.

4. Declares that the US takes necessary measures against private agents and the Chinese government for cyber-theft of trade secrets.

2017- , Donald Trump (1 report):

1. Addresses openly that China challenges American power.

2. Many allegations with very aggressive tone.

3. "China … developing advanced weapons and capabilities that could threaten our critical infrastructure and our command and control architecture."

4. "…Chinese fentanyl traffickers, kills tens of thousands of Americans each year."

5. "Every year, competitors such as China steal U.S. intellectual property valued at hundreds of billions of dollars."

6. "China … want to shape a world antithetical to U.S. values and interests."

7. "China seeks to displace the United States in the Indo-Pacific region."

8. "Contrary to our hopes, China expanded its power at the expense of the sovereignty of others. China gathers and exploits data on an unrivaled scale and

spreads features of its authoritarian system, including corruption and the use of surveillance."

9. "It is building the most capable and well-funded military in the world, after our own. Its nuclear arsenal is growing and diversifying. Part of China's military modernization and economic expansion is due to its access to the U.S. innovation economy, including America's world-class universities."

10. "China … target their investments in the developing world to expand influence and gain competitive advantages against the United States."

11. "China and Russia aspire to project power worldwide…"

12. "Its efforts to build and militarize outposts in the South China Sea endanger the free flow of trade, threaten the sovereignty of other nations, and undermine regional stability. China has mounted a rapid military modernization campaign designed to limit U.S. access to the region."

13. Countries along the region are collectively asking for the U.S. leadership that promises a regional structure, which respects independence and sovereignty.

14. China is exploiting penalties and economic inducements along with military threats to influence nations to follow its agenda of security and politics.

Bill Clinton administration conceived China as an important 'emerging market' and as a possible important player in a globalizing world economy. At the same time, the Taiwan Strait crisis emerged around 1995 and 1996 proved that omitting strategic interests of China and failing to sustain healthy dialogue politically and militarily had the possibility of an unwanted crisis or a military issue. These concerns prompted Clinton administration's efforts to escalate dialogue with the PLA and ultimately to express the

desire of constructing a productive strategic partnership with Chinese counterparts (Saunders & Bowie, 2016). Therefore, the USA was more open to dialogue and cooperation with China throughout almost a decade after the Cold War. The US tried to integrate China into the global hegemony via the UN and into the market economy via the WTO while securing itself with regional allies in the Asia-Pacific. Professor Joseph Nye of Harvard University, a strategist under Clinton administration, has defended that the Clinton administration aimed to "integrate" China into the World Trade Organization and other assemblies of the world while "hedging" through close US security cooperation with Japan (Nye, 2013) (Sutter et al, 2013). In accordance, American and Chinese then presidents, Bill Clinton and Jiang Zemin, exchanged historical visits and even declared the mutual decision that neither countries will direct their nuclear weapons to each other. Issues and concerns about Taiwan, maritime conflicts, cyber security, military, democracy were stated vaguely in the NSSRs issued during Clinton administration. Only, in Clinton's last year in the White House in 2001, worries over China's increased military spending and PLA activities were directly addressed in the NSSR for the first time.

When George W. Bush administration ascended to the office, it was considerably skeptical towards China and promised to approach China as a strategic competitor rather than a strategic partner (Saunders & Bowie, 2016). Accordingly, the US took over a more unfriendly tone regarding China in the two separate NSSRs issued during George Bush administration. The US started accusing China openly over locking-up energy supplies worldwide. While realization of China as a "regional threat" entered into reports, China is indirectly warned by saying "Our strategy seeks to encourage China to make the right strategic choices for its people, while we hedge against other possibilities."

To cope with challenges put forward regionally and globally, Obama Administration allotted serious efforts to broaden and deepen the relationship between the US and China, citing the goal of building a new era of cooperation with emerging Asian powers, including China and India. The Obama administration has declared some announcements starting in 2011 fall, and taken steps to bolster up and enhance the already important role of the US in the Asia-Pacific (Sutter et al, 2013). For example, then Secretary of the State, Hillary Clinton, penned a cornerstone article titled "America's Pacific Century" in the Foreign Policy in November 2011. While the article underscored the State's developing interest and concern over newly-emerging Asian powers like China, India, and Indonesia, it read that "The future of politics will be decided in Asia, not Afghanistan or Iraq, and the United States will be right at the center of the action." In line with the principles defended in Hillary's article, U.S. Department of Defense (DoD) officially admitted the new "rebalance" policy towards Asia-Pacific by issuing a report, called "Sustaining US Global Leadership: Priorities for 21st Century Defense" in January 2012. Both Hillary's article and DoD report suggest broad military presence in Asia-Pacific and call for deepened defense partnerships with the states that resides in the region. Accordingly, the NSSRs issued during Obama administration makes it clear that the US keeps a watchful eye on possible areas of conflict such as Chinese military development in the region, cyber theft of trade secrets and maritime security in order to take counter actions in ensuring the security of Americans and its allies in the region.

The Chinese threat as a global economic and military power is saliently realized when President Donald Trump took office in 2017. The economically and politically problematic areas that had once only been skimmed through in the previous reports were

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now stated directly with an all-time assertive and aggressive tone in Trump's National Security Strategy Report. 2017 NSSR accuses China of fentanyl trafficking to US, stealing American intellectual property, militarizing South China Sea, investing worldwide to disadvantage US interests, exploitation of data, spreading authoritarian regime to other nations, provoke other states against the US using economic and military means, corruption, developing advanced weapons that could threaten US land, limiting US presence in Asia region, challenges American power and many more. Additionally, the report states that "states throughout the [Asia-Pacific] region are calling for sustained U.S. leadership". Empirical findings confirms this statement. In a study about the effect of competition between China and the U.S. on defense spending of Asia-Pacific countries, Fu et al (2013) found out a significant negative relationship between U.S. military spending and military spending of 25 Asia-Pacific countries, as the U.S. offers Asia-Pacific area countries beneficial security. Moreover, one of the statements in 2017 NSSR regarding China and Russia was their ambition to shape a world antithetical to US values and project power, which is also in line with Basu & Rakhahari's perspective (2016) that China has experienced a transition from operating on defensive realism to the offensive form of it.

Defense Secretary Jim Mattis gave a speech on January 2018 as he took Congress on the eve of a potential government shutdown and suggested that the United States must build up its military to prepare for the possibility of conflict with Russia and China (Mattis unveils new strategy focused on Russia and China, takes Congress to task for budget impasse, Washington Post, January 19, 2018). Mattis also said in a speech at Johns Hopkins University that "[the US] will continue to prosecute the campaign against

terrorists, but great-power competition - not terrorism - is now the primary focus of U.S. national security" (BBC, January 19, 2018).

One can realize the pattern that the US tried to benefit from the peace-dividends after the early years of the Post-Cold War. However, cooperative and open-to-dialogue US policy with China slightly diminished during Bush administration after the 9/11 attacks. While Obama initiated a new Asia-Pacific policy in which China is at the center with respect to its military developments, Trump's assumption to the office in 2017 has enabled the US to use an ever aggressive and assertive tone against China since the end of Cold War.

To summarize, China's military expenditure has risen tremendously in tandem with its GDP within the last three decades. The primary sources to understand the US defense policy, White House reports and statements given by government officials, suggest that China is, if not considered to be a national threat, perceived by the US as an outstanding competitor in Asia Pacific and other areas around the world where economic and political interests of both parties coincide.

CHAPTER III

LITERATURE REVIEW

There are four main theoretical approaches towards modelling the demand for military expenditure: Richardson's arms race model (1960), theory of alliances by Olson & Zeckhauser (1966), concept of security web developed by Rosh (1988) and Smith's neoclassical model (1989). While pure arms race model is almost abandoned in recent years, contemporary empirical research is mostly developed based on Smith's approach where security web and alliance theories are used as supporting elements.

As a first theoretical attempt to explain the demand for defense expenditure, Richardson proposed that international arms races were the main explanation for increases in military expenditures. According to the arms race model, military expenditure of a country is a function of military expenditure of the dyadic country as a result of competitive rivalry between them. Although a large body of empirical literature has developed around Richardson's approach (e.g. Wallace 1979; Anderton 1995; Brito and Intriligator 1995), one should note that the arms-race model was established at the height of the Cold War in order to explain quickly increasing military expenditures of countries (Pamp & Thurner 2017). This concept has been the subject of some considerable number of analyses for different combination of nations thought to be practicing arms races, such as the Greece/Turkey, US/USSR, Israel/Arab states and India/Pakistan, however, the empirical achievement of the arms races model has been limited (Dunne and Smith, 2007).

Theory of alliances developed in Olson & Zeckhauser's (1966) seminal work attempted to explain the workings and problems of international organizations such as North Atlantic

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Treaty Organization (NATO). According to the theory, burdens for defending the alliance is shared unequally, with the large wealthier allies contributing relatively more to defense if the aggregate deterrence created by defense expenditures of allies is a pure public good. In this case, if the allies follow Nash behavior, then we can expect some free riding and a sub-optimal level of provision when compared to the Pareto optimal standard (Murdoch 1995). However, var Ypersele de Strihou (1967) argued that defense burden sharing could also be influenced by private benefits of defense, meaning that some defense activities only provide benefits to the nation undertaking the activities like protection of colonial interests and drug traffic interdiction. Accordingly, Sandler (1977) extended the analysis of alliance theory by proposing the joint product model, in which an ally yields outputs that may be purely public (e.g. deterrence), impurely public (e.g. damage limitation), and private (e.g. policing terrorist activities). What distinguishes the pure public good model and joint-product model of alliance theory is how one ally responds to the actions of the other allies (Murdoch 1995). If total deterrence is a pure public good then an ally is expected to respond negatively to an increase in other countries' contribution to the alliance; in other words free-riding occurs. However, because benefits coming from an alliance could also be impure or private according to the joint-product model, some members might not receive substantial gains relative to others and feel a need to increase their own military expenditure along with an increase in military expenditure of other countries in the alliance (Murdoch & Sandler 1984). One should notice that while arms race model deals with the action-reaction path of military decisions of rival countries, alliance theory deals with the same dynamics among allies. For a recent empirical application of alliance theory with extension of spatial weight given to countries based on

NATO membership, US contiguity, and geographical propinquity, one should refer to George & Sandler's work (2017).

Due to inconclusive empirical results and limitations of dyadic setting of the arms race model, Rosh (1988) developed the idea of Security Web, which signifies a country's consideration of defense spending of potential threat countries along its borders or within the regional neighborhood when deciding its own defense spending. Rosh operationalized the concept of a security web by averaging the military burdens of those countries, primarily in the immediate vicinity of the country been studied, which do or could pose a threat to that country (Rosh 1988). For more information and use of Security Web concept, readers can refer to works of Dunne & Sam Perlo-Freeman (2003), Dunne et al. (2008), and Abdelfattah et al. (2014).

The Smith's approach, however, starts from considering the state as a rational agent who tries to maximize society's welfare function, which consists of security, consumption and other internal factors. Security component of the welfare function is also dependent primarily on military expenditure of the subjected country and external factors such as defense spending of allies and/or rivals. Then, demand for military expenditure is derived from the maximization of the welfare function under budgetary constraints. According to Smith (1989), demand for military expenditure is mainly dependent on national income, price levels of military/non-military goods, internal factors, and external factors. Notwithstanding, due to unavailability of military goods price level of countries except for a few, most studies only include non-military goods price indexes in their models of demand for military expenditure. Smith's neoclassical approach, on which this study is developed, will be explained in detail within the next section.

