Personal Details

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Education

- PhD student in Economic Geography, London School of Economics and Political Science, 2013-present.

- Master of Arts in Economics, Columbia University, awarded May 22$^{\text{nd}}$ 2013.

- Magíster in Economics, Pontificia Universidad Católica de Chile, 2010.
- Rank **2nd** out of 36

- Diploma of Top Management of Healthcare Facilities and Networks, 2006
- Rank **1st** out of 35

- Diploma of Management of Healthcare Institutions, 2005
- Rank **2nd** out of 38

- Doctor of Medicine, Universidad de Chile, 2004.
- Rank **1st** out of 198

- Licenciate in Medicine, Universidad de Chile, 2001.
- Rank **1st** out of 210

Honors, Awards, & Fellowships

- Becas Chile Scholarship (for a total grant of £100,000) for Outstanding Academic Excellence, Chilean Government. 2011-2016.
- Teaching Fellowship (for a total grant of £50,000) for Outstanding Academic Excellence, Columbia University, 2012-2013.
- Academic Excellence Award in the Magíster in Economics. Pontificia Universidad Católica de Chile, 2010.
- 2nd rank in the class in the Magíster in Economics. Pontificia Universidad Católica de Chile, 2010.
- Academic Excellence Award to the first rank in the class of the Diploma of Top Management of Healthcare Facilities and Networks at the Health Management Institute, Faculty of Economics and Business, Universidad de Chile. 2006
- 1st rank in the class in the Career of Medicine. Universidad de Chile. 2004
- Official Selection in New Journalism Foundation Award (the most prestigious in Ibero-American Press, Nobel Prize Gabriel García Márquez's Foundation), 2003.
- Mahfud Massis's Award of the Chilean Writers Society, 2003.
- Scholarship (for a total grant of £8,000) for being the best student in Medical School, 1996. This award is given to the best student among the 8 careers in the Faculty of Medicine for a given year, i.e. the best grade among 1,500 students.
- Matrícula de Honor Award (for a total grant of £8,000) for outstanding performance in the Chilean Universities Entry Exam (P.A.A.), 1995.
- Eugenio Gellona's Award (for a total grant of £6,000) at the Italian School of Santiago, 1994: Given to the student who has "maintained and exemplar attitude in every aspect of school life at every stage of his school trajectory".
- Top graduating student at the Italian School of Santiago, 1980-1994, graduating with grade 100%, the maximum possible and ever achieved before or after at the school.

Research

Working Papers

- Bird, J., Montebruno, P. and Regan, T. (2016). Slums in Nairobi.
- Montebruno, P. (2016). Surrogacy in the United States: Exploring the effects of legislation and documenting the consequences on marriage, births, out-of-wedlock births and divorce. Submitted as part of my Thesis to the LSE for the degree of PhD in Economic Geography.

- Montebruno, P. (2015). Effect of Chilean school occupations on test scores: The opportunity cost of being a revolutionary. Submitted as part of my Thesis to the LSE for the degree of PhD in Economic Geography.
- Montebruno, P. (2014). School competition and pupil attainment in the Chilean voucher system. Submitted as part of my Thesis to the LSE for the degree of PhD in Economic Geography.
- Montebruno, P. (2010). Political Accountability: the SIMCE's effect in municipal elections in Chile. Published as a Thesis to the Pontifical Catholic University of Chile for the degree of Magíster in Economics.
- Montebruno, P., Lüttges, R. (2009). Counting the Core. What is the maximum number of stable matchings for a Gale and Shapley's community of nxn?
- Montebruno, P. (2009). Asking about Prices. The Chilean Case.

Scientific Software

- Gale Shapley in Matlab.

A set of Matlab programs for implementing the Gale and Shapley algorithm. Including sequence to prove when a matching is stable, to show the blocking coalitions, to find the Benthamite and Rawlsian planner solutions and to generate random preference systems to detect the number of stable matchings. With Renzo Lüttges. (2010)

- The 4x4 Core.

A C program for identifying and counting the number of stable matchings for each of the 24^8 (more than a hundred billion) preference systems. This program was run successfully for a period of 46 days in a cluster of the Astrophysics Computing Resources at Pontificia Universidad Católica de Chile. (2009).

