
Failures in Ukrainian Arms Procurement 2014–2023

The Negative Effects of Limited Access Orders (LAOs) on National Security

ABSTRACT This article discusses critical failures in Ukrainian defense production and procurement in the period 2014 to 2023. The main puzzle is why Ukraine did so little to satisfy the needs of the country's armed forces in essential segments of military capabilities when there seems to have been no disagreement on their necessity. Furthermore, both technological and financial resources appear to have been present. The main argument is that Ukraine's status as a limited access order (LAO) is an important part of the explanation. The empirical evidence in support of this conclusion comes from process-tracing production and procurement in the three areas of ammunition, unmanned aerial vehicles, and armored vehicles. The initial condition of an LAO is linked to the outcome of production and procurement failure through a detailed investigation of the actors and processes that took place within each of the mentioned segments. It is primarily a theory-guided single-outcome study, but the findings may serve as inspiration for more generic studies of the effects of LAOs on national security.

KEYWORDS Ukraine, limited access order, security politics, defense industry, arms procurement

INTRODUCTION

This study seeks to explain why the Ukrainian defense industry in the period 2014 to 2023 had significant problems in delivering critical types of weapons and ammunition to its armed forces. These were capacities on which there was broad political agreement about their necessity. Furthermore, both technologies and financial resources for the initiation of production seem to have been available. Still, when the 2022 full-scale invasion came, critical deficiencies remained. In July 2017, halfway through the period under discussion, independent Ukrainian military analyst Serhii Zhurets sounded the alarm. He cautioned that the bulk of the Ukrainian defense industry, organized into the state conglomerate UkrOboronProm (UOP), was “not able to arm the country's military forces with the materiel they need” (Zhurets 2017). The main argument of the current study is that Ukraine's, and in particular its defense industry's, status as a limited access order (LAO) is important for explaining why Ukraine both wanted and was able to do something about the problem, but still did very little.

The framework for classifying states into limited (LAO) and open access (OAO) orders was developed by Douglass North, John Wallis, and Barry Weingast (NWW) in their 2009 book, *Violence and Social Orders* (North et al. 2009). Both this book in particular, and the work of Douglass North in general, are today seen as among the most

influential in institutional economics. The framework for classifying states has also been taken up in other disciplines such as political science (Hodgson 2017, 1; Greif and Mokyr 2017, 25; Gray 2016, 2–3). One of the most original contributions of both North's previous work and the LAO/OAO framework is to explain why many countries suffer "persistently inefficient institutions and persistently poor economic performance" when better alternatives exist (Hodgson 2017, 3). This input seems to speak directly to the problem under discussion here. More directly, it is the NWW assertion that in an LAO a rent-seeking elite in self-interest restricts access to economic resources (e.g., state procurement) from newcomers that makes the framework particularly relevant (North et al. 2012, 4–9). By contrast, in an OAO, this access is based on impersonal rules and regulations equal to all citizens (North, Wallis, and Weingast 2009, 21–25). This limitation of access is done through the formation of a "dominant coalition" of stakeholders. Increasing the coalition by admitting newcomers will dissipate rents for those already within and is therefore avoided (North, Wallis, and Weingast 2009, 39).

The LAO/OAO distinction has mostly been used to explain why some societies experience periods of sustained economic growth while others do not. However, a number of scholars have also recently tested the explanatory power of the framework in other contexts. These studies include regional economic divides (Di Martino, Felice, and Vasta 2020); the political influence of think tanks (Keudel and Carbou 2021); failure to establish 5G networks (Kluge 2021); and responses to socially driven discontent (Flikke 2021). The present study follows in the same tradition by examining the utility of the framework for understanding inaction in state security policies. If the framework is found to have explanatory power, we may theoretically propose that an LAO is also a liability also for national security, not only for economic growth.

In principle, Ukraine should have been in a good position to arm itself after Russia attacked for the first time in 2014. Kyiv inherited a significant 25% of the Soviet military industry at independence in 1991. According to some estimates, the arms industry may have accounted for as much as one-third of Ukrainian GDP at the end of the Soviet era (Krivopalov 2019, 125). However, considerable structural imbalances made this inheritance less useful than size would suggest. Only about 20% of production had a fully domestic supply network. The rest mostly depended on Russia for critical components. In addition, somewhere between 65% and 75% of production was relatively low tech. Furthermore, a string of post-Soviet political and economic decisions, made under the assumption that war was unlikely, made the military-industrial production base even weaker. Conversion from military to civilian production reduced military output by 90% from 1991 to 1995, and what remained concentrated very much on niche export markets rather than on a broader range of equipment that a country may need in war (Krivopalov 2019, 125). Thus, even if the country took over a significant share of the Soviet arms industry, internal imbalances in that industry and political and economic decisions significantly reduced its potential. Reform and expansion would be needed if Ukraine was to achieve any serious degree of self-sufficiency in military production once the security-political situation started to deteriorate (Bukkvoll and Solovian 2020; Krasnopolsky, Matthews, and Di 2011). On top of this, throughout the post-Soviet period the

industry was plagued by widespread corruption, and valuable enterprises were lost in 2014 when Russia annexed Crimea (13 enterprises lost) and initiated an armed anti-Kyiv rebellion in Donbas (18 enterprises lost) (Krivopalov 2019, 128). The only major reform effort seems to have been the establishment of the UkrOboronProm state holding in 2010. Here, however, the effects for Ukrainian arms production seem to have been negative rather than positive (Bukkvoll and Solovian 2020, 9–12).

I first discuss whether Ukraine—in particular, its defense industry and system of arms procurement—can be labeled an LAO. The conclusion is that this seems justified, but also that serious reform started from 2019 and onward. Next, with the help of process tracing, I examine three cases of non- or limited production of essential military capacities. Process tracing basically means to look for “within case evidence” that supports or does not support a theoretically driven hypothesis. The method is closely related to historical analysis (Bennett and Checkel 2015, 5–9). In the three cases, the focus is on whether problems of, or unwillingness to, transition away from LAO mechanisms are among the causes for the shortcomings. The chosen case studies are ammunition, unarmed aerial vehicles (UAVs), and armored vehicles. Case selection is based solely on the availability of sources. Thus, generalization is not possible in the way it would have been if more methodological case selection had been feasible. All that these cases can do is to say something about whether the mechanism of dominant coalition exclusion of newcomers was present or not. If yes, that suggests this mechanism may also be found in other parts of Ukrainian defense production and procurement.

