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EXPONENTIAL CAPACITY OF POWER AND ITS IMPACT ON MILITARY ALLIANCE DYNAMICS

NIKOLOZ ESITASHVILI

146

EXPERT OPINION

საქართველოს სტრატეგიისა და საერთაშორისო ურთიერთობათა კვლევის ფონდი
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Introduction

The unraveling of the Soviet Bloc began in Poland in June 1989. Furthermore, massive protests throughout Eastern Europe, the collapse of the Berlin Wall on November 9, 1989 and domestic-level conditions operating inside the former Soviet Union ultimately caused its collapse and ended the Cold War in 1991. Nonetheless, NATO perversely still endures despite the end of the Cold War and the disappearance of the Soviet Union—the principal rival and threat that, according to realist logic, prompted the military alliance's formation and justified its military and geostrategic operation until 1991. Additionally, well over a quarter of a century after the dissolution of the Soviet Union and the Warsaw Pact Treaty Organization, NATO intriguingly expanded its membership, kept its internal structure and organization virtually intact, invested in new military capabilities and engaged in a variety of "new" military missions, deepening its members' commitment accordingly and causing the redefinition of its original geostrategic function and purpose.

Some argue that NATO'S survival is not surprising. Instead, it is the result of US political and military incentives and interests to maintain a degree of political and military control and governance over Europe and its allies. Others claim that the Europeans and the North Americans never indeed accepted the collapse of the former Soviet Union and its replacement by the Russian Federation as the absolute disappearance of the geostrategic threat to NATO's allies. They contend that this became particularly acute as President Vladimir Putin's ascendance as a powerful autocrat materialized and expanded in Russia. Hence, there is the need for maintaining NATO in place. Moreover, others claim that, as an institution, NATO enables an exchange between some European members seeking offensive capacity and the United States pursuing legitimacy from its European partners. The enablement of the terms of this exchange provides NATO its reason or justification for existence. Even others contend that the abrogation or survival of a military alliance, like NATO, is "sensitive to changes in core supporting domestic coalitions" but the termination of alliances is less likely among democratic rather than among non-democratic states. Hence, NATO survives. From the institutional perspective, others

focus on the constitution and re-constitution of NATO's roles from its inception to its anomalous survival since 1991. Finally, some see that the collapse of the Soviet Union transformed a bipolar world into a more fluid multipolar security system that ushered in multiple, flexible military alliance opportunities among the Russians, Chinese and other potential international state actors against the United States and the other NATO great power allies. These outcomes would have been particularly the case had the military alliance been disbanded as were the cases in previous historical instances such as the Triple Entente and the Central Powers after the First World War in 1918 and the Allied Powers that defeated the Axis Powers after the Second World War in 1946. Similarly, based on historical precedence and realist theoretical reasoning, many experts believed that NATO's members would dissolve the alliance because, after the end of major systemic or general (hot or cold) wars, the triumphant military alliance members would usually disband the alliance based on changing the national interests of the great powers, the realignment of the powers and the absence of common systemic threats. Consequently, some in this group question the future of NATO. Still, others explain NATO as an unfolding vision and practice that may transform how "we think about security logic in general, European security in particular and European alliance politics specifically."

It is the last of the aforementioned interpretations, albeit from different theoretical assumptions and perspectives, that comes closer to the explanation comprised in this article regarding NATO's internal deepening and, consequentially, its endurance and expansion. This interpretation is a puzzling political event in its own right. Additionally, however, it is counterintuitive mainly when viewed from a realist position and the internal logic of its theories on military alliance dynamics. First, as discussed above, NATO's central geostrategic rival—the Soviet Union—disappeared and, thus, with it the need for a countervailing military alliance. Second, China and Russia have been individually incapable of counterbalancing and threatening NATO's conventional forces in Europe and North America for most of the last 25 years. Finally, the end of cold or hot wars and the absence of a subsequent identifiable threat suggest the dissolution of military alliances as history extensively reveals. Unquestionably, NATO's deepening endurance and expansion are crucial aspects worth exploring

further and comprehensively in terms of historical, geopolitical, strategic and theoretical ramifications.

The central goal of the study is to find out why the cooperation among NATO members has endured and even increased since the end of the Cold War. The proposed study aims to advance an important theoretical contribution to the literature on military alliance theory. It will show that the political economy of military production, a variable generally omitted when explaining military alliance dynamics, might be among important causal factors influencing the alliance decisions of states.

