Obituary: Everette S Gardner Jr

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Everette "Ev" Gardner, Jr., a stalwart of the forecasting community for many years, died on 10th September 2023, some 79 years after his birth in Arkansas. He graduated in 1966 from Memphis State University and immediately joined the US Navy. His Navy years proved critical in laying the foundations of his subsequent academic career, with sponsorship for an MBA and then, in 1976, a PhD at the University of North Carolina, Chapel Hill. Ev's military experiences, including the undoubtedly onerous task of logistics manager for the Vietnam evacuation, were formative in influencing his approach to research, blending the practical challenges on the ground with rigour. His roles within operations, managing inventory for the USS Eisenhower, and Management Information Systems director for the US Atlantic Fleet, culminated in the position of Commander when he retired in 1986, at age 42.

In 1987, Ev joined the Department of Decision and Information Sciences, University of Houston, Texas, and was quickly appointed chair and full professor. He remained there for the rest of his life, winning several awards for both his teaching and his research.

Ev's responsibilities and experiences in the Navy provided him with case studies which required the integration of two important areas of operations research, inventory control and forecasting, and it is here that his academic contributions arose. These two areas were (and still are) often treated discretely. His early career was marked by his appointment as associate editor of the *Journal of Forecasting* (1983) and the *International Journal of Forecasting* (1985), *Management Science* (1987) and *Interfaces* (1987), all highlighting this unusual mix of an expert practitioner who also had strong research interests. His authority, perhaps because of his naval background, led him to the board of the International Institute of Forecasters and its presidency in 1990. In 2007, Ev was elected a Fellow of the International Institute of Forecasters. He was a featured speaker at the International Symposium of Forecasting held in Prague, 2011, where his topic was "Forecasting for Operations".

His twin research interests led to a number of influential publications. In forecasting, he was particularly interested in exponential smoothing methods, which had their genesis in the US Navy in tracking submarines, and in forecasting the demand for spare parts in Navy inventory systems. Along with Eddie McKenzie from the University of Strathclyde, Ed proposed damped trend methods (Gardner & McKenzie, 1985, 1989), which have since become an indispensable part of the exponential smoothing framework. Their argument was that trends are unlikely to continue unabated, and that longer-term forecasts are often more accurate when trends are damped or ignored.

His most cited works are the two "state of the art" papers (Gardner, 1985b, 2006), which expertly surveyed the literature on exponential smoothing at the time. In 2006, the first of these was ranked the third most influential article on forecasting by the International Institute of

Forecasters. The second survey paper is still a great starting point for researchers interested in the area.

At the interface with inventory control, one of his most influential articles is Gardner (1990), a case study based on his US Navy experience which shows how an improved forecasting system, using his new damped trend method, paid off with both improved accuracy, but more importantly, improvements over the inventory investment/service tradeoff curve. We have both long regarded the problem formulation as fundamental to answering the question, "is forecasting accuracy important?". So much of the work in the area has pursued forecast accuracy without regard to costs or practical relevance. Ev pursued the same themes in the general context of global supply chains with his doctoral student, Yavuz Acar, in Acar and Gardner (2012). This was the first paper to show how to minimize total supply chain costs, taking account of the effects of forecast accuracy.

Throughout his career, Ev argued for using models with only the requisite complexity, and he presented these ideas in Syntetos et al. (2015). Again, they showed that simple parametric methods performed well compared to more computationally demanding alternatives.

Ev took a keen interest in forecasting software, and developed his own spreadsheet-based software to do forecasting based on exponential smoothing, which he used in his extensive consulting activities. He also developed scheduling tools for spreadsheets, and both his forecasting and scheduling software were widely used for over a decade. In addition, he wrote three textbooks, based on using spreadsheets for managers (Gardner, 1992, 1993b, 1994), along with co-authoring a more general book on quantitative methods in management (Levin et al., 1995).

He was a committed teacher and a major contributor to the University of Houston Business Administration Honors program. All these activities were part of his vision of integrating research with practice, of which he was a tireless advocate in his publications, his consulting practice, and his teaching.

