

# SERGIO PELAEZ

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## PROFESSIONAL PROFILE

I am a Research Fellow at the Inter-American Development Bank (IDB) with over 10 years of experience conducting research in science, technology, and innovation policy. I hold a Master's in Economics and a Ph.D. in Public Policy. At the IDB, I study the drivers of business innovation and its impacts using causal inference methods and rich data sources including firm-level administrative records, survey microdata, and synthetic AI-generated datasets we have developed.

I also collaborate on research projects studying emerging technologies at Georgia Tech. This work uses large language models, machine learning, and other AI technologies to extract and analyze unstructured data from patents, research papers, and policy documents. Current projects include analyzing narrative value promises in AI and nanotechnology patent text to examine their role in patent value and technology direction; studying US state policy advisory networks in autonomous vehicles; investigating the implications of corporate dominance in US AI basic research; and evaluating technology transfer policies designed to increase invention disclosure rates.

## EDUCATION

**Ph.D. in Public Policy | Concentration in Science and Technology Policy | Minor in Analytics** GPA: 4.0/4.0 – High Pass Dissertation  
Georgia Institute of Technology, Atlanta, GA, USA Jan 2021 – Jan 2025

Dissertation Title: *"Value Expressions in Patent Text: A New Method and its Applications to Patent Valuation and Direction"*

Advised by Philip Shapira, Diana Hicks, Alan Marco, Juan D Rogers, and Barbara Ribeiro

**M.A. in Economics of Public Policy** GPA: 4.63/5.0  
Universidad del Rosario, Bogota D.C., Colombia Jul 2016 – Apr 2018

Thesis Title: *"Commodities' cycle and fiscal policy under inconsistent preferences"*

Advised by Juan Pablo Zarate and Juan Jose Echavarria

**B.A. in Economics and B.A. in Business** GPA: 4.2/5.0  
Universidad Autonoma de Manizales, Manizales, Colombia Jul 2009 – Jul 2015

## WORK EXPERIENCE

**Inter-American Development Bank (IDB)** Washington D.C.  
Research Fellow Feb 2025 – Present

- Conduct research on innovation policies evaluation using administrative data, micro-data from surveys, and our own created synthetic AI-generated datasets to enhance evidence-based decision making

**Georgia Institute of Technology** Atlanta, GA  
Graduate Research Assistant Jan 2021 – Jan 2025

- Developed a new method to classify complex and abstract social science concepts using frontier large language models, including LLMs and BERT-type models
- Extracted and organized millions of societal impact sentences from patent text, theorizing on their normative and instrumental roles in patent drafting, prosecution, valuation, and direction aided by insights from interviews with inventors, lawyers, and examiners
- Evaluated the network structure and impacts of a National Nanotechnology Coordinated Infrastructure (NNCI) facility

**Inter-American Development Bank (IDB)** Washington D.C.  
Consultant Oct 2019 – Feb 2025

- Awarded research funds after winning two competitive calls for research papers, and subsequently hired to work on two additional papers examining the relationship between firm innovation and market competition, exports, taxation, and industrial policy

**Technopolis Group** Bogota D.C, Colombia  
Consultant Jun 2023 – Jun 2024

- Co-led the development of a successful research proposal to conduct an analysis examining gender gaps in knowledge-intensive business services, and implemented econometric models and authored reports as part of the project

**Department of Economic Development** Manizales, Colombia  
Economic Advisor Mar 2020 – Jan 2021

- Led the design and implementation of an economic reactivation strategy mitigating the impact of the crisis on the local economy and serving as an example for the rest of the country

**World Bank** Bogota D.C., Colombia  
Consultant Apr 2018 – Jul 2020

- Consultant on multiple science, technology, and innovation policy projects, including a public expenditure review, a technology adoption survey, a country private sector diagnostic, and entrepreneurship ecosystem mapping. Designed and conducted semi-structured interviews, performed statistical analyses, and authored reports presented to government officials

## TEACHING EXPERIENCE

**Universidad del Rosario** Bogota D.C, Colombia  
Lecturer January 2017 – June 2020

- Introductory economics (bachelor's course) and macroeconomic policy (master's course)

**Universidad Nacional de Colombia** Manizales, Colombia  
Lecturer June 2015 – June 2016

- Introductory economics (bachelor's course)