Theoretical Perspective

In the field of international relations, different versions of realism—ranging from classical to neo-classical—have focused on military power as the most significant determinant of military alliance dynamics among the great powers.[1] Neorealist scholars have offered three distinct theories expounding the motivations of states to engage in multilateral balancing: the balance of power, balance-of-threat and balance-of-interests theories.[2] Paradoxically, none of the abovementioned theories explains why alliance members would cooperate and, critically important, deepen their military cooperation such as, for instance, in military production in times of peace and in the absence of a clear and immediate external threat or an objective.

In this study, I argue that the traditional explanation of material capabilities should be expanded to incorporate new political economic variables. This will help to better explain the nature of power and its impact on particular alliance choices. The proposed study attempts to demonstrate that market imperfections such as economies of scale, scope, learning-by-doing and escalating research and development costs in military production provide an important rationale for the cooperation even in the absence of external threats.

Market Imperfections in Military Production

Several authors have written about scale economies, economies of scope, learning by doing and other economic factors influencing military production. Harold Asher showed that the “learning curve” tended to apply

to airframe production … with unit costs declining in a fairly predictable pattern as production expanded.[3] Malcolm W. Hoag also demonstrated that prominent production economies of scale apply with special frequency in military applications. According to Stefan Markowski and et al, scale, scope and learning economies do appear to influence defense industry cost conditions, thereby helping prompt the restructuring of the industry nationally and globally.[4]

Sandler and Hartley argue that scale economies *per se* may have had only a modest influence on the defense industry structure in the past although the evidence for learning economies and their impact was more convincing. However, since the 1990s, scale economies have had a large impact as well.[5] Dunne suggests that governments now appear more sensitive to the extra cost incurred by small national production runs (and the high technology nature of some manufacture) and more receptive to the argument that 'economies of scale need to be met through international collaboration and industrial restructuring.'[6]

The various views summarized above point to one key development: there are clear indications that market imperfections play an important role in the military production of states. Since the end of the Cold War, NATO members have increased collaboration with each other and produced common orders which, I will argue, allowed them to take advantage of economic variables. By cooperating, NATO members used less resources yet generated equal or more power than before. The study will investigate how these conditions came about and how important they are for NATO's endurance.

NATO Member Common Weapons Projects

Decreased economic costs provide significant incentives for states to cooperate. These are expenditures that take place during research and development (R&D) and production processes. Collaborating nations can share R&D costs and they can achieve economies of scale and learn through increased production. For example, if two nations are intending to develop a similar high-tech weapon which would cost them billions of dollars in research, they would be duplicating their resources if they

invested in R&D separately. Additionally, they would fail to take advantage of economies of scale which comes with larger batches of production. Common projects would allow nations to save considerable resources. *Ceteris paribus* two-nation collaboration with equal sharing will save half of the development costs for each nation in the example, plus savings in unit production costs from a larger output.[7] For instance, the doubling of output in aircraft production from 300 to 600 units might lead to savings in unit production costs of some 5 percent. If a single aircraft costs about 50 million per unit, savings are 2.5 million per unit. Two-nation collaboration would avoid duplication of resources and save little over 5 billion for each nation.[8]

One of the top common projects of NATO's European members is the Typhoon plane. The cost of development of the plane is over EUR 54 billion. Moreover, the Typhoon project has affected about 100,000 jobs in over 400 European companies. Britain received 40,000 of these jobs with Spain obtaining 25,000 and Italy and Germany about 20,000 each. A large part of these jobs is highly skilled in creating significant externalities for the rest of the economy. Skills from Typhoon production are transferable to many other industries as well. Typhoon scores more highly on gains from scale and learning through combining.[9] This result is an important spill-over effect. Technologies developed for defense will lead to advances in other industrial areas. The literature often overlooks this economic benefit.

Substantial economies of scale characterize aircraft production. Gains from production augmented as the quantity of production increased exponentially. Typhoon production benefits from learning with an average 85 percent learning curve and typically a 90 percent learning curve for combined labor and other operations.[10] On Typhoon, learning was substantial over the first 60 units. Both Typhoon and Airbus have significantly improved the learning scale as compared to previous generations. This example suggests that European aircraft production constantly improves in the learning scale which manifests itself in productivity improvement and a downward shift in the average cost of production.

