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Analysts who debate U.S. health care reform continue to look northward to Canada for evidence of how a single-payer system can control costs more effectively than the U.S. multipayer system has to date. In this Peer Review, analysts Morris Barer (Canada), Pete Welch (United States), and Laurie Antioch (Australia) examine a monograph written by Ed Neuschler of the U.S. Health Insurance Association of America (HIWA). Neuschler's monograph took issue with the common assumption that Canada's cost control efforts have been more successful than U.S. efforts. To conclude the exchange, Neuschler offers his rejoinder to the three analysts critique of his 1990 work.

**Canadian/US. Health Care: Reflections On The HIAA's Analysis**

by Morris L. Barer, W. Pete Welch, and Laurie Antioch

The monograph entitled *Canadian Health Care: The Implications of Public Health Insurance*, by Edward Neuschler of the Health Insurance Association of America (HIAA), is really three different pieces of work living together uneasily between common covers. Taken together, the pieces describe the Canadian system and suggest that (1) Canadian and American health care cost control experiences have been much less different than is suggested by comparing their relative percentages of gross national product (GNP); (2) Canada's cost control has come at the expense of a variety of access problems, most notably unreasonably long waiting lists for necessary (mostly surgical) interventions; and (3) the dramatic increase in public funding and the increased government role implicit in a wholesale U.S. adoption of a Canadian-style system would be unacceptable to Americans.

The three pieces differ in content, rigor, and tone. The first is a superb and objective description of the Canadian health care system. It deserves to be used widely as a convenient summary description of Canadian health care financing, physician and hospital reimbursement, and recent health policy.

In the second, analytic piece, Neuschler compares Canadian and American real health care costs per capita during 1967-1987. He concludes that the perception of relative cost control success in Canada arises from an inappropriate base of comparison [percentage of GNP or gross domestic product (GDP) rather than real costs per capita] and the fact that real GNP rose more rapidly in Canada. The claim is that health care's share of GNP rose less rapidly in Canada not because of any cost control advantage in the numerator but because of more rapid growth in the denominator. In the second part of this analytic section, Neuschler considers the fiscal impact in the United States of a Canadian-style funding system.

The third piece deals with access to...
health care issues, including a broad-ranging (largely rhetorical) discussion of the social and political impediments to Canadian-style health care financing in the United States. We limit our critique to Neuschler’s comparisons of health care costs and discussion of access to health care.

Assessing Cost Containment

Neuschler argues that relative success with cost control should be measured not relative to growth in GNP, but in terms of real per capita health care costs. He finds Canada’s experience with the latter very similar to that in the United States. Canada’s percentage of GNP going to health care has grown far less rapidly than that in the United States, while the two countries’ real per capita costs have moved in parallel. Thus, Neuschler attributes the former difference “not to differences in how the two countries finance and deliver health care but to differences in overall economic growth rates—the Canadian economy grew significantly faster than the U.S. economy.”

We suggest that there are three types of problems with Neuschler’s analyses and conclusions. First, in making international comparisons of cost control, there are compelling theoretical reasons to use percentage of GNP going to health care rather than real per capita health care costs. Second, the suggestion that Canada’s cost control has been an illusion created by its relatively rapid real growth in GNP is inconsistent with the body of empirical research that has examined the income elasticity of health care costs. Third, we show that Neuschler’s real per capita cost results are products of two strategic analytic choices—the time period of analysis and the lack of selectivity in sectors chosen for comparison—both of which ignore fundamental institutional facts about Canadian health care.

Share of GNP or real per capita costs. The choice between these two measures has a major impact on one’s assessment of the relative health care cost control success of Canada and the United States. As the monograph notes, if one measures “health care cost by percentage of [GNP], Canada is doing well . . . . But if cost containment is measured by rates of increase in health care spending . . . the picture is less clear.”

Neuschler is not alone in using real health care costs per capita to assess relative success in health care cost containment. George J. Schieber noted recently that although (among the industrialized nations) the United States had the largest increase in health care costs as a percentage of GDP since 1960, “much of this phenomenon can be explained by the slower growth of U.S. GDP relative to U.S. health spending.” Similarly, in the context of the debate over Canada’s cost-control experience, Judith Feder, William Scanlon, and John Clark concluded that “[f]aster GNP growth, then—faster real health spending explains why health’s share of the GNP has stayed lower in Canada.”

