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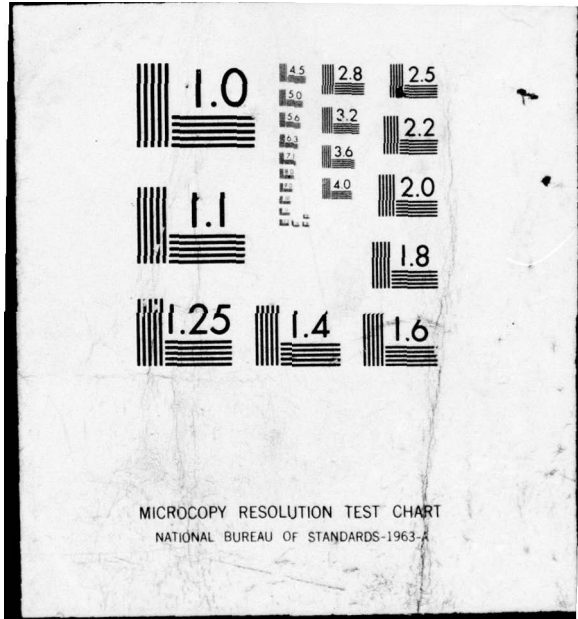
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HEALTH ECONOMICS: A VIEW FROM THE DALLAS MEETINGS

Charles E. Phelps

The 1975 Allied Social Science Associations meetings held in Dallas in December, 1975 listed three sessions of papers in health economics, papers which again demonstrated the diversity of research approaches being undertaken in the field. Some of the papers provided significant contributions to the theory of behavior in the health market, and many of these provided empirical tests of the propositions established in the theory. Several papers provided thought-provoking discussions of current issues. These papers were presented in sessions that provide a useful organizational framework for their discussion.

Cost Containment: Experience and Possibilities

Perhaps the most timely topic of any of the sessions was that on cost containment procedures. It is widely accepted that implementation on any significant form of national health insurance will lead to upward pressures on the relative price of medical care and on total expenditures. In light of this, several types of cost-saving programs have been introduced in current public programs, notably more extensive reliance on prepaid group practices (PPGP), Professional Standards Review Organizations (PSRO) and other peer review programs, introduction of preventive care programs, and various reimbursement systems for large providers of care (mostly hospitals).

In "Contrasts in HMO and Fee-for-Service Performance,"

Clifton R. Gaus, Barbara S. Cooper and Constance Hirschman assess

the effects of the first of these concepts in some detail, relying on experience from Medicaid populations. Their study provides a comparison of hospitalization, surgery, and ambulatory visit rates for some 8000 persons in 10 HMOs and matched samples (by ZIP code, age and family size) of fee-for-service (FFS) Medicaid patients. Since the results reported more for AFDC families only, the sample was heavily over-representative of females and young families. In brief, the data show approximately a 60% lower hospitalization rate in the HMOs and a 50% lower rate of surgery. Ambulatory care visit rates were approximately equal in the two samples, even where a prior-authorization program was in effect in the FFS population (for each visit over the second each month). Effects of the alternative delivery systems on health status were also assessed via the usual indicators--disability days and bed days--and no differences were found. No systematic differences in behavior were observed between medical foundations and the FFS system, leading the authors to conjecture that it is the method of payment to physicians, rather than the prepayment arrangement per se that leads to the differences in observed utilization.

In his discussion, Paul Feldstein noted that some very large difference in utilization existed even between the HMO groups studied and commented upon the desirability of a multivariate study to assess some of these remaining differences. He also raised questions about the comparability of the two samples (e.g., the racial mix) and concluded (with the authors) that much still remains to be learned about which factors provide the most direct influence of utilization and costs in such delivery-system comparisons.

Gaus et al. also provided some data on frequency of selected preventive care procedures to test the widely-believed hypothesis that HMOs employ such procedures with greater frequency than the FFS system. Their data, in fact, showed the opposite, thereby leaving the assembled audience with some data in search of a theory.