	Country Specific		Regional/Alliance/Dyad		Large pool	
	Study	*Subject*	*Study*	*Subject*	*Study*	*Subject*
Cold War	Nincic & Cusack (1979)	USA				
	Smith (1980)	UK	Olson & Zeckhauser (1966)	14 NATO countries	Dudley (1981)	38 countries
	Cusack & Don Ward (1981)	USA,USSR,China	Don Ward (1984)	US-USSR	Rosh (1988)	63 countries
	Smith (1990)	UK	Okamura (1991)	the US-Japan alliance		
	Fritz-Aßmus & Zimmrman (1990)	Germany				
	Looney and Mehay (1990)	USA				
	Throsby & Withers (2001)	Australia				
Cold War+Post Cold War			Kollias and Paleologou (2002)	Turkey-Greece		
	Sezgin & Yildirim (2002)	Turkey	Dunne et al. (2003)	Greece, Portugal, Spain	Dunne & Pablo-Freeman (2003)	98 countries
			Jun Sik Bae (2004)	North-South Korea		
	Kollias & Paleologou (2003)	Greece	Amara (2008)	14 NATO countries	Dunne et al. (2008)	98 countries
	Meanna (2004)	USA	Yildirim & Ocal (2006)	India-Pakistan	Albalate et al. (2012)	157 countries
	Solomon (2005)	Canada	Nikolaidou (2008)	15 European countries	Skogstad (2015)	124 countries
			Ocal & Yildirim (2009)	Turkey-Greece	Tongur et al (2015)	130 countries
	Bing-Fu & Liming (2006)	China	Goo & Kim (2009)	the US-South Korea Alliance	Bove & Brauner (2016)	64 countries
	Atesoglu (2013)	China	Dauch & Solomon (2014)	9 Middle powers	Solarin (2017)	98 countries
	Abdelfetah et al. (2014)	Egypt	George & Sandler (2017)	27 NATO countries	Pamp & Thurner (2017)	156 countres
Post Cold War	**This study**	USA	Fu et al. (2013)	25 Asian countries		
			Spangler (2017)	28 Europen countries		
			Christie (2017)	24 European countries		
			Markowski et al (2017)	16 Asia-Pacific countries		
			George et al. (2018)	19 Asia-Pacific countries		

Table 3.1. Past literature related to demand for defense spending

Based mostly on Smith's framework, empirical applications of demand for military expenditure are various with respect to subjected countries and methodologies employed. In accordance, previous studies can be grouped into three categories as 1. country-specific studies that tries to understand the determinants of defense spending of an individual country, 2. studies of a group of countries that comprise alliances such as European, NATO or represent regional dynamics such as Asian nations, 3. studies that include large pool of countries to understand the general behavior of states with respect to security concerns. Regarding the time period they investigated the demand for military expenditure, these three categories can also be sub-grouped into three: 1. studies that concern Cold War times, 2. studies that cover Cold War and Post-Cold War times, 3. Post-Cold War studies. In fact, only little literature is available covering specifically Post-Cold War times.

Although defense spending of the USA, China, and Russia combined approximately 50% of the world defense expenditure, almost no empirical research has been conducted to investigate the interaction between these great powers with Post-Cold War dynamics. Excluding war time mobilization, Nincic and Cusack (1979) found out that the main determinants in defense spending of the US were the anticipated utility of defense spending for aggregate demand stabilization, the political value of the anticipated economic effects, and the pressures arising from institutional-constituency demands (Nincic & Cusack, 1979). Cusack & Don Ward (1981) conducted an empirical investigation regarding demand for defense expenditure of the US, Russia, and China for the Cold War times based on both Ricardson's ams race model and domestic political economy model separately for the purpose of comparison and they reached the conclusion

that there exist little evidence of an arms race among these three great powers. Based on domestic political economy model, they found out that change in defense spending of the US depends on electoral cycle, change in aggregate demand, change in military expenditure, and war mobilization (Cusack & Don Ward, 1981). On the contrary, Don Ward (1984) validated the existence of an arms race between the US and the USSR employing a continuous time simulation model of the arms expenditure and stockpiles of two countries. He defended that great power states react to the stockpiles of weapons rather than aggregate defense spending of their perceived opponents and claimed that the action-reaction system might need around 3000 years to return to the steady state (Don Ward, 1984). Okamura (1991) estimated the impact of a Soviet threat on the US-Japan alliance for the 1972-1985 time period and found out that Japan is more sensitive to the Soviet threat than the US by 1.5 times. Using a Linear Logarithmic Expenditure System (LLES) with a homogeneous generalized-indirect-translog utility function, Okamura also determined that "a stable equilibrium of the US-Japan alliance exist with equilibrium level of military expenditures of the US and Japan being $150.79 billion and $51.64 billion in 1982" (Okamura, 1991). Meanna (2004) employed methodologies of Johansen co-integration and error correction together with vector auto regression (VAR) technique, and found out that military spending and economic growth have neither a statistical nor an economic impact on each other for the US for the 1959-2001 time period (Meanna, 2004). Using Smith's (1989) neoclassical model with OLS, Bing-Fu and Liming (2006) found out that Chinese aggregate defense spending depends on lag defense spending, China's GDP and, war time mobilization for the time period from 1960 to 1999.

In one of the most recent Post-Cold War studies that took the USA and China into consideration, George et al. (2018) conducted a spatial panel analysis for the demand for military expenditure for 19 countries located in the Asia-Pacific for the 1991-2015 period. Using fixed-coefficient spatial lag (FCSL) model and Seemingly Unrelated Regressions (SUR), they found out that Asian U.S. allies and non-U.S. allies responds negatively to Chinese military expenditure, however, consistent with China's goal for regional dominance, China reacts positively to non-U.S. allies' military expenditure in the region. They also detected that US presence in the Asia-Pacific region is providing free-riding opportunities, except for select U.S. allies who are treating their military expenditure as complementary to that of the United States.

Markowski et al (2017), measured income elasticity of military expenditure of 15 Indo-Pacific states including the US, Russia, and China using an autoregressive distributed lag (ARDL) model for the period 1990-2014. Using both SIPRI and ADIO (Australia's Defence Intelligence Organisation) data, they found that the elasticity of military expenditure to GDP in the region of about unity, which suggest that military expenditure is a normal good. In a study about the effect of competition between China and the U.S. on defense spending of Asia-Pacific countries, Fu et al (2013) found out a significant negative relationship between U.S. military spending and military spending of 25 Asia-Pacific countries, as the U.S. offers Asia-Pacific area countries beneficial security. In their time series analysis on Egypt for the period 1960-2009, Abdelfattah et al. (2014) found out that military spending of a rival, Israel, has positive effects Egypt's demand for military expenditure while military spending of allies, Syria and Jordan, does not show any significant effect. They also pointed out the institutional inertia of Egypt due to the

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positive effects of lagged military burden on the current spending. Douch and Solomon (2014) attempted to measure middle-power states' demand for military expenditure using panel data of nine countries for the period 1955-2007. Employing Seemingly Unrelated Regression Equations (SURE), they suggested that positive income elasticity of military expenditure might imply that middle-powers are increasing their military expenditure due to their status seeking behavior among others. There were also studies focused on relatively homogenous group of countries to find out the determinants of demand for military expenditure. Dunne, Nikolaidou and Mylonidis (2003) worked on Spain, Portugal, and Greece for the time interval 1960-2000 using auto regressive distributed lagged (ARDL) model. Their results showed that while Spain and Greece is not a free-rider on NATO, there was evidence towards free-riding of Portugal on NATO. There was also strong evidence on positive correlation between output and military spending in the short run for the three of these countries.

Because the literature for demand for defense spending is vast in subjects aimed, methodologies employed, and time interval interested, readers shall refer to Table 3.1. for any further specific information.

CHAPTER IV

ADOPTED THEORY AND MODEL

To investigate the effects of internal and external factors on defense policy of the States, Smith's (1989) neoclassical model is employed to derive the demand for military expenditure of the US. According to Smith, states are rational actors seeking to maximize a welfare function that encapsulates consumption (C), security (S), and other internal political factors (ZP). Welfare function is given by:

$$W = f (S, C, ZP) \tag{1}$$

The constraint the state faces when maximizing welfare is:

$$Y = PM . M + PC . C \tag{2}$$

where Y is the aggregate national income, PM and PC are the prices of military expenditures, M, and consumption, C, respectively.

The other constraint is the security function, which is determined by the military expenditure of the subjective state, and other security variables, ZS, such as the military expenditure of allies and/or rivals:

$$S = S (M, ZS) \tag{3}$$

Maximization of (1) with respect to (2) and (3) gives the demand function for military expenditures.

$$M = D (Y, PM/PC, ZP, ZS) \tag{4}$$

Equation (4) is the general form of demand for military expenditure function of a rational state, where military expenditure is determined by total national income, Y, military to civilian price ratio, PM/PC, internal political factors, ZP, and external security variables, ZS. Although it is assumed that military and civilian prices behave the same way and usually dropped from the analysis in the literature (Murdoch and Sandler 1984) (Smith 1995) (Douch and Solomon 2014), we included the price ratio in our model to test whether this assumption is sound or not.

For the purpose of the study, the specified model for US demand for defense burden is structured as the following semi-logarithmic linear equation:

$$\ln MUS_t = \beta_1 + \beta_2(\ln MUS_{t-4}) + \beta_3(USY^g_t) + \beta_4(\ln PR_t)$$

$$+ \beta_5(\ln MChi_t) + \beta_6(\ln MRus_t) + \beta_7(t) + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

where the State's defense burden ($\ln MUS_t$) becomes a function of lagged military burden (MUS_{t-4}), growth rate (USY^g_t), price ratio ($\ln PR_t$), defense burden of Russia ($\ln MRus_t$), defense burden of China ($\ln MChi_t$) and the trend variable (t). Defense burdens were used instead of aggregate levels of defense spending as a common application to normalize the effect of the magnitude of economies that differ between the states on defense spending. The explanatory variables of the present model are the following:

- $\ln MUS_{t-4}$ is natural logarithm of four period lag of defense burden. Including this variable is important since it accounts for bureaucratic inertia of a state. MUS_{t-4} is a one year lag consistent with the literature. The coefficient is expected to be positive since future military spending of naval, war planes, and ground forces are

related to more spending when considering maintenance, personnel, and prevailing war costs.

- $lnUSY^g$ is growth rate of the US GDP. Studies that investigates growth-milex nexus have conflicting results on whether there is a negative or positive relationship between the two parameters.

- $lnPR_t$ is natural logarithm of the relative price of defense with respect to civilian goods in the US economy.

- $lnMChi_t$ is the natural logarithm of defense burden of People's Republic of China. The effect of Chinese military spending is expected to be positive, at least for some periods of the data due to China's military modernization policies in the last couple of decades.

- $lnMRus_t$ is the natural logarithm of defense burden of Russian Federation. The coefficient is expected to be positive due to prolonged rivalry between the US and Russia in the international arena.

- t is trend and captures other internal and external factors other than employed explanatory variables.

- ε_t is the error term.

Appendix – A provides some more information concerning the inclusion the US competitors and allies into the model.

Figure 3.1. Times-series plots of the dependent and explanatory variables
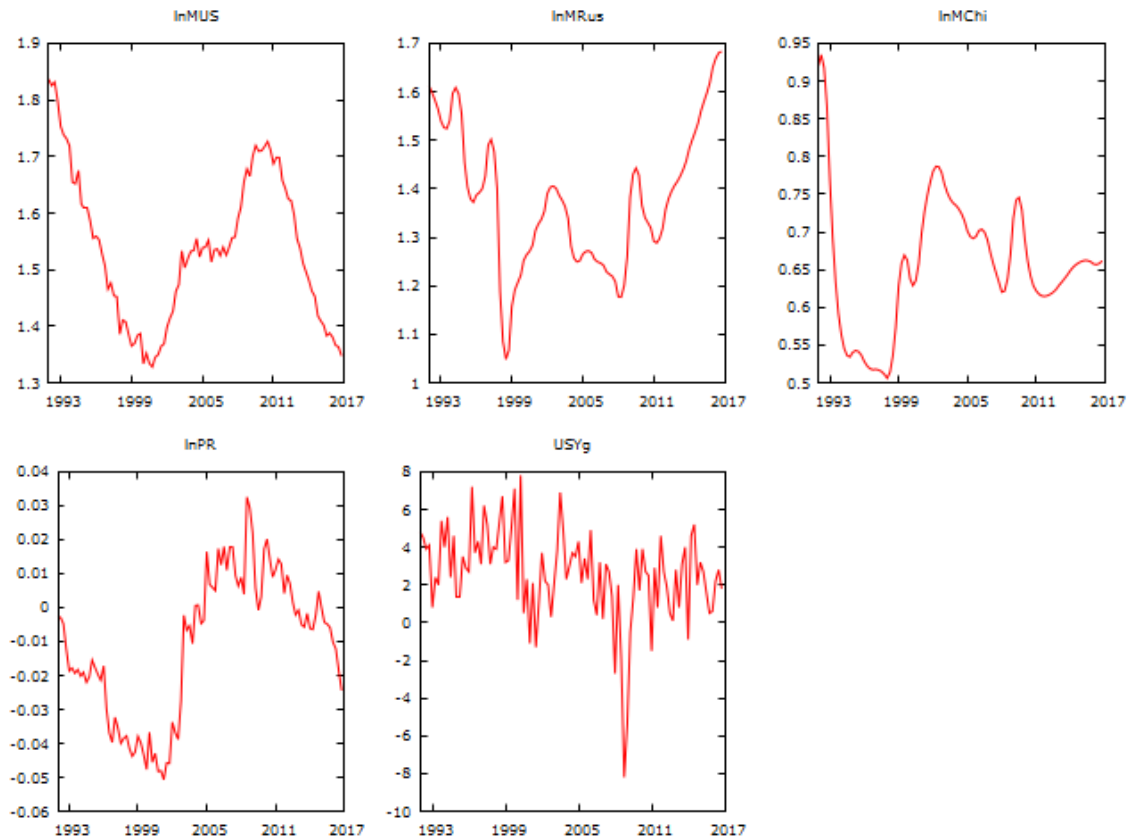
The individual times-series plots of the natural logarithms of defense burdens of the US, Russia, China, and the price ratio as well as the growth rate of the US economy are presented. The first notable feature of the graphs is the quickly decreasing levels of defense burdens starting from 1992 until 2000, which is attributed to the peace dividends with the end of Cold War. While the effect of global economic crises sparkled in 2007 is observed in fallen defense burdens of Russia and China, it is interesting to see the US defense burden not affected, yet a made drastic rise up until 2012 (the year in which signs of economic recovery started to be seen). After 2012, while the US and Russian defense burdens showed a decrease and increase respectively, defense burden of China stayed relatively more stable, around its 2000 level. Relative price of defense continuously

