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A member of the National Academy of Engineering, the National Academy of Science, the American Academcy of Arts and Sciences, and recipient of the National Medal of Science, plus eight honorary degrees, Professor Dantzig's seminal work has laid the foundation for much of the field of systems engineering and is widely used in network design and component design in computer, mechanical, electrical engineering - Stanford University Citation

George B. Dantzig is well known as the father of linear programming. This “underestimates his paternal accomplishments” as is compellingly illustrated in Richard Cottle's recent book *The Basic George B. Dantzig*.

From the time linear programming was discovered, Dantzig recognized that the “real problem” concerned programming under uncertainty. Dantzig's vision in his early papers is truly remarkable. His 1955 paper, which introduced linear programming under uncertainty, fully presents the simple recourse model, the two-stage stochastic linear program with recourse and the multi-stage stochastic linear program with recourse.

His 1961 paper (with A. Madansky) on applying the decomposition principle to solve two-stage stochastic linear programs recognizes connections to Kelley's cutting-plane algorithm and precedes Benders decomposition and the well-known L-Shaped method of Van Slyke and Wets. The 1961 paper concludes with the remark, “An interesting area of future consideration is the effect of sampling the distribution'” to statistically estimate cut gradients and intercepts. Three decades later, such methods were developed by Dantzig, Glynn & Infanger and by Higle & Sen.

Dantzig's discoveries were continually motivated by applications. As he tells it, the decomposition principle (with P. Wolfe) was largely developed on a plane flight from Texas back home to Santa Monica after visiting an oil company and initially miscalculating the size of their linear program. In 1956, he extended earlier work (with A.R. Ferguson) on an aircraft allocation problem to include uncertain customer demand. Dantzig has said that he fails to see the difference between the so-called pure and non-pure mathematics and doesn't believe there is any. He further said, “Just because my mathematics has its origin in a real problem doesn't make it less interesting to me---just the other way around.” The first sentence in Dantzig's 1963 textbook is, “The final test of a theory is its capacity to solve the problems which originated it.” A survey of the lectures at The Tenth International Conference on Stochastic Programming shows that stochastic programming's capacity is strong and is growing. This is a fitting tribute to the father of stochastic programming.

Selected Contributions

- “Linear programming under uncertainty,”*Management Science* (1955).
- “The allocation of aircraft to routes: an example of linear programming under uncertain demand (with A.R. Ferguson),” *Management Science* (1956).
- “On the solution of two-stage linear programs under uncertainty,” (with A. Madansky).in *Proceedings of the Fourth Berkeley Symposium on Mathematical Statistics and Probability*, J. Neyman (ed.), University of California Press, Berkeley, (1961).
- *Linear Programming and Extensions,* Princeton University Press (1963).
- “Time-staged methods in linear programs,” in *Large-Scale Systems*, Studies in Management Science, Vol. 7, Y.Y. Haims (ed.), North-Holland, Amsterdam (1982).
- “Parallel processors for planning under uncertainty,” (with P.W. Glynn). *Annals of Operations Research* (1990).
- Large-scale stochastic linear programs: importance sampling and Benders' decomposition(with G. Infanger) in Proceedings of the 13th IMCAS World Congress, C. Brezinski and U. Kulisch (eds.), Dublin, Ireland (1991).