Fortuitously, this theory was provided in the subsequent paper, "Quality of Care Versus Cost Containment: Implication for Professional Standards Review Organizations," by William D. Finkle. Finkle established a basic model of measuring health outcomes based upon life expectancy of a representative individual. His model incorporates the costs of preventive care screening and follow-up tests, the costs of early treatment for those persons declared "sick," and the costs of later treatment of illnesses not detected early. His conclusion was that there would be underproduction of preventive care in PPGP, particularly with a community-rated plan, because life-saving measures undertaken by the PPGP would extend the number of years in which the PPGP would be delivering (presumably) higher cost care to old persons, costs not met completely by the premium revenue of the organization. Put differently, the PPGP cannot capture as much of the gains of preventive care as the individual can, so (given equal financing of care to the individual), there would be more preventive care undertaken in the FFS system than in the PPGP system.

His data show that for two well-understood screening programs-- colon cancer and breast cancer--the PPGP firm can capture only about 20 to 25 percent of the total cost savings, with the logical presumption following that there will be underproduction of such activities in a PPGP.

In his discussion, as well as that of discussant Royal Crystal, alternative methods were proposed to provide proper incentives for PPGP organizations to employ the optimal amount of preventive care.

The third speaker of this session was Ralph E. Berry, of Harvard University, who gave an "Evaluation of Prospective Hospital Reimbursement in New York."^{*} He proposed a basic model wherein demand shifts (e.g. from increased insurance coverage) lead to hospital price increases, which in turn led to accumulation of capital surpluses by the hospitals. Because of the non-profit nature of the hospitals, he argued that this accumulation of surpluses could only be devoted to additional capital expenditures, which lead to systematic increases in hospital average costs. He argued that a hospital reimbursement system, if effective in containing hospital costs, must interrupt this cycle. Preliminary data from New York support these speculations. Before a prospective reimbursement system was introduced there, upper New York hospitals had higher rates of cost and input increases than his "control" areas--New England and Ohio hospitals. With a prospective reimbursement system, implemented in 1970, the rates of increase in New York dropped dramatically. The general wage and price controls from 1971-1974 masked possible differences during those years, but removal of the controls led to further rapid increases in prices in his "control" areas, but not in New York. Thus, while not answering the questions about long-run effects of such prospective reimbursement formulas on industry behavior, his data seem to show significant short-run effects on price and input increases. ^{**}

^{*} A revision of this paper appeared in the June issue of Inquiry, titled "Prospective Rate Reimbursement and Cost Containment: Formula Reimbursement in New York."

^{**} Other work on this subject was presented by Paul B. Ginsberg, in "Cost Containment through Reforming Nursing Home Reimbursement," in an unlisted session on state government and health economics issues.

Invited Papers

Two sessions in health economics, rather than being focused on specific issues, were intended to represent the broad spectrum of research ongoing in the field. This diversity was well demonstrated in the Invited Papers session, in which papers ranged from studies of physician-assistant employment in PPGP--a paper complementing those in the session on cost control--to a proposal for reorganization of not-for-profit hospital management to increase efficiency. With these papers were studies of price and quality differences in physician markets and regional planning models.

In "Cost-Effectiveness of Physician Associates: Kaiser-Permanente Experience," by Jane Cassels Record, Joan E. O'Bannon, Paul D. Lairson, and John P. Mullooly, data were presented showing under what circumstances PAs are cost effective in the Kaiser system. While the study was not structured around a formal production function methodology,* some important facts arose from the work. Work inputs of PAs were observed to be markedly lower than MDs, because of lower hours per day, thereby somewhat offsetting their lower cost. At the cost-minimizing combination, the authors estimate that 32 PAs and 36 MDs would be employed to operate the clinic, rather than the current level of 5 PAs and 50 physicians. Total cost savings to Kaiser would be near \$300,000 per year, representing a 14% reduction in personnel costs. This amounts to under \$4 per

