

Introducing the International Military Deployments Dataset (IMDT)

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Abstract

This article introduces the International Military Deployments Dataset (IMDT) which contains detailed information on the bilateral and multilateral interstate participation in military operations abroad (MOA) from 1985 to 2022. We begin with the investigation of the role and relevance of foreign military deployments in the contemporary literature on international conflict, peacekeeping, security cooperation and show how the existing lack of complete data collections undermine prospective large-N quantitative studies of the subject. In particular we demonstrate that while the research of foreign military deployments remains prominent in IR for now it is limited by the case studies of individual missions or countries (such as the United States) and/or focuses on a specific type of operations - most notably on peacekeeping. We then argue that while the comprehensive theory of MOA remains underdeveloped it might be approached from the standpoint of existing theories on security alliances, democratic peace and networks of practical military cooperation. In the empirical part of the dataset we present the structure, sources and coding instructions for the IMDT. The primary information is obtained from the IISS The Military Balance publications which is coded into country-country-year dyads and extended using other sources. Finally we explore a number of hypotheses on the change in the patterns of MOA after the end of the Cold War and into the XXI century. In order to test the respective hypotheses we employ a panel of descriptive statistics and network analysis techniques. Specifically we show that after the collapse of Warsaw Pact the number and scale of foreign military deployments dramatically falls but then quickly reemerges in the late 1990s with the significant increase in peacekeeping and counter-insurgency operations. The descriptive results strongly hint on the evidence for the polycentric international system which is illustrated by the rise of the MOA led by the regional IGO (most notable EU and AU) and the low network modularity values in the 2000-s and 2010s.

Keywords

Data, military operations abroad, peacekeeping, counter-insurgency, overseas deployment

Introduction: why are international deployments relevant?

The international military deployments are the very prominent phenomena of the current global security politics. Various countries from great powers to microstates regularly send military personnel, equipment and other assets to engage in different military operations abroad (MOA). These missions include peacekeeping operations, protection of allies, military exercises, etc. Some of these operations represent the permanent military presence, while others might be maintained only on the temporary basis. Despite the actual states remaining to be the primary senders and receivers of the international military deployments, many of these are in fact initiated and organized under the mandate of various international organizations and thus are multilateral in nature. As of 2022 there are 12 official United Nations peacekeeping missions. Other international organizations such as NATO, European Union, African Union also support a diverse array of various missions associated with peacekeeping, security assistance, counterterrorism and other goals. The United States at the same time is widely known to maintain hundreds of military installations across 80 countries. Other countries, including the UK, France, and Russia have dozens of military bases around the world as well.

Nonetheless despite its obvious importance, compared to other forms of international security cooperation, foreign deployments remain to be largely understudied in IR, especially in the framework of quantitative research. While there is an ever growing body of literature, devoted to the large-N cross-country research of international arms transfers, alliances, international conflict and other topics, similar studies of international military deployments are scarce if non-existent. This academic omission is almost certainly derived from the significant lack of quantitative statistical data. Other forms of interstate security cooperation for decades had complete and detailed sources of data such as SIPRI Arms Transfers Database, UCDP/PRIO Armed Conflict Dataset, Alliance Treaty Obligations and Provisions (ATOP), Correlates of War Militarized Interstate Disputes and many others. With these highly respected sources of statistical information the current IR discipline made significant advances both in theory and methodology. At the

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same time, similar data compilations on foreign deployments are to this day very constrained in geographical scope – in general being specifically focused on the United States (Kane, 2004; Allen et al., 2021) – or include only the international peacekeeping operations (e.g. Perry and Smith, 2013).

These limitations resulted in the very narrow theoretical understanding of the role of the foreign deployments in the changing international system. While the classic IR literature has identified the bipolar structure of the majority of international military deployments (Harkavy, 1989) and many scholars connected it to the hierarchical nature of the international order (Wohlforth, 1999; Goh, 2007; Lake, 2007; Davis, 2011) in general these studies relied on case studies collections and/or were focused solely on the United States, leaving other deployers beyond the scope. Thus, there appears to be a significant gap in the academic knowledge on the structure of the international military deployments as an international system. How do the compositions of such deployments change over time? Why do states choose to engage in the associated military operations? How the international and domestic political factors influence the respective foreign policy decisions? These and other similar questions remain to be mostly unresolved in contemporary IR. Although some of the related literature on international military conflict as well as general IR expertise may provide some insights to the above mentioned questions, consequential advances in this area of research strongly require the empirical testing of the associated hypothesis which is impossible with the current lack of full-fledged datasets.

Recent years saw an increasing resurgence of the quantitative research of various forms of interstate defense and security cooperation. New methodological approaches, drawing on inferential network analysis techniques, have demonstrated that the decisions made by individual states in such interactions are almost always strategically interdependent. Structural effects of the international system affect the dynamics of the formal defense alliance (Cranmer et al., 2012a, 2012b; Fordham and Poast, 2014,) international arms trade (Thurner et al., 2019; Lebacher et al., 2021; Fritz et al., 2021). Moreover, different forms security relations are very often found highly dependent on one another – examples include weapons cooperation agreements, arms transfers and bilateral lending (Kinne, 2016; Kinne and Bunte, 2020), defense alliances and international conflict (Warren, 2016), international organizations and military conflict (Lupu and Greenhill, 2017). These new findings strongly hint that the similar structural dependencies and co-evolution patterns may be discovered in other important interstate security interactions which further necessitates improvements in the available data collections.

