

# Eduardo Alarcón-Bustamante

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Department of Statistics  
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## Education

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- 2021 PhD in Statistics, Pontificia Universidad Católica de Chile, Santiago, Chile.  
Thesis: *Modelling predictive validity problems: A partial identification approach*.  
Advisor: Ernesto San Martín and Jorge González
- 2012 MSc in Applied Statistics, Universidad de Concepción, Concepción, Chile.
- 2009 Teaching degree in Math and Computer Sciences, Universidad Católica del Maule, Talca, Chile.

## Academic Appointments

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- 2021 Part-Time Lecturer, Department of Statistics, Pontificia Universidad Católica de Chile.
- 2018 – 2021 Teaching Assistant, Department of Statistics, Pontificia Universidad Católica de Chile.
- 2011 – 2016 Part-Time Lecturer, Faculty of Basic Sciences, Universidad Católica del Maule.
- 2012 – 2016 Part-Time Lecturer, Institute of Mathematics and Physics, Universidad de Talca.

## Research Experience

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- Principal Investigator. *Development of Modelling Tools for a Predictive Validity Agenda for University Admissions*. Postdoctoral FONDECYT 3220422 (April, 2022-April, 2025).
- Postdoctoral Researcher. *Millenium Nucleus on Intergenerational Mobility: From modelling to Policy*, MOVI NCS2021072 (Since January, 2022).
- Data Manager and Statistician. *A Multi-center, Randomized, Double-blind, Placebo-controlled Phase III Clinical Trial to Evaluate the Efficacy, Immunogenicity and Safety of Inactivated COVID-19 Vaccine (Vero Cell) in Children and Adolescents Aged 6 months to 17 Years (PRO-nCOV-3002)*. Sinovac Life Sciences Co., Ltd. (2021/07/01 – 2022/12/31).

## Publications

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- [1] San Martín, E., Alarcón-Bustamante, E. (2022) Dissecting Chilean surveys: the case of missing outcomes. *Chilean Journal of Statistics*, 13 (1) 17–46.
- [2] Alarcón-Bustamante, E., San Martín, E. & González, J. (2021). On the marginal effect under partitioned populations: Definition and Interpretation. In Wiberg, M., Molenaar, M., González, J., Böckenholt, U., and Kim, JS. (Eds.), *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society*, Virtual. Springer Proceedings in Mathematics & Statistics. [DOI]

- [3] Alarcón-Bustamante, E., San Martín, E. & González, J. (2020). Predictive validity under partial observability. In Wiberg, M., Molenaar, M., González, J., Böckenholt, U., and Kim, JS. (Eds.), *Quantitative Psychology. IMPS2019. Springer Proceedings in Mathematics & Statistics*, vol 322. Springer, Cham. [DOI]
- [4] Cornejo, J., Tapia, J., Guerra, F., Yáñez, M., Baettig, R., Guajardo, J., Alarcón, E. & Vidal, G. (2017). Variation in Copper Accumulation at the Tissue Level of Five Hybrid Poplars Subjected to Copper Stress. *Water Air and Soil Pollution*, 228:212. [DOI]
- [5] Vásquez, B. & Alarcón, E. (2016) Inclusión en universidades chilenas: del discurso a interacciones prácticas, políticas y culturales. *Pensamiento Educativo. Revista de Investigación Educativa Latinoamericana*, 53(2), 1-19. [DOI]

## Working papers

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- [1] *Influences on the access to higher education: visualization and modeling for Chilean data*. With Bastian Olea-Duran, Francisco A. Segovia, Nixon Jerez-Lillo, and Danilo Alvares (Submitted for review).
- [2] *An inactivated SARS-CoV-2 vaccine is safe and induces humoral and cellular immunity against virus variants in healthy children and adolescents in Chile*. With Soto, J., Melo-González, F., Gutiérrez-Vera, C., et.al (Submitted for review). [Pre-print]
- [3] *Globally assessing the predictive capacity of selection tests in populations partially observed*. With Ernesto San Martín, Jorge González, and David Torres Iribarra.

## Teaching

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### Pontificia Universidad Católica de Chile

#### Graduate level

- Exploratory and Computational Methods for Statistics (I-2019, I-2021), Advanced Statistical Methods III (I-2019), Advanced Statistical Methods II (II-2018). (Teaching Assistant) in *PhD degree, Statistics*.