Employment History

Research Assistantship

To Vernon Henderson, Tony Venables and Paul Collier, London School of Economics and Political Science and Oxford University

- Urbanisation in Developing Countries (Africa) (2016)

This major joint research programme on urbanisation in developing economies, with particular reference to Africa, was launched at LSE's Spatial Economics Research Centre and Oxford University's Department of Economics with support from the World Bank. The programme is directed by Professors Vernon Henderson (LSE), Tony Venables and Paul Collier (Oxford). The Spatial Economics Research Centre at LSE has hired me as a Research Assistant in spatial economics to work on the project. The post holder assists Professor Vernon Henderson and post-docs at LSE and Oxford in employing spatial econometric tools to examine urbanisation patterns between and within African cities. Knowledge of statistical methods and packages (in particular STATA) as well as knowledge and training of GIS (ArcGIS) is essential. Coding in spatial programming tools like Python (and R) is also important. The post

holder handles enormous spatial datasets and merges them with other demographic, economic, infrastructure and satellite imagery data. The post holder directs data analysis; prepares reports comprising descriptive statistics and econometric results; performs literature reviews; and assists team-members in searching for and using spatial data. I have contributed now more than 700 hours to this position. At the moment, I am working on a paper about slums in Africa with two co-authors (one an Oxford post-doc) wherein we implement Matt Turner's method to project maps on a grid using a mix of Stata and Python codes in a batch mode. Having the grid implies that any number of different maps are merged so that the user can then answer questions such as what is the X year population in Y year boundaries. In other words, the user can collapse any demographic or census variable by imposing the map boundaries of any year. As boundaries we use the smallest units or Enumeration Areas (EAs) of the 1999 and 2009 Kenyan Census. The grid is set with a resolution of 15 m, 6,860,700 cells or 3,267 columns and 2,100 rows. The method gives a value in each of the 6 million cells for geographic variables introduced to the algorithm by maps (using polygon to raster toolbox). In this way we enrich the spatial variables of the models with a dummy variable for the 3 definitions of slums: IPE slums (Infrastructure Professionals Enterprise – now IPE Global – 2011), CSUD slum (Center for Sustainable Urban Development at Columbia University, 2004) and the KNBS' (Kenya National Bureau of Statistics') 2009 Census definition. I also geo-referenced nearly 200 images of maps done by hand by cartographers during the 1999 Census at the KNBS for Nairobi. Original maps were drafted at the sub location level, and all of the level's constituent EAs were drawn. A sub location had several EAs depending on its population. A digital map of the 1999 EAs was then traced following the EAs' borders as delineated on the geo-referenced original maps using editing tools from ArcGIS. Of special help was the "Trace" tool associated with an OSM road map; this tool made the task more precise and reliable and, last but not least, allowed us to execute it quickly. This digital map has been donated to KNBS. The digital cartography task took nearly 300 hours.

To Paul Cheshire, London School of Economics and Political Science

- Property Millionaires: The Growing Housing Divide (2016)

I was enrolled by Professor Paul Cheshire as a consultancy assistant in Real Estate Finance. He had been commissioned by Santander Mortgages to determine how many houses and which ones would cost more than one million pounds in five and fifteen years' time in the UK. I used the Land Registry dataset for two reasons: first, the dataset includes absolutely all the transactions of England and Wales and hence allowed more credible indices to be built using properties sold more than once; second, the whole distribution of the data could be known, which proved to be the key step to solving the research question: Assuming the densities of future housing prices would have the same shape of our estimation for the actual real-estate market we made a prediction of how many £1M+ houses there will be in London and every UK region in 2020 and 2030. Working with the Land Registry dataset in normal statistical packages proved problematic though, as this is a big, massive dataset, so I had to implement some very advanced data management in Python to make the problem manageable. Professor Cheshire was happy because we came to an answer in record time, and a client worth many thousands of pounds was delighted. Press articles on the report were published in *The Financial Times*, *The Telegraph*, *The Guardian* and more than thirty other national and regional newspapers.

To Charles Palmer, London School of Economics and Political Science

- Farm Business Survey (2014-2015)

My duty was to prepare a dataset from raw data on the UK Farm Business Survey and build a panel of farms identified by the farm number and years. The panel spanned from 1982 to 2013 and was constituted of more than 10

million observations and 31,738 questions. This project demanded fairly advanced data management in Stata which tested all my Stata coding abilities. I documented all the steps to perform the duty with nearly 75 hours of computer processing time and approximately 150 lines of code. This huge data management project helped me to polish my Stata coding skills for hard tasks.

To Francisco Gallego, Pontificia Universidad Católica

- Malapportionment and Economic Development. (2008)

I downloaded electoral data from the official websites of the electoral authority of 14 Latino countries for all the elections in which there were records. My research assistantship helped in the writing of the 2010 paper "Legislative Malapportionment and Institutional Persistence" by Bruhn, Gallego and Onorato. In a note of this paper the authors thank their research assistants "We also thank ...Piero Montebruno... for excellent research assistance".

To James Robinson, Harvard University & Daron Acemoglu, MIT

- Micro Analysis of the Chilean Agrarian Reform. (2007)

I participated as a research assistant in Professors Robinson and Acemoglu's research on the Chilean Land Reform. I compiled land reform files for Stata computing. It was a great honour to collaborate with the authors of "Why Nations Fail?" The outcome of this research contributed to the writing of a paper published in 2014 entitled "Institutions, Human Capital and Development" by Acemoglu, Gallego and Robinson. I am proud to have been part of this groundbreaking research.

