

Data Analytics for Anti-Corruption in Public Procurement

Instructor: Mihály Fazekas (Central European University, Austria)
Winter Semester 2025/2026
2 US credits (4 ECTS)

1. Course description

Government contracting or public procurement represents about one-third of government spending around the globe. Much of this spending is highly discretionary and complex, making it vulnerable to corruption. The goal of this course is to offer students an introduction into public procurement corruption and data analytics used in this field. It combines data analytics with sound theory and robust evidence to equip students to understand, detect and counter corruption in government contracting.

2. Competences and learning objectives

At the end of this course students will have a thorough understanding of

- What public procurement is, how it is organized and what are the main administrative decisions defining it;
- How corruption takes place in public procurement, including typical schemes, actors, and risk factors;
- Publicly available government tendering and contracting datasets, their strengths and weaknesses and how to test their quality; and
- How to use data analytics for measuring corruption and for designing effective anticorruption interventions.

3. Methodology

The course consists of 12 sessions, one each week. Each session lasts for 100 minutes. Students are expected to read the prescribed course readings and review denoted materials. Based on their preparations, students are encouraged to participate in the in-class discussions. Moreover, students are asked to prepare small assignments and group-work in the class applying theoretical concepts to real-life, practical problems. Depending on student background, students will be given the opportunity to practice their coding skills even though no formal coding is required for passing the course.

4. Prerequisites

There are no specific prerequisites to this course. In general, students should have completed an introductory course in public administration or political science or government or law to be familiar with basic governmental processes and terminology. A solid grasp of statistics and data analysis will aid students in comprehending key concepts of the course.

5. Assessment and evaluation

The following activities will be graded with specific weights for each.

	Percentage
Participation in class discussion and activities	10
In-class group presentations	20
Final presentation of Policy Research Project (group work)	30
Research paper (group work)	40

Students will be divided into groups of 2-3 at the beginning of the course, allowing them to start preparing for the assignments early on. Policy Research Project presentations will take place during sessions 11-12. During the last session, students will be able to articulate their final paper plan and get feedback guiding them. The final paper will be due 2 weeks after the last session, exact date to be confirmed. Papers should be short, about 3000 words, focused on analytical results and follow-up action such as policy reform or further investigation. Groups will be allowed to use one of the online analytics tools for their final papers but students with more advanced quantitative skills can also do more in-depth quantitative analysis using statistical software such as R or Stata.

Class attendance is obligatory. Excused absences must be cleared in advance and/or supported by documentation (e.g. a medical note) e-mailed to the instructors. Unexcused absences require completion of a missed class assignment within one week: a 500-word review of the core reading for that class.

All coursework that you submit during your studies has to be in line with common standards of academic integrity (as outlined [here](#) and [here](#)). You may use AI tools, such as ChatGPT, to support you in achieving the learning goals defined for the course. However, maintaining academic integrity is essential, which is why submitting text generated by an AI is prohibited.

6. Course Schedule

Classes will take place every week on Tuesdays at 15.40-17.20 CET with a one-week fall break in line with CEU academic calendar.

Session 1. Introduction and basic concepts

Introductory readings

Fazekas, Mihály (2025) From transparency to metrics: Measuring corruption in government contracts. U4 blog: See: <https://www.u4.no/blog/from-transparency-to-metrics-measuring-corruption-in-government-contracts>

Session 2. Understanding public procurement

Core readings

Laura Carpineti, Gustavo Piga and Matteo Zanza (2006) The variety of procurement practice. Chapter 2. In Nicola Dimitri, Gustavo Piga, and Giancarlo Spagnolo (2006) Handbook of Procurement. Cambridge University Press, Cambridge, UK.

OECD (2015) The OECD Recommendation on Public Procurement www.oecd.org/gov/public-procurement/OECD-Recommendation-on-Public-Procurement.pdf

Further readings

OECD (2018) Methodology for Assessing Procurement Systems (MAPS). OECD, Paris.

Agreement on Government Procurement, as amended on 30 March 2012 (GPA 2012)
www.wto.org/english/docs_e/legal_e/rev-gpr-94_01_e.pdf

UNCITRAL Model Law on Public Procurement (2014)
<https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/2011-model-law-on-public-procurement-e.pdf>

Session 3. Understanding public procurement corruption and corruption schemes

Core readings

World Bank. (2013) Fraud and Corruption Awareness Handbook. How it Works and What to Look For: A Handbook for Staff. World Bank, Washington DC.

Further readings

OECD (2007) Integrity in Public Procurement. OECD, Paris.

Session 4. Anti-corruption tools in public procurement

Core readings

Fazekas, Mihály, and Jurgen Rene Blum. (2021) Improving Public Procurement Outcomes: Review of Tools and the State of the Evidence Base. Policy Research Working Papers. The World Bank. see: <https://doi.org/10.1596/1813-9450-9690>

Further readings

World Bank (2011) Curbing Fraud, Corruption, and Collusion in the Roads Sector. World Bank, Washington DC.

