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Current Comments®

The 1982 Nobel Prize for Economic Science Goes to George J. Stigler for His Work on Industrial Structure, Markets, the Effects of Regulation, and the Economics of Information

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Since 1979, we have discussed the significant work of each of the Nobel prizewinners in science, economics, and literature.[1-3] While these essays will never qualify as up-to-the-minute science journalism, we believe that *Current Contents*® (*CC*®) readers appreciate the in-depth approach we have adopted. Through citation analysis, our main purpose is to evaluate the impact of an author's most significant publications. As pointed out recently in discussing faculty evaluation,[4] this type of analysis is not performed overnight, nor is it merely a matter of consulting a computer printout. We are also interested in learning, in each case, whether the data anticipate or confirm the decisions of the Nobel committee.

We are covering the 1982 awards in five separate essays. The first dealt with the work of physics laureate Kenneth G. Wilson.[5] The second focused on the work of chemistry prizewinner Aaron Klug.[6] The third covered the work of the 1982 laureates in medicine: Sune K. Bergström, Bengt I. Samuelsson, and John R. Vane.[7] A discussion of the economics award follows here. An essay on the 1982 prize in literature will appear shortly. A future essay will discuss the work of the 1983 Nobel prizewinner in economics, Gerard Debreu, University of California, Berkeley.

The 1982 Nobel prize for economic science was awarded to George J. Stigler, age 71, University of Chicago, Illinois, for his studies of industrial structures, the functioning of markets, and the causes and effects of public regulation.[8] Instrumental in all these contributions was his pioneering work in the "economics of information," which concerns the effects on the marketplace of consumers' knowledge of what they're buying, producers' knowledge of what their competitors are selling, and the cost of acquiring such knowledge. Stigler's work, collectively, has been cited over 4,800 times from 1955 through 1983, according to *Science Citation Index*® (*SCI*®) and *Social Sciences Citation Index*® (*SSCI*®).

In the discussion that follows, we have indicated the number of citations received by each of Stigler's ten most-cited publications. All citation data were obtained from the *SSCI* and *SCI* data bases.

Incidentally, Stigler is not the inventor of Stigler's Law of Eponymy,[9] which states that an eponym is *never* named after its originator or discoverer.[10] The law was impishly formulated by his son, statistician Stephen M. Stigler.

Stigler's early work reflected his interest in numerous areas of economic science. For instance, while at the University of Minnesota, Minneapolis, his work included a paper on production and distribution,[11] a critical review of a statistical method,[12] and a theoretical paper on

duopoly[13]—a situation in which two sellers dominate but cannot gain control of a given market. Also among his earliest publications was an article[14] on a subject which would interest Stigler throughout his career: price theory, the study of the factors affecting the value set by sellers on their goods.

Stigler began empirical work in price theory in the mid-1940s, soon after moving to Columbia University, New York. Indeed, he published what was perhaps the first example of linear programming in a paper entitled "The cost of subsistence."[15] His work also included the statistical investigation of a specialized theory of rigid price structures,[16] and a paper on the factors governing the delivered prices of commodities.[17] In 1946, he published a landmark book, *The Theory of Price*.[18] After two revisions, in 1952 and again in 1966, it is still used in graduate schools throughout the US. It has been cited over 260 times through 1983.

Stigler also coauthored another important empirical study of prices in 1970, *The Behavior of Industrial Prices*[19] (75 citations through 1983). This book examines the question of price stability and presents meticulous data collected by Stigler and his colleague James K. Kindahl, University of Massachusetts, Amherst. The book's statistical evidence helped undermine the long-standing economic maxim that a major segment of the economy sets prices by management decision rather than in reaction to market factors.

While pursuing his interest in price theory, Stigler continued to be active in other areas of economics as well. During the post-World War II housing shortage, for example, he wrote a controversial pamphlet entitled *Roofs or ceilings?*[20] with Milton Friedman, University of Chicago. The pamphlet used an avalanche of statistics to argue that rent controls had the inevitable effect of distorting the rental market, bringing about severe shortages of apartments. Friedman won the 1976 Nobel prize for his work concerning monetary economics and statistics.

