Felipe Miguel Jordán Colzani

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CONTACT INFORMATION

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EMPLOYMENT

Environmental Markets Lab, UC Santa Barbara, Santa Barbara, CA.

Environmental & Natural Resource Economics Postdoctoral Scholar.
Since September 2021.

Universidad de Chile, Santiago, Chile.

Lecturer. 2015-2016.

EDUCATION

Harvard University, Cambridge, USA. 2016-2021.

Doctor of Philosophy in Political Economy and Government.

PRIMARY FIELDS: Development Economics, Political Economy.
SECONDARY FIELDS: Environmental Economics, Economic History.

DISSERTATION: "The Influence of Western Institutions on Indigenous Societies".
Advisors: Rema Hanna (chair), Melissa Dell, Nathan Nunn, Gautam Rao.

Universidad de Chile, Santiago, Chile.

Master in Economics, graduated with maximum distinction, 2012-2014.

Business Engineer with Concentration in Economics, graduated with maximum distinction, 2008-2012.

REFERENCES

Rema Hanna. Jeffrey Cheah Professor of South-East Asia Studies. Kennedy School of Government. Harvard University. e-mail: rema_hanna@ksg.harvard.edu

Melissa Dell. Andrew E. Furer Professor of Economics. Department of Economics. Harvard University. e-mail: melissadell@fas.harvard.edu

Nathan Nunn. Frederic E. Abbe Professor of Economics. Department of Economics. Harvard University. e-mail: nnunn@fas.harvard.edu

Gautam Rao. Associate Professor. Department of Economics. Harvard University. e-mail: grao@fas.harvard.edu

Dan Levy. Senior Lecturer in Public Policy. Kennedy School of Government. Harvard University. e-mail: Dan_Levy@hks.harvard.edu

Robert Heilmayr. Assistant Professor. Department of Environmental Studies. University of California, Santa Barbara. e-mail: rheilmayr@ucsb.edu

Working Papers

National courts, property rights, and the transformation of an indigenous society (Job Market Paper). With Robert Heilmayr. Available at personal website.

> Indigenous lands are increasingly being integrated into national property rights systems, formalizing indigenous families' claims to lands but restricting traditional institutions' authority to enforce property rights. This paper quantifies the long-term impacts that such a reform had on Chile's largest indigenous group, the Mapuche. The early closure of a national court that enforced property rights opened a wedge in access to courts among neighboring reservations that persisted from 1931 to 1979. Better access to courts fueled a dramatic transition from communal to individual ownership of land. Shifts in production practices suggest the security and marketability of property rights improved. Material conditions, schooling, and soil preservation improved; but Mapuche presence fell. Nevertheless, a novel decomposition shows that observed improvements are primarily attributable to changes within the Mapuche population. These results suggest that efficiency gains from individual property titles might come at the cost of reduced indigenous presence.

The persistence of social structure and status in indigenous reservations. Available at SSRN.

> Kinship systems have played a central role in defining individuals' positions within indigenous societies. This paper studies the evolution of the kinship system of Chile's Mapuche people since their forced settlement. The results reveal that patrilineal inheritance, a key component of Mapuche's kinship system, has been significantly eroded. Nevertheless, the status of lineages has persisted across generations: members of lineages whose heads held prominent positions a century ago have a higher relative status today. These results illustrate that status can persist even when key components of the social structure that gave rise to it do not.

The rise of forest plantations in Chile's Mapuche's homeland: Four decades of land cover estimates from a CNN-RNN model and the Landsat program. Available at SSRN.

> This paper documents how policy supporting the expansion of forest plantation has transformed the homeland of the largest indigenous group in Chile, the Mapuche. It presents the first decadal estimates of land cover since 1973 in a region that contains most Mapuche reservations to study how plantation forests have transformed Mapuche's landscape in the past four decades. The proposed CNN-RNN deep learning architecture combines low resolution satellite imagery from the 1970s with modern contemporary satellite imagery to deliver state-of-the-art decadal land-cover maps. The results reveal that plantations sharply increased in the proximity of reservations since 1973. A large share has replaced native vegetation.

Audit threats and wasteful spending by governments: Experimental evidence from Chile. With Eduardo Engel, Andrea Repetto, and Tomás Rau. Under Revision. Available at personal website.

