



Field of doctoral studies: FINANCE

Doctoral supervisor: Ph.D. Professor Gheorghişa DINCĂ

## TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

### TOPIC 1: **Big Data Governance and Public Spending Transparency: Measuring Administrative Efficiency in the Digital State**

Contents / Main aspects to be considered

#### 1. Introduction and Research Motivation

- the context of the digitization of the state;
- the problem of administrative inefficiency;
- open government data;
- the relevance of Big Data in public finance.

#### 2. Theoretical Foundations

- the theory of tax transparency;
- new public management;
- digital governance;
- asymmetry of information in the public sector;
- conceptul de accountability publică.

#### 3. Big Data in Public Administration

- defining big data in the public sector;
- government digital infrastructures;
- data interoperability;
- quality vs quantity of public data;
- AI in administration;
- GovTech;
- cloud governance;
- public sector analytics.

#### 4. Models for measuring administrative efficiency

- administrative KPIs;
- efficiency of public spending;
- budgetary performance indicators;
- DEA (Data Envelopment Analysis);
- stochastic frontier analysis.

#### 5. Open Budget Data and tax transparency

- platforme open spending;
- local budget transparency;
- data accessibility;
- participatory budgeting;
- effects on corruption.

#### 6. Empirical analysis

- Romania vs Central and Eastern Europe;
- analysis by municipalities/ATUs;
- public procurement analysis;
- the correlation between transparency and efficiency.

## 7. Predictive model and public policy implications

- predictive governance;
- early-warning systems;
- digital public finance reform.

## 8. Policy implications and future directions

### CONCLUSIONS

### Recommended bibliography:

- Andrew Guthrie Ferguson *The Rise of Big Data Policing: Surveillance, Race, and the Future of Law Enforcement*, New York University Press, 2017
- Daniel Lathrop și Laurel Ruma (editor coordinator), *Open Government: Collaboration, Transparency, and Participation in Practice*, O'Reilly Media, 2010.
- OECD (2021), *The E-Leaders Handbook on the Governance of Digital Government*, OECD Digital Government Studies, OECD, Publishing, Paris, <https://doi.org/10.1787/ac7f2531-en>
- OCDE (2024), „Indicele OCDE privind guvernarea digitală 2023: Rezultate și principalele constatări”, *Documente de politică de guvernare publică ale OCDE*, nr. 44, Editura OCDE, Paris, <https://doi.org/10.1787/1a89ed5e-en>.
- <https://www.worldbank.org/en/programs/govtech/priority-themes>
- Olarewaju, T. (2026). From secrecy to transparency: Can publicly accessible digital budgets deliver better value? *Global Policy*, 17(2). <https://doi.org/10.1177/23949643261428217>
- Pariso, P., & Marino, A. (2025). Beyond compliance: Evaluating the governance capacity of public digital platforms in sustainable supply chains. *Foresight and STI Governance*, 19(4), 40–50. <https://doi.org/10.17323/fstg.2025.27396>
- Zhang, Y., Liu, H., & Chen, X. (2025). Does public data access improve fiscal transparency? Evidence from government data platform access. *Socio-Economic Planning Sciences*, 102184. <https://doi.org/10.1016/j.seps.2025.102184>
- Papadakis, N., & Athanasiou, K. (2025). Digital governance, democracy and public funding efficiency in the EU-27: Comparative insights with emphasis on Greece. *Information*, 16(9), 795. <https://doi.org/10.3390/info16090795>
- Di Porto, E., Santolini, R., & Vannoni, D. (2026). The effects of digitalization on the functioning of the public sector: Evidence from e-procurement. *Journal of Economic Behavior & Organization*, 246, 107587. <https://doi.org/10.1016/j.jebo.2026.107587>
- Li, Q., Wang, T., & Zhou, H. (2025). Digital budget supervision governance and local government fiscal transparency. *International Review of Economics & Finance*, 104306. <https://doi.org/10.1016/j.iref.2025.104306>
- Lobonț, O. R., Criste, C., Vintilă, A. I., Crăciun, A. F., & Moldovan, N. C. (2025). Assessing digital performance of public services in the EU: E-governance and technology integration. *Systems*, 13(6), 425. <https://doi.org/10.3390/systems13060425>

- Gupta, M., & Pathak, P. (2023). Big data analytics and e-governance: Actors, opportunities, tensions, and applications. *Technological Forecasting and Social Change*, 193, 122612. <https://doi.org/10.1016/j.techfore.2023.122612>