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declined beginning from 1992, rose drastically in 2001 and 2003 possibly due to the Afghan and Iraq Wars, and started to decline again after reaching its highest level in the third quarter of 2008. The positive growth rate of the US economy showed a great decline in 2007 due to the economic crises and reached its lowest level in the fourth quarter of 2008. Starting from fourth quarter of 2019, the growth rate began to reveal positive levels and achieved its highest level in the third quarter of 2014 since the economic crises.

CHAPTER V

DATA & METHODOLOGY

Quarterly data of the US defense spending, GDP, real growth rates, and price levels for 1992Q1-2016Q4 time period are retrieved from the BEA (the US Bureau of Economic Analysis). US defense burden is derived as the ratio of the US defense spending to its GDP. Annual defense burdens data for Russia and China are appropriated from SIPRI Military Expenditures Database for the same time period and interpolated into quarterly data using Gretl. As a common practice in the literature, all data are transformed into natural logarithm for the purpose to interpret the coefficients as elasticities. The final data included 100 quarterly observations from 1992Q1 to 2016Q4 in natural logarithm form.

Our analysis is based on interval estimates produced by a Meboot data generation process in tandem with a fixed-width rolling window framework. Introduced by Vinod & de-Lacalle (2004), Meboot is one of the newly developed and advanced bootstrap method that is purposefully constructed to bypass the issues emerged from traditional bootstrap methods such as distortion of the dependence and heterogeneity information when reordering the original data (Vinod 2004) (Vinod 2006) (Koutris et al., 2008). The Meboot-DGP can escape from such problematic situations by employing a seven-step algorithm that creates replicates keeping the original data's basic shape. It also preserves the original data with respect to the dependence structure of the autocorrelation function and the partial autocorrelation function. This process offers some desirable statistical properties, such as satisfying the ergodic theorem, Doob's theorem, as well as the central limit theorem (Altinay & Yalta, 2016) (Vinod and de Lacalle, 2009). This means that,

increase in sample size makes p-values resulted in a statistical test run on a replicate to converge to that of the original series (Yalta, 2013). Producing a vast number of such replicates without having to know their multimodal and non-normal functional forms allows us to construct numerical sampling distributions for various pivotal statistics (Vinod, 2003). Moreover, it supplies with more robust and reliable empirical analysis because it provides a simplified methodology that could be employed in different forms of non-stationarity including near unit roots or long memory, which are generally hard to recognize with confidence in small samples without differencing or ARMA transformations (Yalta, 2011) (Yalta, 2013) (Yalta & Yalta, 2016).

There are three fundamental conveniences of using Meboot DGP in our analysis of demand for military expenditure. First, the confidence intervals produced by Meboot based on simulation can provide considerably more robust and reliable estimates of the coefficients, when compared to those based on the asymptotic theory (Yalta & Yalta, 2016). Robustness of the method was shown in a large scale simulation study conducted by Yalta (2016) and in a study by Singvejsakul et al (2018). Second, the Meboot DGP can be employed under different cases of non-stationarity such as long memory, fractional integration and multiple structural breaks, which could be complex to point out during analysis. This advantage facilitate to escape from hidden specification errors that prevail because of cointegration or pretesting for unit roots (Altinay & Yalta 2016). In our case, we expect such structural breaks in the US demand for military expenditures especially during the global economic crisis around 2008. Third, using a technique specifically designed for small samples, called Meboot rolling windows analysis, makes it possible to observe the evolution of parameters over time with unveiling economic, political, and

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military conditions, thereby providing with improved information required by policy makers. The window width of the analysis is selected to be 32 in order to be able to cover two presidential time fully within the regressions.

CHAPTER VI

EMPIRICAL FINDINGS

Meboot rolling window estimates for the US defense demand function (5) are presented in Graph 5.1-5.6. For the purpose of comparison, the standard OLS confidence intervals for each window are included in the figures as well. The figures display that Meboot and OLS both yield close results but Meboot is considerably more efficient. The sharp rise and falls of the coefficients and instantly narrowed confidence intervals that arise from autocorrelation deems OLS biased and unreliable. As can be seen from the graphs, however, Me-boot rolling windows provides smoother and robust estimates compared to the OLS results. All empirical findings reported below are at 80% significance level and the adjusted R-square of the model is 90%. All explanatory variables are interpreted for three different time intervals, specifically (1) prior to the economic crises during 2000-2007, (2) during the economic crises during 2007-2012, (3) post-economic crises during 2012-2016.

The first independent variable of the model is one year lagged of military spending of the US that would show how the bureaucratic inertia is in effect. While the coefficient displays a significant positive relationship averaged between 0.2-1%, its evolution in time changes according to the economic condition the state is in. With respect to the time period prior to the 2007 economic crises, the coefficient of lag military burden is in an increasing pattern beginning from the military involvement of the US in Afghanistan and hits its maximum level with 0.8 in mid-2003. Although the coefficient enters into a steady level with 0.7 afterwards, a sharp decrease is observed starting from 2004. The coefficient

reaches its minimum level with 0.2 in 2008 just after the economic crises hit the US economy. The average level of the coefficient is revealed to be 0.35 during the period of economic crises between 2007 and 2012. With the signs of economic recovery started to be seen in the US economy, the evolution of the respective coefficient makes a sharp increase around mid-2011 and again enters into an increasing pattern, which is more accelerated this time, and reaches its maximum level with 1.1 in 2014. Although the coefficient of lag military burden enters a decreasing pattern after 2014, it only falls to 0.7, the level observed before the economic crises.

Graph 5.1. Evolution of coefficient: "Lag military burden" of the US

The second independent variable of the model is the growth rate of the US economy, which captures the effect of magnitude of the economy on military burden. Note that the interpretation of the respective coefficient must be made carefully since growth rate data is not in logarithmic form. For this reason, the coefficient should be adjusted by multiplying it by 100 in order to interpret the results as elasticities. This variable is

investigated in three sub-periods, namely pre-crises that shows the relationship without the economic crisis before 2007, crises between 2007 and 2012, and post-crises that displays the relationship after 2012. In pre-crises period, although very small, real growth displays a significant positive correlation with military burden between 2002 and 2008 and the magnitude of the coefficient reaches its maximum level averaged 0.004% in 2007, meaning that a 1 percentage point increase in growth rate would cause a 0.4% increase in military burden of the US. Although the magnitude seems small, considering, with 2015 prices, approximately $600 billion of aggregate defense spending of the US, a 0.4% increase would result a $2424 million increase, which is higher than military spending of some important countries in their respective regions such as Venezuela, New Zealand, and Azerbaijan. The sharp decrease of the coefficient after 2007 until 2009 shows the effect of the global economic crises on military spending of the US clearly. During the crises time, confidence intervals are broadened and the correlation loses its significance between 2008 and 2012. It is of importance to mention that both aggregate defense expenditure and defense burden of the US had still been increasing during the global economic crisis. After the signs of recovery started to be seen about the end of 2011, the correlation between military spending and growth rate changes sign and significant negative relationship is observed until 2015, which is the year that the US economy revealed the highest growth rate since the 2007 economic crises. In 2014, negative correlation reaches its maximum level with 0.006%, whereas the positive correlation was 0.004% just before the 2007 economic crises. This leads to the conclusion that relationship between growth and military burden is stronger after an economic crises when compared to no-crises times. The negative correlation between military spending and growth rate of the US seems to

change its during-crises pattern after 2014 with a sharp increase in coefficient that is similar to the sharp increase seen just after 2007. Confidence intervals became narrower and magnitude of the coefficient started to increase after 2014. Although no significant relationship can be reported after 2015, the trend of the coefficient is increasing towards a positive relationship. This can only be confirmed with more data revealed in the upcoming years. The findings are consistent with Dudley 1981, Kollias & Paleologou 2003, Nikolaidou 2008, Pamp & Thurner 2017, Markowski, Chand & Wylie 2017, George, Hou & Sandler 2018 for the pre-crises period, Dunne & Perlo-Freeman 2003, Solomon 2005, Mehanna 2004 for the crises period, and Sezgin & Yildirim 2002, Abdelfattah et al 2014 for the post-crises period. 2,4

Graph 5.2. Evolution of coefficient: "Growth rate" of the US

It was shown before in the aforementioned studies that different relationships between defense burden and growth rate could be observed among states that differ in development stages and geographies. The present study showed that even one sole state may display different behaviors with respect to growth-milex nexus within specific time frames that prevail particular political and economic specifications. Thus, concerning the sign of the coefficient, an absolute conclusion about the growth-milex nexus is hard to achieve.

The inclusion of military to civilian price ratio as an explanatory variable of the US demand for defense spending was important since other studies of demand for military expenditure dropped this parameter from their analysis due to data availability issue. The price ratio capture relative costliness of national defense with respect to civilian goods. According to the findings, there exist a significantly positive correlation between US defense spending and price ratio starting just after the US troops entered Afghanistan as a response to 9/11 attacks in 2001. This positive correlation reaches its highest level averaged approximately 2.5% with the beginning of US operation in Iraq in 2003 and lasted until the end of George W. Bush's presidential office time. The positive correlation observed between 2002 and 2008 is contradicting result to the law of demand as a 1% increase in relative prices correlates with an average of 1% increase in military burden. Correlation almost fully disappears after 2008 except for a small negative one between 2010Q2-2011Q2 and a small positive one between 2015Q1-Q3. Moreover, the small negative correlation observed between 2010Q2-2011Q2 coincides with Barack Obama's announcements of the US military policy when he decides to halve the US troops in Iraq in 2010 and to withdraw US forces from Afghanistan in 2011 (US military 'on track' to reduce troops in Iraq to 50,000, The Telegraph, May 31, 2010). Obama's reversed decision

about keeping some US troops in Afghanistan in 2015 also coincides with small positive correlation observed between 2015Q1 and 2015Q3 (A timeline of U.S. troop levels in Afghanistan since 2001, The Associated Press, July 6, 2016). Observing the evolution of this coefficient, it is interesting to see how military spending is related with price ratio when there are signs of high military activity and how not related once the military tension is decreased.

Graph 5.3. Evolution of coefficient: "Defense prices/civilian prices" of the US

When looking at political and military events that coincide with the critical points of the plot, it may be conceived by the defense industry producers as a demand signal to increase prices. It should be noted that defense burden of the US rose by 25% by 2008 since the collapse of the Soviet Union and relative prices of military goods reached its maximum level in 2008 during George W. Bush presidency. As an important contribution to the literature, this finding captured the effect of relative price change on military burden: effect of relative prices on defense spending revealed to be positive and significant during

high signaling of military activity, and not significant when there is relatively less military tension.