In fact, a nation’s relative success in containing health care costs can only reasonably be measured in terms of health care costs as a percentage of GNP; rather, it cannot be measured by comparing trends in real costs per capita. In the long run, rising real GNP per capita increases real wages in the health care sector, causing health care costs per capita to rise. In judging the comparative international performance of one sector of the economy, such as health care, it is inappropriate to use a measure that is heavily influenced by the comparative performances of entire economies.

Theory. Consider this simple example. Suppose that the real wages of all workers in the economy increase by 10 percent; that labor is the only factor of production; and that wages are the only source of income. Even if health care use is unchanged, real health care costs per capita will still increase by 10 percent. Yet only an unusual definition of health care cost containment could lead one to conclude that this increase in real expenditure was evidence of a country’s failure to contain its health care costs.

In this example, real GNP per capita would increase by 10 percent, as would real health care costs per capita. Health care costs as a percentage of GNP would not change, because increases in its denominator (GNP per capita) would cancel out those
in its numerator (health care costs per capita). Given that nothing has occurred in the health care sector per se, an appropriate measure of cost containment would not be expected to change in this situation. Hence, health care costs as a percentage of GNP is conceptually a more appropriate measure for comparison.

While GNP can be thought of as the value of all final goods and services, it can also be thought of as the sum of the incomes of all factors of production, including labor. In the long run, increases in real output per capita will raise wages in all sectors of the economy. The mechanism by which this occurs can be described most simply by supposing otherwise: that wages increase in some sectors of the economy but not in the health care sector.

In the short run, workers in the health care sector—physicians, nurses, administrators, and so forth—would find that their wages, relative to those in other employment opportunities, had fallen. This would cause some of these personnel to switch sectors, forcing the health care sector to raise the wages it pays. This “employment adjustment” would not occur at the same rate for all occupational groups. In the long run, however, the wages of all occupational groups in the health care sector would be expected to rise at the same rate as those in the rest of the economy. Note that in real terms, nothing has changed in the health care sector.

In sum, Neuschler’s contention that relatively rapid economic growth is likely to be associated with relatively less rapid growth in health care expenditures has no obvious theoretical basis. In the extreme, his explanation implies that no matter how much faster Canadian real per capita GNP growth had been over the twenty-year period, U.S. health care cost control would have been at least as “successful” as in Canada unless Canada’s real growth in per capita health care costs had been less rapid than that in the United States.

**Empirical evidence.** Several analysts have investigated the relationship between health care costs and GNP. In principle, such investigations capture both input price effects and changes in health care use as a function of changes in national income. Relying primarily on a microeconomic framework and downplaying the input price effects, analysts have labeled this relationship the “income elasticity” of health care expenditure. Empirical analyses incorporate the impact of returns to nonlabor inputs as well as labor income. Hence, they relax the assumptions of the theoretical analyses above.

An income elasticity of, say, 0.5 would indicate that an increase of 10 percent in GNP per capita would be associated with (result in) an increase of 5 percent in health costs per capita. An elasticity of one would imply equal percentage increases in GNP and health costs per capita and would be associated with an unchanged ratio of health costs to GNP. An elasticity of zero would indicate that a 10 percent increase (or decrease) in GNP per capita would typically have no effect on health costs.

An income elasticity near zero would suggest that general macroeconomic activity has no systematic impact on health care, in which case one could reasonably use trends in real per capita costs to compare cost containment. On the other hand, an elasticity closer to one would lend support to use of the health care share of GNP to compare relative cost containment experiences.

Most of these analyses have involved simple, cross-sectional regressions, involving as many as twenty developed nations. To our knowledge, no one has seriously suggested that income elasticity is close to zero. Rather, the issue is whether health care has an income elasticity a little less than one or a little greater than one. This body of research supports our argument that real health care cost per capita is a poor measure of relative cost containment performance.

**Short run versus long run.** Even if long-run elasticity is in the neighborhood of one, in the short run, the share of GNP devoted to health care might rise or fall as a result of sharp turns in general economic fortunes. If,
for example, health care prices, wages, and use are relatively insulated from the early effects of broader business cycles, then the share might increase at points of economic downturn and decrease in the early growth phases of the cycles. For example, in the early 1980s, the share jumped sharply in both Canada and the United States as a result of the onset of the common recession.

