

## **Martin Forster, CV (September 2020)**

### **Research interests**

Optimisation under risk and uncertainty, with applications in health care. Inequality. Econometric topics in economic history.

### **Academic experience**

September 2020 – present. Associate Professor, Department of Statistical Sciences "Paolo Fortunati", University of Bologna. Lecturer in Economics and Programme Leader, PGCert Health Economics for Health Care Professionals, Department of Economics, University of York.

September 2017–present. Adjunct Professor, Department of Economics, University of Bologna.

May 1998–September 2020. Lecturer in Economics and Programme Leader, PGCert and PGDip Health Economics for Health Care Professionals, Department of Economics, University of York

June 1995–Jan. 1996. Research Assistant, NHS Centre for Reviews and Dissemination, University of York

June 1993–Sept. 1993. Research Assistant, Centre for Health Economics, University of York

### **Industry experience**

Oct. 1989 – June 1992. Graduate Trainee and Personnel Officer, Northern Foods plc, Hull

### **Education**

Oct. 1993 – Sept. 1997. DPhil Economics, University of York

Oct. 1992 – Sept. 1993. MSc Economic and Social Policy Analysis, University of York

Oct. 1986 – June 1989. BA (Hons) Business Studies (1st), University of Sheffield

### **Professional recognition and membership of professional bodies**

September 2018–December 2018: Visiting Fellow, Institute of Advanced Studies, University of Bologna

2015: Runner-up, INFORMS Pierskalla Award for research excellence in health care management science for 'A Bayesian Decision-Theoretic Model of Sequential Experimentation with Delayed Response', with S. E. Chick and P. Pertile

1996/7 and 2008/9: J. R. Aronson prizes (as Teaching Fellow and Academic) for teaching excellence in the Department of Economics, University of York

Member, Royal Economic Society. Fellow, Royal Statistical Society and the Higher Education Academy

### **Current projects**

- Value-based sequential clinical trials. With Stephen Chick and Andres Alban (INSEAD), Paolo Pertile (Verona), together with collaborators from the York Trials Unit and the Sheffield School of Health and Related Research.
- The economics of gambling and epidemics. With Emanuela Randon (Bologna).
- Strategic interaction in pharmaceutical price regulation. With Paolo Pertile and Simona Gamba (Verona).

### Published articles (peer reviewed)

1. G. Manzi and M. Forster (2018). [Biases in bias elicitation](#). *Communications in Statistics: Theory and Methods* 2018; DOI: 10.1080/03610926.2018.1500598
2. S. D. Smith and M. Forster (2018). [The Curse of the Caribbean? Agency's impact on the productivity of sugar estates on St. Vincent and the Grenadines, 1814–1829](#). With online supplementary material. *The Journal of Economic History* 2018; 78(2):472–499.
3. S. E. Chick, M. Forster and P. Pertile (2017). [A Bayesian decision-theoretic model of sequential experimentation with delayed response](#). With online supplementary material. *Journal of the Royal Statistical Society, Series B* 2017; 79(5):1439–1462.
4. S. Jobjörnsson, M. Forster, P. Pertile and C.-F. Burman (2016). [Late-stage pharmaceutical R&D and pricing policies under two-stage regulation](#). With online supplementary material. *Journal of Health Economics* 2016;50:298–311.
5. M. R. Caputo and M. Forster (2016). [Optimal plans and timing under additive transformations to rewards](#). With online supplementary material. *Oxford Economic Papers* 2016;68(2):604–626.
6. M. Forster, D. La Torre and P. J. Lambert (2014). [Optimal control of inequality under uncertainty](#). With online supplementary material. *Mathematical Social Sciences* 2014;68(C):53–59.
7. P. Pertile, M. Forster and D. La Torre (2014). [Optimal Bayesian sequential sampling rules for the economic evaluation of health technologies](#). With online supplementary material. *Journal of the Royal Statistical Society, Series A*, 2014;177(2):419–438.
8. M. Forster and P. Pertile (2013). [Optimal decision rules for HTA under uncertainty: a wider, dynamic perspective](#). *Health Economics*, 2013;22(12):1507–1514.
9. M. Forster and S. D. Smith (2011). [Surviving Slavery. Mortality at Mesopotamia, a Jamaican sugar estate, 1762–1832](#). With online supplementary material. *Journal of the Royal Statistical Society, Series A*, 2011;174(4): 907–929.
10. A. Bucci, C. Colapinto, M. Forster and D. La Torre (2011). [Stochastic technology shocks in an extended Uzawa-Lucas model: closed-form solution and long-run dynamics](#). *Journal of Economics*, 2011;103(1):83–99.
11. M. Forster and A. M. Jones (2001). [The role of tobacco taxes in starting and quitting smoking: duration analysis of British data](#). *Journal of the Royal Statistical Society, Series A*, 2001;164:517–547. (Corrigendum published in 2003;166:441–442).
12. M. Forster (2001). [The meaning of death. Some numerical simulations of a model of healthy and unhealthy consumption](#). *Journal of Health Economics* 2001;20:613–638.
13. P. Contoyannis and M. Forster (1999). [The distribution of health and income: a theoretical framework](#). *Journal of Health Economics* 1999;18:605–622.
14. P. Contoyannis and M. Forster (1999). [‘Our Healthier Nation’?](#) *Health Economics* 1999;8: 289–296.
15. L. Arblaster, M. Lambert, V. Entwistle, M. Forster, D. Fullerton, T. Sheldon and I. Watt (1996). [A systematic review of the effectiveness of health service interventions aimed at reducing inequalities in health](#). *Journal of Health Services Research and Policy* 1996;1:93–103.