> This paper provides experimental evidence that audit threats from Supreme Audit Institutions (SAIs) deter non-essential and potentially wasteful year-end spending by government agencies. One hundred randomly selected public agencies in Chile received a letter from the head of Chile's SAI two weeks before the end of the fiscal year, with instructions on year-end spending accounting and an audit threat. The

intervention had a significant impact: treated agencies reduced year-end aggregate procurement spending by 33% relative to controls. Purchases of office supplies, safety equipment, personal care products, and paper products largely explain this reduction, a result consistent with wasteful year-end spending. We also find that the decrease in year-end spending was smaller for agencies with at least one top manager appointed by Chile's Civil Service. We rationalize both findings with a simple model where the manager of an agency has an 'empire building' motive.

The diversity we breath: Community diversity and gas leak management in Boston. With Enrico Di Gregorio. Available at personal website.

In this paper, we develop and test a conceptual framework to link diversity in small-scale communities and local resource management, intended as the ability of a community to protect common resources. Diversity could reduce this ability by its adverse impact on the potential for collective action and the extent of individual attachment to the community. Using geocoded data on 1,600 Grade-3 gas leaks in 2016 across Boston and Cambridge, we show that block groups displaying higher degrees of ethno-racial and linguistic fractionalization in the most recent Census and American Community Survey enjoy a lower share of reparations of the local pool of leaks. In particular, the more robust and conservative estimates imply that moving from the 10th to the 90th percentile of the linguistic fractionalization distribution is associated with a decrease in the reparation share by 6.3 percentage points, compared to the baseline average of 3.7%. We address a number of empirical challenges inherent to the spatial nature of our data by estimating models at the leak level and accounting for spatial autocorrelation. Although we are able to confirm, through quantitative and qualitative evidence, that more fractionalized communities appear to be less endowed with social capital and individual attachment, measures of these concepts do not explain away the baseline results. We conclude by discussing possible reasons for this puzzle in the form of alternative mechanisms and other challenges to our approach.

Manuscripts Under Preparation

Deploying satellites and artificial intelligence to measuring living conditions in India. With Adel Daoud, Subhashis Banerjee, Devdatt Dubhashi, Fredrik Johansson, and Makkunda Sharma.

The application of deep learning methods to survey human development in remote areas with satellite imagery at high temporal frequency can significantly enhance our understanding of spatial and temporal patterns in human development. Current applications have focused their efforts in predicting a narrow set of asset-based measurements of human well-being within a limited group of African countries. Here, we leverage georeferenced village-level census data from across 30% of the landmass of India to train a deep-neural network that predicts a 16-dimensional vector representing material conditions from annual composites of Landsat 7 imagery. The trained model is used as a feature extractor to train another network that predicts an even larger set of developmental variables—over 90 variables—included in two rounds of the National Family Health Survey (NFHS) survey. Census data significantly outperforms the current standard in the literature, night-time luminosity data, as a feature extractor for several of these large set of variables. To extend the temporal scope of the models, we suggest a distribution-transformation procedure that estimates outcomes over time and space in India. Overall, the results show that Indian Census data contains rich information to train deep learning models that track human development at an unprecedented geographical and temporal definition.

Environmental varieties of capitalism.

This project explores whether the different types of capitalism identified by the Varieties of Capitalism literature have systematic differences in their overall environmental impact, as measured by the Ecological Footprint Index of Consumption. It finds that the level of net public social expenditure as a fraction of GDP, and particularly the one that is not narrowly targeted toward workers, is significantly associated with lower environmental impacts for any given rate of economic growth in Western OECD countries. This result is consistent with the reported fact that Norther European countries, who have maintained the importance of universal benefits in their Welfare States, outperform other Western OECD countries.

The effect of sustained exposure to air pollution in academic performance: Evidence from Chile. With Raquel Jiménez.

This project studies the impact of sustain exposure to PM2.5 by leveraging individual-level administrative data from a standarized test applied to all school-attending children in Chile several time throughout their lives and annual estimates of average concentrations of PM2.5 obtained from Van Donkelaar et al. (2016). This large administrative data provides statistical power to detect associations that are expected to be quantitative small, but relevant for human capital formation when considering that it affects the entire population. Individual longitudinal data allow us to explicitly take into account the sorting of children in schools in our statistical analysis, an improvement from previous studies that have relied on school-level longitudinal data.

Research Projects

A new database on the condition of forced settlement of the Mapuche people from archival records. Funded by the Millenium Institute for Research in Market Imperfections and Public Policy. **Principal Investigator**. 2020-2021.

Observatory of Poverty—Monitoring progress towards the Sustainable Development Goals using artificial intelligence and satellite images. Google and the Group on Earth Observations provide unlimited license to Google Earth Engine, mentorship, and in-kind technical support. **Named researcher**. 2020-2022.

