

Sherwin Rosen (September 29, 1938–March 17, 2001)

Sherwin Rosen was born in Chicago in 1938. His parents, Nell and Joe Rosen, met on a kosher dairy farm in Quebec, Canada. His mother was Canadian, and his father was from Illinois. Along with his uncle, Harry, Sherwin's father owned a hardware store, where Sherwin spent much of his youth. He was very close to his brother Eddie, who died when both men were only in their thirties.

Sherwin completed his undergraduate education in engineering at Purdue in 1960. Despite his early exposure to building supplies and his engineering training, he decided to pursue graduate studies in economics at Chicago. It appeared at first that perhaps economics was not a good match; he failed the general core exam, and was advised by Milton Friedman to leave economics, perhaps for accounting. Sherwin continued despite this advise, and completed his PhD in 1966 under the supervision of the labor economist Gregg Lewis.

Sherwin began his academic career at the University of Rochester in 1964. He was named Kenan Professor of Economics, 1975, where he remained until 1977. While he certainly was productive at Rochester, he wrote his famous hedonic pricing paper while he was there, Sherwin was most at home at Chicago, and returned there in 1977. He became the Edwin A. and Betty L. Bergman Distinguished Service Professor in 1983, served as Department Chairman from 1988 to 1994. While he did spend summers at the Hoover Institute at Stanford as the Peter and Helen Bing Senior Fellow, Sherwin turned down numerous offers to leave Chicago; the Chicago intellectual atmosphere was simply part of him.

Sherwin was elected a fellow of the Econometric Society in 1986, and the American Academy of Arts and Sciences in 1984; he was also a member of the Mont Pelerin Society from 1988. He

became a member of the National Academy of Sciences at the age of 59, and was serving as president of the American Economics Association at the time of his death. Shortly after his death, The Society of Labor Economists honored his lifetime achievement, and his memory, by establishing “The Sherwin Rosen Prize for Outstanding Contributions in the Field of Labor Economics.” It was first awarded in 2004 to Daron Acemoglu of M.I.T.

One of the great applied microeconomists of his time, Sherwin Rosen made many contributions, publishing over 80 journal articles and book chapters, several of his articles were reprinted multiple times. A theme that ran through his work was understanding heterogeneity. His most famous paper on hedonic prices (JPE 1974) is the basis for how to understand diversity. The market takes the heterogeneous demands for characteristics by consumers, due to different preferences and incomes, and the heterogeneous supply functions of firms, which differ due to differences in terms of factor prices and technology. The price of these characteristics is then determined by the matching of demands and supplies. Exactly what combinations of characteristics will form the final goods is determined by the distribution of the consumer characteristics and the distributions of firm technologies. The key insight is that the final good is indivisible, and the price reflects the characteristics of the good. For example, it is clear that two cars with 50 horse power each is not equivalent to a single car with 100 horse power.

The importance of indivisibility can be seen again in another famous paper on the economics of superstars (AER 1981); a series of mediocre performers will never add up to one really good one. In the superstars paper, Rosen presents a very simple model, but one that is able to explain the existence of a very skewed wage distribution. The combination of indivisibility, and a product with

attributes similar to a public good, that it can be reproduced or consumed by many at little marginal cost, lead to very skewed wage distribution. This is the rationale for why one performer, who may be only slightly better than many others, commands such a higher wage: her performance can be enjoyed, either in concert or on a recording, at little marginal cost. The answer then becomes obvious as to why a few superstars can earn wages that are so much higher than performers who they may be only slightly better than: why would anyone want to listen to a performance by the second best when it costs the same to hear the best.

A similar question, although one that leads Rosen and Edward Lazear to a very different modelling strategy, is why are there such large differences in salaries at the top end of the corporate hierarchy? Why does a vice president who is earning \$500,000 command compensation of one million dollars when she becomes CEO? What is the use to a firm of such a skewed wage setting policy? Rosen and Lazear's answer to this question started a literature known as "tournament theory" (JPE 1981). The key insight of the tournament paper is that executive compensation schemes are based on relative, not absolute, performance. Since the contributions of effort and luck cannot be disentangled, the firm is left only with a rank ordering of output. In competing for a fixed prize, the winner takes all. The prize, or top salary is fixed in advance, and the person who wins doesn't do so because she is good, all the competitors are great, she wins because she is the best. The salary she obtains is the one that goes with the job, not necessarily the one that matches her ability. The salary of the CEO serves not only to compensate the actual CEO, but also to motivate the vice presidents. A large gap between top position and second serves to increase the competing vice presidents' effort. The outcome is a very skewed wage distribution, one that would be very

difficult to reconcile by appealing to differences in marginal productivity. The outcome is similar to what we see with the superstars, but the mechanism is very different. In the superstar case it is the technology that allows the best performance to be enjoyed by all that creates the great divide between the very good and good, while in the tournament case it is asymmetric information, or the unobservability of true ability that makes the winner take all wage structure optimal; this contract elicits the most effort from those competing for the top prize. In his follow up paper (AER 1986) Rosen generalized the model to a tournament with many rounds. The result that the biggest wage gain is made in the last round remains; In order to elicit effort from the competitors, it is necessary to make the prize the largest in the last round to compensate for the fact that there are no more rounds to be won.

