This article links Ukraine’s response to Russia’s unprovoked invasion in February 2022 to institutional reforms in the decade before the current war. After the Revolution of Dignity in 2014, Ukrainian civil society, business, and government jointly established an institutional framework to monitor public procurement. The problem of devising institutions to monitor behavior on an ongoing basis is not generally solved through constitutional reforms and revolutions. Public procurement reforms contributed to a culture of coproduction of monitoring that has persisted even when pressure was exerted on open government after Russia’s full-scale invasion. The reforms implemented after the Revolution of Dignity created a robust institutional framework to scale up institutions to monitor public procurement during Ukraine’s ongoing reconstruction effort.

Keywords: Ukraine • Russo-Ukraine War • corruption • public procurement • institutional reform • transparency • reconstruction

JEL codes: B52 • H5 • O3 • O5

Introduction

Russia’s war with Ukraine started when Russian forces occupied territory in eastern Ukraine and annexed Crimea in early 2014 and escalated when Vladimir Putin authorized Russia’s full-scale invasion in February 2022. In this article, we argue that Ukraine’s success in resisting Russian aggression and success in implementing reconstruction during the war reflect successful public sector procurement reforms. These reforms are significant because revolutions establish significant but incomplete constraints on public officials. Public sector procurement reforms address the ongoing, day-to-day challenge of predation by public officials. Ukraine’s public sector reforms implemented after the Revolution of Dignity, which commenced following pro-reform protests in Kyiv’s Independence Square in February 2014, were effective in combating corruption before Russia’s full-scale invasion, and these procurement institutions, along with a culture of civil society, business, and government collaborating to control corruption, persisted through Ukraine’s martial laws, which relaxed the requirements to use the most open channels for public procurement. The development of significant initiatives to monitor procurement and a collaborative culture to monitor corruption in the immediate years following the Revolution of Dignity offers insight into why Ukraine has been able to scale up public sector monitoring to improve transparency in government even when reasonable security considerations arising after Russia’s full-scale invasion put pressure on them.

One of the most significant public procurement reforms is establishing ProZorro, an e-procurement system that enables public access to information on government contracts. ProZorro was piloted in 2015, and from 2016 until Russia’s full-scale invasion, it had been used by the Ukrainian government for essentially all public procurement. ProZorro is an especially innovative e-procurement system because it enables anyone to obtain information on public procurement in real time. The key principle behind ProZorro is “everyone is watching.” These reforms originated during the Revolution of Dignity, which was a direct response to the government’s “dictatorship laws,” and were passed on January 16, 2014—a day known to Ukrainians as Black Thursday. Hundreds of thousands showed up at Independence Square, as did government troops and police, who killed dozens of protestors. Besides a movement for individual rights and liberties, Ukraine’s Revolution of Dignity was an outcry against political corruption and poor economic performance.

Public procurement and corruption are linked because governments rely so heavily on the former to provide goods and services. A typical government spends between 8 and 20 per cent of their gross domestic product (GDP) on public procurement. Ukraine’s reforms to public procurement saved billions before the war. These savings provided more resources to provide for collective security against Russia, as well as improved trust in government. Pro–openness reforms also appear to be resilient, as they remained a significant institution even as Ukraine’s martial laws created opportunities for much government contracting to occur outside the open e-procurement system.

ProZorro remained in effect for much of the government’s procurement, and perhaps more importantly, it has become the foundation for scaling up open government with the proposed Digital Restoration Ecosystem for Accountable Management (DREAM), an initiative launched in June 2023 that extends ProZorro and seeks to ensure that Ukraine wins the war and reconstruction.
Our contribution to public choice is to reinforce the idea that revolutions, even successful ones, are necessarily incomplete. Tullock (1971) believed political instability was closer to the natural state of politics, while Buchanan and Congleton (2006) were optimistic that political institutions would provide the foundation of lasting political order. For Tullock and and, later, Barzel (2002), collective action to establish limits on the state is an ongoing concern. Trantidis (2023) offers a reason why constitutional reform is an imperfect solution: a system of informal exchanges, or clientelism, continues to shape these outcomes because reforms cannot eradicate these exchanges by way of institutional reform, even when there is widespread agreement that this type of exchange is harmful and illegitimate.

Our view of procurement reforms is more in line with the ideas of Tullock, Barzel, and Trantidis, which are that revolutions that establish new constitutions are often incomplete—or, as Goldstone (2023) puts it, with revolutions, “You can’t always get what you want.” Public officials, even those selected after pro-reform revolutions like Ukraine’s Revolution of Dignity, have incentives and opportunities to engage in unproductive behavior on an ongoing and even daily basis. Public procurement reforms are an essential way to address this political dilemma.

We join a vibrant research agenda on the political economy of the Russo-Ukrainian War, which includes analysis of: the relationship between prewar market reforms, crime reduction, and the ability to finance the war effort (Brik and Protsenko, 2024); how decentralization reforms initiated after 2014 both enhanced Ukraine’s ability to provide public goods and services after the full-scale invasion and increased trust in government (Keudel and Huss, 2024); and the consequences of these decentralization reforms for Ukraine’s reconstruction (Myerson, 2023). Scholars have engaged questions of how corruption is controlled by these decentralization reforms (Arends et al, 2023). In addition, there has been a robust voluntary response to the war in Donbas (Wood, 2019; Alshamy et al, 2024). Ukraine’s defense is interesting considering previous work on how subnational self-governing patrols contribute to collective security (Arjona, 2016; Escalante, 2020; 2023) and links between political structure and collective security (Frey and Luechinger, 2003; Enders and Sandler, 2006). Another line of research considers how Russia’s institutions contributed to Vladimir Putin’s decision to invade Ukraine, including the institutional foundations of Russian support for Putin’s war (Trantidis, 2024), as well as how it transitioned from a middle-income capitalist democracy to a totalitarian warmongering state through encouraging rent-seeking and patronage systems (Hebert and Krasnozhon, 2024). Procurement reforms provide another contrast with Russia, where backsliding and corruption have characterized institutional change over the past decade.

