

## CURRICULUM VITAE

**Dr. Carmen BOADO-PENAS**

Carmen.Boado@liverpool.ac.uk

### EDUCATION

- 2009-2010:** **Postgraduate Certificate in Learning and Teaching in Higher Education.** (October 2010).
- 2005-2008:** **European PhD in Economics** (November 2008). Summa Cum Laude.  
Thesis entitled “Instruments for improving the equity, transparency and sustainability of pay-as-you-go pension systems”. University of Valencia (Spain)  
Prizes:
- a) This doctoral thesis has been awarded the Prize Enrique Fuentes Quintana by FUNCAS (Foundation of Spanish Saving Banks) on the 8<sup>th</sup> April 2010.
  - b) PhD thesis extraordinary award, University of Valencia (Spain) 2009-2010.
- 2002-2004:** **MSc in Quantitative Finance (University of the Basque Country, University Carlos III Madrid).**  
**Quality mention. Ministry of Education and Science.**
- 2000-2002:** **BSc in Actuarial Science, University of the Basque Country (Spain).**
- 1998-2000:** **1st cycle in Business Administration and Management. University of the Basque Country (Spain).**

### APPOINTMENTS HELD

- Sep 2016-** **Senior Lecturer in Actuarial Mathematics.** Institute for Financial and Actuarial Mathematics. University of Liverpool (UK). Accredited programme by IFoA.  
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- Sep 2013-** **Lecturer in Actuarial Mathematics.** Institute for Financial and Actuarial Mathematics.  
**Aug 2016** University of Liverpool (UK). Accredited programme by IFoA.
- Jan 2013-** **Lecturer in Actuarial Science** Keele Management School. Keele University (UK).  
**Aug 2013**
- Jun 2011-** **Lecturer in Actuarial Science.** Keele Management School. Keele University (UK).  
**Aug 2013**
- Sep 2009-** **Lecturer in Economics.** Keele Management School. Keele University (UK).  
**Jun 2011**
- 2009:** **Post-doc Researcher.** Department of Foundations of Economic Analysis II. University of the Basque Country (Spain).

## OTHER POSITIONS

- Sep 2013-  
\_\_\_\_\_ **Programme Director** BSc Actuarial Mathematics.
- Sep 2013-  
\_\_\_\_\_ **IFoA accreditation coordinator** for our two accredited programmes (BSc Actuarial Mathematics and BSc Mathematics with Finance) and **liaison with the IFoA**.
- Jan 2013-  
Aug 2013 **Programme Director BSc Actuarial Science.** Keele Management School. Keele University (UK).

## RESEARCH

**Research lines:** Actuarial Balance, Automatic Balance Mechanisms, Notional Accounts, Public Pensions, Optimisation, Reforms of the Social Security Systems, Solvency, Sustainability.