Observatory of poverty—Harnessing machine intelligence to detect African poverty and inequality from satellite images. Seed money from Chalmers AI Research Centre, Chalmers University of Technology, Sweden. **Named researcher**. 2020.

Poverty traps in Africa. Swedish Research Council for Environment, Agricultural Sciences, and Spatial Planning. **Named researcher**. 2019.

An Approximation to the value of superior fiscal control: The case of the Chilean General Comptroller Office. Project requested and financed by the Chilean General Comptroller Office. **Junior researcher**. 2013-2014.

Seminar and Conference Presentations

The persistence of social structure and status in indigenous reservations.

IESG (Indigenous Economics Study Group) - AERIP (Association for Economic Research of Indigenous Peoples) Brownbag Seminar Series. Virtual Seminar. November 2021.

National courts, property rights, and the transformation of an indigenous society.

University of California Environmental Economics Seminar Series, University of California. California. October 2021.

Guest talk, Universidad de Chile, Facultad de Economía y Negocios. Santiago, Chile. August 2021.

Workshop on Environmental Economics. 2020 Ridge Virtual Forum. Montevideo, Uruguay. December 2020.

Guest talk, Escuela de Gobierno, Universidad Adolfo Ibañez. Santiago, Chile. November 2020.

Jornadas de Historía Económica, Asociación Chilena de Historia Económica, Universidad de Talca. Talca, Chile. November 2020.

Guest talk, Facultad de Economía y Negocios, Universidad de Talca. Santiago, Chile. August 2020.

Occasional Workshop in Environmental and Resource Economics, UC Santa Barbara. Santa Barbara, CA. November 2019.

Guest talk, Centro de Economia Aplicada, Universidad de Chile. Santiago, Chile. October 2019.

Guest talk, Universidad Católica de Temuco. Temuco, Chile. September 2019.

The Workshop in Environmental Economics and Data Science. Portland, OR. March 2019.

Prompt payment of state agencies: The role of public procurement systems.

Annual meeting of the Chilean Economists Association. Santiago, Chile. September 2013.

Review for international journals

Journal of Development Economics.

Review of Economics and Statistics.

Research Awards and Honors

Distinction in Student Teaching, Harvard Kennedy School of Government, 2019.

Warburg Fund, Department of Economics, Harvard University, 2018.

Vichi Norberg-Bohm Fund, Harvard Kennedy School of Government, 2018.

Travel and Research Fund, Department of Economics, Harvard University, 2017.

Best student in class of 2014, Master in Economics, Universidad de Chile.

Best student in class of 2013, Business Engineer, Universidad de Chile.

Chilean Engineers Association recognition to the best student of Universidad de Chile Business Engineer with Concentration in Economics, class of 2013.

Honor Roll (best 1% students of each generation), Business Engineer, Universidad de Chile. 2009-2012.

Scholarships and Fellowships

John H. Coatsworth Latin America History Fellowship, 2019-2020.

CONICYT scholarship for graduate studies, 2013.

Andres Bello scholarship for undergraduate studies, 2008-2012.

Teaching

Harvard Kennedy School of Government, Cambridge, USA. **Teaching Fellow**

Advanced Quantitative Methods II, Professor Dan Levy, Spring 2019.

Advanced Quantitative Methods I, Professor Teddy Svoronos, Fall 2018.

Universidad de Chile, Santiago, Chile. **Lecturer**

Advanced Mathematical Methods (Undergraduate in Economics), 2015-2016.

Macroeconomics II (Undergraduate in Economics), 2015.

Introduction to Macroeconomics (Undergraduate in Economics), 2016.

Professional Experience

Espacio Público Foundation, Santiago, Chile.

Project Manager, April 2014-October 2014.

Fiscalía Nacional Económica, Santiago, Chile.

Research Assistant, July 2012-January 2013.

Professional Internship, December 2011-February 2012.

Additional Training

EO data science training course: Machine learning with Google Earth Engine. November 2020.

CLASlite training program. June 2017

R programming, Johns Hopkins University (Coursera), April 2016.

International workshop on surveys and impact evaluation of public policy, JPAL, April 2013

Press articles	"Hacia un financiamiento justo de la salud: Adiós al tope imponible". With Fabián Duarte. Ciper Chile, May 2015.
	"Farmacias Populares: Solución oportuna pero riesgosa". El Mostrador, November 2015.
Volunteer Work	Teacher at college preparation institution for vulnerable students, El Ayllú, San Joaquin, Chile. 2009-2010.
Software	Python, R, JavaScript, Stata, Matlab, LaTeX, GitHub.
Languages	Spanish (native), English (proficient).