This article is organized as follows. The second section relates public procurement reform to political dilemmas that arise because of the unfinished nature of revolutions. In the third section, we consider the constitutional foundations for limited government in Ukraine. This section serves two purposes: to show that Ukraine has a robust constitutional framework for limited government and that even successful revolutions require additional reforms to ensure the control of corruption. The fourth section describes Ukraine’s open government initiatives, with emphasis on the development of ProZorro. The fifth section shows that ProZorro has remained a robust institution during the full-scale war and considers current efforts to scale up ProZorro to ensure Ukraine succeeds in its ongoing reconstruction.
Limited government as an ongoing concern

In this section, we provide a theoretical rationale for our main hypotheses, which are that revolutions, at best, provide incomplete constraints on government and that open government reforms contribute to improvements in public goods provision because they address the ongoing challenge of public predation. Revolutions can be thought of as large-scale changes in political rules at the highest level of society (Vahabi et al, 2020). Weingast (1997) emphasizes that constitutions play a role in establishing democracy and the rule of law by addressing collective action and coordination problems citizens face in resisting state predation. Explicit declarations of rights, such as the US Constitution’s Bill of Rights, facilitate citizen coordination against government overreach. Separation of powers, as seen in England’s Magna Carta in 1215 and 1225 and the Glorious Revolution of 1688/89, is widely viewed as an essential way to limit government authority (North and Weingast, 1989; Leeson and Suarez, 2016). Political decentralization is another explanation for the emergence of the rule of law, in part because it enables the government to commit credibly to respecting the rule of law (Hadfield and Weingast, 2014). Federalism, which is decentralized and includes autonomy for subnational and local governments, contributes to the rule of law by limiting a central government’s incentives and opportunities to transgress individual rights (Weingast, 1995). Democracy is another institution that can contribute to improvements in the behavior of public officials. As Myerson (2014: 51) states, “Democracy is worth cultivating because the competitive rules of the political game can affect the behavior of political leaders, who determine the performance of government in service to the public.”

The perspectives just outlined focus on pivotal constitutional moments that expand the scope of individual rights and liberties. They also see these constitutional moments as having long-lasting consequences. The French Revolution, for example, is hailed for its lasting impact on limited government and individual liberties (Acemoglu et al, 2011). Yet, as Barzel (2002) argues, individuals must devise institutions for collective action that continually limit the scope for predation by public officials to enjoy political and economic rights and liberties. In this regard, Barzel links two core ideas from the public choice literature. One is that constitutions are an important constraint on predatory behavior by rulers (Coyne, 2011). The second is that there is near-continual pressure for the expansion of government and risks to the erosion of liberties, including in liberal-democratic orders (Higgs, 1987). We extend Barzel’s ideas in arguing that revolutions that establish a new and democratic constitution remain imperfect as a constraint on socially costly behavior by public officials. Even in the absence of crises, public officials have plenty of opportunities to enrich themselves at the expense of the public, mainly because the state has more power than others. Liberal-democratic thinkers from Montesquieu to the Framers of the US Constitution and beyond all recognized this challenge and designed institutions to control—though not eliminate—the temptation for public officials to pursue their private interests.

Taking Barzel’s (2002) insights as a point of departure, we expect that large-scale institutional reforms, especially revolutions, are incomplete. How can this be addressed? Our hypothesis is that reforms that enable citizens to watch the watchers are critical to ensuring the government does what is in society’s interest. The importance of monitoring arises from the incentives of politicians and bureaucrats to hide their predation. Trust is a relationship among individuals and institutions,
including the relationship between individuals and government (Tyler, 2006). Even autocrats, to some extent, covet legitimacy (Migdal, 2001; Levitsky and Way, 2002; Nathan, 2003). Thus, assuming politicians and bureaucrats have incentives to engage in predatory behavior, as suggested in much of the literature on the predatory state (Vahabi, 2016), and that even predatory rulers place at least some value on legitimacy, our expectation is for politicians to have incentives to engage in predation unless someone is watching them.

Modern governments rely extensively on public procurement to provide goods and services. The rationale for contracting out government services is to provide greater efficiency in the provision of government services, as the alternative to contracting is for the government to provide these goods and services itself. Since governments have well-known incentive problems in directly producing goods and services (Kornai, 1992), public procurement is considered a way to improve efficiency in the provision of government services. The threat to this efficiency arises from two main sources: lobbying and corruption. Lobbying is wasteful but is often legitimate and legal (Tullock, 1967). Corruption is another challenge, being both wasteful and (typically) illegal. Although corruption may be efficient in some instances (Méon and Sekkat, 2005), it is more generally thought of as undermining economic growth (Johnson et al., 2011).

Technologies that improve the ability to monitor public procurement, such as e-procurement (which is an example of open-government initiatives), are a way to see what the state is doing. Such monitoring can contribute to improvements in the quality of government by helping citizens see what the state is doing, as well as to understand which policies are socially costly.