Sadly, he leaves a wife, Mary Ann, two children and their families, and his much-loved Australian Shepherd, Luke, who is a therapy dog visiting patients in the Houston area. Ev Gardner will be much missed, both professionally and personally. A complete list of his publications follows.

PhD

1. Gardner, ES, Jr. (1978). *Aggregate inventory models: Theory and application* (Doctoral dissertation). University of North Carolina.

Books

1. Gardner, ES, Jr. (1992). *The spreadsheet operations manager*. McGraw-Hill.

2. Gardner, ES, Jr. (1993b). *The spreadsheet quality manager*. McGraw-Hill.

3. Gardner, ES, Jr. (1994). *The spreadsheet forecast manager*. McGraw-Hill.

4. Levin, RI, Rubin, DS, Stinson, JP, & Gardner, ES, Jr. (1995). *Quantitative approaches to management* (eighth edition). McGraw-Hill.

Articles

1. Gardner, ES, Jr. (1979a). Box-Jenkins vs multiple regression: Some adventures in forecasting the demand for blood tests. *Interfaces*, *9*(4), 49–54.

2. Gardner, ES, Jr. (1979b). A note on forecast modification based upon residual analysis. *Decision Sciences*, *10*(3), 493–496.

3. Gardner, ES, Jr, & Dannenbring, DG. (1979). Using optimal policy surfaces to analyze aggregate inventory tradeoffs. *Management Science*, *25*(8), 709–720.

4. Gardner, ES, Jr. (1980). Inventory theory and the gods of Olympus. *Interfaces*, *10*(4), 42–45.

5. Gardner, ES, Jr, & Dannenbring, DG. (1980). Forecasting with exponential smoothing: Some guidelines for model selection. *Decision Sciences*, *11*(2), 370–383.

6. Gardner, ES, Jr, & McLaughlin, CP. (1980). Forecasting: A cost control tool for health care managers. *Health Care Management Review*, *5*(3), 31–38.

7. Gardner, ES, Jr. (1983a). Approximate decision rules for continuous review inventory systems. *Naval Research Logistics Quarterly*, *30*, 59–68.

8. Gardner, ES, Jr. (1983b). Automatic monitoring of forecast errors. *Journal of Forecasting*, *2*(1), 1–21.

9. Gardner, ES, Jr. (1983c). Evolutionary operation of the exponential smoothing parameter: Revisited. *Omega*, *11*(6), 621–623.

10. Gardner, ES, Jr. (1983d). The tradeoffs in choosing a time series method. *Journal of Forecasting*, *2*(3), 263–267.

11. Gardner, ES, Jr. (1984a). A comparison of investment allocation strategies for distribution inventories. *Decision Sciences*, *15*(1), 22–30.

12. Gardner, ES, Jr. (1984b). *Forecast control with parabolic masks* (tech. rep.). Navy Fleet Material Support Office, Mechanicsburg, USA.

13. Gardner, ES, Jr. (1984c). The strange case of the lagging forecasts. *Interfaces*, *14*(3), 47–50.

14. Gardner, ES, Jr. (1985a). Cusum vs smoothed-error forecast monitoring schemes: Some simulation results. *Journal of the Operational Research Society*, *36*(1), 43–47.

15. Gardner, ES, Jr. (1985b). Exponential smoothing: The state of the art. *Journal of Forecasting*, *4*(1), 1–28.

16. Gardner, ES, Jr. (1985c). Further notes on lagging forecasts. *Interfaces*, *15*(5), 63.

17. Gardner, ES, Jr, & McKenzie, E. (1985). Forecasting trends in time series. *Management Science*, *31*(10), 1237–1246.

18. Gardner, ES, Jr. (1986). A comment on 'research on forecasting'. *Interfaces*, *16*(1), 106–107.

19. Gardner, ES, Jr. (1987a). Smoothing methods for short-term planning and control. In S Makridakis & SC Wheelwright (Eds.), *The handbook of forecasting: A manager's guide* (second edition). Wiley Interscience.