Latest research has already introduced a number of prospective quantitative datasets in the field of international security cooperation. These include Military Intervention by Powerful States (MIPS) project, which describes the data of international military force application by US, British, Chinese, French, and Russian (Sullivan and Koch, 2009), novel data on formal defense cooperation agreements (Kinne, 2018), international military training activities (McLauchlin et al, 2022), multinational military exercises

(D’Orazio, 2013; Wolfley, 2018; Bernhardt and Sukin, 2021). Finally, a very notable breakthrough is associated with the newest dataset on US global military deployments from 1950 to 2020 (Allen et al., 2021). This study significantly updated and refurbished previously available data collections on the US foreign deployments, and although the former composes a major part of overall such missions, the resulting dataset is still inadequate for the cross-country qualitative research, at least on the side of the deployers.

In this article, we propose another milestone in the development of this research field with the introduction of the International Military Deployments Dataset (IMDT). IMDT is a comprehensive collection of all the interstate military deployments from 1985 to 2020 arranged into the country-year dyadic pair structure. Compared to other existing sources, we substantially increase the geographical coverage to include all deployer countries in the international system. Our dataset compiles information on the numbers of military personnel in the listed deployments, as well as its mission goals and international mandate where such information is available.

This article therefore is organized in the following way. First, we provide a brief overview of the existing empirical and theoretical literature on the international military deployments and identify its limitations and prospects in context of the available data sources. In this section we suggest that the developing research of the international military deployments show much promise leaning on the framework of democratic peace theory, as well as contemporary studies of defense alliances and network dynamics of interstate security cooperation. Second, we present the sources and coding methodology of the proposed IMDT dataset, and investigate its strengths and current limitations. In the third section we theorize the main trends and patterns of our new dataset, formulate a number of the associated descriptive hypotheses, and then test them using an array of descriptive statistics (mean values are supported by the confidence intervals), graphs. Finally, in the fourth section we explore the basic theoretical findings, revealed by the dataset and discuss its potential applications for future research.

Literature review

Alliances

The phenomenon of military deployments is considered insufficiently in the research literature from the point of view of its perception as a general fact. Most of the studies are devoted to the use of abroad military deployments and their development in the selected country – the USA (Allen et al, 2021). Some research reveal separated cases, for instance Belgian military deployments in Near East (Haesebrouck et al., 2022), where the main accent is associated with the problem of the parliamentary consensus and military deployments, Chinese military deployments as Anti-Piracy power in the Gulf of Aden (Henry, 2016), US deployments and their positive impact on the countries in which they are located (Kane, 2012), features of decision-making by political actors regarding US military deployments as a one of the reasons of them (Stravers, 2021). Additionally,

military bases also considered in the context of case-studies: the function of US military bases and its impact on local social movements (Lutz and Enloe, 2009; Vine, 2019), development and operation of American overseas bases in general and in particular cases (Vine, 2015; Calder, 2009); and in their deployment and basing policies, such as NATO, US and Russia in Eurasia (Lachowski, 2007). The research area equally raises some dimensions related to military deployment in general, which also includes analysis of missions and deployment features. The most developed in this direction is the analysis of such aspects as impact of military deployments and connection with terrorism and the likeliness of terrorist attacks in the country that deploys troops (Buts and Du Bois, 2017; Plümper and Neumayer, 2015; Du Bois and Buts, 2016). Therefore it is possible to conclude that the global networks of military deployments within a relatively broad chronological framework have never been studied, especially considering all the qualitative features.

The issue of foreign military deployments is closely associated with alliances and their functioning in contemporary realities. As mentioned above, joint actions or other allied interactions (as military bases) are among the main forms of deployment.

Since international alliances are one of the main forms of international security and military cooperation, this problem has been largely addressed in the academic literature. This high elaboration follows the fact that alliances, like bilateral treaties, constitute the most widespread yet formalized network of security and defense cooperation. Most often, an alliance is understood as a formal cooperation between two states. However, sometimes this concept may also include an informal commitment for security cooperation (Walt, 1997). As for the qualitative definitions of alliances, it is also emphasized that, first of all, alliances are against something or someone, and only indirectly for something or someone (Liska, 1962).

Research devoted to the reasons for creation of alliances and the entry of states into them are most developed. They can form into a separate group. It has long been thought that democracies tend to form alliances (Siverson and Emmons, 1991; Leeds, 1999). Nevertheless, this thesis was criticized, since any politically similar states are more likely to form alliances (only after 1945) – autocracies tend to form alliances like democracies do (Lai and Reiter, 2000; Gibler and Wolford, 2006; Camber Warren, 2016). This standpoint also is not definitive: due to the study by exponential random graph models of complex dependencies – democracy, physical contiguity, having a common enemy, lack of conflict in the previous ten years, and developed trade between them – also are more predictive of joining an alliance, but political proximity is not the essential criteria for alliances (Cranmer et al., 2012). Another reason for the development of networks of alliances and their non-conflict is the development of trade relations, which, due to the fact that such relations are widely developed between developed democracies, correlate with the previous factor (Jakson and Nei, 2015). According to the realism paradigm, formation of armaments policies and alliances are connected and always are a combination of each other, the difference of which fluctuates depending on internal policy and external risks

(Morrow, 1993). Also, the behavior of countries in previous alliances and their reputation plays a rather strong role in the process of making decisions about joining an alliance and choosing allies, although knowledge about this is often limited (Crescenzi et al., 2012).

