JORGE MIGUEL VENTURA BRAVO

CURRICULUM VITÆ

MAY 2020

(ABRIDGED VERSION)

1. PERSONAL INFORMATION

Name:	Jorge Miguel Ventura Bravo
Work Address:	Nova University of Lisbon, Information Management School, Campus de Campolide, 1070-312 Lisboa
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	jorge.mbravo@gmail.com
Date of Birth:	December 6, 1974
Citizenship:	Portuguese

2. EDUCATION AND TRAINING

2. 1. ACADEMIC DEGREES

2008   **Ph.D in ECONOMICS, University of Évora**

Ph.D Thesis: "Contemporaneous and Prospective Lifetables: Stochastic Models, Actuarial Applications and Longevity Risk Hedging", May 28, *Summa Cum Laude*

2002   **MASTERS OF SCIENCE (MSc) IN MONETARY AND FINANCIAL ECONOMICS**

Technical University of Lisbon (ISEG-UTL); MSc Thesis: "Interest Rate Risk Models: Hedging and Immunization Strategies", February 20, 2002, *Summa Cum Laude.*

1996   **BSc in Economics**, University of Évora (best student of the year)

3. EMPLOYMENT (Selected Current and Former Positions)

2015 - ...   **Nova University of Lisbon - Information Management School (NOVA IMS)**, Professor of Finance & Economics; Sub-Director of the Master Degree in Statistics and Information Management, Specialization in Risk Analysis and Management, 2nd BEST Master in the World by Eduniversal Ranking 2015-2016

2018 - ...   **Director of the Postgraduate Program in Data Science for Finance**, NOVA IMS, Universidade Nova de Lisboa

2016 - ...   **Director of the Postgraduate Program in Financial Markets and Risks**, NOVA IMS, Universidade Nova de Lisboa

2015 - ...   **Co-Director of the Master Program in Law and Financial Markets**, NOVA IMS & Law School, Universidade Nova de Lisboa

2007 - ...   **Statistics Portugal** (INE Instituto Nacional de Estatística), Scientific Consultant

2013 - ...   **Banco Bilbao Vizcaya Argentaria Pensions Institute**, Member, Experts Forum

2015 - ...   Co-Founder/Member of the Board of the **«Think Thank» CIDADANIA SOCIAL** - Associação para a Intervenção e Reflexão sobre Políticas Sociais, CISO

2009 - ...   **Université Paris-Dauphine**, Paris, Invited Professor

2017 - ...	**Seguradoras Unidas SA, Companhia de Seguros** (Insurance company), Scientific Consultant
2017-2018	**EBFS - Social Benefits Issuers Association, Consultant**
1999-2015	**University of Évora, Department of Economics**, Professor
2010-2015	**Nova University of Lisbon - ISEGI**, Lisbon, Invited Professor
2011-2012	**Technical University of Lisbon - ISEG**, Lisbon, Invited Professor
2013-2014	**Ministry of Finance of PORTUGAL**, Scientific Consultant
2009-2015	**Ministry of Labour and Social Security of PORTUGAL**, Scientific Consultant
2011-2014	**Fidelidade** & **Império-Bonança** (Insurance companies), Scientific Consultant
2011	**Satakunta University of Applied Sciences**, Finland, Visiting Professor
2009	**Università degli Studi di Torino**, Turin, Italy, Visiting Professor
2009-2010	**University Metodista of Angola**, Angola, Invited Professor

4. RESEARCH CENTER AFFILIATIONS

2009 - ...	Coordinator of ORBio - Observatory of Biometric Risks of the Portuguese Life Insured Population, APS - Portuguese Insurers Association
2015 - ...	Integrated Member of MagIC, NOVA Information Management School (NOVA IMS) research and development center, ranked Very Good by External Evaluation Panel (FCT-MCTES)
2013 - ...	Member of the Scientific Experts Forum of Banco Bilbao Vizcaya Argentaria (BBVA) Pensions Institute, Madrid, Spain (2013 – ...).
2006 - ...	Integrated Member of CEFAGE – UE: Center for Advanced Studies in Management and Economics of the University of Évora, ranked Excellent by External Evaluation Panel (FCT-MCTES)
2010 - ...	Member of the Population Issues Working Group (PIWG), International Actuarial Association (IAA), Social Security Committee
2013 - ...	Member of the Mortality Working Group (MWG), International Actuarial Association (IAA), Social Security Committee

5. SELECTED PUBLICATIONS

5.1. REFEREED JOURNALS (SELECTED)

1. Chamboko, R., & Bravo, J. M. (2020). A multi-state approach to modelling intermediate events and multiple mortgage loan outcomes. *Risks,* 8, 1-28, (ISSN 2227-9091), in Press.