Constitutional foundations of limited government in Ukraine

The purpose of this section is to introduce the constitutional context of Ukraine and to show that the Revolution of Dignity, which was by all accounts pro-reform, required additional institutional reforms to public procurement to control predation. Before considering the Revolution of Dignity, it is useful to consider Ukraine’s Glorious Revolution: the constitution of Pylyp Orlyk, a Ukrainian Cossack, in the early 18th century. A significant feature of Orlyk’s constitution was rejecting absolutism and establishing a positive foundation for individual rights and liberties. Consideration of Orlyk’s constitution is significant since public choice analysis of constitutions has focused on Western Europe, especially the Magna Carta, England’s earlier Glorious Revolution, and the French and English revolutions that came after Orlyk’s constitution. The constitutional political economy of Ukraine, with a legacy of limited government, also contrasts with Russia’s history of empire, colonialism, and then, under Vladimir Putin, a full reversal of democracy.

Orlyk was from the Cossack Hetmanate, officially known as the Zaporizhian Host, which existed from 1649 and until 1764. Hetmanate is a title historically assigned to military leaders. The Hetmanate existed until the Russian Empire and Habsburg Monarchy declared authority over Ukraine. Orlyk’s Pacts and Constitutions of Rights and Freedoms of the Zaporizhian Host declared the Ukrainian state and civil rights and liberties for citizens of the state. The constitution consisted of a preamble and 16 articles, which included provisions for the protection of the peasantry, widows, and orphans, for the security and inviolability of municipal self-rule, and for limitations
of the powers of leaseholders and tax collectors. Orlyk’s constitution also established parliamentary democracy (Pritsak, 1998: 471–2).

Orlyk’s constitution was a republican system that rejected absolutism. It was not completely novel, as his constitution was influenced by the Pacta Conventa, an agreement among the Polish political elite that usually concluded with the successful candidate acceding to the Polish elective throne (Pritsak, 1998). It differed in that it was a more extensive and clear statement of rights and liberties.

Conquest and colonialism from Russia undid the early progress in establishing limited government in Ukraine. There was no meaningful democracy for Ukraine under the Russian Empire comparable to the Hetmanate. The Soviet Union became fully absolutist after the Bolshevik Revolution, with totalitarian rule emerging most clearly during the Union of Soviet Socialist Republics (USSR). Soviet socialism proved to be an inefficient economic system characterized by extreme corruption (Boettke, 2001). It also dramatically undermined the legitimacy of political institutions (Kuran, 1995). The decline of the USSR, therefore, required economic, political, and social reform in each of the countries that were colonized by the Soviet Union.

Ukraine won its independence from the Soviet Union in 1991 and adopted its independent constitution in 1996. In Ukraine, as well as other states colonized by Russia, there was some optimism that rapid transitions to a market economy could work (Sachs, 1996). However, the development of market institutions in other contexts generally occurred over very long periods of time through a gradual and spontaneous process. Reform of command-planning institutions also requires overcoming endemic and institutionalized corruption. Empirically, the reform process was often characterized by partial institutional reforms and the substantial backsliding of political institutions (Hellman, 1998).

Ukraine experienced both partial institutional reform and backsliding. Eventually, this resulted in the first of independent Ukraine’s revolutions. From November 2004 to January 2005, protestors filled the streets after allegations of fraud in the election between Viktor Yushchenko and Viktor Yanukovych in a conflict that became known as the Orange Revolution. Throughout this period, oligarchs exerted substantial influence over the Ukrainian economy and politics (Aslund, 2014). Although there were elections, fraud and corruption undermined their legitimacy. Yushchenko was eventually elected as the fourth president of independent Ukraine in 2010, in part because of the protest and allegations of corruption against Yanukovych. Afterwards, however, Yushchenko pursued policies that benefited his supporters, as evidenced by increasing firm productivity in pro-Yushchenko regions (Earle and Gehlbach, 2015).

During the presidency of Yanukovych, the Revolution of Dignity began on November 21, 2013, with a social media call to rally in Maidan Nezalezhnosti, the central square in Kyiv. Around 200,000 protestors participated in the rally despite the presence of government forces. Clashes with state police and military left nearly 100 protestors dead. In response to the protest, the government passed a series of anti-democratic laws. These “dictatorship laws”, as they became known, were passed in January 2014, a day that later became known as Black Thursday because of the laws which were widely perceived as a threat to democracy. These laws restricted freedom of speech, freedom of the press, and freedom of assembly. President Yanukovych was removed from office in February 2014. In April 2014, war broke out in the Donbas region in the eastern part of Ukraine after Russia infiltrated and subsequently occupied Donetsk and Luhansk oblasts. The international war was a result of Russia’s
occupation of Ukrainian territory in Donbas, along with its annexation of Crimea, which is also part of Ukraine.

Besides greater democracy, another significant reform after the Revolution of Dignity is strengthening political decentralization. This has occurred through policies and processes affording greater autonomy to *hromadas*, administrative units in Ukraine similar to municipalities. The perception of predation by the government led to protests and calls for political reform. One important possibility is political decentralization as a way to improve the quality of governance (Gehlbach et al., 2014). Political decentralization is significant because it contributes to the accountability of politicians to citizens and is the fundamental source of self-governance (Ostrom, 1994; 2008; Ostrom, 2010). Decentralization can also be a basis for corruption control. In Ukraine, these efforts include reforms to strengthen the local foundation of governance by combining *hromadas* into larger, self-governing entities known as “united territorial communities” (UTCs). These UTCs received a significant share of national tax revenue and new governance and administrative functions. A few years before Russia’s invasion in 2022, the Ukrainian government had planned to have all citizens living under decentralized government within five years. This new level of government promised to provide public goods locally while improving the accountability of the government to its people. The *hromadas* initiate cooperation agreements in some instances, but in other situations, there is fear that the process of increasing scale will result in inequities in the distribution of revenue.