Developing the idea of forming alliances and influencing this democracy, it is necessary to turn to the theory of democratic peace. This theory posits that there are normative, structural, and institutional factors that account for the tendency of democratic nations to refrain from engaging in military conflicts with other democratic nations. Discussed theory goes back to Kant's concept of "perpetual peace", according to which the republics are less inclined to go to war, because of it the citizens bear additional costs. Despite this fact, Kant's republics remain at war with the non-republics, but, consequently, democracies can only resort to conflicts in order to protect themselves. Doyle has identified three causal mechanisms that explain why democratic states tend to avoid conflict with other democratic states. These mechanisms are republican representation, an ideological adherence to fundamental human rights, and transnational interdependence. However, Doyle emphasizes that these mechanisms are only effective when they are combined. (Doyle, 1986). Thereby, the increase of democratic states in the international system leads to the consolidation of peace (Layne, 2014). This funding was empirically confirmed in the number of studies evincing that the resurgence of democracies indeed results in the decline of militarized interstate conflict (Crescenzi and Enterline, 1999)

Rossato argued that the normative and institutional logic of the Democratic Peace Theory (DPC) is flawed. In the case of the former, there are numerous instances where favorable relations with other democracies were subordinated to economic interests. With regard to the latter, Rossato posited that autocratic leaders may face more severe accountability for initiating conflict than democratic leaders (Rosato, 2003).

According to Gaubatz (1996), based on empirical data, Doyle's and Kant's assumptions are confirmed and democracies are more likely to enter into alliances with other democracies, and such alliances are more durable than ones with non-democracies. Other reasons for maintaining alliances, besides their democratic nature, highlighted by the above mentioned researchers, Walt (1997) cites hegemonic leadership, preserving credibility, domestic policy (which could also be a reason for its dissolve), institutionnalisation and "ideological solidarity, shared identities and Security Communities".

Another group of studies devoted to alliances are the widely developed works on specific US countries (Beckley, 2015) or case studies of single alliances.

Separated group of research on networks of alliances can be called studies on the impact of various factors, such as conflicts, on changing the structure of alliances and their features. According to Maoz and Joyce (2016), changes in the strategic environment have an impact on the structure of alliances, especially positive shocks that increase alliance connectivity and coherence. In the context of alliance theory the study of all alliances from 1648 to 2008 (Gibler, 2009) and Alliance Treaty Obligations and Provisions (ATOP) dataset (Leeds et al., 2002) are important due to their features, structure and circumstances. Evolving

the alliance theory, according to Leeds and Mattes (2007), which research is based on the ATOP project, there are four periods of development of alliances, and the Cold War had a distinguishing feature - alliances were more enduring, less flexible, neutrality pacts and conflicts between allies were more rare. During 1815-1913 and 1914-1944 most alliances included major powers, and during and after the Cold War alliances were practically almost always between major powers and minor ones. Nevertheless, after 1991 multilateral alliances became smaller. Noteworthy in this context is the conclusion that asymmetric alliances are always more stable than alliances between equal actors (Morrow, 1991).

As for the constant development of networks of alliances, according to theoretical and empirical research, it is one of the determining factors that limit the behavior of states, even those that are not members of these agreements (Camber Warren, 2010). Alliances also determine the behavior of nations in the international arena and in different ways - on the emergence of conflict (Smith, 1995). However, according to Benson (2011), only several forms of alliances, which are uncommon, could increase the likelihood of conflict. Furthermore, co-evolution of international alliances, conflicts, and domestic regimes as a complex structure influences the states' behavior and therefore on international institutions (Camber Warren, 2016). Also mentioning the development of the alliance network and taking one of the factors that could influence its development in the post-Cold War era - the reputation of the state - the chance of establishing an alliance increased from 60 to 369 (Crescenzi et al., 2012).

Another form of cooperation is secret alliances, which, despite the fact that they increase the potential for conflict, are still resorted to by states (Bas and Schub, 2016).

Significant also is Leeds' study (2003) of the influence of alliances on war, according to which defensive alliances can indeed provide deterrence, although in general alliances due to their differences lead to peace.

As far as other forms of cooperation are concerned, they do not seem to be as stable as alliance cooperation. As for their studies, according to Kinne (2020), defense cooperation agreements have become more preferable by states and the number of their formation is increasing, compared to the more stable structure of alliances.

A separate, research-covered topic related to foreign deployments is peacekeeping operations. With the end of global rivalry between the US and USSR followed by the collapse of the last "new world disorder" came into being. The ex-colonies in Africa and Asia that were supported by one of two hostile camps during the Cold War were left to themselves. The set of unresolved former conflicts as well as the emergence of new led to a dramatic shift of violence in these regions. As the Security Council has begun to establish new more complex missions (Druckman et al. 1997). The activity of the UN in peacekeeping has generally increased, especially in civil conflicts (Diehl, 2008).