Finally, some conclusions are drawn both on the effects of LAO for arms production and procurement and on what caused initial reform in the Ukrainian case. The sources are mostly articles of investigative journalism by Ukrainian journalists, comments and analysis by Ukrainian anti-corruption NGOs, and, to some extent, claims by the different actors within Ukrainian defense production and defense procurement themselves. A certain degree of bias is unavoidable in these as in most other types of sources, but Ukraine’s relatively strong and long-term post-Soviet tradition for independent journalism adds to their credibility. Furthermore, several Ukrainian anti-corruption NGOs specialized in the defense sector after the annexation of Crimea in 2014 and the onset of war in Donbas. Given Ukraine’s stated goal of integrating with the West, these agencies could not easily be ignored or suppressed neither by Ukrainian authorities nor by the defense industry itself. Thus, individuals within these NGOs often gained significant insights into the sector’s internal processes.

UKRAINE AS AN LAO

Several studies have identified Ukraine as being a mature LAO (Ademmer, Langbein, and Börzel 2020, 4; Dimitrova et al. 2018; Keudel and Carbou 2021). According to NWW, a mature LAO differs in terms of access from a fragile or a basic LAO by the fact that the state accepts and supports a large number of organizations outside the government. However, it still to a large degree limits access to important resources to members of the dominant coalition (North et al. 2012, 11–14). Furthermore, NWW accentuate that

LAOs may be unevenly spread within a country. For example, they point out that Colombia appears to be a more mature LAO in Bogotá and Medellín than in rural parts of the country (North et al. 2012). There seems to be no particular reason why differences in LAO/OAO should not also occur across sectors of the economy rather than just between geographic regions. For example, the Ukrainian IT industry has been portrayed by Ukrainian standards as being particularly uncorrupt. It is run under conditions that NWW may have termed OAO. According to US journalist and anti-corruption advocate Diane Francis, this industry should function as a role model for other sectors of the Ukrainian economy (Krasnikov 2016).

Finally, the term “corruption” should in this study be understood as a phenomenon that is more prevalent in an LAO than an OAO but not the same as an LAO (Ademmer, Langbein, and Börzel 2020, 5). It can be seen as one among several indicators of an LAO. Findings by Transparency International (TI) suggest that, judged by the indicator of corruption alone, LAOs in the defense sector are most frequent among countries that are LAOs in general. Nevertheless, this sector is probably also the one where most recognized OAOs come the closest to LAO conditions. In 2021, the average score for G20 countries in the Government Defence Integrity Index was 49/100.¹ This score is characterized by Transparency International as a high corruption risk.

Given that the focus of this article is the defense industry, it is particularly the degree of access to economic resources that is of interest. More specifically, the topic of study is to what degree Ukrainian defense industrial newcomers have been allowed into the domestic and also to some degree foreign arms markets. To measure degrees of such economic access, Ademmer, Langbein, and Börzel (2020, 8) suggest looking in particular at the dominance of interest groups in the economy, degree of privatization, degree of market competition, protection of property rights, and the quality of antimonopoly policies.

Based on the findings from Transparency International’s 2020 country brief on Ukraine, particularly on those from that organization’s Government Defence Integrity Index, it seems fair to identify this sector of the Ukrainian economy as an LAO. The index has a scale from A to F. To score like an OAO, a country would probably need an A or a B or at a pinch a C. In terms of access (i.e., the possibility to enter fair competitions for defense contracts), the TI index contains 19 questions specifically related to procurement under the subhead “Procurement Risk.” Here, Ukraine overall scored a D in 2020. In general, it seems that the country generally scored better on questions related to formal procedures than to actual implementation. For example, Ukraine scored a B on “Procurement Legislation” but only an F on real “Offset Competition” (Steadman 2020, 7).

Regarding the Ukrainian defense-industrial sector as an LAO, the terms of access for outsiders are of course of particular interest. Here, Ukraine scored a D on both “Competition in Procurement” and “Anti-collusion Controls” (Steadman 2020, 7).

1. See press release by Transparency International at <https://www.transparency.org/uk/uk-defence-security-sector-corruption-risk-GDI>.

UkrOboronProm as the Dominant Coalition

Based on Ukrainian media reports, expert statements, and foreign assessments, it seems that many of the limited access problems stem from the dominant position of the main state national arms holding, UkrOboronProm (UOP) (Oliker et al. 2016; Bukkvoll and Solovian 2020). According to Ukrainian military analyst Valentyn Badrak, at least by autumn 2016 “with only a few exceptions private sector initiatives are ignored, there are no attempts to attract foreign and private capital investments and there are no privatization efforts within the OPK” and arms procurement is based on whatever “UkrOboronProm is able to produce” (Badrak 2016a). According to several independent military observers, the actual motive behind the establishment of UOP was probably to monopolize the domestic defense market (Mendelev 2017; Shevchuk 2018). Thus, if these observers are right, UOP was specifically set up to be a dominant coalition in the sense explained by NWW.

This major holding company was established by President Viktor Ianukovych in 2010. In 2020, according to its own figures, UOP included 137 enterprises with a total workforce of about 66,000 employees (*UkrOboronProm Annual Report 2020* 2021). For the same year, the independent journalist Dmitrii Mendelev estimated that the total number of state enterprises in the Ukrainian defense industry was 147, and that there were an additional 250 private enterprises. According to Mendelev, no more than 100,000 people in total worked in this industry in that year (Mendelev 2020). Thus, in terms of the number of defense enterprises, UOP accounted for no more than 35% of the total, but in terms of the number of employees, it dominated the industry decisively with 66%.