## PUBLICATIONS

### In English

1. Boado-Penas, M.C, Eisenberg, J. and Korn R. (2020) “Transforming public pensions: A mixed scheme with a credit granted by the state” *Insurance: Mathematics and Economics*. Forthcoming.
2. Boado-Penas, M.C, Haberman, S. and Naka, P. (2020) “Fairness and annuity divisors for notional defined contribution pension schemes” *Journal of Pension Economics & Finance*. Published online 29 October 2020.
3. Sahin, S., Boado-Penas, M. D. C., Constantinescu, C., Eisenberg, J., Henshaw, K., Hu, M., . . . Zhu, W. (2020). “First Quarter Chronicle of COVID-19: An Attempt to Measure Governments’ Responses” *Risks*, 8(4), 115. doi:10.3390/risks8040115
4. Naka, P., Boado-Penas, M.C. and Lanot, G. (2020) “A multiple state model for the working-age disabled population using cross-sectional data”. *Scandinavian Actuarial Journal*. Published online: 17 Feb 2020.
5. Boado-Penas, M.C., Naka, P. and Settergren, O. (2020) “Last lessons learned from the Swedish public pension system” In Peris-Ortiz, Alvarez-Garcia, Dominguez-Fabian and Devolver eds. *Economic Challenges of Pension Systems - A Sustainability and International Management Perspective*. Springer. ISBN 978-3-030-37912-4
6. Boado-Penas, M.C., Godínez-Olivares, H. and Haberman, S. (2020) “Automatic balancing mechanisms for pay-as-you-go pension finance: Do they actually work?” In Peris-Ortiz, M., Alvarez-Garcia, J., Dominguez-Fabian, I. and Devolder, P. eds. *Economic Challenges of Pension Systems - A Sustainability and International Management Perspective*. ISBN 978-3-030-37912-4
7. Boado-Penas, M.C., Eisenberg, J., Helmert, A. and Krühner, P. (2020). “A new approach for satisfactory pensions with no guarantees”. *European Actuarial Journal*. 10, 3-21. Published online: Dec 2019. DOI: 10.1007/s13385-019-00220-2
8. Boado-Penas, M.C., Godínez-Olivares, H., Haberman S. and Serrano, P. (2020) “Automatic balancing mechanisms for mixed pension systems under different investment strategies”. *The European Journal of Finance*, 26:2-3, 277-294. Published online: 31 Jul 2019. DOI: 10.1080/1351847X.2019.1647260
9. Boado-Penas, M.C., Settergren, O., Ekhedén, E. and Naka, P. (2019), “Sweden’s Fifteen Years of Communication Efforts” In Holzmann, R., E. Palmer, R. Palacios and S. Sacchi, eds. *Progress and Challenges of Nonfinancial Defined Pension Schemes*. Washington D.C.: *The World Bank*. DOI:10.1596/31634

