Sometime during the next decade the United States will probably embark on major reform of our pluralistic system of health care finance. The growth of the uninsured and the failure of the so-called competition revolution of the 1980s to stem the rise in health care spending are just two of the factors pushing the nation toward more radical change. In seeking to develop new approaches, health policy experts inevitably will attempt to draw on the experiences of other countries, especially those such as Canada that have managed to implement universal coverage while simultaneously containing costs well below U.S. levels.

In doing so, it would be wise to resist simplistic notions about the easy transfer of health care systems across national boundaries. “The organization of medicine,” law professor Walton H. Hamilton wrote in 1930, “is not a thing apart which can be subjected to study in isolation. It is an aspect of culture, whose arrangements are inseparable from the general organization of society.” But even if it is impossible to reproduce another country’s experience, it should be possible to learn from it. The potential for learning is particularly great in a comparison of Canada and the United States because of both the differences and the similarities between the two countries.

In 1986, Canadians spent approximately 8.5 percent of their gross national product (GNP) on health care, while Americans spent approximately 10.9 percent. If U.S. spending had been held to the Canadian ratio, the savings would have amounted to about $100 billion. This large difference between Canada and the United States has emerged only since the 1970s. Before then, the percentages of GNP spent for health care were similar in the two countries. This was not surprising because the United States and Canada are similar in many respects, including training of physicians and other health professionals, political and economic
institutions, and popular culture. Thus, the recent divergence in spending provides an unusual natural experiment.

The exploratory study of hospital spending by Joseph Newhouse, Geoffrey Anderson, and Leslie Roos draws on that experiment to compare hospital utilization by patients age sixty-five years and over in the United States and Canada. Admission rates and case-mix indices appear to be similar in the two countries; length-of-stay is much longer in Canada, but cost per case (and cost per enrolled person) is much lower. There is little reason to question the authors’ principal conclusions; therefore, I devote the balance of this commentary to certain conceptual and analytical issues concerning international comparisons of health care.

**Economic Accounting**

Newhouse and colleagues focus on the differential in expenditures per capita in U.S. dollars; they transform Canadian expenditures into U.S. dollars through an exchange rate. One possible problem with this approach is the determination of the appropriate rate. Most economists believe that, in the long run, a free-market rate reflects differences in the price levels between the two countries (at least for internationally traded goods). In the short run, however, the market rate can be affected by capital flows, foreign exchange speculation, and other factors that are irrelevant to a comparison of health care systems. Use of an inappropriate exchange rate will distort international comparisons.

Consider, for instance, three possible comparisons of per capita expenditures for health care in the United States and Canada in 1980.\(^2\) Basing a comparison on the market rate of exchange indicates that spending is 38 percent higher in the United States. If the comparison is based on an exchange rate obtained by comparing the prices of all goods and services produced in the two countries (purchasing power parity, or PPP), the differential is only 27 percent. A third possible comparison, based on an exchange rate derived from only health-sector prices (health purchasing power parity) shows a differential of only 22 percent. The fact that the third differential is smaller than the second indicates that, relative to other goods and services, health care prices are lower in Canada than in the United States.

Sharp fluctuations in the Canadian/U.S. market exchange rate in recent years indicate that choice of the correct rate continues to be a problem of considerable practical significance. Between February 1986 and July 1988, the number of Canadian dollars needed to purchase one U.S. dollar fell by 19 percent. In the first seven months of 1988 alone, the number of Canadian dollars needed to buy one U.S. dollar fell by 7
percent. The reasons for this appreciation in the value of the Canadian dollar are not known precisely, but probably have little to do with changes in health care. Nevertheless, comparisons based on the market rate would show sharp fluctuations in the U.S./Canadian differential in expenditures for health care.

One way of avoiding the exchange rate problem is to concentrate on the differential in health care expenditures as a percentage of gross national product (X/\text{GNP}), with each country’s values calculated in its own currency. This differential, in an accounting sense, must result from differences in one or more of the following three variables: the quantity of services per capita (Q/\text{POP}); the inputs required per quantity of service (P/Q); and the prices of health care inputs relative to GNP per capita (P/\text{GNP}/\text{POP}). That is,

\[ \frac{X}{\text{GNP}} = \frac{Q}{\text{POP}} \cdot \frac{1}{Q} \cdot \frac{P}{\text{GNP}/\text{POP}}. \]

If we think of each term as the ratio of U.S. to Canada, the equation tells us that the U.S./Canada ratio of the share of GNP devoted to health care is identically equal to the product of the three terms. Because the identity is multiplicative, the relationship between the logarithms of the U.S./Canada ratios is additive. That is,

\[ \ln \frac{X}{\text{GNP}} \equiv \ln \frac{Q}{\text{POP}} + \ln \frac{1}{Q} + \ln \frac{P}{\text{GNP}/\text{POP}}. \]

Thus, it is possible in principle to decompose exactly the U.S./Canada differential and to show how much is accounted for by differences in services per capita, differences in productive efficiency, and differences in input prices (relative to GNP per capita).

