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Education

Ph.D. Resource Economics (2018-2022)   February 2023
Committee: (Christian Rojas, Christoph Bauner, Ina Ganguli)
University of Massachusetts, Amherst

Graduate Certificate in Statistical and Computational Data Science   September 2021
University of Massachusetts, Amherst

M.S. Resource Economics (GPA 3.84)   May 2021
University of Massachusetts, Amherst

M.S. Telecommunication Management (GPA 4.0)   May 2000
Oklahoma State University, Stillwater

B.S. Electronics Engineering. Major: Telecommunications   Jun 1996
Army Polytechnic School (ESPE), Quito - Ecuador

Publications

o **Augusto Espin** and Christian Rojas, (2021) ''The Impact of the COVID-19 Pandemic on the Use of Remote Meeting Technologies'', *Economics Bulletin*, Vol. 41 No. 3 pp. 1553-1565

o **Augusto Espin**, "The implementation of the National Data Centre project", Newsletter eLAC No.19. July 2012

Working Papers

o **"Bridging the Digital Divide in the US"**, Augusto Espin. Job Market Paper

Abstract: The internet plays a vital role in everyday life across the world. The US, however, has seen a slowdown in broadband household adoption since 2010, creating a gap between connected and unconnected households usually known as the "digital divide". While prior studies have documented how the digital divide is related to income, demographics and geographic location, this paper takes a different approach and focuses on the mechanisms that could help bridge this digital gap. To this end, we use a two-stage approach. First, we construct a comprehensive and detailed dataset on household internet usage and prices to estimate broadband demand. In a second step, we employ the estimated income-dependent demand elasticities to assess multiple counterfactuals aimed at evaluating a number of public policy initiatives, including those recently approved in the Biden Infrastructure Act. We contrast the effectiveness of the policies on three metrics: a) policy costs, b) reduction of the digital divide, and c) and consumer surplus increase. We find that affordability policies (i.e., subsidies) can have a larger impact on decreasing the gap as well as on increasing consumer surplus vis-à-vis infrastructure deployment policies (i.e., increased coverage or bandwidth).

o **"Do subscribers of mobile networks care about Network Neutrality?"**, Christoph Bauner and Augusto Espin
Submitted for publication to *Information Economics and Policy*.

Abstract: Network neutrality mandates have been made out either as necessary to ensure a level playing field in online markets or, alternatively, as overly restrictive regulation preventing innovation and investment. However, there is little empirical research on the consequences of data throttling, which becomes legal without network neutrality regulations. Previous research has shown that internet service providers are applying policies to slow down the traffic from some content providers. We combine throughput levels measured for mobile ISPs in the United States with usage data to explore how sensitive users are to such practices. We find no evidence that users change their behavior when faced with throttled data rates.

Awards and Fellowships

Data Science for Common Good Fellow. (May 2020)

University of Massachusetts, Amherst. Center for Data Science of the College of Information and Computer Science. Project to estimate greenhouse emissions associated with guest travel of the Appalachian Mountain Club to reduce or offset its overall net emissions footprint to zero.

Japan International Cooperation Agency (JICA). (Jan 2012)

Awarded fellowship for training on the "Efficient use of terrestrial digital TV to prevent disasters". Tokyo, Japan

Fulbright Scholar. (July 1998)

To complete the M.S. in Telecommunications Management program at Oklahoma State University

Academic Work Experience

Research

Postdoctoral Researcher. University of Massachusetts. Amherst, MA (Jan 2023 to date).

USDA Grant 2022-67023-3640. PI: Dr. Christian Rojas. "Product Reformulation, Consumer Behavior, and Health". I am in charge of processing barcode level datasets for millions of food products sold across thousands of retailers in the US with the purpose of assembling a database that can be used to quantify the extent to which food manufacturers have reformulated products towards healthier versions in the last two decades.