* For a formally structured model, see Uwe E. Reinhart, "A Production Function for Physician Services," Review of Economics and Statistics, Vol. 54, No. 1, January, 1972.

subscriber unit (families and individuals) per year. Perhaps one of the important facts to be concluded from such a study is that, while there may be opportunities to save resources by expanding use of PAs in a large clinic, it does not appear that major aggregate savings could emerge from such a program, given present technology and relative costs of PAs and MDs. The \$4 per subscriber unit annual savings represents about \$.25 per ambulatory visit.*

Would patients be willing to pay a quarter to guarantee that a physician, rather than a PA is their provider source? The Record et al. study cannot answer that question. Some interesting experiments are under way within Department of Defense medical systems relating to this question from which data should be available soon, and it will probably be useful for health economists to carefully assess both the cost savings and the acceptability by patients in that situation as well as in the PPGP model.**

Probably the most novel among the health economics papers given in Dallas was "A Proposal for Reorganization of Non-Profit Hospitals," by Jeffrey Harris. I found the paper fascinating partly because it was a unique application of the author's combined training in economics and medicine. In this paper, he argues that current departmental structure of nonprofit hospitals introduces many distortions in decisionmaking that lead to inefficient operation, and that an alternative organizational form he proposes would lead to higher efficiency. The alternative rests upon the hypothesis that the medical processes within a hospital are decomposable--that in fact there are

*This is my calculation, not the authors'. I assume an average of 5 visits per person per year, and 3.5 persons per unit. $\$4 / (3.5) \times 5 = \$.23$.

**Over half of the patients in DoD medical systems are civilians--retirees and their spouses.

many separate activity centers in which most patient treatments can be contained--so that cost-minimizing organization would link together all such activities under a central manager, rather than having them separated across many existing hospital departments. The manager, for optimum efficiency, would be the physician who makes decisions about patient treatment. This would require some restructuring of the MD-hospital relationship to some extent within the fee-for-service system (but not within PPGP models); the model could improve efficiency under either organizational form. Fortunately, the basic hypothesis of decomposability is empirically testable, and Harris provided a test in a companion paper, "A Linear Model of a Hospital and its Application to the Problem of Efficient Decentralization of Production in the Firm," presented at meetings of the Econometric Society. Those interested in the results of the "test" are encouraged to read Harris' forthcoming publication in the Bell Journal of Economics.*

In another paper presented at this session, Roger Feldman studied the linkages between physician price and quality. He provides a theory of equilibrium price differentials which relate to quality, estimates the relationships (hedonic price functions) and then estimates demand curves for physician office and hospital visits using the quality-adjusted price. The data employed were state-aggregate use and expenditure data for 1971. Unfortunately, Feldman employed a specification of the demand equations (a variable with gross price paid to provider plus a variable measuring the fraction of patients with insurance) which is known to lead to inconsistent estimates of the price elasticity.** This does not speak against the usefulness of the direction

* A sneak preview: things are quite decomposable.

** The proof is in Newhouse and Phelps, "On Having Your Cake and Eating It Too: Econometric Problems in Estimating the Demand for Health Services," The Rand Corporation, R-1149-NC, April 1974.

taken by Feldman toward quality adjustment of prices, which should be further pursued by researchers studying the demand for medical care.*

The final paper presented in this session was "The Use of Aggregate Financial Data for Regional Health Resource Planning," by Gene A. Fisher and John P. Wirnowski.** This paper is an attempt to learn how much health planning can be done from readily available aggregate data, and relies heavily on acceptance of existing "norms" for appropriate levels of treatment, personnel, and facilities. The contrast between this paper and the Feldman paper reflects one of the most basic differences between various researchers in the health field--what is the appropriate role of consumer choice. The Fisher and Wirnowski paper accepts without comment the norms given from official sources, and studies how communities diverge from those norms. Feldman, on the other hand, begins with a model of consumer utility maximization, and proceeds to draw formal implications about human behavior consistent with that basic hypothesis. In one case, consumer preferences play little, if any, role, whereas in the latter case their role dominates. I found the contrast never more directly presented than by the two papers in this session.