### Proceedings and other published articles (not peer reviewed)

- A. Alban, S. E. Chick and M. Forster (2018). [Extending a Bayesian decision-theoretic approach to value-based sequential clinical trial design](#). M. Rabe, A. A. Juan, N. Mustafee, A. Skoogh, S. Jain and B. Johanssen. *Proceedings of the 2018 Winter Simulation Conference, Gothenburg, Sweden*. 2018:2458–2470.
- S. E. Chick, M. Forster and P. Pertile (2015). [Optimal sequential sampling with delayed observations and unknown variance](#). L. Yilmaz, W.K.V. Chan, I. Moon, T.M.K. Roeder, C. Macal and M.D. Rossetti, *Proceedings of the 2015 Winter Simulation Conference, Huntington Beach, California*. 2015:3789–3800.
- M. Forster and P. Pertile (2013). [Public health interventions: evaluating the economic evaluations](#). *Journal of Public Health Research* 2013;2(e21):122–123.
- S. D. Smith and M. Forster (2011). [The hazards of slavery](#). *Significance*, the magazine of the American Statistical Association and the Royal Statistical Society, 2011;8(4):179–182.
- M. Forster and A. M. Jones (2008). The role of tobacco taxes in starting and quitting smoking: duration analysis of British data. In *The Economics of Health Behaviours* J. Cawley and D. S. Kenkel (eds) 2008:420–450.
- V. Entwistle, M. Forster, M. Lambert, T. Sheldon and I. Watt (1996). Review of interventions should help to reduce inequalities in health. Letter in *British Medical Journal* 1996;313:366.

### Recent discussion papers (unpublished papers hyperlinked)

- M. Forster and E. Randon (2020). [Epidemic policy under uncertainty and information](#). Discussion Papers 20/05, Department of Economics, University of York.
- A. Alban, S. Chick and M. Forster (2020). [Value-based clinical trials: selecting trial lengths and recruitment rates in different regulatory contexts](#). Discussion Papers 20/01, Department of Economics, University of York.
- M. Forster and E. Randon (2019). [Do lottery operators exploit their lottery power? The efficiency and equity implications of optimal lottery design](#). Discussion Papers 2019, Department of Economics, University of Bologna.
- M. Forster, S. Brealey, S. Chick, A. Keding, B. Corbacho, A. Alban, A. Rangan (2019). [Cost-Effective Clinical Trial Design: Application of a Bayesian Sequential Stopping Rule to the ProFHER Pragmatic Trial](#). Discussion Papers 19/01, Department of Economics, University of York.
- P. Pertile, S. Gamba and M. Forster (2018). [Free-riding in pharmaceutical price regulation: theory and evidence](#). Discussion Papers 18/04, Department of Economics, University of York.