In terms of the post-2014 period, it is also important to keep in mind that Ukrainian defense expenditures rose sharply. This means that UOP privileges were likely to yield even more rents to the company in this period compared with the time when it was established. According to figures from the Stockholm International Peace Research Institute (SIPRI), defense expenditures as a share of government spending shot up from 5% of GDP in 2013 to 7.6% in 2014. They continued to stay between 7% and 9% until the February 2022 Russian invasion.² Furthermore, according to the yearly White Books published by the Ukrainian Ministry of Defence, the investment share of the budget rose from 15.8% in 2014 to 22% in 2021. These two changes combined meant, for example, that Ukraine spent roughly five times more on arms procurement in 2018 than it did in 2014 (25.5 billion vs. 4.3 billion UAH) (Rusnak 2015, 13; 2022, 27).

UkrOboronProm and Other Players in the Ukrainian Arms Industry

Roughly speaking, one may say that there have been three types of actors within the Ukrainian arms industry: (1) the state holding UkrOboronProm and a small number of private arms producers closely affiliated with that company; (2) private Ukrainian defense enterprises independent of UkrOboronProm; and (3) foreign arms producers with an interest in developing production in Ukraine (Badrak 2016a).

2. <https://milex.sipri.org/sipri>

Concerning the third type of players in particular, in the post-Soviet period, foreign companies have barely been present as owners of defense enterprises in Ukraine (Carpenter 2018). They have particularly been scared away by the fact that the Ukrainian state demands at least a 51% share of the ownership of any new defense company set up by foreign investors, but also because the Ukrainian state does not pay royalties and because of the general lack of security for investments in the country (Badrak 2016a). Nevertheless, a few defense-related foreign direct investments (FDIs) did take place in the last years before February 2022. For example, in November 2017 the US private equity firm Oriole Capital Group announced a 150 million USD investment in the Kharkiv State Aircraft Manufacturing Company, and in 2022 Investment Monitor reported that of the 68 cases of defense-related FDI they had identified globally for 2019–20, two went to Ukraine. Only seven of the countries in the survey had a higher number of defense-related FDIs than did Ukraine (Forrester and Selinger 2022; Karadima 2022).

UkrOboronProm Prerogatives

In addition to its commercial activities, the company was allocated some government regulatory functions. It was particularly these functions that limited access to newcomers and made this sector of the Ukrainian economy an LAO. The special privileges made UkrOboronProm a quasi-government agency and state-owned commercial enterprise at the same time. In many instances, UkrOboronProm was both competitor and regulator vis-à-vis other arms producers in Ukraine. One of the most important advantages was the issuing of licenses for foreign arms trade (Badrak 2016b). That included permission both to sell arms abroad and to purchase foreign-made components for production in Ukraine (Ponomarenko 2018). Until 2022, most of Ukrainian defense production was for export. Even if domestic orders started to rise after Crimea and Donbas, exports still accounted for about 85% of UOP profits as late as 2018 (Badrak 2021). Thus, not getting a foreign license was a very big deal. Through its licensing authority, UOP could in practice prevent its domestic competitors from selling abroad. Without profits from foreign sales, the newcomers would have less capacity to invest in the development of products that could threaten UOP dominance on the domestic market.

To be fair, in January 2019, under intense US pressure to withhold military aid, this UOP prerogative was removed (Ponomarenko 2019). That year, the first three private companies were awarded licenses for direct foreign exports (Zhirokhov and Maksimchuk 2021). Nevertheless, all UOP foreign-sales prerogatives were not gone. Those who got licenses still had to coordinate their marketing policies and pricing strategies with the UOP subsidiary UkrSpecExport. Independent Ukrainian military observer Serhii Zhurets called this rest prerogative a “clan-based anti-market approach” (Zhurets 2020). The mentioned provisions are found in the Ukrainian government’s decision 1228, which says these things should be done in order to “avoid dishonest competition” (Zhurets 2020).

Second, UOP enjoyed a privileged access to the formation of the state defense order (SDO). The vast majority of Ukrainian defense procurement takes place within the confines of this order (Badrak 2016a). Such influence was denied the other types of actors in the domestic Ukrainian arms market. In fact, UOP leaders seem to have been

directly involved in drafting the Ukrainian military's procurement program. It is inconceivable that they would not at least partly have had the interests of their own company in mind when they did this. According to Taras Yemhura, a Ukrainian analyst for Transparency International, "private suppliers, which could offer more advanced alternatives but had no political ties, were thus excluded" (Prokopenko 2018). Furthermore, UOP also seems to have been privileged in terms of inclusion into the SDO. Finally, only state companies have access to government support for development costs (Zhirokhov and Maksimchuk 2021).

UOP itself has tried to downplay the importance of the company's privileges. In 2017, then-director Roman Romanov informed that UOP won only about 32% of state defense contracts (Ponomarenko 2018). However, this figure said little about the UOP share of the total state defense order since contracts naturally vary enormously in terms of the sums of money involved. The same year, the Ukrainian Ministry of Economic Development and Trade said that the UOP share of total defense procurement was between 60% and 70% in 2014–15, and falling to just under 50% in 2016–17. These figures may indicate that UOP was less dominant than many observers assumed, but that cannot be verified because most details of defense procurement remain classified (Ponomarenko 2018).

Thus, those who had hoped that Euromaidan and Russian military aggression would be enough to instigate serious reform to this segment of Ukrainian industry, were disappointed for a long time. True, there seems to have been some hope at least on the US side for UOP reform. For example, in August 2016 former head of the US Defense Advanced Research Projects Agency (DARPA) Anthony Tether was appointed an official adviser to UOP in order to speed up changes. Furthermore, in 2017 UOP entered into cooperation with the US company Aircraft for the co-production of rifles and carbines. However, the hope for these reforms seems to have disappeared quickly. Already in the beginning of 2017, former US deputy assistant secretary for defense Michael Carpenter told Ukrainian leaders directly that "it's time to get rid of UkrOboronProm" (Ponomarenko 2017a). This and other warnings by both domestic and foreign experts and advisers, however, had limited effect. At the end of 2017, the independent Ukrainian anti-corruption watchdog NAKO officially called off its cooperation with UOP. In their own words, this NGO did "not see that this presidential administration has the political will for real change" (Ponomarenko 2017b).