10. José de Jesús Rocha Salazar and María del Carmen Boado-Penas (2019) “How macroeconomic and financial fluctuations affect retirement: The case of an oil producing country”. *Economics Bulletin*, 39(4), 2955-2962.
11. José de Jesús Rocha Salazar and María del Carmen Boado-Penas (2019) “Scoring and prediction of early retirement using machine learning techniques: Application to private pension plans”. *Anales del Instituto de Actuarios Españoles*, 4 Época, 25, 119-145.
12. Jennifer Alonso-García, María del Carmen Boado-Penas and Pierre Devolder (2018), “Adequacy, fairness and sustainability of pay-as-you-go pension systems: Defined benefit versus defined contribution”. *European Journal of Finance*, 24(13), 1100-1122. [Peer Reviewed]
13. Jennifer Alonso-García, María del Carmen Boado-Penas and Pierre Devolder (2017), “Automatic Balancing Mechanisms for Notional Defined Contribution Accounts in the Presence of Uncertainty”. *Scandinavian Actuarial Journal*, 1-24, <http://dx.doi.org/10.1080/03461238.2017.1304984> [Peer Reviewed]
14. María Ferrer-Fernández and María del Carmen Boado-Penas (2017) “Automatic Balancing Mechanism in Pay-As-You-Go Pension Systems: A Solution to Face Demographic Risk and Restore Sustainability”. *Anales del Instituto de Actuarios Españoles*, 4 Época, 23, 145-167.
15. Humberto Godínez-Olivares, María del Carmen Boado-Penas and Steven Haberman (2016), “Optimal Strategies for Pay-As-You-Go Pension Finance: A Sustainability Framework”. *Insurance: Mathematics and Economics*, 69, 117-126.
16. Humberto Godínez-Olivares, María del Carmen Boado-Penas and Athanasios A. Pantelous (2016), “How to Finance Pensions: Optimal Strategies for Pay-As-You-Go Pension Systems”. *Journal of Forecasting*, 35(1), 13-33.
17. Séverine Arnold (-Gaille), María del Carmen Boado-Penas and Humberto Godínez-Olivares (2016), “Longevity Risk in Notional Defined Contribution Pension Schemes: a Solution”. *Geneva Papers on Risk and Insurance*, 41(1), 24-52.
18. Carlos Vidal-Meliá and María del Carmen Boado-Penas and Francisco Navarro-Cabo (2016), “Notional Defined Contribution Pension Systems: Why does only Sweden Distribute the Survivor Dividend?”. *Journal of Economic Policy Reform*, 19(1), 200-220.
19. Humberto Godínez-Olivares and María del Carmen Boado-Penas (2015), “An Alternative Pension Reform for Spain based on Optimisation Techniques”. *Annals of the Spanish Institute of Actuaries*, 20, 17-32.
20. Humberto Godínez-Olivares, María del Carmen Boado-Penas and Athanasios A. Pantelous (2014), “Optimal Strategies for Long-term Sustainability in PAYG Pension Systems using Control Theory in a Dynamic Nonlinear Framework”. In: ASCE ICVRAM and ISUMA 2014, University of Liverpool.
21. María del Carmen Boado-Penas and Carlos Vidal-Meliá (2014), “Non-financial Defined Contribution pension schemes: Is a Survivor Dividend Necessary to Make the System Balanced?” *Applied Economics Letters*, 21(4), 242-247.
22. Carlos Vidal-Meliá and María del Carmen Boado-Penas (2013), “Compiling the Actuarial Balance for Pay-As-You-Go Pension Systems. Is it better to Use the Hidden Asset or the Contribution Asset?” *Applied Economics*, 45(10), 1303-1320.
23. María del Carmen Boado-Penas and Carlos Vidal-Meliá (2012), “The Actuarial Balance of the Pay-As-You-Go Pension System: the Swedish NDC model versus the US DB model.” Chapter 23, 443-489, In Holzmann, R., E. Palmer and D. Robalino. 2012, eds. NDC Pension Schemes in a Changing Pension World, Volume 2: Gender, Politics, and Financial Stability. Washington D.C.: *The World Bank*. ISBN (paper): 978-0-8213-9478-6 ISBN (electronic): 978-0-8213-9479-3 DOI: 10.1596/978-0-8213-9478-6.
24. María del Carmen Boado-Penas and Carlos Vidal-Meliá (2012), “Discussion: Chile - Assessing Fiscal Costs and Pension Distribution in Transitions to Defined Contribution Systems: A Retrospective Analysis for Chile”. Chapter 9, 316-319, in Holzmann, R., E. Palmer and D. Robalino. 2012, eds. NDC Pension Schemes in a Changing Pension World, Volume 1: Progress,

- Lessons, and Implementation. Washington, DC: *World Bank*. ISBN (paper): 978-0-8213-8848-8, ISBN (electronic): 978-0-8213-8852-5, DOI: 10.1596/978-0-8213-8848-8.
25. Carlos Vidal-Meliá, María del Carmen Boado-Penas and Ole Settergren (2010), “Instruments for Improving the Equity, Transparency and Solvency of Pay-As-You-Go Pension Systems: NDCs, Abs and ABMs.” In "Pension Fund Risk Management - Financial And Actuarial Modeling". Edited by Marco Micocci, Giovanni Masala and Greg N. Gregoriou, Chapter 18, 419-472. Chapman & Hall/CRC Finance Series, New York (USA). ISBN: 9781439817520, ISBN 10: 1439817529.
  26. María del Carmen Boado-Penas (2010), “Instruments for Improving the Equity, Transparency and Sustainability of Pay-As-You-Go Pension Systems” *Spanish Journal of Finance and Accounting*, vol. XXXVIX, N. 146, 369-372.
  27. Carlos Vidal-Meliá, María del Carmen Boado-Penas and Ole Settergren (2009), “Automatic Balance Mechanisms in Pay-As-You-Go Pension Systems.” *The Geneva Papers on Risk and Insurance: Issues and Practice*, 34 (2), 287-317.
  28. María del Carmen Boado-Penas, Salvador Valdés-Prieto and Carlos Vidal-Meliá (2008), “An Actuarial Balance Sheet for Pay-As-You-Go Finance: Solvency Indicators for Spain and Sweden.” *Fiscal Studies*, 29 (1), 89-134.
  29. María del Carmen Boado-Penas, Inmaculada Domínguez-Fabián and Carlos Vidal-Meliá (2007), “Notional Defined Contribution Accounts (NDCs): Solvency and Risk, Application to the Case of Spain.” *International Social Security Review*, 60 (4), 105-127.
  30. María del Carmen Boado-Penas, Inmaculada Domínguez-Fabián and Carlos Vidal-Meliá (2006) “Notional Defined Contribution Accounts (NDCs): Solvency and Risk; Application to the Case of Spain”, FEDEA, Spanish Foundation of Applied Economy Studies. Vol 223, 1-30.

