

COMPETITION AND CORRUPTION: HOW THE LEVEL OF COMPETITION AFFECTS CORRUPT PRACTICES IN PUBLIC PROCUREMENT

DAVID HOVHANNISYAN , TATEVIK HOVHANNISYAN *
Competition Protection Commission Republic of Armenia

Abstract. Public procurement plays a crucial role in ensuring effective governance and economic growth, encompassing processes through which governmental entities acquire goods, services, and works. Public procurement has a significant impact on the provision of public services and stimulates economic development. In many countries, public procurement represents a notable portion of government expenditure, often accounting for 15-20% of GDP. The dynamics of public procurement directly affect market behavior, set industry standards, and can promote innovation. Establishing a competitive environment is crucial for enhancing transparency and accountability in procurement processes, which ultimately leads to more efficient use of public funds. Moreover, fostering competition can mitigate anti-competitive practices and reduce the risk of corruption, which is often exacerbated by non-transparent procurement systems. This article employs a qualitative analysis, utilizing insights from public choice theory and examining case studies from Estonia, South Korea, and Armenia to explore the interplay between competition levels in public procurement and the prevalence of anti-competitive behavior and corruption. It emphasizes the importance of institutional frameworks that support competition and transparency to combat corruption and improve public procurement efficacy.

Key words: *Public procurement, anti-competitive behavior, governance, economic development, competition, corruption, transparency, public choice theory, institutional frameworks.*

Introduction

Public procurement plays a pivotal role in the public administration system and the general economy. In particular, public procurement includes the process of acquiring goods, services and works for the needs of governmental entities which is important not only for ensuring the efficient delivery of public services but also for promoting economic development. According to World Bank data for 2017, public procurement represents a significant portion of government expenditure, often comprising 15-20 percent of GDP (OECD, 2017).

* **David Hovhannisyan** – PhD in Economics, Associate Professor, Deputy General Secretary of Competition Protection Commission

E-mail: hdavit@inbox.ru ORCID: <https://orcid.org/0009-0009-9938-0317>

Tatevik Hovhannisyan – Postgraduate Student, Russian-Armenian University, Head of Division of Control on Anticompetitive Agreements and Public Procurement of Department of Competition Control, Competition Protection Commission

E-mail: tatevikhovhannisyan4@gmail.com ORCID: <https://orcid.org/0009-0008-0797-2044>



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Received: 24.04.2025

Revised: 26.04.2025

Accepted: 06.06.2025

© The Author(s) 2025

The economic impact of public procurement is profound, as this process directly influences dynamics of market development, establishes industry benchmarks and can stimulate innovation. In the aforementioned context, ensuring and maintaining a competitive environment in the public procurement process is particularly important, as competition promotes process transparency and accountability, which ultimately leads to the efficient use of public resources.

Moreover, a strong and stable competitive environment can curb anti-competitive behavior within procurement procedures, not only between business entities but also between businesses and governmental agencies, thereby reducing potential corruption risks that often arise in non-transparent procurement processes. Corruption in public procurement is a pervasive issue that undermines the integrity of government processes and diminishes public trust. It manifests itself in various forms, including bribery, bid rigging and favoritism, often leading to the selection of suppliers based on personal connections. Such practices not only distort market competition but also lead to significant negative economic consequences. According to the World Bank's assessment of 2012, corrupt procurement can inflate state expenditures by 20 to 25 percent, resulting in the non-targeted allocation of state resources (World Bank, 2012).

This study aims to examine the relationship between competition levels in public procurement and the prevalence of anti-competitive behavior and corruption. Specifically, it seeks to answer the following research questions:

1. How does the level of competition impact the occurrence of anti-competitive practices in public procurement?
2. What role do institutional frameworks and transparency play in reducing corruption in procurement processes?

This study adopts a comprehensive methodological approach, combining case studies, theoretical exploration, and statistical analysis.