China has gone under a military modernization process that led to an accelerated increase in its military spending within the last three decades. It is of importance to include China in the US demand for defense considering China has increased its defense spending by 8,5 times from 1994 to 2016, compared to a 1,2 times increase of the US for the same period.
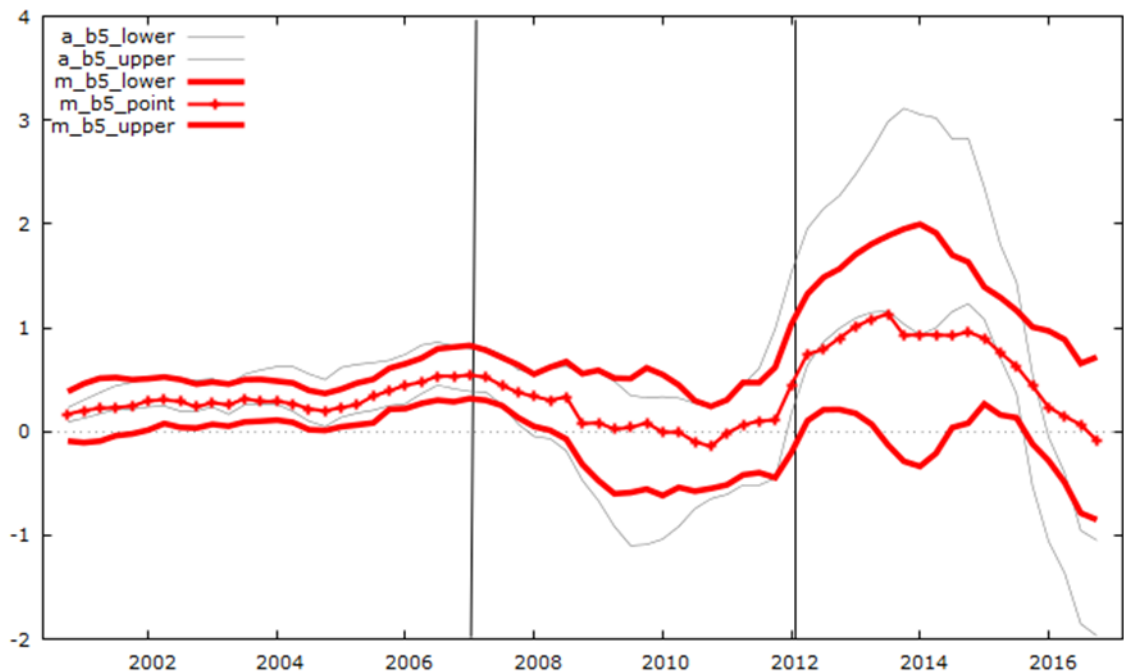
Graph 5.4. Evolution of coefficient: "Chinese defense burden"

According to the analysis, the correlation coefficient is significantly positive for the most of the time data covered and also shows accelerated rise after 2012. For the pre-crises period, the coefficient is significantly positive and relatively in a stable level around 0.3 meaning that a 1% increase in Chinese defense burden is correlated with a 0.3% increase in the US one. Although coefficient for the China effect loses significance during the crises period between 2007 and 2012, it makes a rise afterwards and reaches

approximately to 1 in 2014 as its maximum value throughout the last three decades. This suggests evidence towards a significant rivalry between the US and China with the beginning of the 2nd millennium till today. It is very important to underscore that the relatively greater increase observed at the end of 2011 and the beginning of 2012 coincides with the US new Asia-Pacific strategy, known as "re-balance" or "pivot" to Asia. Asia Rebalance strategy of Obama administration was revealed by the publication of then-secretary of the state Hillary Clinton's article in the Foreign Policy, named "America's Pacific Century". The article emphasizes strong cooperation with the defense alliances of the US and stresses on broad-based military presence in the Asia-Pacific region while China being at the center of this new shift of strategy (Clinton, 2011) (Sutter et al, 2013).

Russia has been the main competitive force of the US up until the end of Cold War. Signs of pursuits of peace dividends have been observed from the evolution of defense burdens of the US, NATO members and Russia after the Cold War. This explanatory variable will be analyzed in three sub-periods, namely, pre-crises before 2007 global economic crises, crises time from 2007 up until the signs of economic recovery began to be seen in 2012, and post-crises after 2012. According to the findings of this study the correlation coefficient between the US and Russian defense spending is in an increasing pattern from the beginning of the second millennium until 2012, although insignificant in some of the years data covered. In the pre-crises period, the correlation is positive but the reported coefficient is at very low levels around 0.1 meaning that a 1% increase in Russian defense burden correlates with an approximately 0.1% increase in the US defense burden.

Graph 5.5. Evolution of coefficient: "Russian defense burden"

The correlation coefficient enters into an increasing pattern in 2007 and ends up with the coefficient's maximum value with 0.3 in 2012 for the crises period. Notwithstanding, after the recovery of the global economic crisis, the positive correlation loses its significance with broader confidence intervals. After 2012, many political and military issues emerged between the US and Russia including the acceptance of Edward Snowden's asylum in Russia in 2013, Russian annexation of Crimea in 2014 and the emergence of the Syrian civil war in 2015, which many including the US Senator John McCain interpreted as a proxy war between the US and Russia (Shapiro & Estrin, 2014). (The New York Times October 12, 2015) (John McCain says US is engaged in proxy war with Russia in Syria. The Guardian, October 4, 2015) (Bremmer, 2018). Although some sanctions such as suspending Russia from the G8 had been enacted as a counteraction to the annexation of the Ukrainian Crimea, U.S. then-president Obama acknowledged that Crimea's annexation by Russia would be hard to reverse. Obama, also, recognized Russia's regional

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power and argued that Russia did not possess a considerable threat to the U.S. security (Haddad & Polyakova, 2018). Thus, Obama administration's relatively downgraded approach to Russia was also consistent with the US new Asia-Pacific rebalance policy and might be the cause of the fall in correlation coefficient after 2012. Overall, although the US military burden is in correlation with the Russian one throughout almost two decades, it loses significance with the assumption of Obama to the US presidency.

The trend component of the US demand for defense is the last explanatory independent variable of the model that is designed to capture all other domestic/global political/military variables and will be analyzed in three sub-periods of time taking the global financial crises into consideration: pre-crises, crises, and post-crises periods. When Graph 5.6. is examined generally, the consistently increasing pattern of the trend variable draws attention for the time period between 2000 and 2014.
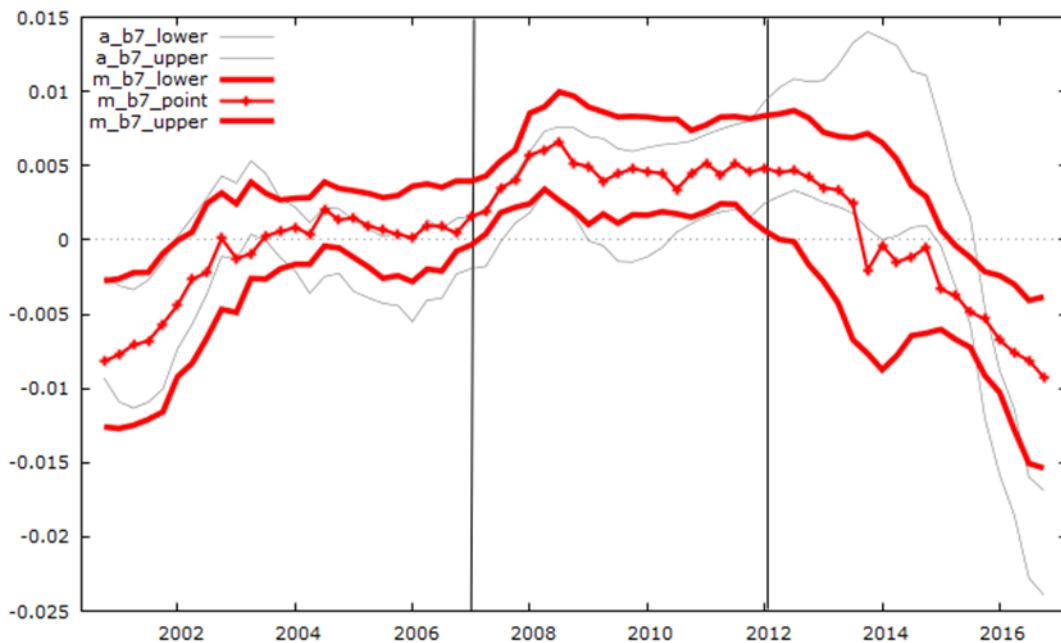
Graph 5. 6: Evolution of the trend variable

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This might show the US response to the global rise of terrorism after the 9/11 attacks. The US had involved in military operations in many states around the world including Afghanistan, Pakistan, Iraq, Yemen, and Libya against terrorist organizations such as al-Qaeda and ISIS. With respect to pre-crises period, there exist a significant negative trend until 2002, which indicates pursuit of peace dividends after the Cold War, while the sharp increase observed in 2001 could probably signifies the effect of 9/11 on the US defense burden. Between 2002 and 2007, no significant trend is reported. For the crises period between 2007 and 2012, a significant positive trend attracts attention. Both the aggregate defense spending and defense burden of the US displays increases during this time period, meaning that the US could not contract, but expand its defense spending while its economy was shrinking. To speculate on this point, one might suggest that the US wished to achieve more military advantage against states with already-weakened economies during the crises period or used defense spending as a tool to boost its domestic economy. For the post-crises period, the trend of military burden again begins to sink, although insignificantly. It reaches its pre-crises values in 2014 and again enters into a significant negative trend after 2015.

The analysis was also done with the same explanatory variables without the inclusion of relative prices. Adjusted R-square only dropped 0.5 percentage points in the new model and results showed almost no difference with respect to all variables except for lagged military burden. While preserving the shape of the evolution of the coefficient, exclusion of relative prices from the model seems to overestimate the effect of lagged military burden by approximately 20%. While this finding confirms the relevance of the drop of prices from defense demand models of which previous studies applied, the interpretation

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regarding the coefficient of the lagged military burden in such models should be made more carefully.

In summary, the US demand for defense spending is affected by different magnitudes of the explanatory variables in different time periods. While the determinants of the US defense spending is (1) lag military burden, (2) growth rate of its economy, (3) relative costliness of defense, and (4) defense burden of Russia (5) defense burden of China and (6) trend for the time period prior to the 2007 economic crises, effect of all explanatory variables disappears except for the lag military burden and the trend variable during the economic crises between 2007 and 2012. For the post-crises period, the US demand for defense spending is affected by (1) lag military burden, (2) growth rate of its economy, and (3) the Chinese defense burden, though their magnitudes are revealed to be greater than observed before the economic crises.