#### Undergraduate level

- Statistical Software (I-2021), Psychometric (II-2021), in *Statistics program*.
- Statistics and Probability (II-2021), in *Political Science Program*.
- Statistics for Chemistry and Pharmacy (I-2021). In *Pharmaceutical Chemistry program*.
- Introduction to Data Management and Exploration (I-2021), (Computational Laboratory) in *Statistics program*.
- Biostatistics (I-2020), Statistical Methods (II-2019). (Teaching Assistant) in *Statistics program*.

### Universidad de Talca

- Statistics and probability (I-2012 to II-2016) in *Undergraduate level, Civil Engineering*.

- Statistical Analysis (I-2016) in *Undergraduate level, Psychology*.
- Statistical quality control (II-2015, I-2016) in *Undergraduate level, Industrial Civil Engineering*.
- Statistics I (I-2014), Statistics II (I-2014) in *Undergraduate level, Public Accountant and Auditor*.

## Universidad Católica del Maule

### Graduate level

- Data processing and random games (2014, 2015, 2016), Probability Models (2015, 2016) in *MSc degree, Didactic of Mathematics*.
- Biostatistics (II-2015), Advanced Biostatistics (I-2016) in *MSc degree, Nursing*.
- Fundamentals of Statistics (II-2014, 2015) in *MSc degree, Education*.

### Undergraduate level

- Didactic of Statistics (II-2016), Statistics I (II-2016) in *Teaching in Maths and Computer Sciences program*.
- Biostatistics (II-2011, I-2012) in *Nutritionist program*.
- Linear regression analysis (I-2011), Statistics and experimental designs (II-2011) in *Forest Engineering program*.

## Fellowships

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| 2020 | ANID, <i>Doctoral Internship in Umeå University, Sweden</i> . Chilean Government.  |
| 2020 | ANID, <i>Doctoral Internship in Cornell University, USA</i> . Chilean Government.  |
| 2018 | CONICYT, <i>Beca Doctorado Nacional, año 2018</i> . Chilean Government, PhD Scholarship.                                 |
| 2017 | Vicerrectoría de Investigación, Pontificia Universidad Católica de Chile. <i>Teaching Assistant</i> . PhD Scholarship.   |
| 2010 | Graduate School, Universidad de Concepción. <i>Beca de estipendio y Beca de exención de matrícula</i> . MSC Scholarship. |

## Selected oral presentations

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- [1] *A global assessment of the predictive capacity of selection tests in partially observed populations*. International Meeting of the Psychometric Society. July, 2022. Bologna, Italy.
- [2] *Marginal effect in selection tests: A partial identification approach*. (Virtual) International Meeting of the Psychometric Society. July, 2021.

- [3] *Global Marginal Effect: the total effect in partitioned populations*. XXXIII Jornadas de Matemática de la Zona Sur. Abril 20-24, 2021. Universidad de la Frontera, Temuco, Chile.
- [4] Alarcón-Bustamante, E. (2021, Feb) *Predictive Validity Under Partial Observability*. Paper selected for presentation at the International Objective Measurement Workshop (IOMW) Conference, Berkeley, CA. <https://www.iomw.org/>.
- [5] *New Insights on marginal effects*. (Virtual) International Meeting of the Psychometric Society. July, 2020.
- [6] *Partial identification in predictive validity of selection tests*. International Meeting of the Psychometric Society, Santiago, Chile. July, 2019.

## Events Organiser

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- [Ciclo de Coloquios “Ciencia, Política, Políticas Públicas: ¿Qué relaciones?”](#), LIES - UChile. April - October, 2021.
- Symposium *Identification Problems in Empirical Research*, International Meeting of the Psychometric Society, 2021.
- Symposium *Advanced topics in admission university tests*, International Meeting of the Psychometric Society, 2019.

## Academic Relevant Information

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- Associate Researcher to the [Interdisciplinary Laboratory of Social Statistics](#) (LIES), since 2018.
- Secretary of the [Chilean Society of Statistics](#), SOCHE, 2020-2021.
- Member of the Volunteer Team, International Meeting of the Psychometric Society, 2019.

## Skills

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- **Softwares:** R, SQL, SAS, SPSS, Minitab, Excel,  $\LaTeX$ .
- **Languages:** Spanish (native), English (advanced).

Last updated: May, 2022