Case Studies: The case studies focus on the public procurement systems in Estonia, South Korea, and Armenia, offering in-depth qualitative insights into how competition and transparency have impacted corruption levels. These case studies draw on official government reports, such as Estonia's Public Procurement Act of 2007, South Korea's KONEPS system reports, and Armenia's e-procurement platform documentation. Additionally, data from national procurement databases and reports from Transparency International were analyzed to assess corruption trends and procurement outcomes.

Theoretical Frameworks: Theoretical frameworks, including public choice theory and institutional economics, are employed to provide a conceptual foundation for understanding the dynamics of competition and corruption in procurement systems. These frameworks are applied to interpret how institutional structures and incentives influence corrupt behaviors, as discussed in works by Arrow (1951) and North (1990).

Statistical Analysis: Statistical data from reputable sources such as the World Bank's Governance Indicators, OECD's Public Procurement Toolbox, and Transparency International's Corruption Perceptions Index (CPI) are analyzed to quantify the relationship between competition and anti-competitive practices. Using descriptive statistics, the study examines trends in procurement participation and corruption incidents across the selected countries.

This mixed-methods approach ensures a robust examination of the topic from both theoretical and empirical perspectives.

The correlation between corruption and competition

This section explores the theoretical foundations and empirical connections between competition and corruption in public procurement. The relationship between these two factors is complex, with competition often viewed as a mechanism for reducing corruption by enhancing transparency, accountability, and the efficiency of procurement processes. Drawing on public choice theory and modern economic perspectives, we examine how competition impacts corruption and how institutional frameworks can either mitigate or exacerbate corrupt behaviors in public procurement systems.

Thus, the theory of public choice provides key insights in the context of understanding the dynamics of corruption and competition in public procurement.

Specifically, public choice theory examines how government decisions are influenced by the interests of various stakeholders, including politicians, bureaucrats, and interest groups. It suggests that government failures can occur when these actors prioritize their personal interests, which often leads to inefficiency and corruption.

In the context of public procurement, the aforementioned entities may be involved in corrupt transactions, such as awarding contracts to privileged or selected suppliers to secure personal benefits. Such behavior, as already mentioned, distorts competition and leads to improper and inappropriate allocation of resources.

1. Existing studies on the relationship between competition and corruption in public procurement provide important insights for understanding these dynamics. To start with, Kenneth Arrow's work "Social Choice and Individual Values" lays the foundation for an in-depth analysis of decision-making processes in competitive environments. Arrow provides an intricate discussion about the complexities of aggregating individual preferences into collective decision-making, emphasizing that information asymmetries can lead to suboptimal outcomes (Arrow, K. J., 1951, 9-11).

The aforementioned is particularly significant in the context of public procurement, where a wide variety of stakeholders with different motives and interests often participate in the selection of suppliers. That is, increased transparency and competition can facilitate more efficient decision-making and reduce the opportunities for corruption. Therefore, the establishment of effective public procurement systems implies the reduction of information asymmetries and the promotion of competitive practices, which can improve the quality and efficiency of public service delivery.

Thus, establishing an institutional system through ensuring a competitive environment plays a major role in the reduction of potential corruption risks within the framework of public procurement, within which the following mechanisms are applicable.

- **Increasing competition:** Expanding the number of potential participants in public procurement can reduce the likelihood of favoritism and collusion, as having a larger number of participants makes it more difficult for specific individuals or business entities to influence the procurement process and related decision-making. In this case, it becomes more difficult for the organization to influence the decision-makers.
- **Transparency:** The publication of documents and results in open sources, which were compiled within the framework of procurement processes, allows for public control.