Prerequisites / Remarks: to be adapted/ completed/ deleted

Scientific Doctorate

Professional Doctorate

without tuition fee (state budget funded)

with tuition fee or with funding from other sources than the state budget

## TOPIC 2: **Digital Tax Governance and Revenue Performance: Artificial Intelligence Applications in Modern Fiscal Administration**

Contents / Main aspects to be considered

### 1. Introduction and Research Motivation

- The growing fiscal pressure on governments;
- Tax evasion and the shadow economy;
- Administrative inefficiency in tax collection;
- The digital transformation of tax administrations;
- The emergence of AI-driven public governance.

### 2. Theoretical foundations of digital tax administration

Public finance and fiscal administration theory;  
 Tax compliance theory;  
 Fiscal capacity and state efficiency;  
 Information asymmetry in tax systems;  
 Digital governance and algorithmic administration.

### 3. Artificial intelligence in tax administration

The evolution of digital tax administration;  
 AI applications in fiscal systems;  
 Automation and predictive analytics;  
 Risk assessment systems;  
 Ethical and legal implications of AI in taxation.

### 4. Econometric modeling of tax collection efficiency

Measuring tax collection performance;  
 Quantifying fiscal efficiency;  
 The impact of digitalization on tax revenues;  
 AI adoption and tax compliance.

### 5. Machine learning models for tax evasion detection

Hidden economy patterns;  
 Fraudulent transactions;  
 Predictive tax risk assessment;  
 Early-warning systems for tax fraud.

### 6. Empirical analysis: evidence from european countries

Cross-country differences in digital tax administration;  
 AI implementation and revenue performance;  
 Administrative modernization in emerging economies.

### 7. Policy implications and future directions

Governance risks of AI systems;  
 Algorithmic transparency;  
 Ethical taxation and digital rights;  
 Institutional resistance to digital transformation.

## CONCLUSIONS

- Theoretical contribution to digital public finance literature;
- Econometric evidence on AI and fiscal efficiency;
- Development of predictive fiscal governance models;
- Practical recommendations for tax administrations.

### Recommended bibliography:

- Górski, Ł., Kuźniacki, B., Almada, M. et al. Exploring explainable AI in the tax domain. *Artif Intell Law* 33, 551–579 (2025). <https://doi.org/10.1007/s10506-024-09395-w>
- Martinez, A. L. (2025). Artificial intelligence in tax administration: Enhancing compliance, transparency, and ethical governance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5285760>
- Pamisetty, V. (2025). Leveraging artificial intelligence for strategic decision-making in tax administration and policy design. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5276644>
- Belahouaoui, R., & Alm, J. (2025). Tax fraud detection using artificial intelligence-based technologies: Trends and implications. *Journal of Risk and Financial Management*, 18(9), 502. <https://doi.org/10.3390/jrfm18090502>
- Angelov, A. (2026). Artificial intelligence in European Union tax administrations: A comparative assessment. *Journal of Risk and Financial Management*, 19(4), 295. <https://doi.org/10.3390/jrfm19040295>
- OECD. (2025). AI in tax administration: Governing with artificial intelligence. OECD Publishing. <https://doi.org/10.1787/795de142-en>
- Shaikh, S. (2025). Balancing innovation and oversight: AI in the U.S. Treasury and IRS: A survey. arXiv. <https://arxiv.org/abs/2509.16294>
- Lazebnik, T., & Shami, L. (2025). Investigating tax evasion emergence using dual large language model and deep reinforcement learning powered agent-based simulation. arXiv. <https://arxiv.org/abs/2501.18177>
- Maslej, N., Fattorini, L., Perrault, R., Reuel, A., Brynjolfsson, E., Etchemendy, J., Ligett, K., Lyons, T., Manyika, J., Niebles, J. C., Shoham, Y., Wald, R., & Clark, J. (2024). Artificial intelligence index report 2024. Stanford Institute for Human-Centered Artificial Intelligence. <https://arxiv.org/abs/2405.19522>
- OECD. (2024). Digital transformation of tax administrations. OECD Tax Administration Series. OECD Publishing.

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Doctoral supervisor,  
Prof. Dr. Gheorghiușă DINCĂ

Signature

Coordinator of the field of doctoral studies,  
Prof. Dr. Marius Sorin DINCĂ

Signature