New Directions in Health Economics

The final Dallas session in health economics was to focus on the new frontiers of research in the field. Ironically, one of the papers was directed toward one of the earliest problems considered by economists in this field--the role of supply in "creating its own demand."

* Other work in this area was presented at the 1975 Western Economics Association meetings by Michael Grossman and Fred Goldman of the NBER. Their paper studied "The Demand for Pediatric Care: An Hedonic Approach."

** A recent symposium in Vienna in 1975 may be of interest to those persons interested in health systems planning. See Systems Aspects of Health Planning, Norman J. Bailey and Mark Thompson, eds. (New York: North Holland Publishing Company, 1975).

Mark V. Pauly's paper, "The Role of Demand Creation in the Provision of Health Services," provides a systematic appraisal of arguments in this area. The concept that supply could create its own demand was originally posed by Roemer in 1961, wherein he asserted a causal relationship between the observed increase in hospital beds and the observed increase in hospital utilization in a single community in New York. Pauly provides four reasons why one might find such a relationship;

(1) Omitted variables in a statistical estimation of demand are correlated with the supply variable. Inclusion of supply in the demand equation picks up the effect of the omitted terms. Thus one reason to observe the "Roemer effect" is simply because of an analytic error.

(2) Increased supply decreases non-money costs of service (such as travel and waiting time), so that observed demand increases as the true price falls. This is a movement along a demand curve, rather than (as Roemer hypothesized) a shift in the demand curve.

(3) Medical services are subject to chronic excess demand, and are rationed by providers on the basis of concepts such as severity or intellectual interest to the physician.

(4) Providers create demand by manipulating the information available to consumers.

The last of these hypotheses by Pauly is really the best restatement of the original Roemer hypothesis, i.e., that providers are really capable of true demand creation. Pauly provides some tests of the hypotheses in the paper, and finds some weak evidence supporting hypothesis (4), by showing that the ability for physicians to create

demand seems to be negatively correlated with education of patients.* Thus, he argues, the major limitation of demand creation is information acquisition and processing capabilities of the patient.

In his discussion, Klarman heavily stressed the results found by M. Feldstein (1967) in the British hospital system, as a major piece of evidence "supporting" the proposition that hospital beds create their own demand, and chastised Pauly for not referring to these results. But Pauly was correct in his omission--Feldstein's results do not provide insight into the problem. To understand this, one must appreciate how the British results emerged. Feldstein observed a positive correlation between waiting lists for admission to British hospitals and the number of hospital beds in each region. He drew this conclusion because (he argues) that hospital bed supply was exogenously determined (hospital construction having been near zero for 25 years before Feldstein studied the British system), so that he is "justified in...examining [supply's] effects on demand for hospital care." With **such** a long period of zero additions to hospital bed supply, but with growth over time in aggregate demand (due to population increases, changes in income, changes in technology making hospitals both more useful and safer, etc.) there must be excess demand--a true economic scarcity brought about by restrictions on supply growth--throughout the system. With such excess demand, nothing can be inferred about the Roemer hypothesis.** Hospital admissions must be strongly correlated with hospital bed supply, but this has nothing whatsoever to do with demand creation. We can learn nothing from the British experience regarding the question posed by Pauly (or Roemer).

* He finds no effects of hospital availability on admissions rates.

** This problem was originally pointed out by Joseph P. Newhouse, "Forecasting Demand and the Planning of Health Services," in Bailey and Thompson, ibid.