- **Standardization of criteria:** Bidding processes usually include standardized evaluation criteria that can ensure the assessment of the potential participants' applications on the basis of equal conditions and the same principle, focusing on their qualifications and price.
- **Reporting mechanisms:** Within the framework of procurement process monitoring accountability measures such as audits and performance reviews are also applied, which, in fact, contribute to the prevention of corrupt behavior. Such control mechanisms are alternative methods of deterring the involvement of stakeholders in corrupt activities.
- **Prevention of anti-competitive actions:** Within the framework of procurement processes, a healthy competitive environment can prevent the conclusion of anti-competitive agreements among potential participants, since the presence of numerous competitors and the likelihood of signing contracts with the most competitive offers significantly impact the effectiveness and expediency of reaching an agreement within specific participants.
- **Reputation and trust management:** Within the framework of competitive procurement procedures, companies submitting bids must maintain their reputation, as potential negative publications about corrupt actions could lead to long-term distrust of the business entity and potential losses. Consequently, the likelihood of negative reputational impact can encourage potential participants to adhere to ethical behavior and business environment regulations (Bhatia, A., & Dhanani, A., 2021, 78-95).

Expanding on the traditional public choice framework, modern New Institutional Economics (NIE) emphasizes the role of institutional structures in shaping the behavior of government actors. Douglass North suggests that the institutional environment—comprising laws, regulations, and governance structures—can either encourage or constrain corrupt behaviors. When procurement systems lack transparency and accountability, they create opportunities for corruption, making it essential for competitive environments to be institutionalized to mitigate these risks (North DC, 1990, 65-80).

Moreover, insights from Principal-Agent Theory suggest that the relationship between government officials (agents) and private contractors (principals) can be fraught with agency problems. Jensen and Meckling highlight that asymmetries in information and diverging incentives between principals and agents often result in moral hazards, where agents may prioritize personal gain over the public good. In procurement, this can manifest in the form of favoritism or kickbacks, further exacerbating corruption (Jensen, M. C., & Meckling, W. H., 1976, 305-360).

Thus, by integrating both classical public choice theory and more contemporary institutional and behavioral insights, the article can provide a more nuanced understanding of how competition and corruption interact within public procurement systems. Effective procurement requires not only reducing the opportunity for corrupt behavior but also ensuring that the institutional frameworks are in place to foster a competitive and transparent environment.

That is, within the context of public procurement, ensuring competition is an important tool aimed at strengthening integrity and accountability in concluding public contracts. The formation of an institutional system within this framework, in turn, promotes competition and transparency, effectively curbing corrupt practices.

It should also be noted that a comparative analysis of public procurement systems in different countries has shown a strong correlation between higher levels of competition and lower incidences of corruption (Smith, J., 2022, 112-130). Building on this foundation, research by the European Organization for Economic Cooperation proves that procurement procedures conducted with transparent tender processes and the involvement of a large number of suppliers are associated with lower levels of corruption.

Thus, international experience shows that the implementation of electronic procurement systems and the creation of independent control bodies in the framework of public procurement significantly reduce the possibility of corruption.

At the same time, it should be noted that there are certain gaps in the research on competition and corruption in the field of public procurement. In particular, most studies refer to the study of systems in specific regions or countries, but there is no generalized approach regarding the implementation of equivalent electronic tools and control mechanisms (Khashchyan, A., & Hovhannisyan, T., 2022, 45-67).

Thus, by digitizing the procurement process, the state significantly reduces the possibilities for corrupt practices and ensures competition to the fullest extent possible, since all stages of procurement processes are made accessible to the public. Moreover, the presence of the electronic system of public procurement enables real-time monitoring of procurement processes, allowing civil society organizations and citizens to monitor the procurement process. This transparency leads to increased public awareness and engagement, encouraging more suppliers to participate in bidding processes.

Thus, as a result of the abovementioned, the number of participants in purchasing procedures increases, which in turn leads to a more competitive price and quality improvement for the necessary products, works and services (OECD, 2008).

Moreover, by promoting competition and expanding the range of participants, it becomes possible to manage corruption risks as well, since there is typically a correlation between the number of participants in the competition and corruption incidents within that framework.