	Constant			Lag Defense Burden			Growth Rate			Price Ratio			Chinese Defense Burden			Russian Defense Burden			Trend		
	beta_hat_0			beta_hat_1			beta_hat_2			beta_hat_3			beta_hat_4			beta_hat_5			beta_hat_6		
Time	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper
2000Q4	0,4529	0,9662	1,4513	0,0622	0,3349	0,6166	-0,0009	0,0014	0,0039	-1,6406	0,0233	2,1415	-0,0918	0,1679	0,3852	-0,0367	0,0392	0,1173	-0,0126	-0,0082	-0,0028
2001Q1	0,403	1,0018	1,4329	0,0474	0,3377	0,6234	-0,002	0,0003	0,0028	-1,7704	-0,0093	1,8077	-0,1066	0,203	0,4613	-0,0287	0,0493	0,1293	-0,0127	-0,0077	-0,0026
2001Q2	0,3541	0,8677	1,3996	0,0676	0,3544	0,6424	-0,0014	0,0004	0,0031	-1,7563	0,0907	1,82	-0,0927	0,2228	0,5124	-0,0309	0,0558	0,141	-0,0125	-0,0071	-0,0022
2001Q3	0,3118	0,7923	1,3424	0,0768	0,3809	0,6688	-0,0023	0	0,002	-1,6914	-0,1182	1,6582	-0,0393	0,2317	0,5197	-0,0325	0,0581	0,1476	-0,0121	-0,0068	-0,0022
2001Q4	0,2815	0,6185	1,3836	0,0384	0,5004	0,6835	-0,0021	0,0001	0,0022	-1,3124	0,138	1,9099	-0,022	0,2453	0,4995	-0,0211	0,0483	0,1475	-0,0116	-0,0057	-0,0009
2002Q1	0,1983	0,7048	1,1988	0,121	0,3147	0,7352	-0,0012	0,001	0,0036	0,0211	1,0074	2,1925	0,0135	0,2967	0,5086	-0,0065	0,0892	0,172	-0,0092	-0,0044	0
2002Q2	0,0846	0,5336	0,9861	0,1889	0,4851	0,768	0,0003	0,0026	0,005	0,4729	1,5005	2,6422	0,0773	0,3048	0,5245	0,0112	0,0914	0,2069	-0,0083	-0,0026	0,0005
2002Q3	0,02	0,5082	0,9423	0,2089	0,4908	0,8107	0,0003	0,0033	0,0049	0,7124	1,794	2,9574	0,0394	0,2899	0,5008	0,0054	0,1036	0,2059	-0,0066	-0,0022	0,0024
2002Q4	-0,0751	0,3685	0,8638	0,2936	0,6322	0,8593	0	0,0021	0,0049	1,4227	2,4458	3,5221	0,0335	0,2377	0,4576	0,0012	0,0986	0,2054	-0,0047	0,0001	0,0032
2003Q1	-0,0717	0,3201	0,8504	0,2875	0,5696	0,8594	0	0,0023	0,0048	1,3147	1,9656	2,7421	0,0698	0,2778	0,4771	0,0126	0,0948	0,2039	-0,0049	-0,0012	0,0024
2003Q2	-0,2366	0,1374	0,5967	0,4272	0,6947	0,9589	0,0009	0,003	0,0052	1,1148	1,8522	2,5397	0,0511	0,2557	0,4573	-0,0039	0,0923	0,1877	-0,0026	-0,001	0,0039
2003Q3	-0,3313	0,002	0,4947	0,5003	0,8098	1,0001	0,0005	0,0032	0,0044	0,8355	1,6055	2,2799	0,0918	0,3173	0,4996	-0,0094	0,0917	0,1725	-0,0026	0,0003	0,0031
2003Q4	-0,3142	0,0344	0,4023	0,5491	0,7693	0,9861	0,0006	0,0025	0,0042	0,7857	1,4297	2,1155	0,0994	0,2887	0,5024	-0,0012	0,0814	0,1693	-0,0019	0,0006	0,0027
2004Q1	-0,2773	0,0809	0,3833	0,563	0,7553	0,956	0,0011	0,0023	0,0048	0,5993	1,323	2,0827	0,1105	0,2907	0,4859	0,0047	0,0948	0,1561	-0,0016	0,0008	0,0028
2004Q2	-0,1937	0,0783	0,4026	0,5576	0,7348	0,8828	0,0009	0,0031	0,0051	0,3847	1,2191	2,0006	0,0876	0,2691	0,4675	0,0169	0,0892	0,1634	-0,0016	0,0004	0,0029
2004Q3	-0,1297	0,1993	0,4395	0,5501	0,6985	0,8511	0,0015	0,0029	0,0059	0,3246	1,0553	1,8201	0,0176	0,2185	0,3955	0,0128	0,085	0,1524	-0,0004	0,0021	0,0039
2004Q4	0,0172	0,3318	0,602	0,4604	0,5868	0,7512	0,0018	0,0037	0,0058	0,5441	1,3365	2,0701	0,0107	0,198	0,3662	0,0097	0,0789	0,1508	-0,0005	0,0013	0,0035
2005Q1	-0,0655	0,2204	0,5665	0,4801	0,6591	0,7979	0,0012	0,0032	0,0052	0,3476	1,0792	1,8966	0,0453	0,2317	0,4077	0,0083	0,0816	0,1581	-0,0012	0,0015	0,0033
2005Q2	-0,1802	0,2269	0,5821	0,4663	0,6565	0,8515	0,0009	0,0028	0,0053	0,2799	1,0897	1,96	0,0634	0,2576	0,4677	-0,0073	0,0756	0,1781	-0,0018	0,0009	0,0031
2005Q3	-0,3137	0,1899	0,5992	0,4622	0,681	0,9143	0,001	0,0032	0,0054	0,2751	1,0539	1,8589	0,0831	0,342	0,5035	-0,024	0,0893	0,2104	-0,0026	0,0007	0,0029
2005Q4	-0,358	0,2309	0,7989	0,3721	0,6592	0,9509	0,0015	0,0031	0,0058	0,0875	0,9828	1,8433	0,2143	0,3916	0,6098	-0,1715	-0,0242	0,1624	-0,0024	0,0004	0,003
2006Q1	-0,4653	0,1971	0,8247	0,3546	0,6661	0,9978	0,0009	0,0028	0,0054	0,0064	0,809	1,7363	0,2205	0,4457	0,6525	-0,1959	-0,0315	0,1874	-0,0028	0,0001	0,0036
2006Q2	-0,2487	0,3274	1,0144	0,22	0,5943	0,8834	0,0013	0,0038	0,0069	0,1088	0,903	1,7886	0,2709	0,4754	0,7065	-0,2835	-0,0891	0,1028	-0,002	0,001	0,0038
2006Q3	-0,2995	0,3	0,9585	0,1902	0,5532	0,8389	0,0019	0,005	0,0077	0,1894	1,131	1,8664	0,3018	0,535	0,7966	-0,2567	-0,0613	0,1432	-0,0021	0,0009	0,0035
2006Q4	-0,0909	0,4809	1,0596	0,1057	0,455	0,6991	0,0021	0,0045	0,0079	0,1349	0,9392	1,8126	0,2859	0,5316	0,813	-0,3007	-0,0819	0,1139	-0,0008	0,0005	0,004
2007Q1	-0,1425	0,3708	1,0452	0,1101	0,4652	0,7069	0,0026	0,005	0,0085	0,0692	0,9126	1,7832	0,317	0,5429	0,8291	-0,3222	-0,0672	0,1357	-0,0003	0,0016	0,004
2007Q2	-0,0728	0,4245	1,0685	0,0786	0,4416	0,6394	0,0023	0,0051	0,0084	0,0845	0,8093	1,7108	0,3003	0,5242	0,7828	-0,3137	-0,0668	0,1615	0,0004	0,0019	0,0043
2007Q3	0,0569	0,6043	1,1302	-0,0066	0,3367	0,5762	0,0027	0,0052	0,0084	-0,0891	0,7121	1,6225	0,2497	0,444	0,7129	-0,3213	-0,0465	0,1842	0,0018	0,0035	0,0053
2007Q4	-0,0453	0,5443	1,126	-0,0367	0,29	0,5871	0,0019	0,0048	0,007	-0,1288	0,6309	1,5323	0,1335	0,3773	0,6418	-0,2802	0,0171	0,3384	0,0022	0,004	0,0061
2008Q1	-0,0686	0,5065	1,3259	-0,1147	0,2026	0,5836	0,0006	0,0025	0,0055	-0,4676	0,5481	1,579	0,0489	0,3366	0,5523	-0,3074	0,0503	0,3695	0,0024	0,0057	0,0085
2008Q2	-0,3218	0,4598	1,2137	-0,0763	0,2987	0,632	-0,0009	0,0027	0,0054	-0,8345	0,1322	1,2505	0,011	0,3029	0,6196	-0,2929	0,0508	0,4064	0,0034	0,0061	0,009
2008Q3	-0,5128	0,5128	1,3727	-0,1002	0,2623	0,6696	-0,0025	0,0008	0,0047	-0,9112	0,1559	1,4101	-0,0733	0,3327	0,6723	-0,2988	0,0119	0,4817	0,0027	0,0066	0,01
2008Q4	-0,4796	0,2839	1,0752	-0,0406	0,4857	0,7708	-0,0043	-0,0002	0,002	-0,8288	0,1283	1,372	-0,3171	0,0765	0,557	-0,1045	0,2077	0,5366	0,002	0,0051	0,0097
2009Q1	-0,09	0,4889	1,1202	-0,0475	0,4071	0,729	-0,0042	-0,0014	0,0019	-0,6933	0,385	1,5749	-0,4725	0,0848	0,5899	-0,0962	0,1344	0,4187	0,001	0,005	0,0089
2009Q2	-0,0947	0,3846	0,884	0,0266	0,4698	0,815	-0,0047	-0,0009	0,0019	-0,8399	0,123	1,0646	-0,5995	0,0228	0,5143	-0,0283	0,2375	0,5002	0,0017	0,004	0,0086
2009Q3	-0,0687	0,2668	0,8123	0,0897	0,5698	0,8301	-0,0052	-0,0017	0,0015	-1,017	-0,1116	0,7954	-0,5877	0,0387	0,5102	-0,0473	0,1986	0,4773	0,0011	0,0045	0,0083
2009Q4	0,0237	0,3885	0,8291	0,1084	0,4333	0,7563	-0,0059	-0,0031	0,0009	-1,2566	-0,4273	0,5402	-0,5543	0,083	0,6131	-0,1163	0,1692	0,434	0,0017	0,0048	0,0083
2010Q1	0,0619	0,435	0,9048	0,0719	0,4133	0,7343	-0,0058	-0,0023	0,0013	-1,2231	-0,409	0,4175	-0,6169	-0,0054	0,5483	-0,0593	0,1985	0,4505	0,0017	0,0046	0,0083
2010Q2	0,1021	0,4319	0,8572	0,0718	0,3657	0,6942	-0,0057	-0,002	0,0017	-1,2403	-0,4562	0,3146	-0,5379	-0,0067	0,4478	-0,0201	0,2064	0,4211	0,0019	0,0045	0,0082
2010Q3	0,1387	0,387	0,9514	0,0783	0,4298	0,6483	-0,0059	-0,0024	0,0013	-1,5274	-0,7689	-0,0988	-0,5749	-0,1002	0,2963	0,0106	0,2472	0,4465	0,0018	0,0034	0,0082
2010Q4	0,1746	0,4302	0,9741	0,0614	0,3398	0,6207	-0,007	-0,0036	0,0005	-1,7834	-1,0192	-0,2516	-0,5486	-0,1421	0,2417	0,0623	0,2718	0,4632	0,0015	0,0045	0,0074
2011Q1	0,1912	0,4896	1,0157	-0,013	0,2686	0,5448	-0,0062	-0,0029	0,0013	-1,5377	-0,7544	-0,1166	-0,5136	-0,0143	0,3049	0,0765	0,283	0,4794	0,0019	0,0052	0,0077