2. Ashofteh, A., & Bravo, J. M. (2020). A study on the quality of Novel Coronavirus (Covid-19) official datasets. *Statistical Journal of the IAOS* (Journal of the International Association for Official Statistics), 1-11. https://doi.org/10.3233/SJI-200674.

3. Ayuso, M., Bravo, J. M. & Holzmann, R. (2020). Getting Life Expectancy Estimates Right for Pension Policy: Period versus Cohort Approach. *Journal of Pension Economics and Finance*, 1-20. `doi: doi:10.1017/S1474747220000050;`

4. Bravo, J. M. & Pereira da Silva, C. M. (2006). Immunization Using a Stochastic Process Independent Multifactor Model: The Portuguese Experience. *Journal of Banking and Finance*, 30 (1), 133-156. `http://dx.doi.org/10.1016/j.jbankfin.2005.01.006.`

5. Bravo, J. M., & Coelho, E. (2020). Short-Term Regional Demographic Forecasts with Time Series Methods and Machine Learning Algorithms. Boletim da Sociedade Portuguesa de Estatítica, Primavera. ISSN: 1646-5903. forthcoming.

6. Bravo, J. M. (2019). Funding for Longer Lives: Retirement Wallet and Risk-Sharing Annuities. EKONOMIAZ *Basque Economic Review*, Nº 96 (II-2019), 268–291. ISSN: 0213-3865 (Scopus indexed). `DOI: 21100889706`

    https://www.euskadi.eus/web01-a2reveko/es/k86aEkonomiazWar/ekonomiaz/abrirArticulo?idpubl=92&registro=17

7. Chamboko, R. & Bravo, J. M. (2019). Modelling and forecasting recurrent recovery events on consumer loans. *International Journal of Applied Decision Sciences*, Vol. 12, No. 3, 271-287. `DOI: 10.1504/IJADS.2019.10019811`

8. Chamboko, R. & Bravo, J. M. (2019). Frailty correlated default on retail consumer loans in developing markets. *International Journal of Applied Decision Sciences*, Vol. 12, No. 3, 257–270. `DOI: 10.1504/IJADS.2019.10019807`

9. Bravo, J. M., & El Mekkaoui de Freitas, N. (2018). Valuation of longevity-linked life annuities. *Insurance: Mathematics and Economics*, 78, 212–229. `https://doi.org/10.1016/j.insmatheco.2017.09.009`

10. Ribeiro S., Cabral, P., Henriques R., Bravo, J. M., Rodrigues, T. & Painho, M. (2018). Modelação de crescimento urbano para a distribuição eficaz das forças de segurança. O caso português. PROELIUM *Revista Científica de Segurança Interna*, Série VII, N.º 14, 45-68, Academia Militar.

11. Ayuso, M., Bravo, J. M. & Holzmann, R. (2017). Addressing Longevity Heterogeneity in Pension Scheme Design. *Journal of Finance and Economics*. Volume 6, No. 1 (2017), 1-21. `doi: 10.12735/jfe.v6n1p1`

12. Ayuso, M., Bravo, J. M. & Holzmann, R. (2017). On the Heterogeneity in Longevity among Socioeconomic Groups: Scope, Trends, and Implications for Earnings-Related Pension Schemes. *Global Journal of Human Social Sciences - Economics*, Volume 17 Issue 1 Version 1.0, 31-57. `https://socialscienceresearch.org/index.php/GJHSS/article/view/1961/1899`

13. Chamboko, R., & Bravo, J. M. (2016). On the modelling of prognosis from delinquency to normal performance on retail consumer loans. *Risk Management*, 18(4), 264–287. `https://doi.org/10.1057/s41283-016-0006-4 (https://rdcu.be/5UPo)`

14. Bravo, J. M. (2016). Taxation of Pensions in Portugal: A Semi-Dual Income Tax System. *CESifo DICE Report - Journal for Institutional Comparisons.* 14 (1), 14-23, 1/2016 (Spring), Ifo Institute, Munich.