In circumstances of political instability and threat of military coups young democracies born in the third wave of democratization have to placate the military elite. By participation in peacekeeping missions this threat could be avoided. Particularly significant contributions to peacekeeping operations are made by countries with large

military legacies. Meanwhile consolidated democracies' contribution is considerably less, so that the torch of peacekeeping missions is being passed from Western countries to the newborn democracies in Africa and Asia (Passmore and Shannon, 2018; Passmore 2020). As for African countries after the Cold War, the most active part in missions is taken by former British colonies, countries with relatively large armed forces, low level of state legitimacy, less repressiveness of the regime and poverty due to the interest in foreign donations (Victor, 2010)

Based on the above analysis of the literature, the main disadvantage is that interstate defense and security cooperation networks are not studied in the context of their evaluation in general. Thus, international alliances and other forms of interstate military cooperation are mainly considered from the point of view of the reasons for the entry of states into them or the logic of the development of their internal structure, military deployments are primarily concerned with case-studies about specific countries, alliances or in the context of specific conflicts and crises.

Another unresolved issue is that military deployments are mostly explored in a context other than the development of networks of military cooperation and cooperation and conflicts. Moreover, the academic literature does not focus on such factors as the involvement in deployments of most states, their nature and the involvement of international organizations and integration associations such as the UN, OSCE, EU, NATO and others. This study, however, provides a comprehensive understanding of defense and security cooperation networks, which would allow us to consider these, and the factors described above and their influence on their development and evaluation at the international level. In addition, it makes it possible to cover a period of time that has not been as well studied as noted above - the end and post-Cold War, which makes it possible to track the emergence of new trends. Thus, the main problem of the studied literature is that defense and security cooperation has not yet been studied in dynamics with the inclusion of all its aspects, such as military cooperation, alliances, foreign military deployments and conflicts.

Towards a comprehensive deployments data set

In this article, we propose another milestone in the development of this research field with the introduction of the International Military Deployments Dataset (IMDT). IMDT is a comprehensive collection of all the interstate military deployments from 1985 to 2020 arranged into the structure of country-country pairs (dyads). Compared to other existing sources, we substantially increase the geographical coverage of the dataset to include XX countries that deploy troops abroad. Our dataset compiles information on the numbers of military personnel in the listed deployments, as well as its mission goals and international mandate in cases where such information is available. The IMDT expands upon the existing sources of information on the military deployments including peacekeeping operations (Kathman, 2013) and US foreign deployments (Allen, 2020). The main goal of this paper is to provide new comprehensive

and more detailed data on international military deployments in a more accessible format compatible with a wide array of other quantitative datasets, popularly used in IR studies.

The IMDT dataset has been assembled by a team of 15 coders led by the authors of this article during the 2021-2022 period. For the primary empirical source of information we've selected International Institute for Strategic Studies (IISS) "The Military Balance" publications from 1985 to 2021. "The Military Balance" is a yearly issued compendium on the personnel numbers, structure and material capabilities of the military forces around the world. This source has been widely used in recent IR studies to compile various data collections, that include datasets on the military mechanisation (Sechser and Saunders, 2010) air power (Saunders and Souva, 2020), national material capabilities and military technology (Gannon, 2021; Souva, 2022). The Military Balance is organised as a country guide of textual references, that among other detailed information includes sections on "deployment" or "forces abroad". These sections have been suggested as a prospective empirical source on United States military deployments in the recent academic contributions but ultimately overlooked in favor of the Defense Manpower Data Center (DMDC) data on the basis of coding complexity and laboriousness (Allen et al., 2021). While IISS "The Military Balance" publications indeed present a coding challenge to this source, we believe at this moment it represents the only available source with comprehensive coverage to collect information on the country-dyad basis. To supplement the IISS data, our team of coders also relied on secondary sources including the data from the UN peacekeeping missions database, NATO and Department of National Defence of Canada web archives. We have also included information from other similar datasets on US (Allen et al., 2022) and Italy (Vignoli and Coticchia, 2022) foreign military deployments for comparison and verification.

Sources and coding instructions

In order to facilitate the integration of the IMDT data into the existing body of quantitative peace studies research we arrange the structure of the proposed dataset following the standards and guidelines of the Correlates of War (COW) Project, which famously provides a wide collection of diverse data on international conflict and interstate cooperation. The main unit of analysis of the IMDT is dyad-year where countries are coded using the numerical Correlates of War (COW) country code system. Overall the IMDT dataset includes 192 countries over the time frame from 1985 to 2021.

Codebook and variables

The IMDT data provides various information on the attributes of the deployments of each yearly country-country dyad. First of all we take into account the total numbers of military personnel stationed in the receiving country. This data is then disaggregated into separate variables representing the total sum of combat troops and support servicemen (Troops), and also the number of military observers (Observers) present in the deployment. The respective information is based on the