Table 5.1. Me-boot based interval estimates of the coefficients of the model

Time	Constant beta_hat_0			Lag Defense Burden beta_hat_1			Growth Rate beta_hat_2			Price Ratio beta_hat_3			Chinese Defense Burden beta_hat_4			Russian Defense Burden beta_hat_5			Trend beta_hat_6		
	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper	lower	point	upper
2011Q2	0,1262	0,4091	1,0374	-0,0356	0,2918	0,547	-0,0064	-0,0024	0,0012	-1,6601	-0,7951	-0,0972	-0,4174	0,0627	0,4724	-0,0266	0,205	0,4253	0,0024	0,0044	0,0083
2011Q3	0,1292	0,4496	1,089	-0,1245	0,2302	0,5549	-0,0062	-0,0032	0,0017	-1,5068	-0,7312	0,0108	-0,3962	0,104	0,4711	-0,0329	0,1837	0,4787	0,0024	0,0051	0,0083
2011Q4	0,0519	0,4461	1,0374	-0,12	0,2525	0,5894	-0,0063	-0,0038	-0,0007	-1,2507	-0,2459	0,3387	-0,4439	0,1106	0,6199	-0,0679	0,2965	0,5811	0,0014	0,0046	0,0082
2012Q1	-0,2087	0,2429	0,8162	0,0524	0,4312	0,8273	-0,0071	-0,0045	-0,0016	-1,2769	-0,2814	0,517	-0,2028	0,4493	1,0322	-0,2969	0,0225	0,3465	0,0006	0,0048	0,0084
2012Q2	-0,3925	0,1034	0,627	0,1764	0,5715	1,0326	-0,0075	-0,0046	-0,0012	-1,2832	-0,2367	0,6672	0,1043	0,7483	1,3256	-0,5265	-0,2273	0,125	0	0,0045	0,0085
2012Q3	-0,4224	0,0359	0,518	0,2328	0,6349	1,0653	-0,0068	-0,0041	-0,0002	-0,669	0,3397	1,3289	0,2102	0,7882	1,4855	-0,6127	-0,2874	0,0997	-0,0001	0,0047	0,0087
2012Q4	-0,5045	-0,0616	0,3614	0,3661	0,7289	1,182	-0,0073	-0,0037	-0,0001	-0,8677	0,3529	1,5268	0,2126	0,9	1,5669	-0,6759	-0,3168	0,0701	-0,0017	0,0042	0,0082
2013Q1	-0,5624	-0,1829	0,2114	0,5985	0,8357	1,276	-0,0085	-0,0054	-0,0018	-1,0543	0,3566	1,488	0,1744	1,0128	1,7058	-0,8133	-0,4375	0,0371	-0,0028	0,0035	0,0073
2013Q2	-0,6365	-0,2379	0,0976	0,7112	1,0117	1,3345	-0,0087	-0,0058	-0,0021	-0,8652	0,8838	1,6313	0,0689	1,0805	1,8064	-0,8712	-0,4668	0,114	-0,0043	0,0034	0,007
2013Q3	-0,6846	-0,3193	0,0702	0,7967	1,0676	1,4035	-0,0092	-0,0057	-0,0026	-0,824	0,5019	1,7184	-0,1275	1,1338	1,8844	-0,9011	-0,4617	0,1947	-0,0067	0,0024	0,0069
2013Q4	-0,6801	-0,296	0,1343	0,883	1,1022	1,3514	-0,0096	-0,0064	-0,0029	-1,1035	0,2969	1,6611	-0,2869	0,9266	1,9513	-0,9613	-0,336	0,314	-0,0077	-0,0021	0,0072
2014Q1	-0,6945	-0,2943	0,1571	0,9161	1,0944	1,3161	-0,0083	-0,0055	-0,0022	-0,8934	0,552	1,8425	-0,3357	0,9323	1,9962	-0,9931	-0,3788	0,3638	-0,0087	-0,0004	0,0065
2014Q2	-0,6257	-0,2207	0,2132	0,9147	1,0742	1,2238	-0,0077	-0,0045	-0,0017	-0,8521	0,4939	1,6307	-0,2094	0,9318	1,9119	-0,8882	-0,2691	0,3342	-0,0078	-0,0015	0,0054
2014Q3	-0,5211	-0,2187	0,1967	0,8733	0,9864	1,0935	-0,0067	-0,0037	-0,0007	-0,229	0,7778	1,9929	0,0376	0,9238	1,6998	-0,6788	-0,2361	0,241	-0,0064	-0,0012	0,0037
2014Q4	-0,5154	-0,1108	0,2777	0,8795	0,9758	1,0911	-0,0065	-0,0038	-0,0003	-0,2888	0,6597	1,8831	0,08	0,9584	1,6334	-0,6356	-0,2188	0,2	-0,0063	-0,0005	0,0029
2015Q1	-0,3674	-0,0266	0,3559	0,8268	0,9297	1,0225	-0,0054	-0,0032	0,0003	-0,1345	0,9546	2,1037	0,2657	0,8993	1,391	-0,4725	-0,2196	0,1002	-0,006	-0,0033	0,0007
2015Q2	-0,256	0,1272	0,509	0,7672	0,8639	0,9682	-0,0039	-0,0011	0,0019	0,1988	1,2932	2,5897	0,1604	0,758	1,2907	-0,3963	-0,0944	0,1465	-0,0067	-0,0038	-0,0004
2015Q3	-0,1322	0,2888	0,6385	0,7173	0,8346	0,9338	-0,003	-0,0002	0,0024	0,0814	1,3909	2,7596	0,1329	0,6276	1,166	-0,3566	-0,0784	0,174	-0,0072	-0,0049	-0,0012
2015Q4	0,007	0,4819	0,9057	0,6565	0,7929	0,8875	-0,0028	0	0,0028	-0,2865	1,0711	2,7776	-0,1207	0,4391	1,0067	-0,2758	-0,0226	0,2747	-0,0091	-0,0053	-0,0021
2016Q1	0,1184	0,7183	1,1206	0,5913	0,7163	0,8616	-0,0035	-0,0015	0,0024	-0,6162	0,9875	2,664	-0,2804	0,2347	0,9689	-0,2937	0,0605	0,4082	-0,0103	-0,0067	-0,0024
2016Q2	0,1966	1,2372	1,9009	0,3936	0,6155	0,8277	-0,0032	0,0004	0,0037	-1,6947	0,4496	2,4022	-0,4913	0,1449	0,8855	-0,3637	0,0075	0,4366	-0,0128	-0,0076	-0,003
2016Q3	0,3864	1,5442	2,7319	0,1384	0,5472	0,7939	-0,0026	0,0001	0,0055	-1,9237	0,0266	1,9983	-0,7853	0,0673	0,6564	-0,4076	0,0503	0,4498	-0,0151	-0,0081	-0,0041
2016Q4	0,3961	1,7918	3,2556	-0,0314	0,4273	0,8019	-0,0028	0,0011	0,0053	-1,934	-0,1417	1,7831	-0,8502	-0,0873	0,7169	-0,5597	-0,0343	0,4656	-0,0154	-0,0092	-0,0038

Table 5.2. Me-boot based interval estimates of the coefficients of the model (Continued)

Sub-period	Lag Defense Burden	Growth Rate	Price Ratio	Chines Defense Burden	Russian Defense Burden	Trend
2000-2007	0,574972	0,002504	1,065876	0,301048	0,052004	-0,001412
2007-2012	0,362725	-0,00019	-0,05907	0,15875	0,139455	0,004455
2012-2016	0,812095	-0,003105	0,536445	0,69347	-0,19724	-0,001355

Table 5.3. Coefficient averages for different sub-periods

CHAPTER VII

CONCLUSION

Most of the recent demand for defense spending studies focused on regional alliances such as NATO and Asian countries or some specific states like Canada, Egypt, and Turkey. This study contributed to the existing literature by estimating defense demand of a great power, the US, which has long been neglected, using Post-Cold War data.

The US demand for defense spending is mainly determined by lagged defense burden, US economic growth, relative costliness of military goods, and Chinese defense burden whereas Russian defense burden sometimes shows significance with small coefficients up until 2012. The sign and magnitude of the coefficients behave differently in different time periods specifically (1) prior to the economic crises during 2000-2007, (2) during the economic crises between 2007 and 2012, and for the (3) post-economic crises during 2012-2016. Notwithstanding, all coefficients except for the relative costliness of defense occurs at greater levels in the period of (3) compared to the period of (1). For example, a 1% increase in last year's defense burden causes around a 0.55% of this year's military burden for the period prior to the economic crises on average whereas a 1% increase in defense burden causes an approximately 0.8% increase in today's defense burden for the post crises period on average. Moreover, a 1 percentage point increase in growth rate correlates with a 0.3% increase and 0.4% decrease in military burden of the US on average for the periods prior to and after the economic crises, respectively.

The present study is also able to capture the positive, negative, and insignificant effects of growth rate on military expenditure within different sub-periods of the time span of the

data. While the effect of growth rate on military burden of the US is positive before the crises, it is negative for the post-crises period. There also seems to be no significant correlation between the growth rate and defense burden during the economic crises period between 2007 and 2012. This leads to the conclusion that not only states that differ in development stages or geographies can display conflicting results with regard to the growth-milex nexus, but even one sole state may display different behaviors within specific time frames that owns particular political and economic specifications. This consequently suggests that growth effect on demand for defense is not a static one and cannot be absolutely determined.

While pointing out the determinants of the US demand for defense spending, the present study also served to confirm some theoretical information in defense economics area. An important contribution of the present study is towards capturing the effect of relative price of military goods on military expenditures, which exist in the original neoclassical framework of Smith (1989) but omitted by previous studies due to data unavailability. Both volatility and sign change of the correlation coefficient well coincide with political and military events that the US had involved in such as 2007 economic crises and wars in Afghanistan and Iraq. While the US defense burden is found to be in a significantly positive correlation generally, the coefficient shows drastic rises and falls in times of high of military activity and low military activity, respectively.

Along with internal factors that could affect the US demand for defense burden, Russian and Chinese defense burdens are also included in the model as external factors. The positive and gradually increasing pattern of the coefficient for Chinese defense burden suggests that the US sees China as a competitor in the global arena as Chinese aggregate

military expenditure is expected to catch its US counterpart within next 30 years. Also, the sharp rise of the coefficient after 2012 seems to match well with the new re-balance to Asia-Pacific policy of the US, which demands broader military presence and deepened military relations with the allies in the region. Oppositely, after a two decade increase, the coefficient for Russia shows a drastic decline and becomes insignificant in 2012. This, in turn, suggests that Russia might not be considered as an important threat by the US anymore, which is consistent with its new foreign policy where China and Asia-Pacific region is at the center. This confirms that that the military policy of the States adjusts in a very dynamic way and walks hand in hand with its foreign political policy.

Another contribution of this study is presenting a novel method, called ME-boot rolling window estimate, which offers more robust interval estimates for relatively small sample sizes and allows the parameters to evolve over time. Both the OLS and Me-boot results were presented in Graph 5.1 through 5.6 for comparison. One can consider very sharp rise and falls of the coefficients and instantly narrowed confidence intervals as problematic in the OLS results, compared to the smoother and more consistent results developed by Me-boot rolling windows estimates.

BIBLIOGRAPHY

Abdelfattah, Y. M., A. S. Abu-Qarn, J. P. Dunne and Shadwa Zaher. 2014. "The Demand for Military Spending In Egypt." *Defence and Peace Economics* 25 (3): 231-245

"ABD'nin yeni ulusal savunma stratejisi: 'Öncelik terörizm değil güç rekabeti.'" BBC, January 19, 2018. To Access: https://www.bbc.com/turkce/haberler-dunya-42753519

"About SCO." Official website of the Shanghai Cooperation Organization, January 9, 2017. To Access: http://eng.sectsco.org/about_sco/

Aji, Albert and Sarah El Deeb. 2015. "Clashes between Syrian troops, insurgents intensify in Russian-backed offensive." US News, October 8. To Access: https://www.usnews.com/news/world/articles/2015/10/08/syrian-general-russian-strikes-helping-ground-offensive

Albalate, D., Germà Bel and Ferran Elias. 2012. "Institutional Determinants of Military Spending." *Journal of Comparative Economics* 40: 279–290

Altinay, Galip and A. T. Yalta. 2016. "Estimating the Evolution of Elasticities of Natural Gas Demand: The Case of Istanbul, Turkey". *Empirical Economics* 51: 201–220

Anderton, C. 1995. "Economics of Arms Trade." In Handbook of Defense Economics. Vol. 1, edited by T. Sandler and K. Hartley, 523–561. Amsterdam: Elsevier.

"APEC Study Center Consortium." Official website of APEC. To Access: https://apec.org/Groups/Other-Groups/APEC-Study-Centres-Consortium

"A timeline of U.S. troop levels in Afghanistan since 2001." The Associated Press, July 6, 2016. To access: https://www.militarytimes.com/news/your-military/2016/07/06/a-timeline-of-u-s-troop-levels-in-afghanistan-since-2001/

Basora, Adrian A. & Aleksandr Fisher. 2014. "Putin's 'Greater Novorossiya' – The Dismemberment of Ukraine." Foreign Policy Research Institute E-notes, May 2. To Access: https://www.fpri.org/article/2014/05/putins-greater-novorossiya-the-dismemberment-of-ukraine/

Basu P. and Rakhahari Chatterji 2016. "China's Race for Arms." *Jadavpur Journal of International Relations* 20(1): 1–32

Batchelor, T. 2017. "US troops deployed to Poland in response to Russian aggression" The Independent, January 9. To access: http://www.independent.co.uk/news/world/europe/russia-us-troops-nato-mission-poland-message-obama-putin-a7517281.html

Batchelor, T. 2017. "The map that shows how many Nato troops are deployed along Russia's border." The Independent, February 5. To access: http://www.independent.co.uk/news/world/europe/russia-nato-border-forces-map-where-are-they-positioned-a7562391.html

Barnard, Anne and Karam Shoumali. 2015. "U.S. Weaponry Is Turning Syria Into Proxy War With Russia." The New York Times, October 12. To access: https://www.nytimes.com/2015/10/13/world/middleeast/syria-russia-airstrikes.html?_r=0

Besemeres, John. 2016. "*A Difficult Neighbourhood: Essays on Russia and East-Central Europe since World War II*". ANU PRESS

Bing-Fu, Chen & Zhao Liming. 2006. "The Determinants of China's Defense Expenditure Before and After Transition." *Journal of Conflict Management and Peace Science* 23: 227-244

Borger, Julian. 2014. "Barack Obama: Russia is a regional power showing weakness over Ukraine." The Guardian, March 25. To access: https://www.theguardian.com/world/2014/mar/25/barack-obama-russia-regional-power-ukraine-weakness

Bove, V. and Brauner, J. 2016. "The Demand for Military Expenditure in Authoritarian Regimes." *Defence and Peace Economics* 27(5): 609–625

Bremmer, Ian. 2018. "These 5 Proxy Battles Are Making Syria's Civil War Increasingly Complicated." The Time, February 16. To Access: http://time.com/5162409/syria-civil-war-proxy-battles/

Brilliat, Myron. 2007. "A Free Trade Area of the Asia-Pacific: An Idea with Merit, but Is It Feasible?" *Brookings Northeast Asia Commentary*, 11.