5.2. BOOKS AND CHAPTERS IN BOOKS (SELECTED)

1. Bravo, J. M. (2020). IDD and Distribution Risk Management. **In: Insurance Distribution Directive – Promises and Reality. AIDA Europe Research Series on Insurance Law and Regulation**. **Springer** (Accepted / In Press).

2. Bravo, J. M. (2020). Reforma do Sistema de Pensões e Consistência Intertemporal da Protecção Social. **In:** A Economia numa Perspectiva Interdisciplinar 2, **Atena Editora**, January (Accepted / In Press).

3. Marques, V. M. & Bravo, J. M. (2020). Análise da Viabilidade do Microsseguro em Portugal. **In:** A Política Social e Gestão de Serviços Sociais 2, **Atena Editora**, February (Accepted / In Press).

4. Bravo, J. M. (2020). Addressing the Pension Decumulation Phase of Employee Retirement Planning. In: Muenstermann, I. (Eds.). Who Wants to Retire and Who Can Afford to Retire?, IntechOpen, DOI: DOI: 10.5772/intechopen.90807. ISBN 978-1-83962-477-3.

5. Bravo, J. M. & Coelho, E. (2020). Forecasting small population monthly fertility and mortality data with seasonal time series methods. **In:** Linhares, W. (Editor). As Ciências Sociais Aplicadas e a Interface com vários Saberes 2, **Atena Editora**, 158–176. (DOI 10.22533/at.ed.79020280112)

6. Bravo, J. M. & Coelho, E. (2020). Modelling monthly births and deaths using Seasonal Forecasting Methods as an input for population estimates. **In: Demography of Population Health, Aging and Health Expenditures.** The Springer Series on Demographic Methods and Population Analysis, **Springer**, (Accepted / In Press).

7. Bravo, J. M. & Coelho, E. (2019). Forecasting Subnational Demographic Data using Seasonal Time Series Methods. **In: Proceedings of the 19th Portuguese Association of Information Systems Conference: digital disruption: living between data science, IoT and ... people** (pp. 40). Associação Portuguesa de Sistemas de Informação. ISSN 2183-489X [Scopus indexed]

8. Ashofteh, A. & Bravo, J. M. (2019). A non-parametric-based computationally efficient approach for credit scoring. **In: Proceedings of the 19th Portuguese Association of Information Systems Conference: digital disruption: living between data science, IoT and ... people** (pp. 19). Associação Portuguesa de Sistemas de Informação. ISSN 2183-489X [Scopus indexed]

9. Bravo, J. M., & Coelho, E. (2019). Forecasting Subnational Monthly Births and Deaths using Seasonal Time Series Methods. **In: Evidence-based territorial policymaking: formulation, implementation and evaluation of policy**: 26th APDR Congress Proceedings (pp. 1079-1088). Associacao Portuguesa para o Desenvolvimento Regional (APDR). [ISBN 978-989-8780-07-2].

10. Bravo, J. M. & Coelho, E. (2019). Modelling monthly births and deaths using Seasonal Forecasting Methods as an input for population estimates. **In: Proceedings of the 18th Applied Stochastic Models and Data Analysis International Conference with Demographics Workshop (ASMDA2019)** (pp. 41-42). ISAST: International Society for the Advancement of Science and Technology (Editor: Christos H Skiadas).

11. Ashofteh, A. & Bravo, J. M. (2019). A Non-Parametric-Based Computationally Efficient Approach for Credit Scoring Using Non-traditional Data. **In:** Moder, K. & Spangl, B. (editors). Proceedings of the **8th International Conference on Risk Analysis and Design of Experiments** (pp. 9), Vienna, April 23-26, 2019. [ISBN 978-3-900932-64-0], ISI Committee on Risk Analysis (ISI-CRA), International Statistical Institute (ISI). `https://icr8.boku.ac.at/`

12. Bravo, J. M., Rodrigues, T., Ribeiro, S. & Inácio, A. (2018). *Portugal. Projeções de População Residente 2011-2040*. **In:** Rodrigues, T. & Painho, M. (Coord.). Modelos Preditivos e Segurança Pública. **Fronteira do Caos Editores**, pp. 168-214.