#### Other languages:

31. José de Jesús Rocha Salazar and María del Carmen Boado-Penas (2018) “La conducta del retiro: El caso de un país productor de petróleo”. *Anales del Instituto de Actuarios Españoles*, 4 Época, 24, 99-122.
32. María del Carmen Boado-Penas and Gauthier Lanot (2012) “Impacto redistributivo y solvencia ante reformas en el sistema de pensiones español. Una aproximación a partir de la muestra continua de vidas laborales” Documentos Fipros. Spanish Ministry of Employment and Social Security, available at <http://www.seg-social.es/prdi00/groups/public/documents/binario/174268.pdf>. (In Spanish).
33. María del Carmen Boado-Penas, Ole Settergren and Carlos Vidal-Meliá (2011), El Balance actuarial del Sistema de reparto. Modelo “Sueco” frente a modelo “EE.UU.”: Posible aplicación al caso español.” *Spanish Journal of Finance and Accounting*, vol. XL, N. 149. (In Spanish). [Peer Reviewed]
34. **Book.** María del Carmen Boado-Penas (2010), “Instrumentos para mejorar la equidad, transparencia y sostenibilidad del sistema de pensiones de reparto”. Vol 49. Ed. Foundation of Spanish saving banks. (In Spanish).
35. Carlos Vidal-Meliá, María del Carmen Boado-Penas and Ole Settergren (2010), “¿Puede el análisis actuarial (NDCs, BAs y MFAs) mejorar el sistema de pensiones de reparto.” *Revista Ibero-Latinoamericana de Seguros*, 18 (31). (In Spanish). [Peer Reviewed]
36. Carlos Vidal-Meliá and María del Carmen Boado-Penas (2009), “El balance actuarial del sistema de reparto. Modelo “Sueco” versus “Americano” in “Investigación en Seguros y gestión de Riesgos”, Editores M. Guillén and Others. Chapter 34, 731-762, Fundación Mapfre, Madrid (Spain). (In Spanish). [Peer Reviewed]
37. María del Carmen Boado-Penas and Carlos Vidal-Meliá (2008), “El balance actuarial como indicador de la solvencia del sistema de reparto” *Actualidad Aseguradora* (suplemento 20), BISS 5-46. (In Spanish).
38. María del Carmen Boado-Penas and Carlos Vidal-Meliá (2008), “El balance actuarial como indicador de la solvencia del sistema de reparto.” IVIE (Valencian Institute of Economic Research).WP-EC-02. (In Spanish). [Peer Reviewed]

