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EDUCATION

Western University, Canada.

Ph.D. in Economics (Expected May 2026)

Advisor: David Rivers

Committee members: Salvador Navarro, Tim Conley

El Colegio de México

M.A. in Economics, 2015

Universidad Nacional Autónoma de México

B.A., Economics (*Cum Laude*), 2012

FIELDS OF INTEREST

Empirical Industrial Organization, Applied Econometrics, Networks, Causal Inference

WORKING PAPERS

“Knowledge Spillovers and the Evolution of Productivity” [Job Market Paper]

Spillovers arise due to the non-rival, partially excludable nature of knowledge such that nonperforming firms will benefit from R&D investments from other firms. To measure the magnitude and direction of these spillovers, this paper develops an structural econometric estimator where firm-level productivity evolves endogenously with R&D investments and external (to the firm) knowledge are the drivers of interest. Using an unbalanced Spanish panel dataset of manufacturing firms containing production and R&D information, I propose an original measure of technological closeness across firms by leveraging detailed firm-level data. I also calculate the geographical dimension of spillovers through an exponential decay function. With these two spillover-generating variables formed by external (to the firm) knowledge, I extend the Gandhi et al. (2020) production function estimator and recover the law of motion of firm-level productivity. This procedure allows me to account for uncertainty associated not only to the innovation process but also to capture the degree of applicability or success in implementing knowledge generated outside of the firm. Furthermore, recovering the law of motion allows me to address the heterogeneity of spillovers effects, and the variation across industries, and the heterogeneity across firms within a given industry. Estimates suggest that spillovers have a key role in determining the evolution of firm-level productivity across time and the difference in productivity across firms and time.

“Neighborhood-level Crime Deterrence in Mexico City”

Do surveillance cameras deter crime? This paper addresses this question by analyzing the Participatory Budget (PB) Program in Mexico City and crime rates at the neighborhood level. The PB program allows neighborhoods to choose how to allocate a percentage of public spending on projects proposed by its inhabitants. I focus on neighborhoods

that choose to implement surveillance cameras. I leverage the program’s structure and variation in neighborhood-level expenditures to empirically test whether crime rates in neighborhoods that implement cameras are lower. I initially classify crimes following the FBI’s UCR categories; then I define additional relevant crime categories. I find that the effect of surveillance cameras on crime — that is, the *camera deterrence effect* — is not statistically significant at the neighborhood level for most crimes. For other crimes, the estimated coefficient is positive and statistically significant, contrary to what was expected. I check for robustness and find that when including both the lagged value of the crime rate and quadratic terms of the neighborhood observables in the regression, the *camera deterrence effect* is not statistically significant, with only ‘theft from auto’ and ‘disorderly conduct’ positive and statistically significant. Possible hypotheses for this finding are the limited resources assigned to neighborhoods, the lack of active monitoring, or a possibly suboptimal location chosen for the cameras.

WORKS IN PROGRESS	“ Knowledge Diffusion and Spillover Networks ” (joint with Karthik Kotikalapudi)
NON-ACADEMIC WORK	“ Crude Consequences: Tariffs, Oil Dynamics, GDP and the Exchange Rate ” Ivey Energy Policy and Management Centre Policy Brief, forthcoming.
CONFERENCE PRESENTATIONS	Canadian Economic Association Meeting, Montréal, May 2025 Canadian Economic Association Meeting, Manitoba, June 2023 Applied Micro and Macro Group, Western University, 2021, 2022 Theoretical Pricing of Central Bank Collateral, Deutsche Bundesbank, May 2017
PROFESSIONAL EXPERIENCE	Central Banking Operations Division, Central Bank of Mexico , Mexico <i>Economist</i> October 2015 - August 2018 Investigative Authority, Federal Telecommunications Institute , Mexico <i>Department Head</i> June - September 2015
RESEARCH EXPERIENCE	<i>Research Assistant</i> , Dr. Baxter Robinson, Western University, 2021-2024
TEACHING EXPERIENCE	<i>Primary Instructor</i> - EC2122A Econometrics I, Western University, Fall 2024 - MOS3313B Financial Markets and Institutions, Western University, Winter 2024 - EC2165F Industrial Organization, Western University, Fall 2022, Fall 2023 - EC2151B Intermediate Microeconomic Theory, King’s Univ. College, Winter 2023 - Math Refresher, Master of Financial Economics, Western University, Fall 2024

Teaching Assistant

- ECON1021A Principles of Microeconomics, Western University, Fall 2021
- ECON1022B Principles of Microeconomics, Western University, Winter 2022

FELLOWSHIPS
AND AWARDS

Gervan Fearon Ph.D. Award in Economics. Western University, 2024
Productivity Partnership Grant. Western University, 2022, 2023, 2025
Ph.D. Scholarship, Consejo Nacional de Ciencia y Tecnología. Mexico, 2019 - 2022
Graduate Fellowship. Western University, 2021

OTHER
INFORMATION

Computer Programming
Python, Stata, Julia, Matlab, L^AT_EX, Microsoft Office, SQL.
Languages
Spanish, English, French.

AFFILIATIONS

Canadian Economic Association

REFERENCES

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PLACEMENT
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