By the time of Russia’s invasion, more than two thirds of Ukrainians lived within decentralized systems in either amalgamated *hromadas* or cities of oblast significance. The reason for this is that there are more opportunities and budgets are bigger in decentralized *hromadas*. Decentralization also transferred millions of hectares of state agricultural land outside settlement to the aggregated *hromadas*. From 2014 to 2018, total local budgets increased by 3.3 times. The state also invests resources in public goods locally.

The war in Donbas, as well as the full-scale invasion, created some pressure to centralize government. With the full-scale invasion, for example, Ukraine decided to require all men to stay in the country and contribute to collective defense. Such restrictions are centralizing and can be contrasted with previous efforts to decentralize governance. Yet, the decentralized structure persisted even as Ukrainians fought Russians in the east prior to February 2022, and it has remained a robust institution since Russia’s full-scale invasion (Keudel and Huss, 2024). Indeed, decentralization reforms to strengthen subnational governance were in part motivated by security. One of the reasons why Russia initiated a hybrid war with Ukraine in 2014 was a perception of the weakness of subnational governance. The Russian government may have been less likely to intervene in the east had subnational governance had greater ability to deter Russian aggression. Political decentralization can be thought of as a political foundation for government accountability and security.

**Procurement reform and the control of corruption in Ukraine**

*Public procurement, corruption, and the demand for transparency*

The reforms outlined earlier provide insight into why Ukrainians trust their government, including the liberal reforms of the Revolution of Dignity and political
decentralization. Such reforms, however, do not completely resolve the ongoing challenge of predation. Procurement reform was especially important in Ukraine because of the history of corruption. As Table 1 shows, as of 2015 (the year after the Revolution of Dignity), Ukraine was slightly above the Organisation for Economic Co-operation and Development (OECD) average in procurement by GDP but around 50 per cent higher than the OECD average for procurement as a share of all government expenditures. The large role of the public sector creates tremendous opportunity for corruption. The challenge for citizens is that they may not have any way to keep track of the many thousands of transactions made by government.

These data on procurement are from a time right after the Revolution of Dignity. One of the coordinating aspects of the revolution was a perception of problems with corruption, including in procurement. Specific ways to monitor procurement were not immediately addressed by pro-democracy reforms. This is where Ukraine’s open government movement comes into play. One of the most significant aspects of open government is e-procurement.

In general, “electronic procurement,” or “e-procurement,” refers to use of Internet technology to automate or integrate any or all parts of public procurement, including advertising, tendering, bidding, awarding, purchasing, ordering, contracting, and invoicing. It is hoped that e-procurement will improve efficiency, transparency, and accountability to the wider public. Anticorruption frameworks include the World Trade Organization’s (WTO’s) Government Procurement Agreement, the United Nations’ (UN’s) Commission on International Trade, the OECD’s Anti-Bribery Convention, the Open Contracting Partnership (OCP), and the Open Data Charter (ODC). Together, they have developed e-procurement best practices, including provisions for bidding, administrative sanctions, accounting, and so on. Although over 150 countries have some form of e-procurement, there is tremendous variation in the quality of these programs, including in transparency, Internet access, and expertise in the technology, as well as in the quality of regulations. In considering e-procurement, the World Economic Forum summarizes key performance indicators

### Table 1: Selected OECD countries plus Ukraine, 2015

<table>
<thead>
<tr>
<th>Country</th>
<th>Procurement by GDP</th>
<th>Procurement as a share of all government expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>20.18</td>
<td>44.51</td>
</tr>
<tr>
<td>Finland</td>
<td>17.54</td>
<td>30.79</td>
</tr>
<tr>
<td>Japan</td>
<td>16.22</td>
<td>41.2</td>
</tr>
<tr>
<td>Sweden</td>
<td>16</td>
<td>31.68</td>
</tr>
<tr>
<td>Germany</td>
<td>15.05</td>
<td>34.21</td>
</tr>
<tr>
<td>France</td>
<td>14.58</td>
<td>25.56</td>
</tr>
<tr>
<td>Belgium</td>
<td>14.43</td>
<td>26.79</td>
</tr>
<tr>
<td>Denmark</td>
<td>14.16</td>
<td>25.83</td>
</tr>
<tr>
<td>UK</td>
<td>13.7</td>
<td>31.96</td>
</tr>
<tr>
<td>Canada</td>
<td>13.44</td>
<td>32.71</td>
</tr>
<tr>
<td>USA</td>
<td>9.35</td>
<td>24.76</td>
</tr>
<tr>
<td>Ukraine</td>
<td>11</td>
<td>32</td>
</tr>
<tr>
<td>OECD average</td>
<td>13.18</td>
<td>30.26</td>
</tr>
</tbody>
</table>

Source: OECD and authors’ calculation for Ukraine.
as (1) transparency, (2) accountability, (3) prevention and fairness, and (4) cost, usability, functionality, security, and related measures of performance. Thus, not all electronic-procurement systems are created equal; here, we argue that ProZorro is especially effective and, hence, provides a robust constraint on government and a source of efficiency in procurement.