### Recent seminars and conference presentations

- ‘Value-based and sequential clinical trial design: application to the ProFHER trial’. Health Economics and Decision Sciences seminar, Sheffield School of Health and Related Research, University of Sheffield, 31 October 2019. M. Forster, S. Brealey, S. Chick, A. Keding, B. Corbacho, A. Alban, P. Pertile, A. Rangan.
- ‘Cost-Effective Clinical Trial Design: Application of a Bayesian Sequential Stopping Rule to the ProFHER Pragmatic Trial’. International Clinical Trials Methodology Conference, Brighton, 13 October 2019. M. Forster, S. Brealey, S. Chick, A. Keding, B. Corbacho, A. Alban, P. Pertile, A. Rangan.
- ‘A Bayesian decision theoretic model of sequential experimentation with delayed response’. Contribution to topic-contributed session on ‘Decision Theoretic Approaches for Clinical Trial Design and Analysis’, Central European Network and International Society for Biopharmaceutical Statistics conference, Vienna, 30 August 2017. S. E. Chick, M. Forster, P. Pertile.

- ‘Stopping sequential clinical trials on cost-effectiveness grounds’. Department of Economics Seminar, University of Verona, 21 June 2017. S. E. Chick, M. Forster, P. Pertile.
- ‘The Economic Dynamics of Sequential Experiments in Health Technology Assessment’. Department of Economics and Management Seminar, University of Brescia, 31 January 2017. S. E. Chick, M. Forster, P. Pertile.
- ‘Bringing New Medicines to Market Sooner? Bayes Decision Theoretic Modelling of Sequential Trials’. Foundations of Utility and Risk conference, Warwick, 29 June 2016. S. E. Chick, M. Forster, P. Pertile.
- ‘A Bayesian Decision-Theoretic Model of Sequential Experimentation with Delayed Response’. Department of Mathematical Sciences, Chalmers University of Technology, 25 May 2016. S. E. Chick, M. Forster, P. Pertile.
- ‘A Bayesian Decision-Theoretic Model of Sequential Experimentation with Delayed Response.’ University of Bologna, Department of Statistical Science, 12 November 2015. S. E. Chick, M. Forster, P. Pertile.
- ‘Sequential Clinical Trial Design when Outcomes Arrive with Delay: a Bayes Decision-Theoretic Approach’. Annual conference, Royal Statistical Society, Sheffield, 4 September 2014. S. E. Chick, M. Forster, P. Pertile.
- ‘Optimal Control of Inequality under Uncertainty’. Department of Economics seminars, Göteborg University, 15 January 2014. M. Forster, D. La Torre, P. Lambert.
- ‘Bayesian Sequential Approaches to Economic Evaluation: Opportunity or Dead End?’. Centre for Health Economics at Gothenburg University seminars, Göteborg University, 14 January 2014. P. Pertile, M. Forster, D. La Torre.

### **Invited talks and discussions**

- ‘Bringing New Medicines to Market Sooner? The statistical and economic challenges of value-based clinical trial design’. Institute for Advanced Studies lecture, University of Bologna, 27 November 2018. M. Forster, S. Brealey, S. Chick, A. Keding, B. Corbacho, A. Alban, A. Rangan.
- ‘Bayesian Sequential Experimentation and Rare Diseases: the Effect of Population Size on Expected Time to a Decision’. Invited lecture for the annual meeting of the Integrated Design and Analysis of Small Population Group Trials (IDEAL) project, Paris, 4 November 2014.

