

Cover original

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PHYSICIAN PAYMENT INITIATIVES:
MAKING SENSE OF THE DOLLARS**

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The Changing Economic Climate: A Short Historical Perspective

The year 1981 appears, in retrospect, to have been something of a turning point in the evolution of the Canadian health care system. It was not obvious at the time -- the year did not, like 1961 or 1971, mark the completion of a clearly defined stage of public coverage or, like 1978, a major shift in funding policy.¹ In fact, nothing remarkable at all happened within the health care system itself. But the beginning of the 1980s saw a major deterioration in general economic performance in Canada. This in turn appears to have upset the balance which was established during the 1970s, between the expansion of the health care system and that of the rest of the economy supporting it.

This change is demonstrated very clearly in Figure 1, which plots the level of GDP per capita, in constant dollars, from 1960 to 1993.² A simple logarithmic trend, representing a constant annual growth rate, is fitted to the values for the years from 1960 to 1980 and then projected through to 1993. The annual values fit this trend line remarkably well for the first two decades, all lying within five percent of it. But the major recession of the early 1980s dropped the Canadian economy sharply away from this twenty-year trend, and most importantly, the "recovery" of the mid-1980s did not bring it back. As shown in Figure 1, by about 1983 real GDP per capita had resumed a rate of growth approximately equal to the previous trend, but the income "lost" during the recession was not made up. Unemployment and public sector deficits correspondingly remaining high by historic standards.

[Figure 1 about here]

¹. Canada's federal-provincial public insurance system provides for federal financial contributions to provinces operating programs that meet national standards. The provinces each joined this system at different times, depending upon when their conforming programs were introduced. The hospital insurance system became national when the last province joined in 1961, and medical insurance became complete in 1971. The year 1978 saw a major change in the fiscal arrangements between the federal governments and the provinces, as the federal government moved from formula-based sharing of program costs to a combination of block grants and increased provincial access to the revenues from income and other taxes.

². Data sources for all figures, and references in the text, are detailed in the Data Appendix.

The next and even more severe recession of the late 1980s/early 1990s then dropped real GDP per capita even farther below the 1960-1980 trend, with the current "recovery" so far merely ending the decline. By the early 1990s, income and output in the Canadian economy were about 30% below where they would have been (in real terms), if the growth trend of the 1960s and 1970s could have been maintained.³

The significance of this sustained decline for the health care system is shown in Figure 2, which displays the familiar ratio of health care spending to GDP. But Figure 2 presents only the hospital and physicians' services components of health care. These are the services covered by the Canadian federal-provincial public insurance plans; moreover data on these components is available back to the late 1940s.⁴

[Figure 2 about here]

Figure 2 also includes a hypothetical line, from 1981 on, representing what the ratio would have been, if the economy had continued to grow along the trend path shown in Figure 1, while hospital and medical spending took on their actual values. If the general economy had continued to grow at 1960-1980 rates, then Figure 2 shows that the share of hospital and medical spending in GDP would have remained constant or drifted downwards slightly, as it did in the 1970s. From this perspective it is clear that the "cost crisis" of the 1980s was a result not of some change in trends within the medicare system itself, but of the deterioration

³. The average growth rate during the period from 1960 to 1980 was in fact somewhat higher than for the post-war period as a whole. 1960-1980 is of particular significance for the health care system, however, in that the federal Hospital Insurance and Diagnostic Services Act of 1957 led to the establishment of universal public hospital insurance coverage in all provinces by 1961, and set the pattern for the coverage of physicians' services later that decade. The public system has thus always functioned in the post-1960 economic environment.

A logarithmic trend fitted from 1947 to 1980 and projected to the present shows a similar, though less dramatic, pattern after 1980. Even using this longer run perspective, however, by 1993 actual constant dollar GDP per capita had fallen more than twenty percent below trend.

⁴ Estimates of total expenditures on health care in Canada have only been reported in public documents since 1960.

in the performance of the general economy, which resulted in large increases in the share of national income -- and of public budgets -- used to finance health care (Evans, 1993).

The long-term data in Figure 2 also show clearly the break in the pattern of escalation in 1971. Variants of this figure, usually displaying total health care expenditures over GDP, have frequently been employed in discussions of the performance of the Canadian health care system, particularly in international comparisons (see, e.g. Culyer (1988); Ham, Robinson and Benzeval (1990)). Figure 2 in conjunction with Figure 1, however, makes the point that the marked shift from a steadily escalating ratio during the decade prior to 1971 to an essentially stable ratio during the decade afterwards takes place in the middle of a twenty year period of steady general economic growth. It is the numerator, not the denominator, of the ratio that changes its behaviour with the establishment of universal public insurance coverage.⁵

Nevertheless, the denominators do come to matter later. The Canadian economy has experienced two severe recessions since 1981, linked by what one might call, relative to the experience of previous decades, "growth without recovery". But the health care system was largely protected against the impact of the first recession, and so continued to expand at much the same rate.