Some scholars argue that competition is not a universal solution to corruption in public procurement. For instance, high bidder numbers might conceal sophisticated bid rigging or cartels, as observed in certain OECD countries where firms collude to fix prices or rotate wins despite open tenders (OECD, 2008). This suggests that competition's surface-level benefits can be undermined by coordinated anti-competitive behavior, particularly in markets with entrenched oligopolies.

Similarly, in settings with weak institutions, introducing intense competition may overwhelm limited oversight capacities, creating opportunities for corruption through unmonitored loopholes or overburdened regulatory bodies. For example, in some developing nations, rapid increases in procurement participants have led to chaotic tender processes, enabling bribery or favoritism to persist unchecked. Additionally, cultural norms that prioritize personal networks over merit-based systems can resist competitive reforms, sustaining favoritism even in transparent frameworks, as seen in regions where loyalty to kinship or political ties trumps formal rules (Lambsdorff, 2007).

However, while these critiques highlight real challenges in specific contexts, they do not negate the article's central premise. Evidence from case studies in Estonia and South Korea demonstrates competition's broader efficacy. These successes underscore that,

when paired with strong institutional frameworks such as digitized processes, independent audits, and enforceable regulations, competition consistently curbs corruption more effectively than it enables it. Thus, while exceptions exist, the weight of empirical and theoretical support favors competition as a critical tool for enhancing procurement integrity.

The aforementioned arguments are evidenced by the initiatives implemented in the field of public procurement in Estonia and South Korea, which have effectively strengthened competition and reduced corruption in public procurement systems.

Thus, in 2007, Estonia introduced an e-procurement platform – an online system designed to simplify the procurement process, which played a significant role in reducing corruption in public procurement. Prior to this, procurement practices were often opaque, and there were concerns about bribery and favoritism. The Public Procurement Act of 2007 required all procurement to be conducted through a centralized e-procurement portal, which made all stages of the procurement process visible to the public and ensured accountability.

The purpose of platform integration is to increase transparency within public procurement, expand the number of participants, and reduce opportunities for corrupt practices. The electronic system includes standardized and digitized processes, as well as the possibility of real-time monitoring of purchases.

In addition, the Estonian system has some important features that differ from the Armenian procurement system model and can be effectively applied within the framework of the electronic procurement system in Armenia.

One of the important features of the Estonian system is the provision of feedback to participants, which enables continuous improvement in the public procurement system. In particular, participants can share their experiences and suggest improvements, which helps improve procurement processes over time.

At the same time, Estonia uses data analysis to monitor procurement activities and identify repeated patterns or violations. By analyzing public procurement data, the government gains the ability to identify anomalies and patterns that may indicate corruption, allowing proactive measures to be taken.

The digitalization of procurement made it easier to monitor, track, and report procurement activities, reducing opportunities for corruption. Also, the system gained significant public trust by showing clear, verifiable procurement data and providing citizens with the ability to monitor and question procurement decisions.

The research results of studies regarding the above-mentioned system also indicate a significant increase in participation within procurement procedures, while the number of corruption incidents related to procurement decreased by 25%, due to greater transparency and competition (Kasekamp, R., 2020).

A concrete example of how transparency and competition in public procurement can reduce corruption can be seen in Estonia's e-procurement system, particularly during the procurement of large infrastructure projects between 2015 and 2017 (Kattel, R., & Mergel, I., 2016, 261-278). One notable project during this period involved the construction of new public buildings, which required multiple tenders and substantial funding. Through the use of Estonia's e-procurement system, the bidding process was made open to both Estonian and international contractors.

This system facilitated a high level of competition, as many international firms participated in the bidding process, which ultimately led to lower prices and higher-quality contracts. The competitive environment fostered by the e-procurement platform acted as a powerful deterrent to corrupt practices such as bribery, bid rigging, or favoritism—practices that are often prevalent in non-transparent procurement systems.

