

Carlos Gustavo Ospino Hernández, Ph.D.

Medellín, Colombia · carlos@kappagroup.co · [Google Scholar](#) · [LinkedIn](#) · [Substack](#)

Career summary

I am an applied microeconomist. For more than twelve years I have used data and machine learning to solve public policy problems, above all those involving the labour market. I design and evaluate policy, build econometric models, and apply economic theory to programme evaluation, microsimulation and policy design. I have led research projects, reports and evaluations, and have trained students and research assistants both in academia and in consulting for multilateral development banks.

I have measured the distributional impact of public policy and studied how labour market regulation affects the productivity of firms and workers, using household surveys, firm surveys and administrative microdata. I have also applied econometrics and machine learning to large-scale unstructured data sources — online job vacancies among them — to produce labour market intelligence for firms, workers and governments.

In recent years I have built my own analytical infrastructure. Out of it came TAPIL (Labour Income Poverty Rate) and IGIL (Labour Income Gini Index), two leading indicators that track poverty and inequality in Colombia more frequently than official statistics, and the [Substack](#) channel where I publish their monthly analysis.

Core skills. Econometrics and statistical modelling: ordinary least squares, panel data, machine learning techniques (regression and classification), causal inference. Programming: Python (pandas, scikit-learn), R, SQL, Stata, MATLAB. Working with large datasets: data wrangling, ETL, cloud computing, version control. Applied economic theory: microsimulation, distributional analysis, policy evaluation. Visualisation: Matplotlib, ggplot2.

Relevant experience

Independent analyst (2026 – present)

I designed and built the reproducible data pipelines behind TAPIL and IGIL, two high-frequency leading indicators drawn from GEIH household survey microdata and administrative records. They detect shifts in labour income quality and household vulnerability early, without waiting for the lag of conventional indicators. I publish their analysis on [Substack](#).

World Bank Group (2020 – 2026)

- Led chapters of Poverty and Equity Assessments, Poverty and Welfare Policy Notes, and Poverty and Social Impact Assessments.
- Built the statistical models used to estimate the distributional impact of Bank loans and projects.
- Produced evidence-based policy recommendations to improve programme targeting and effectiveness.
- Analysed the effects of COVID-19 and price shocks on households, and the role of social protection policy, applying machine learning techniques to large survey datasets.

Inter-American Development Bank (2016 – 2020)

- Authored reference reports on Latin American labour markets, grounded in data and empirical methods and aimed at policy decisions.
- Built models to forecast occupational and skills demand from online job vacancy data.
- Advised government agencies on the use of occupational taxonomies and ontologies for labour market analysis.

World Bank (2016)

Commissioned to write the working paper on the relationship between broadband internet adoption and labour demand, published in the Bank's Policy Research Working Paper series.

Fundesarrollo (2008 – 2009) — Legal representative and executive director

I led this economic policy research centre in Colombia's Caribbean region. I expanded its labour economics research line and recruited young researchers from universities across the region.

Fundesarrollo (2006 – 2007)

I coordinated the production of reports on the state of the local labour market and supported research across the foundation's other lines of work.

Teaching experience

- **Teaching assistant**, Advanced Econometrics, Universidad de los Andes (Feb–May 2015 and Jan–May 2013).
- **Teaching assistant**, Econometrics I, Universidad de los Andes (Jul–Nov 2013).
- **Assistant professor**, Universidad del Norte (Aug 2009 – Jun 2011). Undergraduate: Microeconomics II, Industrial Organisation, Labour Economics, Impact Evaluation, Introduction to the Colombian Economy, and Research Seminar. Graduate: Intermediate Microeconomics.

Education

- **Ph.D. in Economics** (2016), Universidad de los Andes, Bogotá.
- **M.A. in Economics** (2005), Universidad de los Andes, Bogotá.
- **B.A. in Economics** (2002), Universidad Tecnológica de Bolívar, Cartagena.

Selected publications

Labour economics and microeconometrics.

- Morales, L. F., Ospino, C. and Amaral, N. (2024). “Online Vacancies and Their Role in Labor Market Performance”. In B. Elsner and S. W. Polachek (eds.), *Big Data Applications in Labor Economics, Part A*, Research in Labor Economics, vol. 52A, pp. 119–159. Emerald Publishing. [DOI](#)
- “The persistent effects of COVID-19 on labour outcomes: evidence from Peru” (2023). *Applied Economics Letters*. [DOI](#)
- “El rol de las habilidades socioemocionales para la productividad en los mercados laborales del siglo XXI” (2019). Inter-American Development Bank. [DOI](#)
- “El futuro del trabajo en América Latina y el Caribe: ¿cuáles son las ocupaciones y las habilidades emergentes más demandadas en la región?” (interactive version, 2019). Inter-American Development Bank. [DOI](#)
- Ospino, C. (2018). *Ocupaciones laborales: clasificaciones, taxonomías y ontologías para los mercados laborales del siglo XXI*. Technical Note IDB-TN-01513, Inter-American Development Bank.
- Amaral, N., Eng, N., Ospino, C., Rucci, G. and Williams, N. (2018). *How Far Can Your Skills Take You*. Technical Note IDB-TN-01501, Inter-American Development Bank.
- “The Effects of Being Subject to the Colombian Apprenticeship Contract on Manufacturing Firm Performance” (2018). Working Paper No. 0230, CEDLAS, Universidad Nacional de La Plata.
- *The future of work: regional perspectives* (2018), chapter 5. African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank (IDB Monograph 605).
- *The effects of apprenticeship contracts on labor demand: theory and empirical applications for Colombia* (2016). Doctoral dissertation, Universidad de los Andes, Bogotá.
- Ospino, C. and Roldán, P. (2010). “Sector informal y políticas públicas en América Latina: Colombia”, pp. 59–67. Konrad Adenauer Stiftung, Rio de Janeiro. ISBN 978-85-7504-147-5.
- Roldán, P. and Ospino, C. (2009). “¿Quiénes terminan en la informalidad? Impacto de las características y el tiempo de búsqueda”. *Revista de Economía del Caribe*, no. 4.

Technical skills and languages

Programming and automation. VS Code and Positron (advanced), Git and GitHub (advanced), Python (advanced), Stata (advanced), R (intermediate), SQL (intermediate), LaTeX (intermediate).

Languages. Spanish (native), English (fluent), French (intermediate), Portuguese (beginner).