**Watching the watchers: ProZorro**

In fiction, Zorro is a vigilante who defended indigenous people in California from a corrupt and tyrannical government. ProZorro is a database to keep track of transactions. The name is not based on the fictional character but on the Ukrainian word for transparency (“прозор compost’”). ProZorro, the e-procurement system for all public procurement agencies, was launched in February 2015 to protect Ukrainian people from corruption. It is a model of collaboration between business, government, and civil society. Although ProZorro was not named after Zorro, it serves a function like Johnston McCulley’s character in that it protects people from corruption.

ProZorro was initially a volunteer-built system initiated after the Revolution of Dignity by anticorruption social activists that would subsequently become the state’s public procurement system. One of the creators of ProZorro, Oleksandr Starodubtsev, was at the protests in Independence Square in 2014. However, procurement did not come about as an idea until after Starodubtsev heard the policies proposed by economist and then-Minister for Economic Development and Trade Pavlo Sheremeta. The proposed policies included a reform of public procurement. Starodubtsev connected with Andriy Kucherenko, and the two followed in the steps of Georgian activists David Marghania and Tato Urjumelashvili, who transformed their own country’s procurement system (Manthorpe, 2018).

The authority to enact a transparent e-procurement mechanism comes from the Ukrainian Law on Public Procurement, which was first passed in 2010 and modified in 2014 and again in 2015. In February 2015, ProZorro was piloted. The electronic system connects to a network of private marketplaces, the data from which are available and can be used for public monitoring. Within the next year and a half, ProZorro was applied to central bodies of state administration and natural state monopolies, and then to all other contracting authorities. By 2017, ProZorro oversaw all significant public purchasing by the government (Shapoval et al, 2017a).

The main features of ProZorro are transparency, collaboration, and hybrid public–private partnership. All procurement information is immediately available. After bidding, anyone can access data, including participant lists, bids, and auction details. The information is available through the ProZorro business analytics module, which allows anyone to monitor developments without any required registration.

ProZorro is also a collaborative enterprise. Transparency International Ukraine (TIU) emphasizes that it was co-created by civil society, business, and government. This partnership aims to ensure independence, create mutual checks and balances, and foster positive change while maintaining a high level of trust among stakeholders on a sustainable basis. This cooperative approach is designed to promote positive transformation in the procurement process.

Another feature is that ProZorro is an example of public–private open-source e-procurement. All transactions occur in a central public database, but certified private marketplaces can collaborate with end users to upload documents and any required
The political economy of public procurement in Ukraine

paperwork. The purpose of this approach is to encourage competition among private commercial marketplaces. The idea is that service providers will have incentives to offer better services to government entities and potential suppliers.

For e-procurement to be effective, it should be easily accessible to anyone. The ProZorro data on government procurement are published in the Ukrainian language, with larger procurement announcements posted in English as well. In this way, ProZorro ensures the transparent and efficient spending of public funds by simplifying oversight opportunities for civil society and by enabling enhanced, open competition among businesses that aim to supply goods and services to government entities in Ukraine. It is also supported by TIU, which is associated with Transparency International, a global anticorruption think tank. TIU administered public procurement reform, including the implementation of ProZorro, and works on the implementation of transparency in local self-government through the Transparent Cities program.  

ProZorro’s impact before Russia’s full-scale invasion

The available evidence suggests that ProZorro was effective almost immediately. To get an idea how well it worked, it is useful to consider the extent of corruption in Ukraine. On the 2017 Corruption Perceptions Index of Transparency International, Ukraine ranked 130 out of 180. Since changes to corruption take time to be reflected in these indexes, the 2017 ranking reflects the situation around the time of the Revolution of Dignity. The extent of corruption was one of the reasons for the revolutions in Ukraine. Estimates were that corruption was costing Ukraine about US$2 billion a year before ProZorro.

Researchers at the Center for Excellence in Procurement at the Kyiv School of Economics (KSE) evaluated ProZorro in 2017 and have continued to offer policy analysis of its performance since then, including after Russia’s full-scale invasion. Shortly after ProZorro was implemented, general improvements included awareness of the procurement sphere, the incorporation of all stages of procurement in a single framework (making monitoring easier), increased openness to foreign bidders and obtaining access to procurement abroad, and a decentralized marketplace, with over 15 private marketplaces operating instead of one state-run marketplace, which increases competition and improves services.

The Ministry of Economic Development, TIU, and KSE have constituted a large team to work on improving ProZorro, including providing quantitative evidence of the effects. The total volume of government procurement increased by 35 per cent from 2015 to 2016 and by 17 per cent in dollar terms. The number of bidders and suppliers increased. The hypothesis is that open data will bring down corruption because of increased competition among suppliers. There has been a decrease in incentives to procure from a single supplier: from 2015 to 2016, the number of contracting authorities concluding agreements with a single supplier dropped from 11 per cent to 5 per cent. Public procurement markets increased in volume, purchases made, and numbers of participants, both contracting authorities and suppliers. There has also been a reduction in the two “taxes” imposed by inefficient public procurement. According to estimates, around 10 per cent of public spending was saved because of increased competition and better transparency.

ProZorro, like any open government initiative, cannot eliminate corruption. For example, the head of one of the state hospitals governed by the Ministry of Health
of Ukraine was accused of purchasing medicine at inflated prices (Shapoval et al, 2017b). ProZorro cannot eliminate price inflation and waste; rather, its purpose is to detect it when it occurs. What ProZorro did in this case was make the corruption transparent. This returns to the idea of ProZorro: everyone is watching.9

Still, there is evidence of improvement. VoxUkraine, an independent think tank, partnered with Ukrainian researchers to create the Index for Monitoring Reforms (iMoRe), now known simple as the VoxUkraine Reform Index. The VoxUkraine Reform Index provides expert assessments of essentially all significant government policies in Ukraine.10 It is an analytical instrument to quantitatively evaluate economic reforms or anti-reforms in the regulatory environment in Ukraine based on expert assessments. The data come from bi-weekly surveys of experts. What stands out is that in the several years after ProZorro was initiated, there were many reforms besides public procurement. It was an era of extensive reform, with experts generally finding evidence of “reforms” rather than “anti-reforms.” Data are provided on anticorruption, decentralization, civil service, banking sector, and energy sector reforms. Overwhelmingly, anticorruption received higher reform scores, though in each policy area, the pace and quality of reform increased.