The paper by Philip J. Held and Uwe E. Reinhardt, "Health Manpower Policy in a Market Context," presented a view of manpower shortages markedly different from much conventional wisdom. Using a telephone survey of physician offices throughout the United States, Held and Reinhardt assess the adequacy of traditional manpower shortage measures that are based on standards.* Their survey collected measures that would tend to be sensitive to excess demand situations--waiting times to appointments for old and new patients, willingness of physicians to accept new patients, etc. Using these measures of an "economic shortage" of physicians (i.e., areas where demand exceeded forthcoming supply), they found that excess demand appeared to be smaller, if anything, in DHEW designated "shortage" areas than in other areas. These results cast some measure of doubt on the usefulness of the DHEW shortage definition, which is based upon the assumption that demand per capita is identical in every area of the country. They also found evidence that physicians in areas with low physicians/capita tended to work longer hours, thus making services delivered much more uniform across the country than the actual distribution of physicians/capita.

The question arises from the Held and Reinhardt paper as to why queues should exist in the health sector, or more particularly, what the optimal queue should be for a maximizing physician. They posit two models which would lead to physician prices not clearing a market: a regulated price market, and a target-income theory. The regulated market theory has some face validity in the context of their data, because medical prices were under controls of the Cost of Living Council

* Note that this paper, like the Feldman and Fisher-Wirnowsky papers, contrasts the market viewpoint with the "planning" viewpoint.

during at least part of their survey period (1973-1974). They present in their paper an extended model of behavior of the physician/firm which they feel will be helpful in understanding the behavior of demand, supply response, market clearing mechanisms, and prices.

The other paper in the session was by Karen Davis and Ray Marshall, and its subject was "New Developments in the Market for Rural Health Care." This is an essay on the problems (and some current attempted solutions) to the delivery of medical care in rural areas. It focuses attention of the reader on the linkages between general living conditions in the rural areas of this country and the associated health problems, and attempts to show the (presumably) urban reader why he should be interested in solving those problems. The authors list what they feel to be the major problems in the area--poor financing of health care for rural populations, inability to attract health professionals, and medico-legal restrictions which prevent alternative delivery forms--with the special feature of discrimination and/or insensitivity toward minorities in Southern rural areas. They cite the apparent success of having community-sponsored primary care areas in some regions, development of comprehensive care systems, nurse practitioner models of care, and group practices as some available solutions. The paper ends with 29 recommendations for future directions for health policy to improve rural health.

Two difficulties reside in this paper in its present form. First is that the paper is not documented in any form, although the discussion is reported to be based on an ongoing study which is to generate original data. No hypotheses are tested, but rather the reader

must rely upon the authors' judgements. The second difficulty is akin to the first--many of their statements are certainly supported by research of others, but the reader is given no guidance to the available literature in this area. Except for tables in the paper which show the levels of various indicators of health, supply of medical practitioners, and utilization levels of various services, there are no citations within the paper at all.* If the authors' purpose is to interest other economists in the problems of rural medical care, they have done themselves a disservice by not helping other "rural health economists" link up with previous literature.

Concluding Remarks

The Dallas economics sessions again provided evidence of the intriguing variety of research going on throughout the country under the general framework of "health economics." Several of the papers this year provided some remarkably heretical viewpoints when contrasted with "conventional wisdom." Whether they are correct in the long run has yet to be determined, but heresy is surely the yeast for growth. The breadth of topics approached is also heartening. The papers discussed or studied topics ranging from more traditional demand and supply models and cost/benefit studies to studies of market equilibrium,

*In Herbert Klarman's discussion he pointed out that out-migration makes even these data suspect.

basic organizational structure, and new forms of regulation in the health sector.

On a more negative note, I observed only two health-related papers in sessions other than those directly related to health.* Surely economists studying the health sector would benefit from the interaction, critique, and viewpoints of economists studying other subjects. Perhaps we (as health economists) would be well served to submit our work to the general scrutiny of the profession in all sessions, concentrating on methodology as well as topic. And perhaps we could find some new recruits for the field in the process.

*Harris' linear programming paper was one of these. The other was a study of "Estimation of Hospital Cost Function," by Henry M. Zaretsky. I was unable to attend the session at which these papers were presented, and hence cannot comment upon them.