Signs of Serious Reform

Nevertheless, moving into 2018, the first cautious signs of real change did start to appear. The most important was probably the dismissal of Roman Romanov as head of UOP in February 2018. Romanov had been politely asked to vacate his position the year before by Prime Minister Volodymyr Hroisman, but refused. This time he was forced out. Eight months later, the new leadership team under Pavlo Bukin went to the USA specifically to convince the Americans that things had started to change after Romanov's departure (Krushelnycky 2018). The trip itself was of course no evidence of actual change, but the fact that they traveled across the ocean specifically for this purpose at least indicated

admission of previous guilt. Unfortunately, however, a new UOP corruption scandal broke in February 2019. Bukin was accused by the Ukrainian corruption watchdog Bihus of having purchased altimeters for An-26 transport airplanes for seven times the original price back in 2016 when he was head of the UOP subsidiary UkrSpecExport. For this “service,” according to Bihus, he had been paid a bribe of 10,000 USD (Shramovych 2019). Simultaneously, the journalists also claimed that Ihor Hladkovskiy, the son of Deputy Head of the Ukrainian Security Council Oleh Hladkovskiy, together with friends over a long time, had sold spare parts to the Ukrainian armed forces at exorbitant prices. They were supposed to have acquired these spare parts partly in Russia and partly at the Ukrainian armed forces’ own warehouses. Hladkovskiy senior’s case was officially handed over to the court in December 2021. He was charged with accepting bribes in connection with his son’s manipulations. Bukin, on the other hand, so far seems to have gone free. Thus, the Poroshenko presidency’s record of defense industrial reform is at best mixed.

The lack of major reform as well as the mentioned corruption scandals may very well have been one among several reasons why Poroshenko lost the presidential election to Zelenskyy in 2019 (Badrak 2019; Kanievskiy 2021b). Hladkovskiy, after all, was a close business associate of Poroshenko and the latter was himself engaged in arms production through his interests in the Leninska Kuznya shipbuilder in Kyiv. If these scandals in fact had a significant effect on Ukrainian public opinion, it would be a strong incentive for the new president to do things differently. And indeed, things started to change under Zelenskyy. The famous Lithuanian reformer Aivaras Abromavicius was appointed new director of UOP in August 2019. He was joined in September by Nadia Bihun, who had previously led a successful reform of the State Enterprise Medical Procurement of Ukraine and was also one of the developers of the transparent Ukrainian online system for public procurement called Prozorro. Finally, in November, Mustafa Naiem was appointed deputy director of UOP. Naiem was one of Ukraine’s most famous anti-corruption journalists and credited with launching the 2013–14 Euromaidan protests. All three later left the concern, and they may not have been fully satisfied with everything they had achieved, but just the fact of their appointments was a forceful demonstration of reform intent, and they seem to have left some legacy. For example, Abromavicius protégé Ihor Fomenko became the new head of UkrOboronProm in autumn 2020. A new and progressive law on defense procurement was adopted in spring 2020. This opened up for more transparency and competition. Furthermore, in October the same year a law introducing significant change to UOP was approved. Much more probably needs to be done before reform of defense procurement can be called successful, but at least in December 2021 the UOP got its first-ever positive verdict from the Ukrainian anti-corruption watchdog Statewatch. Only a couple of months before Russia’s full-scale invasion, Hlib Kanievskiy from this organization stated at a conference that “we now have a unique situation in which for the first time both the main political institutions of Ukraine and the UOP itself have started to take steps for a rapid reform of the company” (Klauning 2021).

Thus, it seems fair to say that the LAO in the Ukrainian defense industry that had been there since the end of the Soviet Union, and that was significantly strengthened by the 2010 establishment of UOP, lasted through the Poroshenko administration and into Zelensky's time in power. That can be seen particularly in the UOP control over licenses for foreign trade and privileged position in relation to the Ukrainian SDO. Since then, however, the first steps in the direction of an OAO have taken place. In particular, that has been the case in terms of the system for arms procurement and the role and functioning of UkrOboronProm (Kanievskyi 2021a). Concerning arms procurement, law number 808-IX, with the purpose of replacing the secretive SDO with a transparent system of individual purchases from individual companies, was adopted in July 2020 and implementation was attempted. This law, nevertheless, did not really take effect before the full-scale invasion (Kanievskyi 2021b; NAKO 2023). As for UkrOboronProm, law number 3822 planned for a split of the corporation into several smaller state companies operating according to standards advocated by the Organisation for Economic Co-operation and Development (Kanievskyi 2020; 2021b). A part of UkrOboronProm would remain with responsibility for defense industry transformation and attracting investments. This law was adopted a year later than 808-IX, but it took an additional two years to finally close the company and replace it with the 100% state-owned joint-stock company Ukrainian Military Industry. Thus, unfortunately, both changes came too late to have much effect on the war that expanded radically in February 2022.

General assessments on how the Ukrainian dominant coalition in the face of the UOP may have caused problems for Ukrainian defense procurement are important, but they are not enough. To get a better understanding of exactly how the LAO caused problems, there is a need for more detailed examples. Only in that way can the actual mechanisms at work be identified.

CASE ONE: AMMUNITION

As the war against Russia and separatists in Donbas progressed after 2014, Ukraine's lack of a stable supply of ammunition came to be seen as more and more of a problem. Most flare-ups in the fighting in the east would spark new discussions on this topic (Zhirokhov 2017). In 2017, Minister of Defence Stepan Poltorak sent a letter to the head of the Ukrainian Security Council, Oleksandr Turchynov, expressing grave concerns. He pointed out that stocks for most kinds of ammunition, from bullets for sniper rifles and up to 152mm artillery shells, were becoming critically low (Vetrov 2018).

Ukraine received an ambiguous inheritance in terms of ammunition from the collapse of the Soviet Union. On the one hand, Ukraine was the next post-Soviet country after Russia that inherited the largest stockpiles of ammunition. This was because the territory of the Ukrainian USSR had been strategically crucial in a possible large-scale conventional conflict with NATO. By the beginning of the war in Donbas, these stockpiles were, at least for certain types of ammunition, enormous (Zhirokhov 2017). On the other hand, almost no production facilities or research institutes for ammunition befell Ukraine. The only exceptions were the Luhansk bullet factory and the Donetsk state

factory of chemical products. However, the former had mostly produced production equipment rather than the bullets themselves, and both were taken over by Russia and the separatists after the start of the war in Donbas.