textual descriptions from the IISS publications. Secondly we code the jurisdiction of the missions that provides foundation for the military deployment in each country-country dyad. This might involve either solely national operations under the framework of bilateral agreement or in case of the interstate territorial conflict, or multilateral missions under the flag of the intergovernmental organization (IGO) or treaty. Most notably we specify various United Nation (UN), European Union (EU), North Atlantic Treaty Organization (NATO) and African Union (AU) missions as well as 9 other regional international entities. We also dedicate a separate variable to distinguish deployments under an international coalition led by the United States - but not associated with NATO or other IGO. All of the respective missions are coded into their own separate binary variables. In case of simultaneous operations present in the same country-country-year dyad (e.g. parallel UNMIK and KFOR missions in Kosovo by the UN and NATO respectively) we mark the presence of multiple jurisdictions at the same time but summarize the respective personnel contributions. Thirdly we provide information on the official goals and practical nature of the deployments associated with each country-country-year dyad. Specifically we identify military training missions and continuous multinational exercises (that involve the establishment of long-term military installations such as training camps, bases, schools etc), counter-insurgency operations, peacekeeping and peace support operations, permanent military presence (military bases), counter-insurgency operations, border disputes, and also maritime and airspace security missions. All of these operations are coded as separate binary variables. Finally we provide detailed references to the IISS Military Balance publications and other additional sources in the dedicated columns as well as the name of the responsible coder.

Descriptive hypotheses

In this section of the paper we provide various descriptive statistics and analyses of the international military deployments trends based on the IMDT data collection.

Based on the abovementioned literature review we propose a number of practical hypotheses on the possible patterns of MOA in the recent decades. First of all we expect that the number and scope of international military deployments would significantly decrease shortly prior and after the collapse of the Soviet Union and the Warsaw Pact alliance in 1991. Similar dynamics has been widely observed in the other closely related defense statistics such as defense expenditures, numbers of military personnel and international arms trade (Akerman and Seim, 2014) as well as in the data for the US foreign military deployments (Allen, 2021). At the same time suppose that the decrease would be most apparent in personnel numbers and less so in the deployments destinations as the western states would seek to keep the existing basing infrastructure for strategic purposes. We then theorise that various military interventions and peace support missions in the Middle East and in the Balkans would lead to prompt increase in the number of active deployments and in the total share of military personnel abroad.

Hypothesis 1: international military deployments are strongly associated with either formal defense alliances or international security cooperation and the framework of IGOs.

Most modern military deployments conceivably do not involve direct interstate military confrontations. Military deployment networks are a form of state projection of its hard power.

As already mentioned, the constant development of alliance networks, then, according to theoretical and empirical studies, is one of the determinants that limit the behaviour of states, even those not party to these agreements (Camber Warren, 2010). Moreover, most forms of co-modern alliances do not lead to potential risks of conflict (Benson, 2011).

Therefore, the predictability of international relations is increasing. Hence, the development of military cooperation's institutions (e.g., mutual deployment of bases or missions, including training ones, by allies, or common participation in peacekeeping operations) leads to international security (Keohane, 1989).

However, it should be considered that, unlike the situation during the Cold War, alliances' commitments have become more formal and do not require the engagement of large numbers of military forces, both troops and military equipment. It is due to the fact that real traditional serious threats to the main actors in international relations, such as the U.S., Russia or the EU, have been absent for approximately 30 years.

Hypothesis 2: decrease in the interstate armed conflict is strongly associated with the growing number of active peacekeeping operations.

Despite the fact that after the collapse of the bipolar system the factors for the emergence of interstate conflicts increased with the end of the old balance of power, the role of peacekeeping operations also raised. As mentioned above, it was related to increased UN activity in establishing foreign military operations (Druckman et al., 1997) and its participation in peacekeeping in general, particularly in civil conflicts (Diehl, 2008).

Therefore, possible interstate conflicts are either prevented or ended and managed by IGOs or individual actors, that was relevant for the 1990s and 2000s (especially after Yugoslav's collapse and September 11, 2001) during the so-called unipolar moment, where conflicts were actively intervened in by the U.S. and allies. As for IGO, a large part of the world community is supposed to be involved (such as through the UN), so more international actors have become involved in military deployments.

Hypothesis 3: The role of IGOs in establishing legal jurisdiction for international military deployments increases over time with the shift from the leading role of UN framework to regional organisations including NATO, EU, OSCE, AU and others. Consequently, the network of military deployments has become more multipolar and decentralised.

They participate as peacekeepers or peacemakers in regional conflicts, the number is growing too, especially in Asia, Africa and Europe.

The indicated changes are probably related to the development of a network of alliances around the world that are caused by a set of varied factors - both political proximity

factors, as explained through the theory of democratic peace, and other factors, including physical proximity (Cranmer et al., 2012) (relevant, for example, for the AU and OSCE).

Furthermore, since the 1990s with the diminishing influence of traditional threats and the increasing role of nonstate actors in international relations, involvement in intra-state or confronting non-traditional security threats such as terrorism have also increased the multipolarity of deployment networks.

As the multipolarity reinforces, so does the decentralization of international military deployment networks. Today the relevance of two or more players as sole deployers or recipients is almost impossible due to the departure from a bipolar and from a unipolar world system.