The e-procurement system's transparency ensured that every stage of the procurement process was visible and auditable, making it extremely difficult for any party to manipulate the system or circumvent the established rules. As a result, there were no opportunities for corrupt transactions between government officials and contractors. Instead, the increased competition led to more efficient use of public funds and a reduction in the risks of corruption that could arise from opaque procurement systems.

This case clearly demonstrates how an institutionalized, transparent, and competitive procurement system can effectively reduce corruption while improving the overall quality and efficiency of public procurement processes.

The Estonian government's success with e-procurement has been widely recognized as a model for other countries seeking to improve procurement transparency and reduce corruption. The system also aligns with EU directives on public procurement, setting a strong foundation for further reforms.

Another strong example of successful public procurement reform is South Korea, particularly with the establishment of the Korea Online Electronic Procurement System (the "KONEPS" system) in 2002, which also aimed to increase the efficiency and integrity of public procurement, as well as to provide a transparent bidding environment and promote competition.

"KONEPS" created a fully digitized and standardized process, providing open access to procurement opportunities for both domestic and international suppliers. This open and competitive environment resulted in a significant increase in competition, with more bidders participating in tenders. By digitizing procurement processes, the system also minimized the opportunities for manipulation or corruption, as the bidding and evaluation processes became more transparent.

The system has one common module, which facilitates the access of potential participants to standardized and digitized processes, as well as to specified and digital evaluation methodology, and also creates the possibility of real-time monitoring of purchases.

At the same time, the aforementioned system also has feedback and data analysis tools; however, one of the specific features of the system is the development of the capacities of government officials.

In particular, training programs are being implemented for government officials involved in the procurement field. These programs focus on ethical procurement practices, compliance with regulations and the effective use of the "KONEPS" system, ensuring that officials are trained to maintain integrity in the procurement process.

Between 2020 and 2022, South Korea recorded a significant improvement in procurement practices, with a 35% increase in competitive bids, attributed to KONEPS' continuous modernization and emphasis on transparency. Furthermore, cases of corruption in public procurement decreased by 40%, reflecting the system's ability to increase oversight, reduce human intervention, and streamline processes, thus minimizing opportunities for bribery or favoritism. A study by South Korea's Public Procurement Service indicated that public satisfaction with the procurement process had also increased, as

more businesses felt that they had a fair chance of participating in bids, regardless of their size or connections (Korea's Public Procurement Service, 2022).

Also, between 2020 and 2022, South Korea recorded a significant improvement in procurement practices, with a 35% increase in competitive bids, attributed to KONEPS' continuous modernization and emphasis on transparency. Furthermore, cases of corruption in public procurement decreased by 40%, reflecting the system's ability to increase oversight, reduce human intervention, and streamline processes, thus minimizing opportunities for bribery or favoritism. A study by South Korea's Public Procurement Service indicated that public satisfaction with the procurement process had also increased, as more businesses felt that they had a fair chance of participating in bids, regardless of their size or connections.

The reforms in KONEPS demonstrate that continuous investment in technology, staff training, and transparency in procurement systems are critical for reducing corruption and promoting a competitive bidding environment. South Korea's experience serves as a useful model for other nations aiming to improve their public procurement processes and combat corruption effectively.

Thus, the systems of both countries have common elements, as well as differentiated approaches to managing corruption risks. While both countries emphasize having a digital and transparent public procurement system, the Estonian system is based on accessibility and public involvement, while South Korea emphasizes rigorous qualifications and formal training. Nevertheless, the approaches of both Estonia and South Korea can be effectively applied within the framework of Armenia's e-procurement system.

Following the examples of Estonia and South Korea, Armenia's public procurement system has made strides toward increasing competition and reducing corruption, yet there are areas where improvements can be made. Established in 2007 as part of a broader effort to modernize the country's public procurement processes and increase transparency, Armenia's system laid the foundation for progress. Armenia's public procurement system is primarily based on an electronic platform, which aims to enhance transparency, competition, and efficiency in the procurement process. While the system has made progress, its journey is incomplete, and e-procurement offers a pathway to further enhance its effectiveness.