Research Assistant. University of Massachusetts. Amherst, MA

- o   Research Assistant for Prof. Christian Rojas. Research project for USDA. (Summer 2021 & 2022)
- o   Research Assistant for Prof. Christoph Bauner. Find throttling data in tier-1 Internet traffic (Summer 2018)

Research Assistant. Oklahoma State University. Stillwater, USA. (Fall 1999 and Spring 2000)

- o   Developed database for mailing services and computer support procedures for the vending services department.

Research Engineering Intern, 3Com Corporation. Santa Clara, CA (Jun 2000 – Feb 2001)

- o   Implemented IS-IS protocol over IPv6 in the firm's router software.

Teaching

University of Massachusetts. Amherst, MA

Sole Instructor:

ResEcon 102. **Introduction to Resource Economics.** (Summer 2022)

Teaching Assistant:

ResEcon 452. **Industrial Organization.** (Spring 2022 and Spring 2021)
ResEcon 453. **Public Policy in Private Markets.** (Spring 2022 and Fall 2020)
ResEcon 428. **Managerial Economics**. (Fall 2021 and Fall 2020)
ResEcon 701. **Probability Theory and Statistical Inference.** (Fall 2021)
ResEcon 212. **Intro to Statistics for the Social Science.** (Fall 2018, Spring 2019 and Fall 2019)

Content Development:

ResEcon 112. **Computing Foundations to Frontiers.** (Spring 2020)
Developed material for university without walls (UWW).

ESPE (Army Polytechnic School) Quito, Ecuador

Data Communications. (Spring 2002 and Fall 2002)
Instructor.

High Speed Data Networks. (Spring 2001 and Fall 2001)
Instructor.

Industry and Government Work Experience

Independent Consultant. Quito, Ecuador. (Jun 2017 – Jul 2018). Analysis of investment projects for public-private-partnerships in Ecuador. Designed strategy, business plans and other documentation required by the government. Developed tools in Excel and R for decision making support and business analysis.

Ministerio Coordinador de Sectores Estratégicos. Quito, Ecuador

Minister. (Sep 2016 – May 2017). Coordinated and supervised strategic sectors entities (Energy, Mining, Telecommunications, Environment and Water Resources). Led negotiations with several companies interested in investing in government owned companies in the telecommunications and energy sectors. Supervised execution of national interest projects in the sector. Worked with investment banks structuring possible transactions.

Deputy Minister. (Jan 2012 – Sep 2014). Supervised and fostered development of strategic plans in energy (oil & electricity) and water resources aligned to the sectorial policy. Coordinated multidisciplinary teams of government officials, lawyer's firms, and world-known international firms as Worley Parsons, Gaffney & Cline, and Wood Mackenzie for several projects.

Ministerio de Telecomunicaciones y de la Sociedad de la Información. Quito, Ecuador

Minister. (Sep 2014 – Sep 2016). Responsible for leading the information technologies and telecommunications sector. Led negotiations for assignation of additional spectrum to mobile services providers in 2015. Implemented and developed new

policies in accordance with the new laws for the telecom, postal, and civil registry that were approved by the National Assembly. Developed a new national plan to improve the international rankings of the country in information and communications technologies (ICTs). Developed further the "*Infocentros*" project, intended to reduce the digital divide and improve computer literacy. Responsible of managing the crisis in the telecommunications sector in the aftermath of the 8.0 earthquake that affected the country in April 2016.

Deputy Minister. (Apr 2011 – Jan 2012). Responsible for management and policy execution. Led the first revision of the Digital Agenda of the country, *Ecu@dor Digital*. Organized further the "*Infocentros*" and other similar projects following the national digital agenda to improve connectivity. More than 5000 public schools (25% of the country's public schools) were connected to the internet and equipped with computer labs. The "*Infocentros móviles*" program was recognized by ITU as one of the most innovative in the world during the 2013 WSIS projects prizes.