That experts see improvement in anticorruption reforms in Ukraine is not direct evidence of the impact of ProZorro on corruption; rather, it suggests that ProZorro is a significant aspect of reform to corruption. ProZorro is not the only such reform, though it is perhaps the most significant one.

The evidence for actual control of corruption is the billions in savings before the war. To the extent that global indicators of corruption provide accurate assessments, they also provide evidence that Ukraine has improved the control of corruption since ProZorro was implemented. As of 2022, Ukraine ranked 116 of 180 countries on the Transparency International index of corruption. This is a substantial increase over the ranking of 130 out of 180 countries around the time of the Revolution of Dignity.11 Although identifying the causal impact of ProZorro is beyond the scope of this article, these changes in the Transparency International indicators are what one would expect to see if ProZorro is a significant institution to combat corruption.

Procurement, war, and reconstruction

ProZorro during full-scale war

Russia’s full-scale invasion put pressure on openness, as security is sometimes considered a tradeoff with liberty and transparency. ProZorro promises to disclose data on goods and prices. War creates a premium on expediency. In response, the Ukrainian government made changes in procurement laws that were closed. After Russia’s full-scale invasion started, Ukraine’s government began to contract outside of ProZorro with direct contracts. Before the war, procurement was governed by Ukraine’s On Public Procurement and On Defense Procurement Law, which was administered through ProZorro. Ukraine’s Minister of Infrastructure, Oleksandr Kurakov, put it bluntly: “full-scale war has radically changed the challenges facing government procurement” (quoted in Yukins and Kelman, 2022).

The main wartime changes are documented by Oleh Ivanov in his short brief, “Procurement during the full-scale war,” published by VoxUkraine.12 Ukraine’s
martial law allowed the government to bypass the transparent ProZorro process. The most significant of the martial laws for procurement is Resolution No. 169 of February 28, 2022, which allowed procurement for defense and other public goods, works, and services outside Ukraine’s general procurement law. Under the martial law, contractors providing services to Ukraine’s security and defense sector could contract with the government and provide contracts within five days of signing them, which differs in that the entire process is not public. Over the next several months, the government made additional changes that included more autonomy for state defense customers to draft terms and amounts for payments for goods, works, and services in contracts. These changes to the law provided more autonomy to those involved in the contracting process to do business without making all data publicly available.

It is not especially surprising that full-scale war led to more autonomy for contracting despite the apparent benefits of transparency for reducing corruption. What may be more surprising is that the government reinstated mandatory procurement through ProZorro in June 2022, which was still during the full-scale war. There remained exceptions. The government retained opportunities for direct procurement when critically important, including applying to all goods, services, and works procured by Ukraine’s Ministry of Defense, Foreign Intelligence Service, Ministry of Internal Affairs, and several other agencies, such as law enforcement agencies. Other certain situations also apply: when disclosing information would harm national security interests, when customers are in combat zones, in instances where the use of e-procurement is technically impossible, in the case of urgent purchases, and in the procurement of goods, works, and services that ensure the functioning of critical infrastructure facilities. In addition, in August 2022, the government allowed procurement outside of ProZorro for the mobilization of civil defense activities, reconstruction efforts to assist displaced persons, and critical infrastructure investment, including preparation for critical heating during winter. Importantly, in August 2022, Ukraine’s government defined the specifics of procurement during martial law, as well as obliging customers to publish reports on procurement made outside of ProZorro, thus requiring transparency.

A culture of transparency is apparent from the nature of the changes outlined earlier. Although the government adapted to the demands of war, the goal remained to return to ProZorro. In addition, the government has not yet adopted laws that would have done more to weaken transparent government, including a proposal from several members of parliament (MPs) (Draft Law No. 7164) that would have suspended the law on public procurement.

Ukrainians recognize that the coming challenge is the dramatic increase in spending with reconstruction. This will include substantial reliance on donors. As Oleh Ivanov states, transparency is critical to winning the war and winning reconstruction. He suggests several important changes to the martial law that could further reduce corruption, including reducing official discretion over direct contracts, separating regulations for the public procurement of road repairs and housing because the risk of corruption is especially high in these areas, and the publication of more data on direct contracts.

The efforts just described recognize the complexity of defense procurement. Inefficiency in defense production, as well as rent-seeking in the process, is one area where public choice has been more forgiving of government inefficiency (Cowen
and Lee, 1992; Cowen et al, 1994). From this perspective, some rent-seeking may be expected because of the demands for expedience, though the efforts to maintain the “normal” openness that has become a foundation for Ukraine appear significant for the longer-run success of both the defense and reconstruction efforts.