E-procurement boosts transparency and competition in public procurement, potentially curbing corruption. Data from Estonia, South Korea, and Armenia illustrates this dynamic (Transparency International, 2024):

- **Estonia:** After adopting e-procurement in 2007, the average number of bidders per tender rose from 2.5 in 2005 to 3.5 in 2018 (Estonian Ministry of Finance, 2019). Concurrently, its Corruption Perceptions Index (CPI) score, as reported by Transparency International, improved from 64 in 2007 to 75 in 2020.
- **South Korea:** The KONEPS e-procurement system averaged 5.2 bidders per tender in 2020 (South Korea's Public Procurement Service, 2021), with its CPI score rising from 51 in 2007 to 61 in 2020.
- **Armenia:** In 2019, Armenia averaged 2.1 bidders per tender (Ministry of Finance of the Republic of Armenia, 2020), and its CPI score increased from 30 in 2007 to 49 in 2020.

These trends suggest that higher competition, facilitated by e-procurement, aligns with lower perceived corruption. However, the CPI's reliance on perceptions rather than

direct corruption measures means it provides an incomplete picture, requiring cautious interpretation.

Armenia's 2007 procurement reform, inspired by the successes of Estonia and South Korea, has shown promise but remains a work in progress. The rise in its CPI score from 30 to 42 over 13 years reflects a positive shift in perceptions of corruption. Yet, with an average of just 2.1 bidders per tender in 2019—compared to Estonia's 3.5 and South Korea's 5.2—Armenia has not fully leveraged e-procurement to maximize competition. This gap indicates untapped potential to further reduce corruption risks.

To strengthen its system, Armenia could focus on practical improvements, such as simplifying its e-procurement platform to attract more bidders. Drawing lessons from Estonia's user-friendly digital infrastructure or South Korea's robust KONEPS system could help. By increasing competition, Armenia can build on its transparency gains and align more closely with global best practices:

1. **Enhanced Training for Government Officials:** In South Korea, continuous training programs for procurement officials are a key element in maintaining integrity in public procurement. Similarly, Armenia could enhance its training programs for officials to ensure they are up-to-date on ethical procurement practices and are effectively complying with regulations.

2. **Advanced Data Analysis and Monitoring Tools:** South Korea's KONEPS system includes sophisticated data analysis and real-time monitoring tools that enhance oversight, allowing for early detection of irregularities. Armenia could integrate similar monitoring mechanisms in its e-procurement system to reduce corruption opportunities and increase accountability.

3. **Increased Stakeholder Engagement:** Estonia's success in promoting active involvement from civil society and private stakeholders in its procurement system has been key to maintaining transparency. Armenia could replicate this model by encouraging greater public participation and providing more avenues for external oversight in the procurement process.

It should be noted that the results of the study once again indicate the correlation between the level of competition and corruption in public procurement. The strong negative correlation between the increase in the number of participants in procurement procedures in different countries and corruption incidents highlights the importance of creating a competitive environment to increase transparency and accountability (Smith, J., 2022, 112-130).

Conclusion

The promotion of competition in public procurement, combined with robust monitoring and accountability mechanisms, is crucial for building a transparent and efficient procurement system. This approach not only strengthens market integrity but also ensures the optimal use of public funds, ultimately contributing to broader economic development.

The key findings suggest that to effectively reduce corruption and enhance competition, Armenia's public procurement system needs a comprehensive set of reforms. These should focus on broadening participation, establishing clear evaluation standards, continuous professional training, improving oversight mechanisms, encouraging public involvement, and regular system evaluations.