13. Bravo, J. M. (2018). Taxation of Pensions in Portugal: Is There a Rationale for a Semidual Income Tax System? **In:** Robert Holzmann, & John Piggott (Eds.), The Taxation of Pensions, 135-166. (CESifo Seminar Series). **The MIT Press**. ISBN: 9780262038324.

14. Bravo, J. M. (2017). *Contratos intergeracionais e consistência temporal na gestão da protecção social: Implicações Políticas e Reforma do Sistema de Pensões*. **In:** "Envelhecimento na Sociedade Portuguesa: Pensões, Família e Cuidados", **ICS: Imprensa de Ciências Sociais**, Universidade de Lisboa, pp. 61-96. Available at: `file:///G:/Research/Publications/Imprensa%20de%20Ciências%20Sociais ,%20Universidade%20de%20Lisboa/ICS_Envelhecimento%20na%20Sociedade% 20Portuguesa_Book_2017.pdf`.

15. Bravo, J. M. (2016). *Sustentabilidade, Adequação e Equidade nos Sistemas de Protecção Social: O Desafio da Pirâmide Etária Invertida*. **In:** Instituto da Defesa Nacional (Coord.). Políticas Públicas e o Papel do Estado no Século XXI - Ciclo de Mesas Redondas "Ter Estado", Lisboa, **IDN - Instituto da Defesa Nacional**, pp. 295-327 (Coleção Atena, nº 36) [ISBN 978-972-9393-37-2]

16. Bravo, J. M. (2016). *Posfácio. In*: Alvarenga, L. e Barbosa, J. M. (editors). *Viva Uma Reforma Feliz*. Lisboa, Editora Manuscrito, pp. 195-201.

17. Bravo, J. M. & Herce, J. A. (2015). Las pensiones en España y Portugal: Descripción de los esquemas y evolución reciente comparada. **In:** *¿Es posible planificar la jubilación? Dos años del Instituto BBVA de Pensiones en España* (pp. 89-126). **Instituto BBVA de Pensiones**, Madrid (M-33143-2015). Available at: `http://fundscenter.bbva.com/dosa%C3%B1osdemijubilacion/files/ass ets/basic-html/#1`

`https://www.jubilaciondefuturo.es/recursos/doc/pensiones/2013100 3/posts/guia-epub-2015.epub`

18. Bravo, J. M. & Jiménez. J. D. (2015). ¿La longevidad es un riesgo asegurable? Cubriendo lo incubrible? **In:** *¿Es posible planificar la jubilación?*, *Dos años del Instituto BBVA de Pensiones en España* (pp. 205-240). **Instituto BBVA de Pensiones**, Madrid (M-33143-2015).

19. Bravo, J.M. (2015). *Reforma Estrutural dos Sistemas de Pensões*. **In:** Viriato S. M., Pereira, P. T. (Coord.). Afirmar o Futuro: Políticas Públicas para Portugal, Volume I - Estado, Instituições e Políticas Sociais (pp. 264-329). **Fundação Calouste Gulbenkian**, Lisboa.

20. Bravo, J. M. (2015*). Living longer and prospering? Opções de redesenho dos sistemas de pensões em Portugal*. In Neto, Paulo e Serrano, Maria Manuel (coords.) (2015). *Políticas Públicas, Economia*

e Sociedade. Contributos para a Definição de Políticas no Período 2014-2020, pp. 139-168. **Nexo Literário**, Alcochete, [ISBN 978-989-8529-52-7].

21. Bravo, J. M., Magalhães, M. G. & Coelho, E. (2013). *Dinâmica e Estrutura da População Humana: Medidas e Modelos Matemáticos*. **In:** *Matemática do Planeta Terra*, J. Buescu, F.P. da Costa e J.T. Pinto (Eds), **Instituto Superior Técnico (IST) Press**, ISBN: 978-989-8481-26-9, Setembro.