## PROFESSIONAL AND PUBLIC SERVICE

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- Journal referee: Research Policy (x6), Economics of Innovation and New Technology (x5), Economia-LACEA (x1), Journal of the Knowledge Economy (x1)
- Georgia Tech: Coordinator of the School of Public Policy's AI discussion group
- External volunteering: Peace volunteer at International Education Peace Volunteers

## HONORS AND AWARDS

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- Received the Outstanding PhD Student Award from Georgia Tech
- Awarded a full PhD scholarship from the Colombian Government and Georgia Tech
- Won the 2017 NASPAA global simulation competition, resulting in a paid internship at the UN World Food Programme in Rome, Italy
- Distinguished as a lead student during undergraduate studies

## SKILLS AND INTERESTS

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- Skills: Python, R, Stata, API integration, LLM prompt engineering, text mining, machine learning, causal inference, computational social networks, interviews, focus groups, qualitative coding, ethnography
- Interests: Reading, meditation, philosophy, science, tennis, hiking, chess
- Languages: Spanish (Native), English (Fluent)

## PUBLICATIONS

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### Peer-reviewed

**Pelaez, S., & Gutiérrez, J. D.** (2025). The Gradual Impact of Sanctioning Cartels on Market Competition. *Journal of Industry, Competition and Trade*, 25(1), 6. <https://doi.org/10.1007/s10842-025-00442-z>

**Pelaez, S., Verma, G., Ribeiro, B., & Shapira, P.** (2024). Large-scale text analysis using generative language models: A case study in discovering public value expressions in AI patents. *Quantitative Science Studies*, 1-26. Available at [https://doi.org/10.1162/qss\\_a\\_00285](https://doi.org/10.1162/qss_a_00285)

**Pelaez, S., Hurtado, B., & Avila-Maecha, J.** (2024). Taxation and innovation: evidence from Colombia. *Economics of Innovation and New Technology*, 33(1), 166-184. Available at <https://doi.org/10.1080/10438599.2022.2145560>

**Pelaez, S., Youtie, J., & Shapira, P.** (2022). Analyzing research outcomes and spillovers at a US nanotechnology user facility. *Journal of Nanoparticle Research*, 24(12), 243. Available at <https://doi.org/10.1007/s11051-022-05601-5>

**Pelaez, S.** (2018). Ciclo de recursos naturales y política fiscal bajo preferencias inconsistentes. *Coyuntura Económica*. 48(1 y 2) Junio-Diciembre, pp. 13-78. Available at <http://hdl.handle.net/11445/3844>

### Preprint/working papers

**Pelaez, S., Verma, G., Ribeiro, B., & Shapira, P.** (2024). Do Societal Promises Influence Patent Value? An Analysis of Inventions in Artificial Intelligence. *R&R at Research Policy* and available at SSRN <http://dx.doi.org/10.2139/ssrn.4873074>

**Pelaez, S., & Hicks, D.** (2024). Are Societal Promises in Science and Technology Substantiated? The Case of Value Expressions in Patents. Available at SSRN <http://dx.doi.org/10.2139/ssrn.4941820>

**Pelaez, S.** (2024). Exporting Knowledge-Intensive Business Services (KIBS): Innovation and Complementary Factors. Available at SSRN <http://dx.doi.org/10.2139/ssrn.4799870>

### Work in progress

**Pelaez, S.** The Fiscal Returns of Industrial Policy.

**Pelaez, S., Walsh, J., Jeongyoon, J., Lee, Y., & Ceccagnoli, M.** Rethinking University Invention Disclosures: Does More Mean Better? Hicks, D., Gupta, N., **Pelaez, S.**, & Kingsley, G. The Structure of State Policy Advisory Networks: Evidence from U.S. Autonomous Vehicle Reports.

**Pelaez, S., Widmaier, K., Sugimoto, C.** Industry Set to Outperform Universities in Basic Research

Cazor, A., Calvo, S., Goni, E., **Pelaez, S.** What Sustains Productivity in Micro, Small and Medium-sized Enterprises (MSMEs)?

Aparicio, G., Gerardino, M. P., Goni, E., **Pelaez, S.**, Rosas, D., Tuesta, H. How effective are business training programs for entrepreneurs of necessity-driven startups? An RCT of Fondoempleo's Entrepreneurship Program