

Rosen S. Hedonic prices and implicit markets: product differentiation in pure competition. *J. Polit. Econ.* 82:34-55, 1974.  
[University of Rochester, NY and Harvard University, Cambridge, MA]

The equilibrium structure of price and quality variation in differentiated product markets is revealed as a marriage problem between attributes of buyers and sellers. The theory interprets empirical price-quality regressions and suggests new methods for obtaining complete structural and behavioral information from the data. [The *Social Sciences Citation Index*® (SSCI)® indicates that this paper has been cited in over 170 publications since 1974.]

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"My work on this topic was stimulated by many empirical studies relating price variation of differentiated products to performance measures and other characteristics. While the intuitive basis for these methods was clear, they did not square well with available economic theory because the problem of quality determination in markets had been largely ignored and there was no rigorous theory of product differentiation in a market setting. Substantial attention had been devoted to finding theoretical structures that would support the empirical studies and explain their findings, but I was dissatisfied with those attempts because they did not adequately deal with the full market equilibrium aspects of the problem.

"The innovation of my work was conceptual. It showed how the empirical results could be interpreted in terms of an unfamiliar type of spatial equilibrium. I think its appeal was to combine familiar elements from sever-

al different branches of economics into a new package that gave a reasonably precise, but straightforward and accessible, interpretation of well-known results found by others. It also suggested some new methods for obtaining more information from the data, which subsequent investigators have found interesting.

"The work itself is a development of the ancient theory of equalizing differences generalized with modern technical apparatus to multiple dimensions and to a much wider class of problems. That theory was well known to me from my training as a labor economist, but apparently was unfamiliar to others working on the problem. I owe much in the development of these ideas to a lengthy correspondence with H. Gregg Lewis on one of my first publications.<sup>1</sup> It gradually dawned on me that the approach we had argued so much about earlier had greater generality than the specific point at issue. In particular, it showed how cross-sectional price variation could be sustained as an equilibrium phenomenon in many market settings. However, I did not at all anticipate many of the areas in which this framework would find application in subsequent work.

"My results have been used mostly for interpreting empirical work and for thinking about how to formulate empirical procedures in many practical problems that have spatial elements, where 'space' is interpreted broadly to include the latent characteristics of goods (or, in the labor market, jobs). The theoretical description of equilibrium has proved to be reasonably complete and durable, but far less work has been done on developing econometric methods for extracting all of the structural information on preferences and technologies from the data. I conjectured some methods in the article that are now understood to be incomplete and difficult to apply in practice, so that problem remains very much on the research agenda."

1. Rosen S. On the interindustry wage and hours structure. *J. Polit. Econ.* 77:249-73, 1969.