But these are short-run phenomena. Neuschler and others have argued implicitly that the numerator is not a function of the denominator, that factor prices in health care (for example) are not a function of real GNP per capita. Such an argument inappropriately uses a short-run model to explain a long-run phenomenon.7

Measurement problems. Of less importance in this particular context is the fact that international comparisons of real per capita costs require an explicit analytic effort to make the figures in each country comparable. Costs in each country must first be converted to “constant (base) year” values through the use of general expenditure (for example, GNP) deflators, comparably constructed for international comparisons. Furthermore, to compare absolute levels of cost per capita at particular points in time, figures from each country must be made commensurable through the use of a purchasing power parity (PPP) conversion for the base year. The accuracy of such statistical adjustments is a consideration not encountered with the use of the ratio of health care costs to GNP in each country.8

Revisiting The HIAA Analysis

Choice of period. Neuschler chose the period 1967-1987 because it was “the most recent 20-year period for which health spending totals are available for both countries.” The “magic” of using twenty years would seem to be outweighed by the pragmatic fact that Canadian Medicare was not fully in place until early 1971. Worse yet, during 1967-1971, the Canadian provinces were in the process of developing and implementing their universal medical care insurance programs.

Whereas Neuschler found expenditures to have risen slightly faster in Canada over the 1967-1987 period (Canada, 4.58 percent; United States, 4.38 percent), Exhibit 1 illustrates clearly that this results from Neuschler’s inclusion of the four years during which the Canadian system was still evolving. During 1971-1987, U.S. real per capita costs rose 0.3 percent a year faster than those in Canada. Extending the period to take advantage of more recent data indicates that Canadian real cost growth has declined since 1987, while that in the United States has increased. Over the longer eighteen-year period, the gap in rates of real per capita growth is a more substantial 0.7 percent annually (about 14 percent cumulative).

This suggests a quite different conclusion than Neuschler’s: namely, that despite the fact that one might have anticipated more

Exhibit 1
Real Health Care Costs Per Capita, Canada And United States, 1971, 1987, And 1989

<table>
<thead>
<tr>
<th></th>
<th>1971</th>
<th>1987</th>
<th>1989</th>
<th>Average annual percent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>$786.3</td>
<td>$1,442.1</td>
<td>$1,499.1</td>
<td>3.86%</td>
</tr>
<tr>
<td>United States</td>
<td>$839.7</td>
<td>1,616.5</td>
<td>1,819.0</td>
<td>4.18</td>
</tr>
</tbody>
</table>

Sources: Real expenditures are reported in the currency of each country and were computed using the GNP deflator for each country and 1981 as the base year. For Canada, the GNP deflator was derived from series published in the Bank of Canada Review (Ottawa: Bank of Canada, November 1990), and health care expenditure and population data for 1987 are taken from National Health Expenditures in Canada, 1975-1987 (Ottawa: Health and Welfare Canada, 1990). The preliminary (unpublished) estimate of health care expenditures for 1989, and revised data for 1971, were kindly provided by the Health Information Division, Health and Welfare Canada. For the United States, the GNP deflator and the population were taken from the 1990 Statistical Abstract of the United States, 110th ed. (U.S. Department of Commerce, Bureau of the Census, 1990), and the health care expenditure data were provided by the Office of National Health Statistics, Health Care Financing Administration (but can also be found in various issues of the Health Care Financing Review).
rapid growth of real per capita expenditures in Canada because of its more rapid real economic growth, one finds quite the opposite. U.S. real per capita health care costs have grown more rapidly than those in Canada since the inception of Canadian universal hospital and medical insurance, and recent data suggest that the gap in rates of growth is widening.9

Choice of expenditure categories. But even this revised picture is misleading. An examination of the relative cost control record of the Canadian national health insurance program should exclude health care subsectors for which it was not designed (such as dental care, pharmaceuticals, long term care, and medical devices). Again, failure to take note of the institutional details creates quite misleading results.

In Exhibit 2, we plot the share of total health care expenditures represented by, hospital services, physician services, and administration in each country during 1971-1987. This exhibit illustrates the dramatic effect of the Canadian system. The share of total Canadian health care costs represented by hospital, medical, and administrative expenditure fell from about 64 percent at the beginning of the period to under 57 percent in 1987. Cost control in these three sectors has been relatively more successful than the absence or patchwork of control mechanisms in the rest of the sector. At the same time, the comparable U.S. share rose, from about 60 percent to about 63 percent.