Since then, not only did Ukraine fail to establish domestic ammunition production, the voluminous Soviet stockpiles also rapidly declined. First, although the war during 2015 came to a stalemate, the two sides continued to exchange fire almost every day. Daily consumption of ammunition was not very high, but it was stable. Second, corrupt schemes for the export of Soviet ammunition seem to have depleted stockpiles even further. That trade had started already long before 2014. For example, in 2000, the Ukrainian Ministry of Defence (MOD) had agreed to sell a large number of bullets to an African country. That decision, however, was vetoed at the political level for reasons of national security. An order was issued that the bullets would remain in a warehouse at the harbor of Oktiabrsk. When the war in Donbas started, the MOD remembered about the ammunition in Oktiabrsk. By that time, however, about half of the estimated 50 million bullets there were purportedly stolen. Those that remained were seriously eroded by rust (Mendelev 2014; Zhirokhov 2017).

Finally, in the years after 2014, Ukrainian storages for ammunition started to blow up at an alarming rate. Most likely, this was a result of operations conducted by Russian sabotage teams (Zabrodskiy et al. 2022, 16). Researchers from the British RUSI think tank have estimated that from 2014 to 2018 as much as 210,000 tons of ammunition may have been lost in these explosions (Zabrodskiy et al. 2022, 16). By comparison, the annual Ukrainian consumption from the fighting in Donbas in 2014–20 was probably around 70,000 tons. Ukrainian defense analyst Valentyn Badrak estimated that by spring 2021 more than half of Ukrainian artillery shells, mines, and missiles from open-air storages were destroyed (Gudkova and Chernovol 2021). In the years after 2014, Ukraine got some extra ammunition for its Soviet-era weapons from Lithuania, Poland, and the Czech Republic, but the size of the stockpiles was still far from satisfying. All of this is the background for Poltorak sounding the alarm in 2017. By the end of spring 2022, the dearth of artillery ammunition was one of the most critical deficiencies in the Ukrainian warfare. Only the supply of artillery ammunition from NATO countries saved the situation (Zabrodskiy et al. 2022, 5; Kirby 2023).

As early as October 2014, head of UOP Romanov announced that a new ammunition factory would be up and running within the next two years (Adeev and Donets 2017). The company was already in conversation with potential foreign partners. Nothing, however, happened. At the same time, companies independent of UOP (newcomers) came forward with their own suggestions.

Also in 2014, the Ukrainian-British company Stiletto (Ukrainian technology and leadership but registered in the UK) announced its interest in establishing ammunition production in Ukraine. Its proposal was to build an ammunition factory in Ukraine for 70 million USD paid for by the Ukrainian state. Stiletto would be responsible for the whole process using its own technologies. When the building of the factory was finished, the Ukrainian state would be the sole owner of the enterprise. It would also have a license to continue to use Stiletto technologies (*Oboronno-promyslovyi kurier* 2017b). This

company had already established a factory on similar conditions in Kazakhstan, and Kazakh authorities had had no problem accepting it. However, according to company director Oleksandr Kalachev, in Ukraine “nobody would listen to us. In UOP there was nobody to talk to” (Kozlov 2017). His suspicion was that individuals from UOP instead preferred to import uncertified ammunitions from a US supplier and to pocket some of the money saved (*Oboronno-promyslovyi kurier* 2017a). Stiletto had originally tried to get Canadian private investors for the ammunition factory, but the latter rejected flat out when they heard that Stiletto wanted to build in Ukraine. They were absolutely adamant they wanted nothing to do with either Ukrainian authorities or the UOP (*Oboronno-promyslovyi kurier* 2017b). No particular evidence of UOP corruption has come forward in this matter, but independent Ukrainian anti-corruption activists remain convinced that the Stiletto factory did not happen largely for the reasons discussed above (Adeev and Donets 2017).

Another proposal came from the private Ukrainian company TASCOCO. This company was already producing ammunition in Ukraine for civilian use. It suggested expanding production to include military ammunition as well. The plan was to build a new factory in Zhytomyr County. Here, however, then chief of the General Staff Viktor Muzhenko put his foot down. According to the Ukrainian Internet newspaper *Ukrainska Pravda*, TASCOCO had close connections with former head of the presidential administration Serhii Pashynskii. The latter was a people’s deputy for the People’s Front political party. The People’s Front was an essential part of President Poroshenko’s majority in the Ukrainian parliament, Rada. It was also at the time running a campaign to oust Muzhenko. Thus, the latter may have used his position to block TASCOCO’s factory plans as part of his efforts to fight back against the People’s Front (Bratushchak 2017).

Despite these hurdles, in January 2017 the Ukrainian Security Council made a second attempt to establish domestic ammunition production. It adopted a document that decided on a five-year plan to establish Ukrainian production facilities for the different types of ammunition themselves and also for the production of the different kinds of chemicals that would be needed for them. The program would cost an estimated 9 billion hryvnia (244 million USD) to realize (Bratushchak 2017). This meant that a lot of money likely would now be allocated for this purpose.

Why did these UOP-independent propositions come to nothing? TASCOCO’s proposal may have been a victim of the ongoing conflict between the People’s Front and the chief of the General Staff, but Stiletto’s seems more in line with the main argument in this article of a dominant coalition keeping newcomers out. It is likely that UOP, despite its own lack of expertise in the production of ammunition, preferred to block newcomers in the hope that they eventually would be able to do the job and cash in on the allocations themselves. Officially, Stiletto was turned down because of costs. The Ukrainian Ministry of Economic Development and Trade told the company that other companies had presented similar projects at considerably lower cost. However, this explanation looks like a pretext. None of these lower cost proposals were accepted either. Furthermore, when the Ukrainian Security Council finally decided to allocate money for an ammunition factory, the sum was approximately three times higher than what Stiletto had asked for.