There was much rhetoric about cost control, and pained responses from health care

⁵. This observation has a bearing on controversies in the United States over the potential for health care cost control in single-source funding systems. In 1971, both Canada and the United States were spending about 7 1/2% of their GDP on health care; by 1993 the corresponding figures were 10.1% for Canada and 14.2% for the United States. Opponents of universal public insurance in the United States have argued, however, that this divergence is the result, not of superior cost-control performance in Canada, but of more rapid general economic growth -- a difference in denominators, rather than numerators. The data here are not consistent with that argument.

providers, and certainly increased pressures were felt in particular sectors. But whatever pain was felt in the health sector during this decade paled in comparison with the labour pains brought on by contractions elsewhere in the economy. The share of GDP devoted to health care rose sharply in the recession years, and then plateaued, but did not fall, when the recession ended. By the end of the 1980s total health care spending in Canada accounted for about 10% of GDP, compared with about 7.5% at the beginning.

Evidently the patterns of behaviour and the expectations of continuous expansion which providers of health care had developed during the previous two decades were carried forward into the new, low- or no-growth environment effectively unchanged. Unless, and against all expectation, the rate of general economic growth in Canada accelerates back to pre-1981 levels, the only choice appears to be between further escalation in the share of national income going to support the health care system, or a major change in the internal growth dynamics of that system.

This elementary arithmetic, summarized by the British Columbia Royal Commission on Health Care and Costs as "Business as usual is not sustainable" (British Columbia, 1991), is now generally understood among those involved in studying or making health care policy in Canada. It underlies many of the recent provincial initiatives in health care policy, among whose key objectives is the reduction of costs. But cost reductions translate in the service-intensive health care industry into job or income reductions. So one finds in response the quite predictable political manoeuvring intended either to keep the share of GDP going to health care on the increase, or to ensure that the burden of cuts (whether reduced incomes or reduced access to services) falls on someone else.⁶ But this broad understanding is a feature of the 1990s, not the 1980s, and in any case it is still not clear how far it has become part of the public consciousness.

⁶ These efforts underlie the renewed interest in various forms of private delivery and private finance -- more money for providers, and preferred access (preferably with public subsidy) for patients with money.

Roughly speaking, one might say that during the first half of the 1980s the general national response to what B.C.'s government labelled the "New Reality", was to hope that it would go away. The recession was unusually severe, no doubt, but presumably, like all recessions, it would end. There was no point in taking on the political dangers of major reform of the health care system -- extremely popular the way it was, and fundamentally sound -- in response to what was, after all, a cyclical problem.

By the mid-1980s, however, the celebration of recovery was being somewhat muted by the realization that the usual problems of recession -- unemployment, welfare and, especially, large public sector deficits, were persisting.⁷ In the second half of the 1980s, provincial governments began to appoint Royal Commissions or equivalent independent bodies to review the functioning of their health care systems. Each, in its own way, came out with some version of "Business as usual is not sustainable". Now, in the 1990s, much tougher action is being taken by provincial governments, belatedly, to contain their health care systems.⁸

The B.C. Response: Containing Physician Costs Any Way You Can

There were, however, some exceptions to this pattern of delayed response. In particular, the province of British Columbia moved quite forcefully during the 1980s to contain the escalation of costs of physicians' services, with a broad range of different policies. Per capita spending on physicians' services in B.C. was by far the highest in the country in 1981, 34% above the national average, and 25% above that in Ontario, the second-highest province. These expenditures corresponded to both the highest ratio of physicians per capita,

⁷ There were other reasons for the latter, rooted in changes in the tax system, but a real recovery to the historic growth path would have helped a great deal.

⁸ Indeed, the "toughness" of today's policies is in part brought on by the (in retrospect) inadequate responses earlier in the 1980s.

13% above the national average, and exceptionally high fees, more than 40% above average.⁹ Payments to physicians were thus an obvious target for cost containment.

In addition, the recession of the early 1980s was particularly severe and prolonged in British Columbia. GDP per capita in real terms dropped 6.9% in B.C. between 1981 and 1982, compared with 4.4% in the country as a whole. Over the next three years, while the Canadian average increased 11.6%, B.C. real income rose only 1.8%. The province went from its historic position as a relatively wealthy province -- average incomes 10% or more above the all-Canada level -- to below average. This deterioration in the general economic environment generated greater pressures on health care sector budgets than were felt in a number of other provinces.

The overall impact of the various policies introduced by the government of British Columbia to limit the escalation of payments to physicians is reflected in Figure 3. The on-coming recession was evident by the summer of 1982, and the provincial government had begun efforts to re-open previous agreements with the B.C.M.A. But the result of this 'negotiation', a temporary "fee give-back" which took effect in the latter part of fiscal 1982/83, was relatively small, and left the base fee schedule untouched (Barer *et al.*, 1987).