In a discussion of Rosen's contributions it would be a mistake not to mention his landmark empirical study on self-selection in education with Robert Willis (JPE 1979). Here they address the question of to what extent the positive correlation between earnings and education can be thought of as causal, or simply as a result of more able people attending school. Rosen demonstrates a deep desire to estimate structural parameters in this work. Applying a revealed preference analysis in a sorting context, the Roy model, Rosen and Willis demonstrated that those who went to College were not only better at college type jobs, but those who chose not to go to college were better at high school type jobs. The recognition that one needs to go beyond a bias correction due to not having a variable to control for ability, and recognize that the schooling choice is made in a context of comparative advantage makes these estimates very rich. The paper brings out Rosen's view that heterogeneity is the rule, not the exception, his admiration for simple models with the ability to

explain a lot, and his desire to estimate structural parameters.

While the papers discussed so far are arguably Rosen's most famous works, it should not be thought that his productivity or his influence on the discipline ended by the 1980s. He contributed chapters to both the Handbook of Labor Economics (1986) and, with Derek Neil, to the Handbook of Income Distribution (2000). In 1999 Rosen turned his attention to the Potato Paradox (JPE 1999). In this article he clearly demonstrates how the simple, yet critical, insight that potatoes are both a consumption good, and an investment good (whole potatoes are needed to start next years crop since they don't produce seeds), provides a deeper understanding of the Irish potato famine, and puts a stake through the heart of the notion that they are so called "Giffen goods."

The Chicago school of thought is very clear in all of Rosen's work; people respond to incentives in a well organized and predictable way. This thinking is clear in all of Rosen's work, we can understand what we observe in the world by a careful examination of incentives, and the environment in which agents are acting. I had the opportunity to collaborate on several projects with Sherwin near the end of his life. The two papers we published together are excellent examples of how an appreciation for heterogeneity and uncertainty, combined with a very simple structural model, can provide a satisfying and convincing explanation for seemingly puzzling behaviour observed in the world. We worked on two such questions together: First, why do we observe the phenomenon of unravelling, where in some professions future employment contracts are signed long before the job is to begin, even before the candidates are eligible to actually work (AER 1998). Examples in sports are easy to find; the NBA draft is obvious, but we have also observe this phenomenon among medical interns and law students, where hiring can occur several years

before the professional certification takes place. The role of indivisibility arises again in modelling here. The matching that is necessary, a worker is not divisible, leads to aggregate uncertainty due to uncertainty that individuals have about their own traits, and uncertainty the market has about their traits. Unravelling is the result of risk aversion in an incomplete market. It relieves some of the uncertainty about available jobs for applicants, and some of the uncertainty about the qualified candidates for firms.

Our second project, with Wing Suen (AER 2001), set out to answer how committees make decisions. The key is that the fact that the members are on the same committee means they have a common interest, and in an uncertain world, better decisions can be made with more information. Clearly pooling private information improves the decision that can be made when all members have identical preferences. When committee members' preferences are correlated, for example they all want to hire the best new assistant professor, but there is heterogeneity, each would prefer to hire in their own area, members have an incentive to exaggerate their own news about the situation in order to pull the decision in the direction of their own preferences. It turns out that voting is the equilibrium method of reaching a decision in such a committee. The reason is that a mechanism is needed that sufficiently coarsens information reported by the members so that members cannot exactly recover other members information, and therefore voting limits the scope of strategic reporting.

Sherwin died shortly after this paper was accepted for publication. His career was cut short while he was still writing insightful papers, he had two further posthumous publications: "Markets and diversity," (AER 2002) and "The engineering labor market," (2004).

For an expanded Biography and list of works see:

Joop Hartog. Desperately Seeking Structure: Sherwin Rosen (1938-2001). *The Economic Journal*, 112, F519-31. 2002.

Edward P. Lazear. Sherwin Rosen September 29, 1938-March 17, 2001. *Biographical Memoirs V. 83*, National Academy of Sciences, 176-95, 2003.

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