Notwithstanding which explanation is best, the onset of major war did in fact break the post-2014 deadlock. On November 4, 2022, Minister of Defence Oleksii Reznikov announced that new facilities for the production of both Soviet and NATO caliber artillery shells were ready to start production. On January 1, 2023, the first pictures emerged from the front of Ukrainian troops launching the first domestically produced rounds, and by the middle of the year production had increased significantly (Coles 2023). Still, at the end of January 2023, the military and security adviser to Zelenskyy, Ivan Aparshyn, lamented the fact that UOP's handling of the ammunition issue had cost Ukraine ten years in which the country could have prepared to avoid the critical shortages experienced after February 24, 2022 (Karamazov 2023).

CASE TWO: UNMANNED AERIAL VEHICLES

There are initial similarities between the needs for domestic production of ammunition and UAVs. In both cases, Ukraine had practically zero production before 2014. Also in both cases, the war in Donbas made plain to everyone that such production was needed. One of the main advantages of the Russian and separatist forces in that war was the combination of drones and artillery. Unless Ukraine managed to do something similar, the country would be at a serious disadvantage. Thus, the war in Donbas kicked Ukrainian domestic drone production in motion.

The main contrast to the case of ammunition is that Ukraine was able relatively quickly to establish functioning domestic production lines for UAVs. For example, from 2014 to 2022 a flourishing private "cottage industry" was able to develop a total of 16 different types of reconnaissance drones (Shtekel 2022). This meant that in contrast to ammunition, Ukraine was not totally without production capacity for UAVs when the 2022 Russian invasion began. Around ten different types of drones were in operation by Ukrainian forces from the first day of the war. These also included imported drones, mainly from Turkey. Nevertheless, domestically manufactured drones have made significant contributions to the Ukrainian armed forces in terms of surveillance and fire control, and for striking targets.

Furthermore, in the beginning of the war the necessity of drones was made even more clear by the example of the Turkish-made Bayraktars. These strike drones were initially efficient against both Russian artillery and armored vehicles. In particular, they may have played a decisive role together with the Ukrainian missile system *Neptun* in sinking the Russian missile-cruiser *Moskva* in the Black Sea in April 2022 (Zablotskyi 2022). The loss of the *Moskva* was one of the major Russian defeats in this war. Eventually, however, the Russian forces became better at shooting down the Bayraktars. President Zelenskyy himself admitted that the Bayraktars gradually became less efficient in a strike role. Since the summer of 2022, these drones have been used mostly in a surveillance capacity (Meduza 2022).

The Ukrainians probably stunned the Russians by reaching deep into Russian territory to strike twice at the Engels airfield close to Saratov on the Volga in late 2022. In one of the instances, two Russian strategic bombers were likely damaged. In the aftermath,

Russia had to relocate parts of its strategic bombers fleet farther away from Ukraine. Kyiv does not yet have enough strike drones to make such attacks regular, but in late February 2023 Russia became the victim of the largest drone attack so far in the war (Kondrat'ev 2023). Damage was still limited, but one drone exploded close to Moscow and the airport in St. Petersburg had to close temporarily while Russian fighter jets patrolled the airspace. Finally, in May 2023 two drones were shot down directly over the Kremlin (Vernon and Spender 2023). The psychological impact of demonstrating to Russia that the fight can be taken deep into its own territory may turn out to be important.

There are few signs that the UOP tried to prevent newcomers from entering the domestic UAV market in the way it did in terms of the production of ammunition. In fact, at an October 2019 conference titled “A Dead End for Ukrainian UAVs?” Mykola Vorobiov from the UOP-controlled Ukrainian aircraft producer Antonov could not praise the independent newcomers enough. He plainly admitted that if not for their technological creativity, Antonov would probably never have started in the UAV business. He ended his intervention by saying that “we now work extremely close with the private companies.” However, he also gave the impression that he envisaged a natural division of labor between the UOP and the newcomers (Zhurets 2019). He saw the small private producers as having their niche in smaller surveillance and target and fire-control drones. If they concentrated on that segment, the larger UOP companies could center on the more sizable long-range strike drones. In this latter work, however, they would be greatly assisted by much of the technological development already taken care of by the newcomers on smaller drones.

Some of the private drone producers themselves at least partly seem to corroborate this UOP open access narrative. Atlon-Avia founder Artem Viunnyk said in an interview in 2016 that his company saw the UOP subsidiary UkrSpecExport as a close partner (Verstiuk 2016). Such statements suggest genuine cooperation and newcomer access.

One example of newcomer cooperation with UOP is the aerial reconnaissance and fire-control drone *Furia*. Developed by Atlon-Avia, it is specialized in spotting heavy artillery (Wendle 2018). According to military observer Olga Vaulina, the *Furia* project did not really pick up speed until UOP Deputy Director Oleksandr Stetsenko took a genuine interest (Vaulina 2018). In fact, in her research into the short history of Ukrainian UAV production, Vaulina concludes that the *Furia* initially was developed under the protection of UOP (Vaulina 2018). Viunnyk also confirms this version. According to him, Avalon contacted two people on the inside of UOP who “took us by the hand and guided us through the closed and secretive world of military procurement” (Vaulina 2018).

The first MOD contract for the *Furia* had been signed in 2015. About one year later, 40 drones were already in active service in Donbas (Verstiuk 2016). The UAV is also used by the Ukrainian National Guard and by the Security Service (SBU). During the years 2019 and 2020, the *Furia* passed all state tests and was formally adopted by the armed forces. Thus, the *Furia* case seems like an example of a behavior that goes directly against the NWW theoretical expectation of the dominant coalition keeping a newcomer

out. Why would UOP actually help outsiders into a market that possibly could turn out to be very profitable for itself? There are at least two possible explanations here.