ProZorro and reconstruction

Unlike in most contexts of post-conflict reconstruction, where reconstruction begins after there is some semblance of peace, Ukraine’s reconstruction began during the full-scale invasion. The Ukrainian government, as well as the OECD, have been active in the further strengthening of procurement as part of reconstruction. Vasyl Zadvorny, Chief Executive Officer (CEO) of ProZorro, notes the significance of procurement reform:

The reconstruction of Ukraine, which has been suffering enormous human and material losses due to Russian aggression, will require huge resources. But the decisive factor of success will be not only money, but also trust. The trust of our international partners, the trust of the private sector and investors, and above all, the trust of the Ukrainian people in how this money is spent. The use of advanced electronic systems built on open data will ensure transparency and accountability of the state at all stages of the country’s recovery.

One way procurement reforms prior to the full-scale invasion influence prospects for reconstruction is by providing more resources to spend on improvements to infrastructure and other collective goods. Of course, damage caused by Russia is much greater than any savings. What may be more significant, though challenging to quantify, is how previous procurement reforms have contributed to a culture of fighting corruption. Some evidence of this culture is that there is recognition that there are aspects of reconstruction, especially spending on housing and roads, that should be within ProZorro because those areas are especially prone to corruption. Zadvorny suggests that there is a consensus on what is needed for successful reconstruction: a focus on meeting the state’s needs; adopting efficiency measures, such as registering qualified suppliers in various fields; evaluating suppliers not only on prices but also on inclusiveness and promise for job creation; maximizing procurement flexibility by adapting ProZorro, especially when considering international organizations and donors, with their own rules for contracting; developing public–private partnerships to enable suppliers’ associations to work more closely with the state; and the transparency and standardization of data.

Since Zadvorny is CEO of ProZorro, there is a direct link from previous open-government reforms to the country’s approach to reconstruction. A significant innovation is the DREAM project. DREAM is a state electronic ecosystem that will provide a single digital route for all reconstruction projects and will collect all project data online, display these data in the form of user-friendly tables, graphs, and charts, and ensure the publication of open data in accordance with the global Open Contracting Data Standard. DREAM was initiated in 2022 by the Ministry for Communities, Territories and Infrastructure Development together with the Agency for Restoration and the RISE Ukraine coalition of nongovernmental organization (NGOs), including TIU. The DREAM ecosystem, like ProZorro,
also a result of government and business working with civil society. RISE Ukraine is a coalition of Ukrainian organizations and international partners that was launched at the Lugano Ukraine Recovery Conference in 2023 to promote “a vision of integrity, sustainability and efficiency for the country’s reconstruction.” The coalition brings together more than 20 Ukrainian and international NGOs with a shared purpose of open government and anticorruption reform, and it has support from key Ukrainian government agencies. Thus, the coalition brings together civil society and civic tech communities, along with the government and NGOs. The pilot was launched in March 2023, and communities and central authorities have already submitted over 6,000 projects and ideas. The influence of ProZorro is apparent. According to Oleksandra Azarkhina, Deputy Minister for Communities, Territories and Infrastructure Development:

We are following the experience of implementing successful public digital solutions such as ProZorro and ProZorro.Sale, when civil society representatives with the support of international partners developed electronic systems at the request of government agencies. After the launch, the systems were transferred to the state's balance in the form of a state-owned enterprise. At the same time, the state does not spend a single kopeck of budget funds on the creation of the system.

The DREAM ecosystem integrates ProZorro and other available e-procurement systems into a single system, offering an integrated digital route for recovery and reconstruction projects. Since it is also transparent, domestic and international partners can monitor projects they choose to finance, as can citizens. Hence, it aligns with the principle that everyone sees everything.

Comparative political economy of procurement

One way to gain more insight into the impact of procurement reforms is through comparisons. Although the two contexts are much different, Afghanistan is useful to consider. The massive state-building effort in Afghanistan led to equally massive corruption (Tierney, 2010). In 2021, the government essentially fled the country in response to Taliban advances. The military was well trained, but without a government in place, the military had no reasonable choice but to give up.

One of the challenges in Afghanistan was the lack of a robust framework to control corruption once state-building collapsed (Murtazashvili, 2022). It was not for lack of effort, as the Special Inspector General for Afghanistan Reconstruction (SIGAR) was deeply involved in efforts to control corruption. Despite this, a challenge in Afghanistan was that there was much more emphasis on holding elections than on addressing the institutional sources of corruption. In large measure, this was a challenge because in Afghanistan, the structures from the communist era, which were highly centralized and especially prone to corruption, remained in place once state-building commenced in 2001 (Murtazashvili and Murtazashvili, 2019). The international community then leveraged these structures, largely keeping them intact. This created an institutional amplification effect, as foreign aid reinforced wealth-destroying structures (Murtazashvili and Murtazashvili, 2020). Perhaps most importantly, Ukraine had a robust framework for corruption control and some success...
in controlling corruption before the war and concurrent reconstruction. This is an advantage that Afghanistan did not have.

While a comparative analysis of reconstruction in Ukraine and Afghanistan is left for future research, we offer an example of leadership accountability that suggests there is something to the notion that there are very different institutional environments for reconstruction in Ukraine and Afghanistan. While much remains to be seen with the course of the war and reconstruction in Ukraine, the presence of preexisting reforms to procurement offers some insight into why there have not been extensive examples of corruption in Ukraine’s war effort. The previous reforms to public sector procurement are helping ensure international assistance is translating into the provision of the public good of collective defense. There has also been control of corruption when it involves high-level officials. In January 2023, Defense Minister Oleksii Reznikov came under fire for corruption in procurement (and was ultimately dismissed from his position in September 2023). Issues include ongoing challenges with oligarchs, among other things. In response, Reznikov claimed that disclosure could undermine security, even disclosing where and how meals were purchased. In response, Zelenskyy asked for and received resignations, as well as authorized probes into corruption, despite Reznikov’s impressive military and strategic leadership of Ukraine’s forces as they responded to Russia’s full-scale invasion. Even if everyone was not watching because procurement requirements were relaxed, someone was still watching. That aspect of accountability was largely missing from Afghanistan and, to an extent, suggests optimism for Ukraine’s reconstruction.