**Behavioral Explanations**

A statistical decomposition along the lines outlined above would provide much useful information about the differences between the Canadian and U.S. health care systems. But it would be only a first step. Economic accounting needs to be supplemented by behavioral explanations. I believe that all three variables on the right-hand side of the equation contribute to the U.S./Canadian differential, and it would be of tremendous theoretical and practical importance to understand what behavioral mechanisms are responsible for the national differences in those variables.

Consider first the question of quantity of services per capita. If Canadians consume fewer services, what in the Canadian system constrains utilization? Some of the most popular explanations that have been offered with respect to U.S. health care expenditures fall flat if applied to the Canadian scene. For instance, Canadian patients are virtually fully
insured; deductibles and coinsurance are clearly not the mechanism of restraint. Moreover, Canadian physicians are mostly reimbursed on a fee-for-service basis; there is very little use made of prepaid group practice, capitation, and other financial mechanisms that are relied on in the United States to restrain utilization by changing physician behavior. There are, however, government sanctions, actual or potential, that may cause Canadian physicians to limit their use of tests and other procedures. The most readily identifiable source of restraint on the Canadian scene is the fact that most of the funds for health care come from a single source. With hospital budgets set in advance, it is very difficult for hospital administrators, physicians, patients, or anyone else to spend more than the budgeted amount. A second potential source of restraint on utilization in the Canadian system is the much lower ratio of specialists to general practitioners. By virtue of their training, knowledge, inclination, and interests, specialists tend to order more services.

The smaller number of specialists in Canada also may contribute to the second term, namely, fewer inputs for any given volume of services. It is well known that in the United States the large number of surgeons and other specialists contributes to a low average workload. It is possible that workloads are higher in Canada; that is, highly trained health professionals may be used more efficiently. Canada also probably saves on the use of other personnel to enhance production efficiency. For instance, there must be many fewer people employed in health care in Canada to sell and administer insurance plans, and the Canadian system probably requires fewer employees for billing, utilization review, and other administrative and marketing functions.

With respect to the third term, it seems likely that the Canadian provincial governments, with their monopsony power in the purchase of medical care, can use that power to drive down the prices of inputs relative to the prices of other goods and services in Canada. This could show up in the prices paid to physicians, to drug companies, and to other suppliers of goods and services.

**Consequences**

Economic accounting and behavioral explanations are two important elements in a comparison of the two health care systems. The third is to understand the consequences of differences in behavior. If Canadians receive fewer health services than Americans, what effect does that have on health or other aspects of well-being? Perhaps the services that are not received are of so little value to the patients that there are no discernible effects on mortality or morbidity. This question is, in principle, answer-
able, but there are others that will prove to be more difficult to investigate. Once one moves from fairly objective measures of health status to more subjective questions about consumer satisfaction, the conceptual problems are quite severe.

Consider, for instance, the problem of evaluating the differences in length-of-stay between the two countries. Is hospital output to be measured purely in terms of changes in medical status, or are amenities and conveniences also to be considered? From an economic perspective, the latter should be included if they are of value to the patient, that is, if the patient would be willing to pay something for them. When the length-of-stay differs appreciably, as it does between Canada and the United States, the conceptual problem is particularly perplexing, as can be seen from the following example.

Suppose a Canadian patient and an American patient enter their respective hospitals with identical medical conditions, are treated successfully, and upon discharge their medical status is again identical. Further suppose that the Canadian patient stayed nine days and the American patient, six days. Shall we credit the hospitals with the same output? If change in medical status is the only criterion, the answer is obviously yes. But viewed from the patient’s perspective, the outputs need not be the same. If the patient values the extra three days in the hospital (that is, would be willing to pay something to be allowed to stay), the hospital with the longer stay should be credited with more output. On the other hand, if the patient prefers getting out in six rather than nine days (that is, would be willing to pay something not to have to stay the extra three days) the hospital with the shorter stay should be credited with more output. We know very little about the preferences of patients with respect to this question; furthermore, different patients may have different preferences.

It would also be interesting to know how the cost of producing an identical change in medical status varies with the length-of-stay. The longer stay may cost the hospital more because of additional expenses for room and board. On the other hand, it is also possible that the shorter stay costs more (to achieve the same medical condition at discharge) because services must be delivered intensively. Moreover, since the two hospitals probably will be using different combinations of inputs, the cost comparison may yield ambiguous results if the relative prices of inputs differ in the two countries. Given a certain combination of preferences and relative prices, it may be more efficient for the American hospital to discharge after six days and more efficient for the Canadian hospital to discharge after nine.

The differences in health care systems may have other consequences:
for medical education, medical research, the recruitment of young women and men into medicine, and the like. A full comparison should consider these areas as well. In short, there is an enormous amount of work that could be done, and in my opinion should be done, to capitalize on the most interesting natural experiment in health care of recent decades: the different paths taken in Canada and the United States.

Support for my research from The Pew Charitable Trusts is gratefully acknowledged.

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