First, UOP did not produce or possess technologies in this segment of the market. Thus, the entrance of Atlon-Avia and others at least did not threaten current UOP production lines. Furthermore, the statements by Antonov's Vorobiov above suggest that UOP may have eyed a division of labor where private newcomers limited themselves to the low price and low profit market for smaller drones for surveillance and fire control. UOP could then concentrate on the potentially more profitable market for bigger combat drones able to take on larger payloads and stay in the air for much longer. If the UOP additionally could get the private newcomers to carry some of the development costs by creating technological solutions that would be adaptable also to the larger drones, then why not invite them in? Viunnyk, for example, although positive about the initial access, is also suspicious that at least part of the inclusive policy of the UOP came from a desire to acquire Atlon-Avia technologies that UOP could use at its own UAV producer company Meridian (Verstiuk 2016).

Second, giving Atlon-Avia access may also have played to UOP's advantage in another way. In 2015 there was significant criticism in Ukrainian media and other public spaces because many thought the Ukrainian military did not show sufficient interest in UAVs (Vaulina 2018). If anyone with their own developed models could demonstrate to the military the benefits of UAVs, then that would make the armed forces more willing to fund research for and make purchases of such systems developed by UOP in the future. The UOP itself did not have any such systems ready for demonstration, but Atlon-Avia did. Furthermore, at this time several of the Ukrainian volunteer battalions were still operating. These were more forward-leaning in terms of UAVs than the regular military. The first armed unit to fly a Furia was the Donbas volunteer battalion (Vaulina 2018). That development probably put additional pressure on the Ukrainian military to enter the game. In case these UAVs should turn out to be a good idea after all, the military would not want to be outpaced by the volunteers. The latter had sprung up from scratch in spring 2014 as a response to the regular military's initial inability to deal with the Russia-initiated rebellion in Donbas. Thus, the battalions had in fact embarrassed the regular forces, and the latter would be on alert for this not to happen again.

We have already seen that Atlon-Avia suspected it may have been let in partly for UOP to take advantage of its technologies. Moreover, according to Iaroslav Honchar, one of the founders of the NGO *Aerorozvidka*, although a total of 16 independent companies sold UAVs to the Ukrainian armed forces in the years 2014–22, none of their products were included into the SDO. In contrast, UOP subsidiary Antonov's Horlytsia UAV was already included in the SDO despite being under development for ten years. Ukrainian military analyst Valentyn Badrak called the Horlytsia a “waste of taxpayer money.” *Aerorozvidka* is an NGO that assists the Ukrainian armed forces in developing its drone and network warfare capabilities. Honcharuk argues that Atlon-Avia probably could have done the job of building a large strike drone both faster and cheaper based on its experience with smaller drones (Shtekel 2022). The result of the exclusion from the SDO for the independent producers is not that they cannot sell to the military,

but that their sales become very unpredictable. Without the long-term contracts that an inclusion into the SDO could have given, they have difficulties in planning staffing levels, keeping key personnel, and taking on significant new development costs. According to Honchar, as of June 2022 their order books were far from full despite Ukraine's stated need for more UAVs (Shtekel 2022). Thus, there was more access for newcomers in UAVs than in ammunition, but that does not mean UOP was not behaving in the way a dominating coalition is theoretically expected to do in terms of keeping them out (North et al. 2012). Although this is not directly discussed by NWW, one may imagine situations where dominant coalition self-interest may open for some incomplete degree of newcomer access.

CASE THREE: ARMORED VEHICLES

In the third case, the need for the discussed capacity is no less recognized than in the first two. According to one account, by the summer of 2017 only 5% of Ukrainian armored vehicles were new. Almost all the rest had been in service for more than 25 years (Zhurets 2017). At the end of 2016, the Ukrainian General Staff sounded the alarm. They were seriously worried by the slow speed in the production of armored vehicles for the ground forces and the rapid reaction forces. It was the threatening character of the Russian Zapad-2017 military exercise that in particular agonized them (Zhurets 2017). To this author's knowledge, no Ukrainian military or political leader questioned the necessity of new and improved armored vehicles. In 2023 their supply from Western countries came to be seen as more or less a precondition for Ukraine's possibility to retake occupied territories.

In this segment of the market, the UOP already had several programs running. However, deliveries to the forces were always very small. As well, private newcomers proposed alternative solutions. These included new main battle tanks (MBTs), light and heavy infantry fighting vehicles (IFVs), and different kinds of armored personnel carriers (APCs). Here, we will look at the MBT Tireks and the heavy IFV Vavilon—both products of the private Arei Engineering Group. Arei had grown out of a small team of technical personnel repairing and modernizing armored vehicles for the volunteer Azov battalion (now regiment). A major difference between this case and the ammunition and UAV cases was that the Arei products had not only passed most MOD tests, they also were eventually included in the SDO (Zhurets 2017). Their technical solutions received the approval of both the armored wing of the MOD procurement agency and the MOD's main scientific and engineering institute. Thus, Arei had on paper received a level of access that neither Stiletto and TASC0 (ammunition) nor Atlon-Avia (UAVs) had been able to. Arei had every reason to assume that it had been accepted as a newcomer. It looked like a case counter to the expected behavior of a dominant coalition. However, as we will see, formal inclusion in the SDO turned out not to be sufficient for actual inclusion.

At least in terms of the Vavilon, Arei was ready to start production when its facilities outside Kyiv suddenly were exposed to a raid in November 2016. Unidentified people in

sporting costumes took control of the facilities and started to remove production equipment. They did not let the Arei staff back on the premises. Exactly what happened is still not clear, but at least one version is that the raid was performed by the previous owner, the private stock company ATEK. ATEK seems to have regretted the sale and suddenly started to protest the fact that military production would take place on the premises it had sold. According to the Ukrainian anti-corruption site Antikor, the land was now wanted by People's Deputy Volodymyr Zubyk. He planned property development there because of its great location close to Kyiv but still in a green zone. Conveniently for him, Zubyk was also an old business partner of then state prosecutor and once-famous Ukrainian politician Ihor Lutsenko. With the state prosecutor on its opponent's side, Arei could not easily bring on the legal system to help return its property (Melnik 2018). In 2017, Chief of the General Staff Viktor Muzhenko tried to enlist the assistance of the Ukrainian security service Sluzhba Bezpeky Ukrainy (SBU) in reopening the premises for Arei. He cited reasons of national security. Even this attempt, however, was futile (Miroshnychenko 2024).