Microsoft. Quito, Ecuador

Public Sector Lead. (Mar 2010 – Apr 2011). Responsible for public sector sales and government relations in Ecuador. Surpassed expected sales goals and successfully established a better collaboration with government. Recipient of a Gold Star Award conferred by the VP for LATAM, Hernan Rincon, for the results achieved in FY11.

Alegro. Quito, Ecuador

Chief Executive Officer. (Oct 2008 – Mar 2010). Managed the third mobile operator in Ecuador. The firm was in a difficult financial situation with an EBITDA margin of almost -40%. After one year, an EBITDA margin of -3% was achieved by executing a plan to improve operations, that included a totally new commercial offer, new procedures for product development and sales and an aggressive cost cutting policy. After all those improvements, its parent company decided to merge with Alegro to integrate the mobile and fixed business.

Strategic Planning Manager. (May 2005 – Mar 2007). Developed the strategic plan for the company in 2005. Participated in the design of strategic initiatives for new products and services and their operational plans. Fielded project management policies under the PMI standards.

SENATEL (Telecommunications Regulator). Quito, Ecuador

Spectrum Manager. (Mar 2007 – Oct 2008, Apr 2003 – May 2005). Responsible for planning and managing the radio frequency spectrum of the country. Developed engineering standard methods for frequency coordination procedures, as well as administrative procedures. Published an updated National Allocation Frequency Plan and established a process to update it regularly. Led the procurement of a modern computerized frequency management system. Part of the team that negotiated spectrum with private mobile providers in 2008. Issued technical regulations for the use of non-licensed spectrum bands, frequency usage tariffs and control of non-ionizing emissions. Part of the Ecuadorian delegation to the ITU WRC (World Radio Conference) in 2003, 2007 and 2011.

ESPE (Army Polytechnic School). Quito, Ecuador

Instructor and Developer. (Feb 2001 – Apr 2003, Jan 1996 – Jul 1998). Taught several courses on data communications, network architecture and network design at the Electronics Engineering department. Worked on projects to develop application tools for spectrum analysis and measurement for government organizations and private firms as part of a research initiative at ESPE. Most of the development was done in C/C++ integrating hardware elements from several well-known providers.

Conferences and Presentations

Relación entre Oferta y Especialización en el uso de servicios modernos de energía en el sector residencial. (Oct 2016)
United Nations Conference HABITAT III. Quito, Ecuador

Desafíos para el Desarrollo digital de América Latina. (Jun 2016)
GSMA Latin America. CLT-2016. Cancún, México

The evolution of e-Government in Ecuador. (Mar 2016)
2016 Third International Conference on e-Democracy & e-Government (ICEDEG). Quito, Ecuador

Del Internet del consumo al internet productivo. (Oct 2015)
Campus Party Ecuador 2015. Quito, Ecuador

IS-IS extensions to support IPv6. (Feb 2001)
First international conference of the IPv6 Forum. Madrid, Spain

Skills

Operating Systems:	Windows, Unix/Linux, MacOS.
Computer Languages:	Python, R, SQL, Matlab, Julia, C/C++. Certificated by France Université Numérique for machine learning in Python with scikit-learn (May 2022).

Software:	QGIS, Latex, Docker, Jupyter Labs, RStudio IDE, GIT, GitHub.
Data Science courses:	Machine Learning, Introduction to Natural Language Processing, Statistical Computing, Distributed systems for data science, Math Statistics II.
Other:	Strong understanding of telecommunications, cloud computing, and IT infrastructure. Understanding of accounting and finance at managerial level. Leadership and negotiation skills and abilities to lead multidisciplinary teams. Strong communication skills.

Languages

Spanish: Native speaker

English: Fluent

References

Academic:

Dr. Christian Rojas, Dissertation Chair and Post-Doc Advisor
rojas@umass.edu

Dr. Christoph Bauner
cbauner@umass.edu

Dr. Bernie Morzuch
morzuch@umass.edu

Industry:

Available upon request