22. Alho, J., Bravo, J. M. & Palmer, E. (2013). *Annuities and Life Expectancy in NDC*. **In:** Holzmann, Robert, Edward Palmer, and David Robalino, editors. *Nonfinancial Defined Contribution Pension Schemes in a Changing Pension World: Gender, Politics, and Financial Stability*. **World Bank Publications**, Vol. 2, Washington DC, 2012, 395-436. Available at: `http://dx.doi.org/10.1596/9780821394786_CH22`

23. Bravo, J. M. (2012). Egypt's New Social Insurance System: An NDC Reform in an Emerging Economy - Comment. **In:** Holzmann, Robert, Edward Palmer, and David Robalino, editors. *Nonfinancial Defined Contribution Pension Schemes in a Changing Pension World: Vol.1, Progress, Lessons, and Implementation*. **World Bank**, Washington, DC. Available at: `https://doi.org/10.1596/9780821388488_CH05`

24. Bravo, J. M. (2010). Lee-Carter mortality projection with «Limit Life Table». **In:** EUROSTAT - European Commission (eds.), *Work Session on Demographic Projections*, **EUROSTAT-EC Collection: Methodologies and working papers**, Theme: Population and Social Conditions, pp. 231-240. ISBN 978-92-79-15862-9, ISSN 1977-0375, doi:10.2785/50697.

25. Bravo, J. M. & Malta, J. (2010). Estimating life expectancy in small population areas. **In:** EUROSTAT - European Commission (eds.), *Work Session on Demographic Projections*, **EUROSTAT-EC Collection: Methodologies and working papers**, Theme: Population and Social Conditions, pp. 113-126. ISBN 978-92-79-15862-9, doi:10.2785/50697.

26. Coelho, E., Bravo, J. M. & Magalhães, M. G. (2010). Mortality projections in Portugal. **In:** EUROSTAT - European Commission (eds.), *Work Session on Demographic Projections*, **EUROSTAT-EC Collection: Methodologies and working papers**, Theme: Population and Social Conditions, pp. 241-252. ISBN 978-92-79-15862-9, doi:10.2785/50697.

27. Bravo, J. M. (2007). Parametric interest rate risk immunization. **In:** *New Developments in Banking and Finance*, **Nova Science Publishers**, Inc, New York, ISBN: 1-60021-576-9, pp. 35-64.

28. Bravo, J. M., Magalhães, M. G. & Coelho, E. (2007). Mortality and Longevity Projections for the Oldest-Old in Portugal. **In:** EUROSTAT - European Commission (eds.), *Working Session on Demographic Projections*, Bucharest, Romania, **EUROSTAT-EC Collection: Methodologies and working papers**, Theme: Population and Social Conditions, ISBN: 978-92-79-04759-6, ISSN: 1977-0375, pp. 117-132.

5.3. MONOGRAPHIES / WORKING PAPERS (SELECTED)

1. Bravo, J. M., Ayuso, M., & Holzmann, R., (2019). Making use of Home Equity: The Potential of Housing Wealth to Enhance Retirement Security. IZA Discussion Paper Series No. 12656,

September, IZA Institute of Labour Economics, Germany. Available at `https://ideas.repec.org/p/iza/izadps/dp12656.html`

2. Holzmann, R., Ayuso, M., Alaminos, E. & Bravo, J. M. (2019). Life Cycle Saving and Dissaving Revisited across Three-tiered Income Groups: Starting hypotheses, refinement through literature review, and ideas for empirical testing. IZA Discussion Paper Series No. 12655, September, IZA Institute of Labour Economics, Germany. Available at `https://ideas.repec.org/p/iza/izadps/dp12655.html`

3. Ayuso, M., Bravo, J. M., Holzmann, R. (2018). Getting Life Expectancy Estimates Right for Pension Policy Period versus Cohort Approach. IZA Discussion Paper Series No. 11512, IZA Institute of Labour Economics, Germany, April.

4. Ayuso, M., Bravo, J. M., Holzmann, R. (2018). Getting Life Expectancy Estimates Right for Pension Policy Period versus Cohort Approach. Cesifo Working Paper No. 7349-2018, November, Germany

5. Rodrigues T., Bravo J., Inácio A., Ribeiro S. (2017). Portugal. Projeções *de População Residente a Nível Concelhio, 2011-2014. Metodologia e Resultados*. Working paper 3 do projeto SIM4SECURITY.