Stigler matured as a scholar during his years at Columbia, and his reputation as a clear-sighted, empirically oriented scientist grew. He wrote several books, including one on the expansion of employment opportunities in the service sector of the economy[21] and one on job prospects in science.[22] He also published numerous papers on a variety of subjects, including: monopolies;[23,24] utility theory, the study of how the consumer's use of a product affects the way in which that product is marketed;[25] the limits on the division of labor in a given market;[26] and historical accounts of the lives and works of early economists.[27,28] But much of Stigler's most important work lay ahead of him, upon his move to the University of Chicago in 1958.

The theoretical foundation for this work was laid in Stigler's most-cited paper, "The economics of information,"[29] published in 1961 and cited over 370 times through 1983. This *Citation Classic*™ discusses the costs and the benefits to both producers and consumers of supplying and obtaining information about commodities. Stigler's commentary on this article appears in this week's issue of *CC/Social & Behavioral Sciences*.[30] A later paper applies this theoretical framework to the description of the ways in which members of an oligopoly—a situation similar to a duopoly, but with more participants—interact and monitor one another[31] (120 citations). Another paper extends the economics of information to the job market, discussing the cost-efficiency of various methods of locating

prospective employers for workers entering a labor pool[32] (135 citations).

It should be mentioned here that Stigler's good friend, Fritz Machlup, Princeton and New York Universities, was instrumental in bridging the "gap" between information science and economics. Although Machlup was an expert on international currency problems, he published a monumental work on knowledge production[33] in 1962. It has been cited in over 230 publications through 1983. Moreover, three volumes of a multivolume work on the economics of knowledge and information[34] were completed before Machlup died last year, shortly after his eightieth birthday.

Stigler's work in the economics of information and his interest in the public regulation of industry spurred his study of economic and political institutions and industrial organization. Among his first efforts in this area, he confirmed a correlation between a given industry's profit margin and the degree to which that industry is concentrated in a few large firms[35] (155 citations). In addition, he coauthored a paper with Claire Friedland, University of Chicago, on the effects of regulation on rates and profits in electric utilities[36] (85 citations). The paper showed that nonregulated electric utilities of the 1930s tended to behave in similar fashion to their regulated counterparts. Later, his numerous articles on industrial organization were reprinted in *The Organization of Industry*[37] (220 citations).

Stigler's skepticism of the notion that government regulation makes a positive difference in the behavior of regulated industries is reflected in subsequent work. For example, he showed that even when regulation did affect industrial behavior, it usually produced more costs than benefits.[38,39] Indeed, according to Stigler, it is not necessarily true that regulatory agencies pursue the broad, common interest. In a paper entitled "The theory of economic regulation"[40] (315 citations), in which he argued that standard economic theory can be applied to determine when and how regulation will take place, he also found regulatory agencies were liable to be "captured" by the very industries they were supposed to regulate. They tended to protect the interests of the regulated industry to the disadvantage of the consumer.

According to 1970 Nobel prizewinning economist Paul Samuelson, Massachusetts Institute of Technology, Cambridge, not all of Stigler's conclusions are universally accepted.[8] In the utility rate study, for example, the evidence could also be interpreted to support the view that the unregulated industries kept their rates competitive out of fear of regulation. But it is important to note that Stigler's emphasis on statistical documentation has been no less than revolutionary. Previously, regulatory agencies were frequently judged by their original intentions or their self-proclaimed successes—indeed, by almost any standard but the verifiable results of their actions. Much of the credit for the growing interest in the empirical verification of economic theory must be given to Stigler.

Perhaps the best example of Stigler's combination of theory and hard data is provided by a paper entitled "De gustibus non est disputandum"[41] (85 citations), coauthored in 1977 with Gary S. Becker, University of Chicago. The title is roughly translated as, "There's no accounting for taste." It refers to the belief among traditional economists that certain economic phenomena are due solely to the vagaries of personal taste and are therefore unsuitable for scientific scrutiny. In this paper, however, Stigler rejects the traditional view and proposes that standard economic logic and analysis be applied as extensively as

possible. He asserts that it is not tastes that change, but levels of economic information.