Brito, D. L., and M. D. Intriligator. 1995. "Arms Races and Proliferation." In Handbook of Defense Economics. Vol. 1, edited by T. Sandler and K. Hartley, 109–164. Amsterdam: Elsevier.

Bruce, N. 1990. "Defence Expenditures by Countries in Allied and Adversarial Relationships." *Defence Economics* 1: 179–195.

Christie, E. H. 2017. "The Demand for Military Expenditure in Europe: The Role of Fiscal Space in the Context of a Resurgent Russia." *Defence and Peace Economics* https://doi.org/10.1080/10242694.2017.1373542

"CIS leaders sign free trade deal." Sputnik, October 18, 2011. To Access: https://sputniknews.com/russia/20111018167833875/

Clinton, Hillary. 2011. "America's Pacific Century." The Foreign Policy, October 11. To access: http://foreignpolicy.com/2011/10/11/americas-pacific-century/

Conway, Madeline. 2017. "Timeline: U.S. approach to the Syrian civil war." POLITICO, July 4. To access: https://www.politico.com/story/2017/04/timeline-united-states-response-syria-civil-war-237011

Cordesman, Anthony H. 2016. "Evolving Strategies in the U.S.-China Military Balance" Working Draft, Center for Strategies and International Studies

Cusack, Thomas R. and Michael Don Ward. "Military Spending in the United States, Soviet Union, and the People's Republic of China" *Journal of Conflict Resolution* 25 (3): 429-469

Dufour, Jules. 2007. "The Worldwide Network of US Military Bases" Global Research, July 1. To Access: https://www.globalresearch.ca/the-worldwide-network-of-us-military-bases-2/5564

Douch, Mohamed and Binyam Solomon. 2014. "Middle Powers and the Demand for Military Expenditures." *Defence and Peace Economics* 25(6): 605–618

Dunne, J. P., P. Pashardes, and R. P. Smith. 1984. "Needs, Costs and Bureaucracy: The Allocation of Public Consumption in the UK." *The Economic Journal* 94 (373): 1‑15.

Dunne, J. P., Eftychia Nikolaidou and Nikolaos Mylonidis. 2003. "The Demand for Military Spending in the Peripheral Economies of Europe." *Defence and Peace Economics* 14(6): 447–460

Dunne, J. P. and Sam Perlo-Freeman. 2003. "The Demand for Military Spending in Developing Countries: A Dynamic Panel Analysis." *Defence and Peace Economics* 14(6): 461–474

Dunne, J. P., Sam Perlo-Freeman and Ron P. Smith. 2008. "The Demand for Military Expenditure in Developing Countries: Hostility versus Capability." *Defence and Peace Economics* 19 (4): 293–302

Dunne, J.P. and Smith, R. 2007. "The Econometrics of Military Arms Races. In Handbook of Defense Economics, edited by K. Hartley and T. Sandler. Amsterdam: North-Holland, Chapter 10.

"East Ukraine separatists seek union with Russia." BBC News, May 12, 2014. To Access: https://www.bbc.com/news/world-europe-27369980

Elek, Andrew. 2005. "Back to Canberra: Founding APEC. In The Evolution of PECC: The First 25 Years, Chapter 5. Retrieved from the Official website of PECC on June 5, 2018.

Encyclopedia of NATO Topics. 2017. "Peace Support Operations in Bosnia and Herzegovina." Accessed November 28. https://www.nato.int/cps/en/natolive/topics_52122.htm

Encyclopedia of NATO Topics. 2017. "NATO and Afghanistan." Accessed November 28. https://www.nato.int/cps/en/natohq/topics_8189.htm

Fu, Tze-Wei, Mon-Li Lin and Yu-Hsiang Lin. 2013. "The Effects of Military Competition between the United States and China on the Defense Spending of Asia-Pacific Countries" *Journal of International and Global Economic Studies*, 6(2): 32-44

Functions and Powers of the Security Council. UN Website. To Access: http://www.un.org/en/sc/about/faq.shtml#powers

Furuoka, Fumitaka, Mikio Oishi, and Mohd Aminul Karim. 2016. "Military expenditure and economic development in China: an empirical inquiry". *Defence and Peace Economics* 27(1): 137-160

"Future Tasks of The Alliance - Harmel Report." 1967. NATO Archives. To Access: https://www.nato.int/cps/ic/natohq/topics_67927.htm

Gabuev Alexander and Vladimir Solovyev. 2007. "Gendarme of Eurasia." Kommersant, October 8. To access: https://web.archive.org/web/20140201214505/http://www.kommersant.com/p812422/CIS_CSTO_Russia_Lebedev/

Gaddis, J. L. 1982.*Strategies of Containment: A Critical Appraisal of Postwar American National Security*. New York: Oxford University Press, 1982.

Gaibulloev, K., George, J., Sandler, T., Shimizu, H. 2015."Personnel Contribution to UN and Non-UN Peacekeeping Missions: A Public Goods Approach." *Journal of Peace Research* 52: 727–742.

Gelman, J. 2007. "Terratenientes" Rebelion, February 26. To Access:http://www.rebelion.org/noticia.php?id-47353

George, J. and Sandler T. "Demand for Military Spending in NATO, 1968–2015: A Spatial Panel Approach." *European Journal of Political Economy*, 53: 222-236

George, Justin, Dongfang Hou & Todd Sandler. 2018. "Asia-Pacific Demand for Military Expenditure: Spatial Panel and SUR Estimates." *Defense and Peace Economics* Doi:https://doi.org/10.1080/10242694.2018.1434375

Global Policy Forum. "US Military Expansion and Intervention" To Access: https://www.globalpolicy.org/us-military-expansion-and-intervention.html

Haddad, Benjamin & Alina Polyakova. 2018. "Don't rehabilitate Obama on Russia." Brookings Institute, The New Geopolitics of Europe and Russia Series, March 5, 2018. To Access: https://www.brookings.edu/blog/order-from-chaos/2018/03/05/dont-rehabilitate-obama-on-russia/

Harnden, Toby. 2010. "US military 'on track' to reduce troops in Iraq to 50,000." The Telegraph, May 31. To access: https://www.telegraph.co.uk/news/worldnews/middleeast/iraq/7790756/US-military-on-track-to-reduce-troops-in-Iraq-to-50000.html

Hartley, K. and T. Sandler 1990. "The Economics of Defence Spending: An International Survey" (Routledge, London)

Henley, Jon. 2014. "A brief primer on Vladimir Putin's Eurasian dream." The Guardian, February 18. To Access: https://www.theguardian.com/world/shortcuts/2014/feb/18/brief-primer-vladimir-putin-eurasian-union-trade

"History of BRICS." BRICS Information Portal. To Access:
http://infobrics.org/page/history-of-brics/

James R. Holmes. 2013. "What to Make of China's Defense Spending Increase." *The Diplomat*, March 7.

Järve, Priit. 2001. "Communists of Moldova and the Future of the Country's Ethno-Political Conflicts." *European Centre for Minority Issues*

Klein, Margarete. 2009. "Russia's Military Capabilities." SWP Research Paper. To Access:https://www.swp-berlin.org/fileadmin/contents/products/research_papers/2009_RP12_kle_ks.pdf

Kofman, Michael. 2018. "The Durability of Russian Military Power: Moscow's Prospects for Sustaining Direct Competition." in *CCW Russia Brief* Issue 2

Kollias, C., and S.uzanna-Maria Paleologou. 2003. "Domestic political and external security determinants of the demand for greek military expenditure." *Defence and Peace Economics* 14(6): 437–445

Lamote, Dan. 2018. "Mattis unveils new strategy focused on Russia and China, takes Congress to task for budget impasse." Washington Post, January 19, 2018. To Access: https://www.washingtonpost.com/news/checkpoint/wp/2018/01/19/mattis-calls-for-urgent-change-to-counter-russia-and-china-in-new-pentagon-strategy/?noredirect=on&utm_term=.7678b99d4048

Looney, R.E. and Mehay, S.L. 1990. "United States defense expenditures: trends and analysis." In The Economics of Defense Spending: An International Survey, edited by K. Hartley and T. Sandler. London: Routledge.

Luca, Ana Maria. 2015. "Post-Soviet Russian military interventions." NOW, October 21. To Access: https://now.mmedia.me/lb/en/reportsfeatures/566096-post-soviet-russian-military-interventions

Mathieson, Rosalind. 2016. 'China Closing Tech Gap with US., Pacific Air Chief Says', Bloomberg Business, 16 February. Available at https://www.bloomberg.com/news/articles/2016-02-16/china-army-closing-tech-gap-with-u-s-pacific-air-chief-says (accessed on January 24, 2018).

Markowski, S., Chand, S. and Robert Wylie. "Economic Growth and Demand for Military Expenditure in the Indo-Pacific Asia Region." *DEFENCE AND PEACE ECONOMICS* 28(4): 473–490, https://doi.org/10.1080/10242694.2016.1274059

Mehanna, Rock-Antoine. 2004. "An Econometric Contribution to the U.S. Defense–Growth Nexus: Evidence from Error Correction Model" *Conflict Management and Peace Science*, 21: 121-131

"Member Countries." NATO website. To Access: https://www.nato.int/nato-welcome/index.html

Membership and Election. UN Website. To Access: http://www.un.org/en/sc/about/faq.shtml#nonpermanent

Military Spending by NATO Members. The Economist. February 16, 2017. To access: https://www.economist.com/blogs/graphicdetail/2017/02/daily-chart-11

"Moldova ready for Russia Belarus union." BBC News, April 17, 2001. To Access: http://news.bbc.co.uk/2/hi/europe/1281492.stm

Murdoch, J. 1995. "Military Alliances: Theory and Empirics." In Handbook of Defense Economics. Vol. 1, edited by T. Sandler and K. Hartley, 89–108. Amsterdam: Elsevier.

Murdoch, J. C., and T. Sandler. 1984. "Complementarity, Free Riding, and the Military Expenditure of NATO Allies." *Journal of Public Economics* 25: 83-101

Na, Hou. 2009. "Arms Race, Military Expenditure and Economic Growth in India." PhD diss., University of Birmingham

NATO. 2017. "Relations with Ukraine." Accessed November 28.
https://www.nato.int/cps/en/natolive/topics_37750.htm

Nguyen, Phuong. 2015. "What Should the United States Do about Cam Ranh Bay and
Russia's Place in Vietnam?" CogitAsia, March 16. To Access:
https://www.cogitasia.com/what-should-the-united-states-do-about-cam-ranh-bay-and-
russias-place-in-vietnam/

Nikolaidou, Eftychia. 2008. "The Demand for Military Expenditure: Evidence from the
EU15 (1961–2005)." *Defence and Peace Economics* 19(4): 273–292

Nincic, Miroslav and T. R. Cusack 1979. "The Political Economy of US Military
Spending." *Journal of Peace Research* 16(2): 101-115

Nye, Joseph. 2013. "Our Pacific Predicament," *The American Interest* 8(4)

Okamura, Minoru. 1991. "Estimating the Impact of the Soviet Union's Threat on the
United States-Japan Alliance: A Demand System Approach." *The Review of Economics
and Statistics* 73(2): 200-207

Olson, M., and R. Zeckhauser. 1966. "An Economic Theory of Alliances." *The Review
of Economics and Statistics* 48 (3): 266–279.