Poltoratskaya, Viktoriia & Fazekas, Mihály (2024) Data Analytics for Anti-Corruption in Public Procurement. In Sope Williams and Jessica Tillipman (eds.) Routledge Handbook of Public Procurement Corruption. Chapter 4. Routledge.

OECD (2009) Principles of Integrity in Public Procurement. OECD, Paris.

Session 5. Primer on public procurement data

Core readings

Horn, Peter; Czibik, Ágnes; Fazekas, Mihály; and Tóth, B. (2021): [Analyzing Public Procurement Risks: Training manual](#). Budapest: R2G4P / Government Transparency Institute. chapter 2.

Further readings

Cingolani, Luciana; Fazekas, Mihály; Kukutschka, Roberto Martínez B.; Tóth, Bence (2015) [Towards a comprehensive mapping of information on public procurement tendering and its actors across Europe](#). DIGIWHIST, University of Cambridge

Session 6. Working with public procurement data

Core readings

Fazekas, Mihály; Bence, Tóth; Abdou, Aly & Ahmed Al-Shaibani (2024) [Global Contract-level Public Procurement Dataset](#). Data in Brief, 54.

Further readings

Czibik, Á. – Fazekas, M. – Tóth, B. (2015): [How to Construct a Public Procurement Database from Administrative Records?](#) GTI-R/2015:02, Budapest: Government Transparency Institute.

Session 7. Corruption risk indicators in public procurement

Core readings

Horn, Peter; Czibik, Ágnes; Fazekas, Mihály; and Tóth, B. (2021): [Analyzing Public Procurement Risks: Training manual](#). Budapest: R2G4P / Government Transparency Institute. chapters 1 & 3.

Further readings

World Bank. (2013) Fraud and Corruption Awareness Handbook: A Handbook for Civil Servants Involved in Public Procurement. World Bank, Washington DC. See: <http://hdl.handle.net/10986/18153>

Transparency International. (2006). [Handbook for Curbing Corruption in Public Procurement](#). Berlin: Transparency International.

Session 8. Corruption risk indicators in public procurement: Advanced examples

Core readings

Fazekas, Mihály, Luciana Cingolani, & Bence Tóth (2018), [Innovations in Objectively Measuring Corruption in Public Procurement](#). In Helmut K. Anheier, Matthias Haber, and Mark A. Kayser (eds.) Governance Indicators. Approaches, Progress, Promise. Ch. 7. Oxford University Press, Oxford.

Further readings

Fazekas, Mihály, and Kocsis, Gábor, (2020), Uncovering High-Level Corruption: Cross-National Corruption Proxies Using Public Procurement Data. British Journal of Political Science, 50(1).

Sessions 9. In-depth investigations in public procurement

Core readings

Bianca Vaz Mondo (2024) Monitoring Public Contracts. iMonitor Training Manual – Module 2. Government Transparency Institute, Budapest.

Further readings

Piper, Charles E. *Contract and Procurement Fraud Investigation Guidebook*. Taylor & Francis, 2017.

Session 10. Public procurement data analytics

Core readings

Horn, Peter; Czibik, Ágnes; Fazekas, Mihály; and Tóth, B. (2021): [Analyzing Public Procurement Risks: Training manual](#). Budapest: R2G4P / Government Transparency Institute. chapter 4.

Watch the intro video: <https://www.youtube.com/watch?v=V3ZLcl8Ylfs>

Further readings

Oriana Bandiera, Erica Bosio, and Giancarlo Spagnolo (2021) [Procurement in Focus: Rules, Discretion and Emergencies](#). CEPR Press

Serena Cocciolo, Sushmita Samaddar, and Mihaly Fazekas (2023) Government Analytics Using Procurement Data, in Daniel Rogger and Christian Schuster (eds.) The Government Analytics Handbook: Leveraging Data to Strengthen Public Administration. Chapter 12. Washington, DC: World Bank. See: <http://hdl.handle.net/10986/39857>

World Bank (2022) Using Data Analytics in Public Procurement: Operational Options and a Guiding Framework. World Bank, Washington DC.

Analytics portals to be used for analysis

<https://www.procurementintegrity.org/>

<https://opentender.eu/>

Session 11. Group presentations

No readings

Session 12. Group presentations and advanced topics

Core readings

Fazekas, Mihaly; Poltoratskaia, Viktoriia; and Tóth, Bence (2023) [Corruption Risks and State Capture in Bulgarian Public Procurement](#). Policy Research Working Paper: WPS 10444 Washington, D.C.: The World Bank.

Further readings

Abdou, A.; Basdevant, O.; David-Barrett, E. and Fazekas, M. (2022) [Assessing Vulnerabilities to Corruption in Public Procurement and Their Price Impact](#). IMF Working Papers: WP/22/94. Washington, D.C.: IMF.

World Bank (2023) Governance Risk Assessment System (GRAS): Advanced Data Analytics for Detecting Fraud, Corruption, and Collusion in Public Expenditures. World Bank. Washington DC