International military deployment trends: a descriptive analysis

In the first part of the descriptive analysis we specifically focus on the numbers of troops deployed in various missions and bases abroad. We take into account both the total sum of the military personnel present in the receiving nation, as well as the relative fraction of the respective sum relative to overall military personnel numbers of the armed forces of the sending nation. Our dataset reveals several major trends, as depicted in Figure 1. We observe that both trendlines for military deployment increased steadily from 1985, reaching its peak in 1987, before displaying a sharp decline at the end of the Cold War. This partially confirms our Hypothesis №3. Subsequent changes are much less evident, although there is a spike in 1999 which can be attributed to the conflict in Kosovo. Interestingly, the trendline does not display any significant dynamics connected to the invasion of Afghanistan in the aftermath of the 9/11 terrorist attacks, although the 2003 invasion of Iraq showed quite noticeable increase. Still the overall trendline steadily shows a gradual decline that reached its nadir at the end of the 2010s. However, the percentage of troops increased again due to escalations of conflicts in Mali and Syria, as well as the Syrian civil war and the beginning of the Russo-Ukrainian conflict.



Figure 1. The military deployment ratio to total military personnel in 1985-2022

Table 1 presents an intriguing pattern, whereby the mean number of troops deployed has declined while the quantity of bilateral connections participating in military deployment (in the table is represented as N) has steadily increased.

Specifically, for 2014–2022, this quantity increased more than four times compared to the Cold War period. Additionally, we observed a decrease in the standard deviation of the maximum number of deployed troops, which indicates a gradual stabilization of the trend line. The mean values are confirmed by the confidence intervals in Figure 3.

Table 1. Troops deployment statistics by periods

Period	N	Mean	St. Dev.	Min	Max
Cold War (1985–1992)	1290	80010	31825	1	380 000
Post Cold War (1992–2000)	3044	1341	7741	1	275 000
2001–2013	8324	835	6023	1	192600
2014–2022	6138	652	4177	1	175000

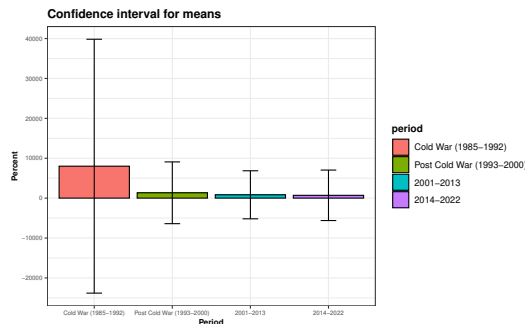


Figure 2. Confidence interval for mean values of deployed military personnel down by periods

An analysis of the maximum quantity of deployed troops by geographic region reveals a shift from West to East until 2022. During the Cold War, a significant number of military personnel was deployed in Germany, with the USSR deploying 380,000 troops and the US deploying 245,800 soldiers in 1985 and 1986, respectively. In the post-Cold War period, Turkey deployed 275,000 soldiers to Cyprus, while in later periods, the largest military forces were deployed in Iraq (192,600 soldiers by the US) and Afghanistan (97,000 soldiers by the US). In the year 2022, Russia commenced its designated “special military operation” and stationed an estimated 175,000 troops in Ukraine’s European region. This deployment may prompt a significant influx of troops within the European region.

In addition, it demonstrates that there are generally not strong enough potential threats or adversaries for countries with the capacity for large-scale military deployments. During the Cold War, such adversaries were the Soviet Union and the United States, which caused large-scale troop deployments to their allies’ territories.

Existing alliances also generally do not require extensive military involvement and are confined to providing only formal engagement. As regards peacekeeping operations especially under the auspices of the IGOs, they assume the involvement of many deployers (Figure 3), not just a few players in comparison with, for instance, most of interstate conflicts. For this reason, they do not provoke a large number of troops from one deployer.

Increasing role of peacekeeping

The peacekeeping missions as one of the most frequent types of military deployment and constituting 71 % of all bilateral deployments experienced a substantial increase in the mean

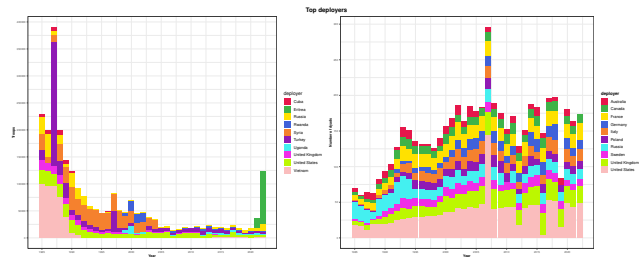


Figure 3. Top 10 biggest deployers by quantity of deployed troops and top 10 most frequent deployers in 1985–2022

number of deployed military personnel at the end of the Cold War, reaching its maximum in the Post Cold War period - 306 troops. Meanwhile the frequency of peacekeeping missions in bilateral deployments continued to grow, increasing more than 10 times - from 482 operations in the Cold War to 5753 in 2011–2022.

The rise of peacekeeping deployments could be related directly to the end of the Cold War and the bipolar world and the desire to disseminate Western values through peacekeeping operations. Moreover, given that a significant portion of peacekeeping operations were nevertheless deployed within the UN framework, it could be noted that the increase in the possibility for a peacekeeping operation due to the reduction of contradictions in the Security Council. Further, the failure to discontinue deployment of this instrument may have been due to the relative effectiveness of peacekeeping for conflict prevention (Bellamy et al., 2010).

The geographical scope of peacekeeping missions also increased - the major participants in peacekeeping during the Cold War were countries of Europe and North America with full absences of North Africa, Middle East and scarce deployment of South / Latin America, Asia Pacific and Sub-Saharan Africa as troops deploying countries. In the later periods it has changed - countries of all Africa, Middle East and South/Latin America engaged in the process of peacekeeping, deploying troops not only to their regions, but also to neighboring regions.