20. Gardner, ES, Jr. (1987b). A top-down approach to modeling US Navy inventories. *Interfaces*, *17*(4), 1–7.

21. Gardner, ES, Jr. (1988). A simple method of computing prediction intervals for time series forecasts. *Management Science*, *34*(4), 541–546.

22. Gardner, ES, Jr, & Makridakis, SG. (1988). The future of forecasting. *International Journal of Forecasting*, *4*(3), 325–330.

23. Gardner, ES, Jr, & McKenzie, E. (1988). Model identification in exponential smoothing. *Journal of the Operational Research Society*, *39*(9), 863–867.

24. Gardner, ES, Jr, & McKenzie, E. (1989). Seasonal exponential smoothing with damped trends. *Management Science*, *35*(3), 372–376.

25. Gardner, ES, Jr. (1990). Evaluating forecast performance in an inventory control system. *Management Science*, *36*(4), 490–499.

26. Gardner, ES, Jr. (1993a). Forecasting the failure of component parts in computer systems: A case study. *International Journal of Forecasting*, *9*(2), 245–253.

27. Gardner, ES, Jr, & Ivancevich, JM. (1994). Productivity in the US and Japan: A reexamination. *Interfaces*, *24*(6), 66–73.

28. Gardner, ES, Jr, & Anderson, EA. (1997). Focus forecasting reconsidered. *International Journal of Forecasting*, *13*(4), 501–508.

29. Gardner, ES, Jr. (1999). Rule-based forecasting vs. damped-trend exponential smoothing. *Management Science*, *45*(8), 1169–1176.

30. Gardner, ES, Jr, Anderson-Fletcher, E, & Wicks, AM. (2001). Further results on focus forecasting vs. exponential smoothing. *International Journal of Forecasting*, *17*(2), 287–293.

31. Gardner, ES, Jr, & Diaz-Saiz, J. (2002). Seasonal adjustment of inventory demand series: A case study. *International Journal of Forecasting*, *18*(1), 117–123.

32. Gardner, ES, Jr. (2004). Dimensional analysis of airline quality. *Interfaces*, *34*(4), 272–279.

33. Gardner, ES, Jr, & Koehler, AB. (2005). Comments on a patented bootstrapping method for forecasting intermittent demand. *International Journal of Forecasting*, *21*(3), 617–618.

34. Gardner, ES, Jr. (2006). Exponential smoothing: The state of the art—part II. *International Journal of Forecasting*, *22*(4), 637–666.

35. Gardner, ES, Jr, & Diaz-Saiz, J. (2008). Exponential smoothing in the telecommunications data. *International Journal of Forecasting*, *24*(1), 170–174.

36. McKenzie, E, & Gardner, ES, Jr. (2010). Damped trend exponential smoothing: A modelling viewpoint. *International Journal of Forecasting*, *26*(4), 661–665.

37. Gardner, ES, Jr, & McKenzie, E. (2011). Why the damped trend works. *Journal of the Operational Research Society*, *62*, 1177–1180.

38. Acar, Y, & Gardner, ES, Jr. (2012). Forecasting method selection in a global supply chain. *International Journal of Forecasting*, *28*(4), 842–848.

39. Gardner, ES, Jr. (2015). Conservative forecasting with the damped trend. *Journal of Business Research*, *68*, 1739–1741.

40. Syntetos, A, Babai, MZ, & Gardner, ES, Jr. (2015). Forecasting intermittent inventory demands: Simple parametric methods vs. bootstrapping. *Journal of Business Research*, *68*, 1746–1752.

41. Gardner, ES, Jr, & Acar, Y. (2016). The forecastability quotient reconsidered. *International Journal of Forecasting*, *32*(4), 1208–1211.

42. Gardner, ES, Jr, & Acar, Y. (2018). Fitting the damped trend method of exponential smoothing. *Journal of the Operational Research Society*, *70*, 926–930.