**Thinks tanks and limited government**

Procurement reform is not the only way to address the challenge of ongoing collective action to constrain government from predation. Here, we briefly note think tanks as a complementary way to monitor government. As noted, Weingast’s (1997) theory of the rule of law sees constitutions as a way to coordinate citizens on the limits of government. Even with a public constitution that declares rights—and, hence, offers a focal point for coordination when government transgresses rights—citizens require information about what the state is doing on an ongoing basis. For example, even though there is a Bill of Rights in the US Constitution, citizens still require some way to acquire information about what the government is doing. Think tanks can provide information about regulations and institutions that encourage wealth creation (Leeson et al, 2012), as well as increase support for economic freedom, including markets and private property rights (Powell and Ryan, 2017).

This is especially significant considering public information can be contested and publicly audited for state capability and the provision of public goods (Cowen and Schliesser, 2023). For information from think tanks about government to be credible, they should be, to an extent, independent from government. This is a challenge because the state may sometimes try to influence or co-opt think tanks, in which case they do not provide credible information about the behavior of government. Thus, the presence of politically independent think tanks is expected to contribute to improvements in the ability to monitor government.

VoxUkraine, an independent think tank, is one such institution that provides Ukrainians with credible information about all aspects of policy reform in government.
Although not specifically an organization devoted to procurement, it was able to develop a system to monitor the procurement system. A question is why people believed it. One reason is that is emerged as independent of the government.

VoxUkraine has also been remarkably active during the war. This includes information and writing about the experience of war. VoxUkraine’s Reform Index, led by Kseniia Alekankina, has remained active throughout the war. Alekankina and her team have continued to offer independent assessments of government policies during the war, including analyses of decisions about open government. In January 2023, for example, there were only two reforms, which was acknowledged as somewhat of a “pause” in reform. These include analyses of policies that govern democracy and the rule of law. Considering the challenge of democratic backsliding in many advanced democracies (Levitsky and Ziblatt, 2018), the presence of independent think tanks to comment on specific policies is critical to ensuring citizens have information to coordinate in response to transgressions of their rights and liberties. Others have considered alerts and how they save lives (Van Dijck et al., 2023). However, there is a more general issue of information that is addressed by think tanks, with analysis of them being a future area for research.

Conclusion

For many, Ukraine’s defense against Russia was a puzzle because Russia had a much larger conventional military force. Ukraine’s ability to withstand Russia is less surprising considering the extensive reforms before the war. Economic reforms, improvements in criminal justice, and procurement reforms provide a foundation for prosperity and trust in government.

Our specific focus has been on procurement reforms and the way in which such reforms complement revolutions by constraining government predation. Revolutions are important for limiting government predation, but predation is an ongoing concern. Reforms that enable people to watch the watchers are necessary to control public officials, even after significant constitutional reforms. Reforms to public procurement serve a function akin to constitutional constraints on government, but they differ in that they address the day-to-day opportunities presented for government to engage in corruption and graft.

Reforms like ProZorro are especially significant given the tremendous costs of the Russo-Ukraine War. Researchers from the Kyiv School of Economics estimated that in the first year after Russia’s full-scale invasion, direct damage to Ukrainian infrastructure reached nearly US$150 billion and that total losses to Ukraine’s economy currently stand at around US$600 billion. It is not clear when Russia will admit it cannot defeat Ukraine, so these losses will continue. The losses give an idea of the scale of reconstruction. This also offers insight into the importance of corruption control, given the massive project already under way.

The story of the Russo-Ukraine War is still being written. Procurement reforms are complementary to many other features of Ukraine’s political, economic, and social institutions that have contributed to the remarkable response to Russia’s aggression. Onuch and Hale (2022) argue that Volodymyr Zelenskyy’s ability to mobilize support, both from citizens and internationally, is critical to understanding Ukrainian resistance. What we have shown is that Ukraine’s civil society, its civil tech
community, and the coalitions of business, government, and the Ukrainian people dedicated to procurement reform continue to contribute to Ukraine’s successful defense against the existential threat Russia poses for Ukraine, as well as offering insight into why Ukrainians have been able to implement reconstruction even as a devastating war continues. Ukraine’s open government initiatives provide lessons for how countries can win wars and win reconstruction.

Notes
1 For data on public procurement, see: www.oecd.org/gov/public-procurement/.
2 Constitutions influence how societies respond to crises and may constrain expansion of predation (Coyne, 2011). However, even in a well-designed constitutional order, there are opportunities to predation in times of crisis and in normal times.
3 Some emphasis is placed on the Islamic world (Vahabi, 2023), as well as on medieval developments in limited government (Young, 2018; Pavlik and Young, 2021).
5 For a discussion of ProZorro, see: https://ProZorro.gov.ua/en.
7 See: https://ti-ukraine.org/en/about/.
9 There have been other innovations in Ukraine, including blockchain-based systems to monitor procurement. Previous analysis suggests that the ProZorro system is easier to implement than blockchain-based procurement systems (Bustamante et al, 2022).
10 See: http://imorevox.org/about/.
18 The public module of the ecosystem is available at: https://dream.gov.ua/.
The extent of backsliding is described in the 2023 Varieties of Democracy (V-Dem) report, available at: https://v-dem.net/.


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