The trends in per capita cost data underlying these dramatically different internal health care sector reallocations in the two countries suggest no basis for doubt about relative cost control success, even using real per capita health care costs as the basis of comparison (Exhibit 3). Average real U.S. increases in these three subsectors outpaced those in Canada by 1.4 percent annually, or by over 20 percent cumulatively over the sixteen years. In particular, average annual growth in real per capita costs for administering the U.S. system was over 5 percent; in Canada, this figure was about 1.6 percent.

In principle, services not covered by the single-payer Canadian system could have been increasingly substituted for the included services over this period. However, comparisons of medical and hospital services use suggest that Canada has contained physician costs by controlling fees, not use. Similarly, Canada has controlled hospital costs not because of lower rates of hospital utilization but through less intensive servicing associated with each day of hospitalization.
Exhibit 3
Average Annual Rates Of Growth In Real Health Care Costs Per Capita, Canada And United States, Selected Subsectors, 1971-1987

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Canada</th>
<th>United States</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>3.09%</td>
<td>4.48%</td>
<td>1.35%</td>
</tr>
<tr>
<td>Physician services</td>
<td>3.27</td>
<td>4.41</td>
<td>1.10</td>
</tr>
<tr>
<td>Administration</td>
<td>1.58</td>
<td>5.23</td>
<td>3.59</td>
</tr>
<tr>
<td>Subsectors total</td>
<td>3.10</td>
<td>4.52</td>
<td>1.38</td>
</tr>
<tr>
<td>Total health care</td>
<td>3.86</td>
<td>4.18</td>
<td>0.30</td>
</tr>
</tbody>
</table>


care. While there has been considerable growth in the relative share of total costs going to “other institutions” in Canada, the nursing home sector in the United States also grew over this period, and a large share of the “other institutions” sector in Canada is funded from the same public budgets. Thus, it seems unlikely that the single-payer funding of hospital and medical care in Canada has shifted costs from the relatively more to the relatively less controlled subsectors.

Updating the share of GNP comparison. In Exhibit 4, we compare the share of GNP going to total health care and to the three subsectors (hospital, physician, and administration) in the two countries during 1971-1989. This illustrates two important trends. First, even viewed in terms of overall health care costs, the gap has widened dramatically over the most recent two years for which data have become available since Neuschler’s analysis. The Canadian share appears to have stabilized at just under 9 percent, while the U.S. share was 11.6 percent in 1989. Second, the gap for the three subsectors affected by Canadian national health insurance is both wider (in proportionate terms) and growing faster.

Exhibit 4
Health Care Costs As A Percentage Of GNP, Total And Subsectors, Canada And United States, 1971-1989

<table>
<thead>
<tr>
<th>Percent of GNP</th>
<th>12</th>
<th>10</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1975</td>
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<td></td>
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<tr>
<td>1980</td>
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<td></td>
<td></td>
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<tr>
<td>1985</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td></td>
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</tbody>
</table>


Note: The subsectors represented are hospitals, physicians, and administration, shown here in combined form.
The Access Debate

Neuschler's contribution to the debate over access to health care is, in our view, the weakest section of his monograph. It suffers from two major methodological problems. First, unlike the cost analysis, the treatment of access to necessary health care drops the comparative approach and focuses only on Canada. If, as Neuschler suggests, the motivation for his study was to contribute to informed policy discussion about whether “public insurance fashioned on the Canadian model . . . [might be] an approach that would work well [in the United States],” then surely an analysis of access ought to be undertaken in a similar comparative context. The relevant question is, of course, whether a Canadian-style system would represent an improvement in, or an erosion of, the access situation in the United States, and for whom. Neuschler's approach precludes addressing that question.  

Second, Neuschler's analysis of access to health care in Canada is based almost entirely on anecdotal reports from the Canadian popular press. While this: may have been about all there was in the public record at the time, it does not sit well in a monograph described in its preface (by HLAA President Carl Schramm) as based on “thorough research and objective presentation.” Newspapers and weekly newsmagazines are a particularly suspect source of information in Canada because, as Neuschler notes, “creating a sense of imminent crisis helps the health care industry argue for additional resources or fend off deeper cuts. . . . Media reports become part of the political infighting and are, therefore, all the more difficult to evaluate.” We agree.