At the same time, while the number of peacekeeping missions increased in absolute numbers, the situation was somewhat different with regard to the distribution of troops in other missions. Certainly, the share of peacekeeping has grown significantly since the Cold War, but the share of other missions has also grown since 2001, as it is discussed below.

Counter Insurgency missions

In 2001–2013 Counter Insurgency missions have become the most significant part of operational military deployment. As the reaction to 09/11c US and its allies deployed large amount of troops in Afghanistan, Iraq.

However, despite the link to counterterrorism, these missions cannot be described as fully connected (Boyle, 2010). This is also illustrated by the fact that, moreover, the legitimate increase in the number of this type of operation could be related to the attempts of the United States to spread democracy, as they imply combating proxies or other non-legitimate forces. This in turn can be explained in terms of democratic peace theory. Since counter-guerrilla operations can contribute to the spread of democracy, this caused the

emergence of more democracies. This in turn, according to Layne (2014), leads to the consolidation of peace.

Training mission

Military deployment with the purpose of troops training appeared for the first time in the Post Cold War. Through later periods these missions experienced a significant increase in both frequency and deployed military personnel, in 2014-2022 the mean number amounted to 190 soldiers. Majorly this missions were devoted to a substantial military preparations of armies in Afghanistan, Mali, CAR, Somalia and other countries of Asia Pacific so that they can withstand the threat of insurgencies and terrorism, except for Ukraine where the military trainings were related with Russian-Ukrainian military conflict and possible preparations to accept Ukraine in NATO. Thereby, an upward role of training missions could be associated with the rise of non-state international actors and both with the development of alliances' network (in the context of pro-Western governments in unstable regions or in the Ukrainian case).

However, in cases of deployment in countries with weak institutional development, mission drill deployments are rather ineffective, especially in the case of the EU (Oksamytna, 2011; Skeppström et al., 2015). This raises the question of the reasons for maintaining the deployment of training missions as a prominent part of modern military deployments. Nevertheless, they could be a way to demonstrate formal "active" participation in the creation of a regional or international security architecture and solidarity in the framework of alliances.

Other types of missions

The first Air Missions missions emerged in the Post Cold War era - as the result of no fly zone establishment in Iraq (Gulf War), Bosnia (Bosnian war) and missions against Islamic State. Later development of these missions was related to NATO air police missions that guard its border in the Baltic states.

Maritime missions mainly emerged in 2011-2022 are related to US, Japan, Italian and French naval bases in Djibouti.

In our opinion, it is also concerned with the hypotheses about the growth of the formality of alliances and the decrease in the number, since, in general, it does not involve direct military clashes.

Multi-polarity - the growing importance of international and regional organizations

The UN, as one of the most powerful intergovernmental organizations, enjoyed a substantial rise in military deployment with the surge of Peacekeeping missions at the end of the Cold War, partially yielding its role to NATO at the end of the Post Cold War period. At the same time the first missions of regional organizations in Africa emerge.

After the surge of NATO and US led missions we can see more clearly the regionalization of military deployment - interconnected deployments between countries of one region become more frequent - African Union, OSCE and missions though not overcoming such international organizations as UN or NATO, began to play a more significant role.

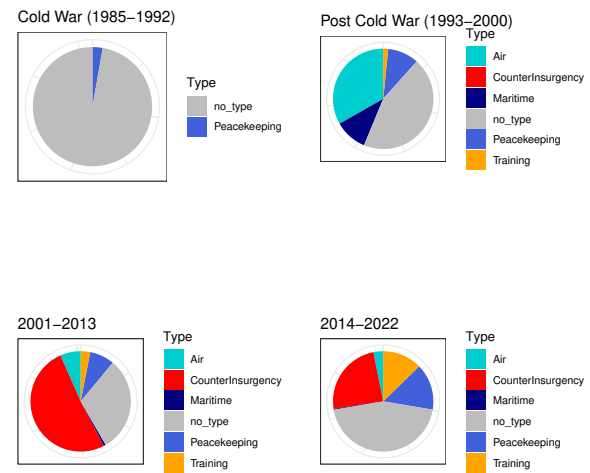


Figure 4. Military deployment down by mission types in four periods.

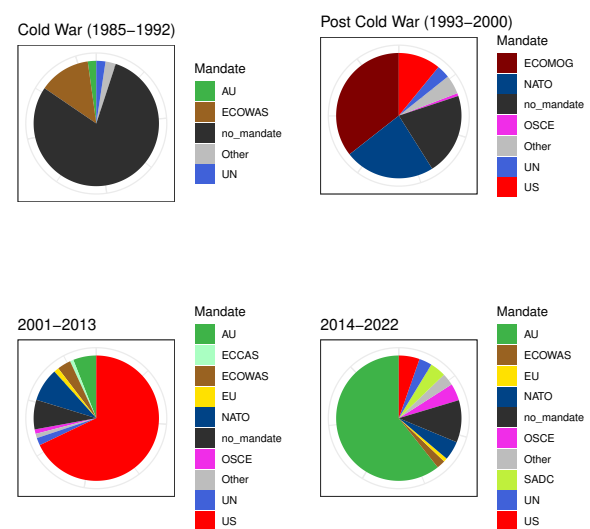


Figure 5. Military deployment down by the mandate of organizations and states in four periods.