Specifically, based on the successes of Estonia and South Korea, Armenia must focus on the following: it is reasonable to claim that in order to effectively increase competition and reduce corruption in the field of public procurement, a multilateral approach is needed, within which, based on the successes of Estonia and South Korea, Armenia can focus on the following priorities are discussed:

1. Expanding the Range of Potential Participants: Broaden the Armenian public procurement system's access by simplifying registration and incentivizing diverse and international bidders, inspired by Estonia's inclusive model.
2. Establishing Clear Evaluation Criteria: Define transparent, sector-specific tender standards focusing on cost and quality, independently reviewed, as in South Korea's KONEPS.
3. Continuous Training for Procurement Specialists: Provide regular ethics and training for officials, leveraging expert partnerships like South Korea's approach.
4. Strengthening Control and Accountability Mechanisms: Enhance oversight with analytics and an independent audit unit enforcing strict penalties, mirroring Estonia's success.
5. Encouraging Public Participation and Feedback: Integrate a public feedback portal into the Armenian public procurement system and share transparency reports, following Estonia's participatory framework.
6. Continuous Evaluation and Reform: Annually evaluate the Armenian public procurement system with a task force driving adaptive reforms, benchmarked against global leaders.

These systemic changes are essential to the development of a sustainable procurement process and are in line with international best practices. Therefore, the implementation of the above proposals will significantly increase competition in the public procurement system of Armenia, thereby reducing corruption and leading to a more reasonable use of public funds and, accordingly, contributing to stable economic development.

References

- OECD Public Procurement for Innovation: Good Practices and Strategies, OECD Public Governance Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/9789264265820-en>, 2017, p. 3.
- Public procurement reform in Latin America and the Caribbean (English). Washington, D.C.: World Bank, <http://documents.worldbank.org/curated/en/371061468229175620/Public-procurement-reform-in-Latin-America-and-the-Caribbean> Group, 2012
- Arrow, K. J. Social Choice and Individual Values. New Haven: Yale University Press, 1951, 9-11
- Bhatia, A., & Dhanani, A. "Fostering Competition in Public Procurement: Insights from Emerging Markets." *Public Procurement Law Review*, 30(2), 2021, 78-95
- Smith, J. "Public Procurement and Corruption: A Comparative Study." *Journal of Economic Perspectives*, 36(4), 2022, 112-130
- North DC. Institutions, Institutional Change and Economic Performance. Cambridge University Press; 1990, 65-80
- Jensen, M. C., & Meckling, W. H. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics*, 3(4), 1976, 305-360.
- Khashchyan, A., & Hovhannisyan, T. "The Impact of E-Procurement on Public Procurement Efficiency in Armenia." *Journal of Public Administration Research and Theory*, 32(1), 2022, 45-67.
- OECD/Asian Development Bank. "Chapter 6 - The role of civil society in curbing corruption in public procurement", in *Fighting Bribery in Public Procurement in Asia and the Pacific*, OECD Publishing, Paris, 2008

- Lambsdorff, J. G. *The Institutional Economics of Corruption and Reform*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511492617>, 2007
- Kasekamp, R. "The Impact of E-Procurement on Competitive Bidding in Estonia." *Journal of Public Administration Research and Theory*, 2020
- Kattel, R., & Mergel, I., Digital Government in Estonia: Building an E-Government Infrastructure for the 21st Century. In *Digital Government: Technology and Public Sector Management*, 2016, 261-278
- Korea's Public Procurement Service. *Annual Report on Public Procurement and Efficiency Measures*. Public Procurement Service, Republic of Korea. <https://u.to/vd4OIQ>. 2022
- Transparency International. *Corruption Perceptions Index*. <https://www.transparency.org/en/cpi/2024/>. 2024
- Estonian Ministry of Finance. *Public Procurement in Estonia: Annual Report 2018*, <https://riigi-hanked.riik.ee/rhr-web/#/>
- South Korea's Public Procurement Service. *Annual Report on Public Procurement 2020 from the Public Procurement Service*. https://u.to/_e4vIg
- Ministry of Finance of the Republic of Armenia, *Public Procurement Report 2019* <https://u.to/7u4vIg>