The Typhoon brings significant industrial benefits. It allows the European aircraft industry to remain competitive but also allows Europeans to remain independent and feel secure in the case of conflicts.[11] Some critiques claim

that Typhoon remains more expensive as compared to other aircraft. Data confirms the criticism. Typhoon is about 20-60 percent more expensive than, for example, the French Rafale. On a unit total cost basis, the French Rafale is about 10 percent less expensive than the Typhoon while the Swedish Gripen is about 50 percent less expensive.[12]

Other examples of collaborative projects in NATO also confirm that joint production brings considerable benefits. Collaborative development as compared to national alternatives can be about 140 percent for two nations (for example, the Merlin helicopter), 161–179 percent for three nations (for example, the Tornado) and almost twice as high for four nations (for example, the Eurofighter). Despite higher aggregate development costs of collaboration, each partner only bears its share of these costs. As a consequence, cost savings accrue to the nations involved in collaborative development work. Western Europeans are also cooperating in the production of missiles through a company called MBDA. The collaboration has become highly successful to the point that MBDA is now a primary competitor of one of the major global missile companies, Raytheon, from the United States. Besides, the English and French have cooperated in the Storm Shadow missile project. Similarly, the Meteor air-to-air missile is showing promise with the UK acting as the lead on a six-nation international program, also involving France, Germany, Italy, Spain and Sweden.

Logistical support can also bring substantial economic benefits. The UK, the Netherlands, Belgium and France have been cooperating in the logistical support of Spey, Olympus and Tyne marine engines. According to rough estimates, such cooperation has saved participating nations about 30 percent in maintenance services. The UK and the United States benefit considerably from their cooperation in the Multi-Launch Rocket System and the Tomahawk Land Attack Missile. They have benefited from the economies of scale through the joint purchasing of spare parts and shared maintenance facilities.[13]

Western Europeans have successfully cooperated in other helicopter and missile programs. Among them, the NH90 helicopter is essential. The NH90 helicopter is a four-nation collaboration to develop and build a medium-sized multi-role military helicopter. The manufacturers of the helicopter are N.H. Industries (France and Germany), AgustaWestland and Fokker

Aerostructures. The NATO Helicopter Management Agency (NAHEMA) manages the program for participating NATO members. There are six assembly lines in locations in France, Germany, Italy, Finland, Spain and Australia. Five hundred and seventy-three helicopters had been sold by 2011. European collaboration in helicopters created two industrial groups competing against the US helicopter industry.

The UK Department of Defense estimates that collaboration with partners in research brings benefits almost five times the original investment. Collaboration with partners provides access to necessary technology, saves from duplicated costs and in general allows to more efficiently manage the limited budget. The UK Department of Defense spends a little over GBP 40 million on collaborative programs with other nations, less than 10 percent of its defense budget. However, according to their estimate, they obtain technology worth approximately GBP 200 million– a 5:1 return on its investment.[14]

Conclusions: Economic Imperatives and Bandwagon Alignment Strategy

The article explained the concept of market imperfections. It analyzed a few NATO projects to show that gains and cost savings from multinational cooperation, given market imperfections and cost-sharing, are sizeable and produce technological spill-over effects to other industrial areas of the national economies. NATO states are more likely to continue and strengthen military-technological cooperation in the presence of market imperfections—to save costs—even if they face a minimal external threat. The great European and North American powers appear to have benefited from joint projects. By taking advantage of market imperfections, they preserved and even increased power capabilities despite spending less.

A general review and analysis of the available data suggest that the political economy of military production is an essential causal variable in the alliance politics among great powers. The study elucidates why states continue to ally in the absence of external threats. Moreover, it suggests that Schweller's logic in the theory of balance-of-interests is generally valid, mainly when taking into consideration economic variables that can also explain military cooperation of great powers in times of peace. On a

larger scale, the study demonstrates that the incorporation of political and economic variables enriches realist theory on military alliance dynamics.

The study suggests that military power has a unique quality. It can increase exponentially in ratio to inputs. This finding is important because states might decide to cooperate in the amassing of this power by pulling their resources together. Following this multilateral approach, they can generate more power using fewer resources than by pursuing a single tactic. Hence, the study suggests that the logic of Schweller's balance-of-interest thesis works in times of peace as well. *Status quo* powers will cooperate if there are economic incentives. In closing, it appears from the above discussion that as long as the interests of states are compatible and economic calculations and incentives remain strong and viable, these will bind great powers together in internal and continued collaboration for the sake of obtaining and maximizing gains beyond political, ideological and national security objectives.

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