Stigler's conclusions yield useful predictions about behavior, even in such seemingly unpredictable industries as fashion and advertising. But perhaps even more significant than the paper's results is its combination of theory and confirmation by observational data.

Stigler's work establishes the paradigms for four different *SSCI* research fronts. Briefly, a research front consists of a group of current papers that cite a cluster of earlier, "core" papers.[42] Three of these research fronts were identified through our *SSCI* cluster analyses for 1978 through 1980. The first, entitled "Electoral conditions and economic outcomes," is based in part on a paper in which Stigler questions the traditional assumptions about the ways economic conditions influence voters.[43] The core of the second *SSCI* research front, entitled "Economics of crime," contains a paper in which Stigler discusses a theory of the constraints on the rational enforcement of the laws in society, given the inherent shortcomings of law enforcement agencies and the limitations imposed on them from without.[44] Stigler's highly cited paper on the theory of economic regulation[40] forms part of the core literature of the third *SSCI* front, "Economic theory of regulation." The fourth research front is derived from the *ISI/CompuMath*® data base, and is entitled "Consumer search, industrial search, market information, and adaptive expectations." Its core literature includes Stigler's most-cited paper, "The economics of information."[29]

Although it was Stigler's tangible work on the causes and consequences of economics and political institutions that was recognized by the Nobel committee, his intangible contributions to economics may be just as important. He has raised the standards of industrial economics far beyond those found in the work of earlier scholars. Moreover, Stigler has made sterling contributions to the history and sociology of economic thought. His recognition by the Nobel committee is a testament to his rigorous, clear-thinking style.

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REFERENCES

1. **Garfield E.** Are the 1979 prizewinners *of Nobel class? Essays of an information scientist.* Philadelphia: ISI Press, 1981. Vol. 4. p. 609-17.
2. ----------. The 1980 Nobel prizewinners. *Essays of an information scientist.* Philadelphia: ISI Press, 1983. Vol. 5. p. 189-201.
3. ----------. Were the 1981 Nobel prizewinners in science, economics, and literature anticipated by citation analysis? *Essays of an information scientist.* Philadelphia: ISI Press, 1983. Vol. 5. p. 551-61.
4. ----------. How to use citation analysis for faculty evaluations, and when is it relevant? Parts 1 & 2. *Current Contents* (44):5-13, 31 October 1983 and (45):5-14, 7 November 1983.
5. ----------. The 1982 Nobel prize in physics. *Current Contents* (50):5-14, 12 December 1983.
6. ----------. The 1982 Nobel prize in chemistry goes to structural biologist Aaron Klug. *Current Contents* (3):3-11, 16 January 1984.
7. ----------. The 1982 Nobel prize in medicine recognizes the impact of prostaglandin research by S.K. Bergström, B.I. Samuelsson, and J.R. Vane. *Current Contents* (12):3-12, 19 March 1984.
8. **Williams W.** Nobel won by Chicago economist. *NY Times* 21 October 1982, p. D1; D7.
9. **Stigler S M.** Stigler's law of eponymy. (Gieryn T F, ed.) *Science and social structure: a festschrift for Robert K. Merton.* New York: NY Academy of Sciences, 1980. p. 147-57.