Orazgaliyeva, Malika. 2017. "Kazakhstan welcomes results of Syria meeting in Astana,
as Russia, Iran and Turkey issue joint statement." The Astana Times, March 17. To
Access: https://astanatimes.com/2017/03/kazakhstan-welcomes-results-of-syria-
meeting-in-astana-as-russia-iran-and-turkey-issue-joint-statement/

Oxenstierna, Susanne. 2016. "Russia's defense spending and the economic decline."
Journal of Eurasian Studies 7:60-70

Pamp, Oliver and Paul W. Thurner. 2017. "Trading Arms and the Demand for Military
Expenditures: Empirical Explorations Using New SIPRI-Data." *Defence and Peace
Economics* 28 (4): 457–472

Pengelly, Martin. 2015. "John McCain says US is engaged in proxy war with Russia in Syria." The Guardian, October 4. To access: https://www.theguardian.com/us-news/2015/oct/04/john-mccain-russia-us-proxy-war-syria-obama-putin

Plumer, Brad. 2013. "A short timeline of deteriorating U.S.-Russia relations." The Washington Post, August 8. To access: https://www.washingtonpost.com/news/wonk/wp/2013/08/08/ten-reasons-the-u-s-and-russia-are-at-odds/?noredirect=on&utm_term=.cf692bb960f6

"Post-Soviet world: what you need to know about the 15 states." The Guardian, Unknown. To Access: https://www.theguardian.com/world/2014/jun/09/-sp-profiles-post-soviet-states

Putin. 2001. "Выступление Президента России Владимира Путина на Первом Всемирном конгрессе российских соотечественников" VKSRS. To Access: http://vksrs.com/publications/vystuplenie-prezidenta-rossii-vladimira-/

Putz, Catherine. 2015. "Russia Engages in Military Drills on Europe's Doorstep." The Diplomat, August 25. To access: https://thediplomat.com/2015/08/russia-engages-in-military-drills-on-europes-doorstep/

Radyuhin, Vladimir. 2011. "CSTO tightens foreign base norms." The Hindu, December 22. To access: https://www.thehindu.com/todays-paper/tp-international/csto-tightens-foreign-base-norms/article2736607.ece

Ramcharan, B. G. 2011. "Human Rights and U.N. Peace Operations: Yugoslavia." Leiden: Nijhoff

Raska, Michael. 2014. "Back to the Future: China's Defence Industry Innovation

Paths." RSIS Commentary, No. 229. Available at https://www.rsis.edu.sg/wp-content/uploads/2014/11/CO14229.pdf (accessed on January 23, 2018).

"Report of the High-level Panel on Threats, Challenges and Change." By Secretary General of the UNSC, 2004. To Access: https://www.un.org/ruleoflaw/files/gaA.59.565_En.pdf

Reynolds, D. 1994. *The Origins of the Cold War in Europe: International Perspectives*. New Haven: Yale University Press.

Robertson P. E. & Sin A. 2017. "Measuring hard power: China's economic growth and military capacity". *Defence and Peace Economics* 28(1): 91–111,

Rosh, R. M. 1988. "Third World Militarization: Security Webs and the States They Ensnare." *The Journal of Conflict Resolution* 32 (4): 671-698

"Russia, Turkey and Iran continue cooperation on de-escalation zones in Syria." TASS, June 23, 2017. To Access: http://tass.com/world/953004

"Russia and Belarus form confederation." BBC News, December 8, 1999. To Access: http://news.bbc.co.uk/2/hi/europe/555384.stm

"Russia carries out first air strikes in Syria." Al-Jazeera, September 30, 2015. To Access: https://www.aljazeera.com/news/2015/09/russian-carries-air-strikes-syria-150930133155190.html

"Russian Military Bases Abroad: How Many and Where?" Sputnik, December 19, 2015. To Access: https://sputniknews.com/military/201512191032030941-russian-bases-abroad/

Saunders, Phillip C. and Julia G. Bowie. 2016. "US–China Military Relations: Competition and Cooperation." *The Journal of Strategic Studies* 39(5–6): 662–684

Shapiro, Jeremy & Miriam R. Estrin. 2014. "The Proxy War Problem in Syria." Brookings Institute Op-Ed, February 4. To Access: https://www.brookings.edu/opinions/the-proxy-war-problem-in-syria/

Singvejsakul, Jittima, Chukiat Chaiboonsri & Songsak Sriboonchitta, 2018. "Frontier of error minimization from copula model application: Evidence from dependence structure of BRICS's stock markets." *Journal of Physics*: Conf. Series 1053 doi :10.1088/1742-6596/1053/1/012123

Smith-Spark, L. and Atika Shubert. 2017." Poland welcomes thousands of US troops in NATO show of force." CNN January 14. To access: http://edition.cnn.com/2017/01/14/europe/poland-us-troops-nato-welcome/index.html

Smith, R. P. 1980. "The Demand for Military Expenditure." *The Economic Journal* 90 (360): 811‑820.

Smith, R. P. 1989. "Models of Military Expenditure." *Journal of Applied Econometrics* 4 (4): 345‑359.

Smith, R. P. 1990. "Defence Spending in the United Kingdom." In K. Hartley and T. Sandler, eds., The Economics of Defence Spending: An International Survey (Routledge, London) 76-92

Smith, R. P. 1995. "The Demand for Military Expenditure." In Handbook of Defence Economics. Vol. 1, edited by Keith Hartley and Todd Sandler, 69‑87. Amsterdam: Elsevier.

Solomon, B. 2005. "The demand for Canadian defence expenditures" *Defence and Peace Economics* 16 (3): 171–189

Spangler, Ethan 2017. "Allies with Benefits: US Effect on European Demand for Military Expenditures" *DEFENCE AND PEACE ECONOMICS* https://doi.org/10.1080/10242694.2017.1310365

Suslov, Dmitry. 2016. "US–Russia Confrontation and a New Global Balance" *Strategic Analysis* 40 (6): 547-560

Suslov, Dmitry. 2018. "Russian World" Concept: Post-Soviet Geopolitical Ideology and the Logic of "Spheres of Influence"" *Geopolitics* DOI:10.1080/14650045.2017.1407921

Sutter, Robert G., Michael E. Brown, Timothy J. A. Adamson, Mike M. Mochizuki and Deepa Ollapally. 2013. "Balancing Acts: The U.S. Rebalance and Asia-Pacific Stability". *Rising Power Initiatives*. To access: http://www.risingpowersinitiative.org/wp-content/uploads/BalancingActs_Compiled1.pdf

"The point of material and technical support of the Russian Navy in Tartus." TASS, December 13, 2017. To Access: http://tass.ru/info/4808523

"Transnistria or Moldovian Transnistrian Republic: Just Facts." Moldova.org, December 20, 2008. To Access: https://web.archive.org/web/20081220021433/http://www.moldova.org/pagini/eng/767

Tsvetkova, Maria, Anton Zverev. 2016. "Ghost soldiers: the Russians secretly dying for the Kremlin in Syria." Reuters, November 3. To Access: https://www.reuters.com/article/us-mideast-crisis-syria-russia-insight-idUSKBN12Y0M6

"Теміргалієв оголосив про швидке створення 'Української Федерації'." Ukrainian Truth, 16 April 2014. To Access: https://www.pravda.com.ua/news/2014/04/12/7022211/

UN's High-level Panel on Threats, Challenges and Change: "A more secure world: our shared responsibility". December 1, 2004.

van Ypersele de Strihou, J. 1967. "Sharing the Defense burden Among Western Allies." *Review of Economics and Statistics* 49: 527-536

Vine, David. 2015. "Where in the World Is the U.S. Military?" POLITICO, July. To Access: https://www.politico.com/magazine/story/2015/06/us-military-bases-around-the-world-119321

Vinod, H. D. 2006. "Maximum entropy ensembles for time series inference in economics." *Journal of Asian Economics* 17: 955–978.

Vinod, H.D. 2015."New Bootstrap Inference For Spurious Regression Problems". *Journal of Applied Statistics* 43(2): 317–335

Vinod, H. D. and Javier Lopez-de-Lacalle 2009. "Maximum Entropy Bootstrap for Time Series: The meboot R Package." *Journal of Statistical Software* 29(5)

Wallace, M. D. 1979. "Arms Races and Escalation – Some New Evidence." *Journal of Conflict Resolution* 23 (1): 3–16.

Ward, M. Don. 1984. "Modelling thr US-USSR arms race." *Simulation* 43(4): 196-203

"What is BRICS." BRICS 2017 website. To Access: https://www.brics2017.org/English/AboutBRICS/BRICS/

"Where are US and Russian Military Bases in the World?" Radio Free Europe, 2015. To Access: https://www.rferl.org/a/where-are-us-and-russian-military-bases-in-the-world/28890842.html

White House. 2017. "National Security Strategy of the United States of America"

White House. 2015. "National Security Strategy"

White House. 2010. "National Security Strategy"

White House. 2006. "National Security Strategy of the United States of America"

White House. 2002. "National Security Strategy of the United States of America"

White House. 2000. "A National Security Strategy for a Global Age"

White House. 1999. "A National Security Strategy for a New Century"

White House. 1998. "A National Security Strategy for a New Century"

White House. 1997. "A National Security Strategy for a New Century"

White House. 1996. "A National Security Strategy of Engagement and Enlargement"

White House. 1995. "A National Security Strategy of Engagement and Enlargement"

White House. 1994. "A National Security Strategy of Engagement and Enlargement"

World Bank. 2013. World Development Indicators. http://data.worldbank.org/data-catalog/world-developmentindicators.

Yalta, A. Talha. 2016. "Bootstrap Inference of Level Relationships in the Presence of Serially Correlated Errors: A Large Scale Simulation Study and an Application in Energy Demand". *Computational Economics* 48:339–366

Yalta, A. Talha. 2011. "Analyzing Energy Consumption and GDP Nexus Using Maximum Entropy Bootstrap: The Case of Turkey". *Energy Economics* 33: 453–460

Yalta, A. Talha and Cakar, Hatice. 2012."Energy consumption and economic growth in China: A reconciliation" *Energy Policy* 41: 666–675

Yalta, A. Talha and Yalta, A. Yasemin. 2016. "The Dynamics of Fuel Demand and Illegal Fuel Activity in Turkey". *Energy Economics* 54: 144–158

Yalta, A. Yasemin. 2013."Revisiting the FDI-Led Growth Hypothesis: The Case of China". *Economic Modelling* 31: 335–343

APPENDIX

Defense burdens of NATO and pacific allies of the US as possible explanatory variables are omitted for a couple of reasons. First, it has been shown that many countries are the follower or a free rider of the US in an alliance (Smith 1980) (Dunne, Pashardes, & Smith 1984) (Smith 1989) (Solomon, 2005) (Nikolaidou 2008) (Fu, Lin & Lin 2013) (Solomon 2014) (Christie 2017) (Spangler 2017) assuming that the US acts as a Stackelberg leader (Bruce 1990) (Markowski et. al 2017). Both cases of follower and free rider behavior imply a causal effect from the US to its ally, not the other way around. Second, defense spending of the US and its allies might also show multicollinearity due to their perception of Russia and China as 'the common enemy'. More specifically, an increase in defense spending of the US and NATO could occur at the same time as a response to an increase in Russian defense spending and their correlation would not suggest a causal relationship. Third, considering the massive gap in defense spending of the US and its biggest allies around the world suggests that the US does not really rely on its allies when it comes to competition with other super powers like Russia and China. The defense spending of the US is more than double that of its biggest ally, NATO, which comprises 28 independent states when excluding the US and quintuple that of its five biggest pacific allies, Japan, South Korea, Australia, Singapore, and Philippines in total with 2015 US dollars according to SIPRI. Numbers combined with political events like Trump's speeches of the 'fair pay share' among NATO states, allies' dependence on the US is a more relevant and observable case than US reliance on its allies which again leads to the first point made. Four, offensive realism theory postulated in international relations

field by John Mearsheimer also supports the view of eliminating US regional allies from our model. According to the theory, the world system is anarchic and states are rational actors who seek world hegemony in every opportunity they catch without fully trusting to and relying on any other state. In other words with economics terminology, states always pursue dominant strategy with respect to others because they cannot know the real intention and motives of their opponents and even those of their allies.