Decentralization

Considering dyad structure of our data we also provide basic network analysis. Nodes of the military deployment network are the countries that deploy and host troops, whereas the size of edges between nodes are determined by the quantity of deployed troops. The military deployment network has experienced significant changes from the end of the Cold War till 2022, that is predominantly expressed to a large extent below the network modularity.

In 1985 (Figure 6) the network was divided into confronting camps in the USA with its allies and the Soviet block. Both sides were deploying large amounts of troops to the crucial place of the contact line - west and east Germany. The division went beyond the European Atlantic region - states in Africa and Asia also hosted troops from

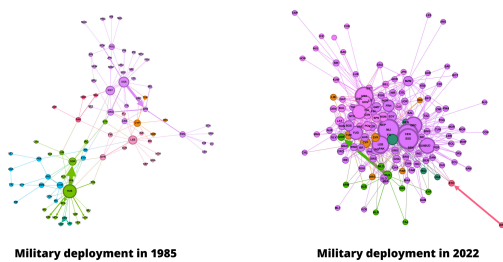


Figure 6. Military deployments network in 1985 and in 2022. Nodes (sizes are determined by the quantity of linkages with other nodes) that represent countries are linked by edges (edge's size is determined by the quantity of deployed troops).

the two camps both as invasion force (for instance, USSR in Afghanistan) and as coherent military presence (USA in South Korea). This division continued till 1990, after that the network experienced a sharp drop in modularity (degree of division). After the Cold War the network's division was not stable, reaching peaks in 1999, 2012 and 2015 (Figure 6).

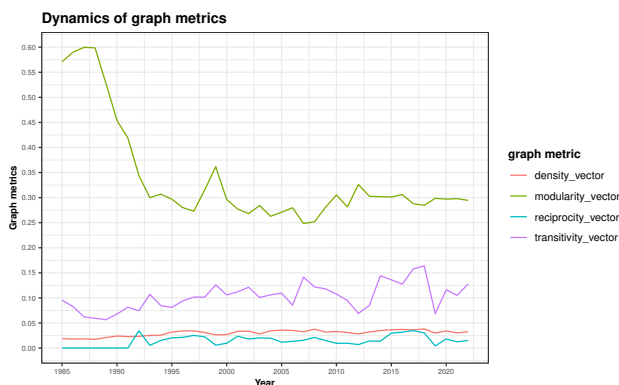


Figure 7. Figure 7. The military deployment network's graph metrics in 1985-2022

The network's transitivity also allows it to measure the grade of clusterization into groups that are highly connected internally. It also falls after the Cold War, partially repeating the pattern of modularity. However transitivity reached its peak in 2019 that could be explained by the Covid Pandemics when countries tended to reduce any international activities. The network's reciprocity on the contrary shows the likelihood of vertices in a directed network to be mutually linked - in our contexts it signifies the probability of two countries deploying troops to each other. Except for dual agreements reciprocity also shows development of various multinational military units. From zero values in the Cold War this metric experienced unstable growth with peaks in 1992, 1998, 2017, the pattern is partially opposite to the modularity line. The network's density enjoyed relatively stable growth with slight leaps. The gradual increase of the metric is explained by both the increase of edges between nodes and the increase of noded themselves.

Conclusion

This article presents the International Military Deployments Dataset (IMDT), a comprehensive collection of detailed

information on military operations conducted by different countries abroad from 1985 to 2021. The article examines the significance of foreign military deployments in the context of international conflict, peacekeeping, and security cooperation, highlighting the limited availability of complete data sets that hinder extensive quantitative studies on the subject. Current research on foreign military deployments primarily relies on case studies of individual missions or countries, such as the United States, and often focuses on specific types of operations, particularly peacekeeping. The article suggests that while the overall theory of military operations abroad is still underdeveloped, it can be approached by drawing from existing theories on security alliances, democratic peace, and practical military cooperation networks.

The empirical part of the dataset is presented, including information on its structure, sources, and coding instructions. The primary data is derived from IISS The Military Balance publications and coded into country-country-year dyads, supplemented by other sources. Additionally, the article examines various hypotheses regarding the changes in the patterns of military operations abroad after the Cold War, extending into the 21st century. The hypotheses are tested using descriptive statistics, network analysis techniques. The findings reveal a significant decline in the number and scale of foreign military deployments after the dissolution of the Warsaw Pact. However, there was a rapid resurgence in the late 1990s, accompanied by a substantial increase in peacekeeping and counter-insurgency operations. The descriptive results strongly support the notion of a polycentric international system, characterized by the emergence of military operations led by regional intergovernmental organizations, particularly the European Union (EU) and the African Union (AU). The analysis also indicates low network modularity values during the 2000s and 2010s.

Future studies might develop the theme of military deployments. Possible avenues are the study of the relationship between deployments and political regimes. It is equally important to explore the reasons for deployments and transfers not only of troops but also of weapons and military equipment, which is key to contemporary military conflicts (such as in Ukraine).

The presented database could also be developed by expanding the covered chronological framework. It is feasible to add other criteria for characterising the deployment, for instance, the features of the deployments' territory, its' disputability and legitimacy.

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Supplemental material

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