Some serious analyses, at least of queues in Canada, are now beginning to engage researchers on both sides of the border (see David Naylor’s article on queues in this volume of Health Affairs). Of course, queues for particular high-profile procedures (such as cardiac surgery) are only one small part of access to effective health care, and we do not wish to imply that there are no access problems in Canada. But Neuschler’s treatment of the issue does not represent a contribution to any reasoned debate about relative problems of access to appropriate health care interventions in the two systems.

Some Final Thoughts

For two decades, a major “natural” experiment on health care financing has been conducted in North America. Canada has had a single-payer system for the major components of health care, while the United States has employed a multipayer system. The results on cost containment are available, although the results on access to and quality of care are not. In analyzing relative international cost containment records, the appropriate measure is the proportion of GNP devoted to health care, not real costs per capita. Furthermore, when Neuschler’s cost analysis is refocused only on the sectors commonly understood to be governed by Canadian national health insurance, even real health care costs per capita-biased against the Canadian experience by the more rapid real economic growth—are found to have grown much less rapidly in Canada than in the United States. The North American experiment demonstrates conclusively that the Canadian single-payer system has contained costs more effectively than has the U.S. multipayer system.

It seems time for the American debate to move beyond attempts to cast the US. health cost control record in a favorable international light. Many comparative questions are of interest both to Canadians and Americans, but they have nothing to do with whether American health care costs are really as high in relative terms as everyone knows they are, or whether the latest cardiac waiting list death in Canada might have been averted in the United States.

The authors thank H. Gilbert Welch and Theodore Marmor for helpful comments on an earlier draft.
NOTES


4. Analogously, one should not use unadjusted expenditures to evaluate the efficiency of hospitals, some of which are in high-wage areas and some in low-wage areas. Just as each hospital must take the areawide wage levels as given, each sector of the economy must, to a large extent, take economywide wage Levels as given. Recognizing this, the U.S. Medicare system varies its payment to hospitals according to area wages.

5. In the United States, three-quarters of income is received as wages, a ratio that has remained constant since 1970. A minor assumption here is that the number of wage earners per capita remains constant or at least is the same in the two countries. In 1971, civilian employment as a percentage of the population was 38.2 in the United States and 37.6 in Canada. In 1987 (the latest year for which data are available), this percentage was 46.1 in the United States and 46.7 in Canada. See Organization for Economic Cooperation and Development, Labour Force Statistics, 1967-1987 (Paris: OECD, 1989). Relaxing these assumptions does not substantially alter the story.


7. It is understandable that analysts focus on health care costs, whether or not adjusted for population and price level. In the short term, the public policy problem is how to control those expenditures. Expenditures appear in public budgets and must be compared to available revenues, whereas health care expenditures as a percentage of GNP do not appear in those budgets. Whether in a provincial parliament or the U.S. Congress, the immediate focus is necessarily on expenditures (costs). The same holds for an American firm that offers health insurance to its employees. As often is the case in macroeconomics, the perspective of one component of the economy is different from the perspective of the economy as a whole.


9. Of course, one could play endless games with shorter periods. For example, in his executive summary, Neuschler points out that real per capita costs rose faster in Canada than in the United States over the period 1977-1987. But the reverse is true for the period 1979-1989 (Canadian annual costs rose an average 4.12 percent, while those in the United States increased 4.68 percent annually) and for 1975-1985 (Canada, 4.08 percent; United States, 4.3 percent). This instability in results from shorter periods points to the need to view comparative cost experiences over the long run. When overall experiences have been relatively similar, it will always be possible for those with a particular agenda to pick beginning and end points to meet specific purposes.


12. Neuschler's claim (p. 53) that "it is impossible to quantify the extent of [access] problems or to compare them in any meaningful sense with the problems in other health care systems" seems an unconvincing justification for not having at least considered "evidence," of equivalent "quality," on access problems in the United States. Some of this even appears in the Canadian press (see, for example, A. Silversides, "Technology Serves the Rich while the Poor Wait for Care," Toronto Globe and Mail, 16 September 1986, Al, A10).