10. **Garfield E.** What's in a name? The eponymic route to immortality. *Current Contents* (47):5-16, 21 November 1983.
11. **Stigler G J.** Production and distribution in the short run. *J. Polit. Econ.* 47:305-27, 1939.
12. ----------. The limitations of statistical demand curves. *J. Amer. Statist. Assn.* 34:469-81, 1939.
13. ----------. Notes on the theory of duopoly. *J. Polit. Econ.* 48:521-41, 1940.
14. ----------. Social welfare and differential prices. *J. Farm Econ.* 20:573-86, 1938.
15. ----------. The cost of subsistence. *J. Farm Econ.* 27:303-14, 1945.
16. ----------. The kinky oligopoly demand curve and rigid prices. *J. Polit. Econ.* 55:432-49, 1947.
17. ----------. A theory of delivered price systems. *Amer. Econ. Rev.* 39:1143-59, 1949.
18. ----------. *The theory of price.* New York: Macmillan, 1966. 355 p.
19. **Stigler G J & Kindahl J K.** *The behavior of industrial prices.* New York: National Bureau of Economic Research, 1970. 202 p.
20. **Friedman M & Stigler G J.** *Roofs or ceilings? The current housing problem.* Irvington-on-Hudson, NY: Foundation for Economic Education, 1946. (Pamphlet.) 22 p.
21. **Stigler G J.** *Trends in employment in the service industries.* Princeton, NJ: Princeton University Press, 1956. 167 p.
22. **Blank D M & Stigler G J.** *The demand and supply of scientific personnel.* New York: National Bureau of Economic Research, 1957. 200 p.
23. **Stigler G J.** Monopoly and oligopoly by merger. *Amer. Econ. Rev.* 40(Suppl.):23-34, 1950.
24. ----------. The statistics of monopoly and merger. *J. Polit. Econ.* 64:33-40, 1956.
25. ----------. The development of utility theory. Part I. *J. Polit. Econ.* 58:307-27, 1950.
26. ----------. The division of labor is limited by the extent of the market. *J. Polit. Econ.* 59:185-93, 1951.
27. ----------. Sraffa's *Ricardo. Amer. Econ. Rev.* 43:586-99, 1953.
28. ----------. Schumpeter's *History of economic analysis. J. Polit. Econ.* 62:344-5, 1954.
29. ----------. The economics of information. *J. Polit. Econ.* 69:213-25, 1961.
30. ----------. Citation Classic. Commentary on *J. Polit. Econ.* 69:213-25, 1961. *Current Contents/Social & Behavioral Sciences* 16(15):14, 9 April 1984.
31. ----------. A theory of oligopoly. *J. Polit. Econ.* 72:44-61, 1964.
32. ----------. Information in the labor market. *J. Polit. Econ.* 70(Suppl. No. 5 Pt. 2):94-105, 1962.
33. **Machlup F.** *The production and distribution of knowledge in the United States.* Princeton, NJ: Princeton University Press, 1962. 416 p.
34. ----------. *Knowledge: its creation, distribution, and economic significance.* Princeton, NJ: Princeton University Press, 1980-1984. Vols. 1-3.
35. **Stigler G J.** *Capital and rates of return in manufacturing industries.* Princeton, NJ: Princeton University Press, 1963. 229 p.
36. **Stigler G J & Friedland C.** What can regulators regulate? The case of electricity. *J. Law Econ.* 5:1-16, 1962.
37. **Stigler G J.** *The organization of industry.* Homewood, IL: Richard D. Irwin, 1968. 328 p.
38. ----------. Public regulation of the securities markets. *J. Bus.* 37:117-42, 1964.
39. ----------. The economic effects of the antitrust laws. *J. Law Econ.* 9:225-58, 1966.
40. ----------. The theory of economic regulation. *Bell J. Econ. Manage. Sci.* 2:3-21, 1971.
41. **Stigler G J & Becker G S.** De gustibus non est disputandum. *Amer. Econ. Rev.* 67:76-90, 1977.
42. **Garfield E.** ABCs of cluster mapping. Parts 1 & 2. Most active fields in the life and physical sciences in 1978. *Essays of an information scientist.* Philadelphia: ISI Press, 1981. Vol. 4. p. 634-49.
43. **Stigler G J.** General economic conditions and national elections. *Amer. Econ. Rev. (Papers Proc.)* 63:160-7, 1973.
44. ----------. The optimum enforcement of laws. *J. Polit. Econ.* 78:526-36, 1970.