To Mónica Kimelman, Universidad de Chile

- Delivery and Secure Attachment (2003-2004)

To Milton de la Fuente, Universidad de Chile

- Annexins and their interactions with membrans (1997-1998)

Teaching Assistantship

Columbia University, Department of Economics

- The Global Economy (W2257)

Sunil K. Gulati (Spring 2013)

- Globalization and its Risks (W4750)

Graciela Chichilnisky (Fall 2012)

I was a teaching assistant to two popular professors at Columbia for the courses Globalization and its Risks (Professor Graciela Chichilnisky, W4750) and The Global Economy (Professor Sunil Gulati, W2257). I taught extra lectures on a weekly basis; graded assignments, wiki discussions, essays and exams; and held office hours. The experience of being under the direct supervision of two leading academics was superb. We had frequent meetings and discussed

my course updates and plans for teaching. Professor Chichilnisky is one of the top environmental economists in the world, and she designed the Kyoto Protocol herself. Professor Gulati is the president of the United States Soccer Federation (USSF) and a member of the FIFA Executive Committee. As a teaching assistant, I loved teaching difficult subjects with simplicity and interacting with my audience. For me, a professor, even a teaching assistant professor, must guide his students toward more efficient thinking, creativity and brainpower. Columbia College's students are well known as the most intense and hardworking educatees among all Ivy League Colleges. Among my students, one was offered a position as an investment banking analyst at Goldman Sachs; another as an operation analyst at Credit Suisse. In my evaluation, 80% of my students said my TA Effectiveness was Very Good or Excellent (with Excellent answers doubling Very Good answers). 83% said my ability as a TA to help clarify course material was Very Good or Excellent (with Excellent answers more than doubling Very Good answers). I earned similar rates in "TA's ability to encourage student participation effectively" (70%), "TA's responsiveness to student questions, opinions and criticisms" (88%), "TA's feedback on assignments and examinations" (72%) and "TA's ability to communicate effectively with students" (61%). Overall, my effectiveness as a TA was 70% Very Good or Excellent and 88% Good, Very Good or Excellent (with half of the answers being Excellent). One of the representative comments written on my evaluation was "I really enjoyed Piero's recitations. Piero is knowledgeable in the subject matter and is willing to share his knowledge with others. He created great prep materials, wrote out slides every single time and went over everything in detail. He used great examples to show how theory is applied in practice and to explain more challenging issues. Thank you".

Pontificia Universidad Católica, Department of Economics

- Environmental Economics (Graduate-level)

Juan-Pablo Montero (PhD Economics MIT)(Spring 2010)

- Industrial Organization

Juan-Pablo Montero (PhD Economics MIT)(Spring 2009)

- Microeconomic

Francisco Gallego (PhD Economics MIT)(Fall 2008)

Universidad de Chile, Medical School

- Honors Teaching Assistanship. Universidad de Chile's Medical School (2003).

This position was created for outstanding Medical School graduates. It consisted in a series of conferences given to younger medical students. It was an excellent possibility to think from a personal point of view over Medicine and medical studies. It was an excellent way to influence younger and future doctors over own fascinating ideas, sincere believes, ethical issues and productive hard work.

On-line publications

- Essential Graphs for Microeconomics (2007)

A teaching resource with more than a hundred graphs illustrating the fundamentals of microeconomics. With Ernesto Fontaine (deceased, 1934-2014. PhD Economics Chicago.)

Other Employment History

- Environmental Manager, Til-Til Municipality. (2004).