### **Research funding and advisory boards**

- 1/10/2019 – 30/09/2020. Co-applicant, National Institute for Health Research (NIHR) Clinical Trials Unit Support Funding – Supporting efficient/innovative delivery of NIHR Research, with York Trials Unit (University of York), the Universities of Sheffield and Verona and INSEAD for the project ‘Value-based Adaptive Clinical Trial Designs for Efficient Delivery of NIHR Research’ (£79,127).
- 1/08/2019 – 31/07/2020. Collaborator, Leverhulme Trust Emeritus Fellowship. Research grant with John Hey (York and applicant) and Konstantinos Georgalos (Lancaster) for the project ‘Do humans evaluate research strategies optimally?’ (£6,000).
- 1/01/2017 – 31/12/2019. Collaborator, University of Verona Basic Research Grant with Paolo Pertile and Laura Magazzini for research into the incentivising effects of health care research and development funding (€55,000).
- 1/11/2013 – 30/04/2017. Member, External Advisory Board, EU Seventh Framework Programme project entitled ‘Integrated Design and Analysis of Small Population Group Trials’. (FP7-HEALTH-2013-INNOVATION-1, No. 602 552 (€3 million), <http://www.ideal.rwth-aachen.de>).
- Departmental- and University-level small-scale funding for ‘priming’ projects between 2006 and 2019.

## Software and data sets

Data and Stata code for the Smith and Forster (2018) paper in *The Journal of Economic History* is available at <https://www.openicpsr.org/openicpsr/project/102044/version/V1/view>

Matlab code for the Chick et al. (2017) paper in the *Journal of the Royal Statistical Society, Series B* is available at <https://github.com/sechick/htadelay>

Matlab code for the Pertile et al. (2014) paper in the *Journal of the Royal Statistical Society, Series A* is available at [https://wol-prod-cdn.literatumonline.com/pb-assets/hub-assets/rss/Datasets/Vol\\_177\\_2014-1521878678047.zip](https://wol-prod-cdn.literatumonline.com/pb-assets/hub-assets/rss/Datasets/Vol_177_2014-1521878678047.zip)

Data and Stata code for the Smith and Forster (2011) paper in the *Journal of the Royal Statistical Society, Series A* is available at [https://wol-prod-cdn.literatumonline.com/pb-assets/hub-assets/rss/Datasets/Vol\\_174\\_2011-1521878698957.zip](https://wol-prod-cdn.literatumonline.com/pb-assets/hub-assets/rss/Datasets/Vol_174_2011-1521878698957.zip)

## Other professional research activities

Associate Editor, *Bulletin of Economic Research*, 1 August 2016–31 July 2021.

Referee/reviewer (alphabetical): *American Economic Review*; *Bulletin of Economic Research*; *Fiscal Studies*; *Government and Policy*; *Health Economics*; *Health Economics, Policy and Law*; *Journal of Applied Econometrics*; *Journal of Economics*; *Journal of Health Economics*; *Journal of Human Capital*; *Journal of the Royal Statistical Society, Series A*; *Management Science*; *Social Science and Medicine*; *Technological Forecasting & Social Change*.

## Teaching – management and administration

Programme Leader, PGCert and PGDip Health Economics for Health Care Professionals [distance learning programmes in Health Economics](#), the University of York. Responsible for design, launch and operation since appointment in May 1998.

## Courses taught

### *Postgraduate and Doctoral*

‘Basic Economic Concepts’, ‘Health Economics: Concepts and Analysis’ (Postgraduate Certificate in Health Economics for Health Care Professionals (by distance learning), University of York, 2000–present)

‘Statistics for Health Economics’ (Postgraduate Diploma in Health Economics for Health Care Professionals (by distance learning), University of York, 2003–present)

‘Introduction to Dynamic Optimisation in Economics’ (MSc/Doctoral programmes in Economics at the Universities of Milan (2004–2007), York (2005–2006) and Verona (2010–2011 and 2012–2013))

‘An Introduction to Dynamic Optimisation, with Applications in Economics’ (Laurea Magistrale programme in Economics, University of Verona, 2014–2015, 2015–2016, 2016–2017, 2017–2018)

‘Dynamic Evaluation under Uncertainty’ (Laurea Magistrale programme in Economics, University of Verona, 2014–2015, 2015–2016, 2016–2017, 2017–2018, 2018–2019)

‘Statistics for Health Care’ (Laurea Magistrale programme in Health Economics and Management, University of Bologna, 2017–2018, 2018–2019, 2019–2020)

‘Building Empirical Case Studies in Health Economics’ (Laurea Magistrale programme in Health Economics and Management, University of Bologna, 2019–2020)