The raid, however, was not the only problem encountered by Arei. According to the deputy director of Arei, Svetlana Zvarych, after Vavilon had passed all necessary tests, the MOD suddenly appointed a new individual in charge of the IFV project from their side: V. Snisarenko. He had previously worked closely with one of Arei's competitors, the UOP subsidiary Malyshev tank factory in Kharkiv. Not wanting his former employer to lose out to a newcomer, Snisarenko soon came up with a host of new and difficult demands for the Vavilon. One of them was that his old place of work should be involved in the production of the IFV (Zvarych 2022). Thus, it seems the dominant coalition tried to use its political power to exploit engineering solutions developed by a competitor. The Ukrainian MOD finally closed Arei's Vavilon project on February 22, 2022, two days before the full-scale Russian invasion (Miroshnychenko 2024).

The raid against Arei seems more like a result of general Ukrainian corruption and lack of rule of law than an actual attempt of blocking of newcomers. The new demands made by Snisarenko, on the other hand, look like a textbook case of the dominant coalition keeping newcomers out. Again, the result was that Ukraine lacked critical military technologies it could have possessed when the full-scale attack came. Thus, at the start of the full-scale Russian invasion, there was neither a Tireks nor a Vavilon in the Ukrainian armed forces. In late 2023 the Ukrainian public prosecutor started investigating those in public service who had created problems for Arei for possible negligence of duty.

CONCLUSIONS

The Ukrainian defense-industrial and defense procurement systems seem to have functioned according to LAO rules for most of the 2014–23 period, and also before that. One result was that critical military capacities needed by the Ukrainian armed forces were not produced. This was the case for ammunition, armored vehicles, and, to some extent, UAVs. We cannot say, based on the findings of this study, that the Ukrainian LAO in

defense production and procurement was the only cause for this state of affairs, but the evidence suggests that it was a significant one.

The LAO seems to have prevented production both directly and indirectly. Directly, by the dominant coalition in the face of the UOP blocking or demanding unfair conditions for giving access to the domestic defense market. Indirectly, because both domestic and foreign newcomers knew or suspected that rule of law in the Ukrainian LAO likely existed only for approved elites. Thus, investments by newcomers would be very risky. It is highly likely that more actors would have tried if Ukraine and its defense industry had been OAO.

In terms of direct pressure, Atlon-Avia's non-access to the Ukrainian SDO despite the fact that its UAV Furia had been officially adopted by both the armed forces and other Ukrainian armed structures is a strong indication. This is especially so, because UOP's UAV Horlytsia was accepted even if far from ready. It is true that Atlon-Avia had achieved partial access through its initial partnership with UOP, but the non-access to the SDO put the company at a strong disadvantage compared with the UOP. In the cases of the ammunition producers Stiletto and TASCOS, we only have suspicions about direct attempts at exclusion. The sudden changes in conditions for Arei and the company's proposed production of armored vehicles, on the other hand, seem like a clear example of deliberately unfair play. Here, although Arei initially thought it had gained full access, the dominant coalition simply demanded to have parts of the production transferred to one of their factories.

In terms of indirect effects, the Canadian investors' blatant refusal to risk money in Ukraine is a clear example. If this sector of the Ukrainian economy had been a functioning OAO, it is entirely possible that private Western capital would have been ready to secure domestic production of ammunition in Ukraine years before the full-scale Russian invasion. However, TASCOS's failure to build a factory in Zhytomyr County because of political infighting between Chief of the General Staff Muzhenko and the People's Front, and the raid at Arei's production facilities in Kyiv, also can be used as examples here. Political infighting and attempts at sabotaging business rivals may of course also take place under OAO conditions, but under LAO the lack of a rule of law for all prevents newcomers from using the legal system as a third party to fight such unfair practices.

It is furthermore entirely possible that the LAO disadvantage in security politics is not limited to defense production and defense procurement. For example, one might imagine that LAO mechanisms of dominant coalitions and the exclusion of newcomers also operate within the officer corps. If advancements become more dependent on loyalties and networks than merit, then the best will not necessarily rise to the most influential positions. Nepotism is well known in both Ukraine and Russia. Russian oligarch Oleg Tinkoff suggested in April 2020 that when nepotism is as widespread as it is in Russia, there is no reason to think it has not affected Russian military personnel policies. That could be one of the reasons for some of the poor Russian military performance in Ukraine (Staff 2022). Similarly, UK lieutenant general and former adviser to the Ukrainian Ministry of Defence Glen Grant has argued that the same problem was often rampant also in that country's military organization (Grant 2023). No comprehensive

studies of this phenomenon have been done in either of these countries, but suspicions remain that the LAO/OAO framework may be relevant.

Finally, we have seen that reforms pointing toward an OAO in defense production and procurement got underway during the Zelenskyy presidency. Ongoing armed conflict with Russia was probably a necessary but not sufficient cause for that to happen (Bukkvoll and Solovian 2020). If war had been sufficient, UOP reform would have started in 2014 rather than in 2019. The two additional causes that finally tipped the balance are probably (1) individual differences between the Poroshenko and Zelenskyy presidential teams—especially the fact that Poroshenko himself had commercial interests in arms production whereas Zelenskyy did not; and (2) the accumulated pressure of domestic and foreign advocacy groups. It is hard to say which one explains the most. Be that as it may, there seems to be little reason to doubt that something fundamental started to happen in the years 2019–22. These were changes that had impossible before. Nevertheless, those changes came too late to be of much assistance when the full-scale Russian invasion began in February 2022. Furthermore, after Russia started to selectively bomb Ukrainian defense-industrial facilities, new production lines became difficult to establish even in a more inclusive environment for newcomers.

Independent of whether this war will be short or long, Ukraine will need to further develop its own defense production capacity. An OAO is in all likelihood better for that purpose than the previously dominating LAO. Reform therefore needs to continue independent of the length of Russia's war against Ukraine. Both the content and the progress of such reform, provided that the promising trends continue, need further study. Here, one should monitor whether the rule of law consolidates and expands in Ukraine and whether such a development eases the access to newcomers in the defense industry in particular. ■

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