My duty was to analyse, evaluate and propose the health care and environmental policy of Til-Til's municipality. In Til-Til, there are various industrial activities that impact the healthcare and environment. For example, the major garbage plant of Santiago (150 thousand tons/month) operates in this locality, and all the sludge from the water treatment of the entire Santiago watershed (300 tons/day) is disposed in the area. I wrote reports on the municipality's official position on any new hazardous environmental activity. In Chile, there is an Environmental Impact Evaluation System which evaluates all projects which may alter the environment. The system is similar to a judicial process: the owner of the project must submit a description, a plan and an outline of mitigation actions for the whole process. My reports were the municipal (local) counterpart of those projects. Many of the projects were valued at over a hundred million dollars. I had to question the developer of each project about any uncertain and potentially hazardous activities of the project. This Q&A process continued until all questions were satisfactorily answered. Then the environmental jury would communicate its decision. For writing my report, I held meetings with the community, explaining the risky new activity, and I used attendees' feedback and opinions to formulate my official questions. My responsibilities also included representing the community and the mayor's opinion in the environmental court. There were meetings with the developers as well. I still remember one massive meeting in a hotel close to the Santiago airport with Aguas Andinas S. A. At that time, the community was deeply disturbed by the environmental conduct of Aguas Andinas S. A. I had to build a bridge between the developer and the community always trying to strengthen the community power in the negotiation while, at the same time, increasing the capacity of the developer to bring a positive impact on the community. I also remember a meeting in Montenegro, a small town in the middle of nowhere where all the sludge of the whole Santiago Region of 5 million people was being disposed. It was a dark and cold night, yet all the inhabitants of Montenegro walked to the school where the meeting was held. They were furious and wanted responses to their environmental queries. Fortunately, I managed to make a deal with them: I reassured them that their questions would be an active part of my report and that, for the very first time, their voice was going to be heard in the environmental court. As the environmental trial progressed I was increasingly proud of the empowerment of this community and also of the healthier and longer-lasting association emerging from two, at the very beginning, opposite forces and seemingly irreconcilable positions. Finally, it was also my duty to prepare an environmental healthcare surveillance plan for the municipality, and I provided advice on environmental land-use planning as well. My work was a full-time voluntary service. As a newly graduated MD, I was happy to give my time to this poor and destitute—but also amazingly friendly and courageous—municipality.

- Project Adviser, Til-Til Electricity Company. (2004).

My job involved evaluating projects exploring energy generation from renewable sources. I was particularly involved in an attempt to implement Toha's method, which produces energy from a plant called *tuna* (Opuntia cacti) that is mainly grown in the area of Til-Til. For this task, I visited Dr. Toha's laboratory in the Faculty of Physical and Mathematical Sciences (Beaucheff) of the University of Chile where some years before Dr. Toha had discovered the potential of *tuna* as an input for an alternative energy generation process. The advantage of this project was that just 64 km away from the laboratory there were huge growers of *tuna*. In addition, the local electricity company was looking for ways to boost its corporate social responsibility; securing a profitable second market for the *tuna* that the poor farmers produced while simultaneously introducing a new Chilean alternative energy generation process proved appealing. Also, I was a direct adviser to the company Manager on a project seeking to update all the street lights which the Til-Til Electricity Company served with new low consumption and environmentally friendly LED street lighting. The project was presented to the central Chilean government and subsequently approved. Hundreds of thousands of bulb were replaced and the municipality saved £500,000, which constituted the Manager and the rest of the team main economic contribution to the commune. This was my first opportunity to deal with project evaluation and

business negotiation, and it significantly developed my entrepreneurship capabilities and potentials. With my eyes now open to this new world of efficient allocation of resources, I decided to pursue graduate-level studies of economics.

- Special Correspondent, *"The Clinic"* Magazine (2001-2003).

This was my most creative job experience, as it gave me the chance to work closely with an intensely creative group of talented Chileans. "The Clinic" has become a trademark for witty and creative journalism, being the most read magazine in Chile with 25,000 weekly copies. My colleagues included Álvaro Díaz and Pedro Peirano, the creators of "31 minutes", the most acclaimed children's programme in Ibero-America. Peirano was also a scriptwriter for "The Nanny" and "No". The latter stars Gabriel García Bernal and became the first Chilean Oscar nominee film. Other colleagues included Rafael Gumucio, one of the most praised young Chilean novelists; Ángel Carcavilla, perhaps the most creative Chilean publicist; Guillermo Hidalgo, my editor and the greatly acclaimed editor of "La Fibra", Telefónica's art magazine; and Patricio Fernández, the man behind "The Clinic". My duty was to perform investigative reporting about special and unusual events. I made health-related investigations into topics such as abortion, genetics and big hospital fires. I also made political -and terror- related investigations ino the Mapuche's (Chilean indigenous people's) battle and old Pinochet guerrilla stories: I was a special correspondent at the 9/11 attacks as well. One of my articles was included in the Official Selection of the New Journalism Foundation Award (Nobel Prize winner Gabriel García Márquez's prestigious self-created institution). My weekly work responsibilities included attending exceptional language and image creative workshops with the persons listed above and editorial meetings where the front cover of the published version of the magazine was decided.

Other activities

- Literacy instructor in poor and rural areas. (2005)

Skills

Languages

- Spanish (native speaker)
- English (excellent command / highly proficient in spoken and written English)
- Italian (excellent command / highly proficient in spoken and written Italian)
- Ancient Greek, Latin, Portuguese, French, Chinese, Mapudungun (basic communication skills / working knowledge)

Computer Skills

Stata (advanced/expert)	ArcGIS (intermediate/advanced)	Gephi (intermediate)
Matlab (intermediate/advanced)	Python/R (intermediate)	C/C++ (intermediate)
LaTeX(advanced)	Photoshop (intermediate/advanced)	DOS/Unix/HTTP (basic)