39. María del Carmen Boado-Penas, Inmaculada Domínguez-Fabián and Carlos Vidal-Meliá (2007), “Fiktive Konten im Festbeitragssystem (NDC): Zahlungsfähigkeit und Risiken in Spanien”. *Internationale Revue für Soziale Sicherheit* 60 (4), 117–141., (In German), also versions in French (Comptes fictifs à cotisation définie (NDC): solvabilité et risque en Espagne. *Revue Internationale de Sécurité Sociale*. 60 (4), 111–135) and Spanish (Cuentas nocionales de aportación definida (NDC): solvencia y riesgo, aplicación al caso español. *Revista Internacional de Seguridad Social* 60 (4), 117–140). [Peer Reviewed]
40. María del Carmen Boado-Penas, Inmaculada Domínguez-Fabián, Salvador Valdés-Prieto and Carlos Vidal-Meliá (2007) “Mejora de la equidad y sostenibilidad financiera del sistema público español de pensiones de jubilación mediante el empleo de cuentas nocionales de aportación definida (NDCs)” Documentos Fipros. Spanish Ministry of Labour and Social Affairs, available at [http://www.seg-social.es/inicio/?MIval=cw\\_usr\\_view\\_Folder&LANG=1&ID=48376](http://www.seg-social.es/inicio/?MIval=cw_usr_view_Folder&LANG=1&ID=48376) (In Spanish).
41. María del Carmen Boado-Penas (2004), “Cuentas Nocionales de Aportación Definida (NDC’s). Aplicación al caso español”. Research Paper of PhD Programme in Quantitative Finance. Number 13. University of Valencia (Spain) (In Spanish).

### SCHOLARSHIPS AND GRANTS

1. **2020.** ODA Research Seed Fund (University of Liverpool). “Ukrainian pension system. What can we learn from Western countries?” Joint project with Julia Eisenberg (TU Wien). (10,000 pounds).
2. **2016-2020.** The Ministry of Science and Innovation (Spain), “The Rate of Interest and the Empirical Finance” PI: Juan Nave-Pineda. (University CEU-San Pablo at Valencia- Spain). Project MEYC ECO2015-65826-P.
3. **2016.** Ignacio Hernando de Larramendi aid to research (Fundación MAPFRE-Insurance company), “Linking Pensions to Life Expectancy: A Solution to Guarantee Long-term Sustainability”. PI: Carmen Boado-Penas. (15,000 euros).
4. **2015.** IFoA Travel Grant (£300)
5. **2012-2016.** The Ministry of Science and Innovation (Spain), “The Rate of Interest and the Empirical Finance” PI: Juan Nave-Pineda. (University CEU-San Pablo at Valencia- Spain). Project MEYCECO2012-36685. (70,000 euros)
6. **2015.** Awarded a Santander Travel Grant (£1,000)
7. **2015.** IFoA Travel Grant (£500)
8. **2012.** The Ministry of Labour and Immigration (Spain), “Redistributive Impact and Solvency under Reforms in the Spanish Pension System. An Approximation from the Continuous Sample of Working Histories”. Head of Research: Carmen Boado-Penas. (30,000 Euros)
9. **2010-2013. The Ministry of Science and Innovation (Spain),** “The Rate of Interest and the Empirical Finance” Head of Research Juan Nave-Pineda. (University CEU-San Pablo at Valencia-Spain). Project ECO2009-13616. 8 participants. (87,120 euros)
10. **2011.** Awarded an Overseas Conference Grant by **the British Academy.**
11. **2007. The Valencian Institute for Economic Research (IVIE) and The Swedish Social Security Agency (Försäkringskassan).** “The Actuarial Balance as an Indicator of Solvency of the Pay-As-You-Go System”. 2 participants. (4,000 euros)
12. **2007. The Ministry of Labour and Immigration (Spain),** “Improving the Equity, and Sustainability of Pay-As-You-Go Pension Systems by means of NDCs” Head of Research: Inmaculada Domínguez-Fabián (University of Extremadura).
13. **April 2006-June 2006. Basque Government (Spain),** Grant for short stays in different centers. (2,090 euros)
14. **September 2004-March 2005. Ministry of Education and Science (Spain),** Grant for studying away. (1,725 euros)

15. **October 2002-October 2006. Basque Government (Spain)**, Grant for research training.

<b>REFEREE</b>
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Applied Economics; ASTIN Bulletin, Journal of Pension Economics and Finance; Insurance: Mathematics and Economics; North American Actuarial Journal; Swedish Social Insurance Agency; World Bank; Review of Public Economics; Wiley.