6. Ayuso, M., Bravo, J. M., Holzmann, R. (2016). *Addressing Longevity Heterogeneity in Pension Scheme Design and Reform*. IZA Discussion Paper Series No. 10378, IZA Institute of Labour Economics, Germany, December.

7. Ayuso, M., Bravo, J. M., Holzmann, R. (2016). On the Heterogeneity in Longevity among Socioeconomic Groups: Scope, Trends, and Implications for Earnings-Related Pension Schemes. IZA Discussion Paper No. 10060, July 2016. DOI: 10.13140/RG.2.2.15515.67367

8. Bravo, J. M. (2016). Taxation of Pensions in Portugal: Is there a Rationale for a Semi-Dual Income Tax System?, CESifo Working Paper, No. 5981. Available at `http://hdl.handle.net/10419/145016`

9. Bravo, J.M., C.P. Silva (2012). *Prospective Lifetables: Life Insurance Pricing and Hedging in a Stochastic Mortality Environment*. CEFAGE-UE Working Paper 2012/01.

10. Bravo, J.M.V. (2011). *Pricing Longevity Bonds Using Affine-Jump Diffusion Models*. CEFAGE-UE Working Paper 2011/29.

11. Bravo. J.M. (2011). *Modelling Mortality Using Multiple Stochastic Latent Factors*. CEFAGE-UE Working Paper 2011/26.

12. Bravo, J. M. e Pereira da Silva, C. M. (2005). *Immunization Using a Parametric Model of the Term Structure*. WP N.º 19/2005, Universidade de Évora, Departamento de Economia.

13. Bravo, J. M., Pereira da Silva, C., Corte Real, P., Peralta, S. (2006). *The Paradox of Ageing*. WP N.º 2/2006, ISEG-UTL Departamento de Gestão. Available at `http://www.repository.utl.pt/handle/10400.5/2190`

6. RESEARCH INTERESTS

Interest rate risk management; Mortality and Longevity Modeling and forecasting & Risk Management; Pension Economics and Finance; Banking and insurance, Financial markets; Population & Ageing economics.

7. EDITORIAL & REFEREE POSITIONS

2Member of the Editorial Board of the international Journal of Frontiers in Finance (FF), Science and Engineering Publishing Company (2013 – ...)

Member of the Editorial Board of Revista de Estudos Demográficos (RED), edited by Statistics Portugal (Instituto Nacional de Estatística), (2016 – ...)
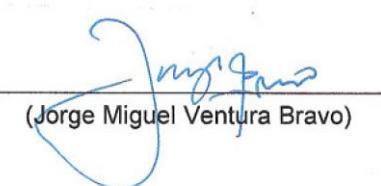
Refereing:

- Journal of Banking and Finance;
- Insurance: Mathematics and Economics;
- Journal of Empirical Finance
- European Actuarial Journal

8. SELECTED TEACHING COURSES AND SEMINARS

Risk Management (PhD/MSc/BSc NOVA IMS); **Bond Markets** (MSc Financial Markets and Risks); **Fixed Income Securities** (MSc Financial Markets and Risks); **Banking, Insurance and Longevity-Linked Securities** (MSc Financial Markets and Risks); **Financial Reporting** (MSc NOVA IMS); **Banking and Insurance Operations** (MSc NOVA IMS); **Entrepreneurship and Project Analysis** (NOVA IMS); Bond Markets (MSc NOVA IMS); **Banking, Insurance and Longevity-Linked Securities** (MSc NOVA IMS); **Derivative Securities and Risk Management** (University of Évora, MSc/PhD); **Financial Economics** (University of Évora, MSc/PhD); Life Cycle and Portfolio Choices (Université Paris-Dauphine); **Economie internationale et développement** (Université Paris-Dauphine); **Asset Liability Management** (Nova School of Business and Economics, MSc); **Measuring and Managing Life Insurance Risks** (Nova School of Business and Economics, MSc); **Pension Systems Management** (Technical University of Lisbon - ISEG); **International Finance** (University of Évora, MSc/PhD); Futures and Options (University of Évora, MSc/PhD); **Financial Institutions, Products and Markets** (University of Évora, MSc/PhD)

Lisboa, June 8 2020

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(Jorge Miguel Ventura Bravo)