More substantial controls began to bite in 1983/84. As Figure 3 shows, per capita outlays by the British Columbia Medical Services Plan for medical services (fees and salary or sessional payments, but excluding supplementary benefits paid to non-medical practitioners) were exactly the same in fiscal 1992/3 as they were nine years earlier (after adjusting for increases in the general price level, as measured by the Vancouver city

⁹. Fee schedule comparisons published by Health and Welfare Canada for July 1, 1985 show B.C. fees 32.29% above the national average. But average fees increased less rapidly in B.C. than in Canada as a whole between 1981 and 1985; applying this difference to the 1985 differential yields a B.C. advantage of 41% in 1981.

Consumer Price Index).¹⁰ By contrast the increase in real per capita outlays for Canada as a whole (including B.C.) was 23.9%.

[Figure 3 about here]

In essence, the government of British Columbia adopted a three-pronged approach to limiting the growth of payments to physicians. Logically, one can factor per capita payments to physicians within a fee-for-service environment into three components:

- (1) payments per service, or fee levels,
- (2) services per physician, and
- (3) physicians per capita.

Policies were developed to address each of these components -- to hold down fees, to limit physicians' capacity to increase their volume of billings, and to reduce the rate of increase in the number of physicians per capita in the province.

The detailed description and history of these various policies, as they have made their way through the negotiating, legislative, and judicial processes, is beyond the scope of this paper (and can be found elsewhere).¹¹ A larger research project, currently underway, will both document the introduction, modification, and removal of the various policies and combinations, and attempt to disentangle their individual impacts. That effort draws upon the computerized payment tapes of the Ministry of Health, which record the type and date of each reimbursable service provided, the amount reimbursed, and who provided and received the service.

¹⁰. The Vancouver Census Metropolitan Area includes almost one-half the province's population. Payments to physicians are taken from the provincial Ministry of Health Annual Reports, as described in the Data Appendix, with one exception. A retroactive payment of \$42 million was made in 1990/91, with respect to billings in 1989/90. In Figure 3 and subsequent figures, this sum has been added to the reported outlays for 1989/90 and subtracted from those for 1990/91.

¹¹ See, for example, Barer (1988), Lomas et al. (1989), and Lomas et al. (1992).

But these detailed billing records are, for obvious reasons, neither widely available nor easily processable -- a single year of data is now made up of nearly forty-five million records. In this paper, therefore, we present a preliminary analysis based upon data available in published records. The conclusions, based on observations drawn from information in the public domain, will in the larger project be checked and significantly extended using the computerized data set.¹²

We begin that process in this paper by comparing the public data on physician fee increases in British Columbia with an alternative index developed as part of the preliminary analysis of the more detailed payment records. As explained below, we regard this new index as a "gold standard", avoiding certain conceptual problems associated with the published index. It turns out, however, that at the aggregate level and for the purposes of this paper there is very little difference between the published data on fee increases, and the index which we have developed from the actual payment data. (The latter, however, is essential for disaggregated analysis, whether by type of service, date, or region.)

Begin at the Beginning: Holding the Line on Physician Fees

Returning to the three components of expenditures per capita listed above, the most obvious place to look first for the cost impact of changes in policy is in the evolution of fee levels. If physicians' fees escalate faster than the general price level, then ceteris paribus one would expect to find per capita outlays rising, and conversely. Thus, in Figure 4 we present the index of physicians' fees in British Columbia compiled by Health Canada (1981 = 100.0), divided by the all-items Consumer Price Index for Vancouver (1981 = 100.0), for the fiscal years 1969/70 to 1992/93.

[Figure 4 about here]

¹². In particular the published data on payments to physicians are based on the date of payment rather than of service; reported year to year movements are thus affected by changes in payment lags. One can compile expenditure series based on date of service, from which to calculate more accurate measures of average physician workloads and patient utilization, only from the individual payment records. These more detailed records will be used in the larger project.

What is perhaps most interesting about Figure 4 is how little change there has been in this ratio, over the period of twenty-four years. There has been a slow downward trend; Figure 4 also includes a linear trend fitted over the twenty-four year period ($R = .99436 - .00172T$ where R = the ratio, and T (time) runs from 1 to 24.) In sixteen of the twenty-four years, the actual value of the ratio lies within 2 1/2% of the trend value. Over the whole period this linear downtrend amounts to a decline in inflation-adjusted fees of about 4%, from 99.3% to 95.3% of the (arbitrarily set) value of 1.0 in 1981/82. The actual decline from 1969/70 to 1992/93 is much larger, from 103.5% to 90.4%, but as indicated in Figure 4, the initial year is well above the longer-period pattern, and the final year is well below.

Three sub-periods stand out as exceptions to this generalization about stability. First, there is a downward adjustment in the level of fees in real, or purchasing-power terms, in the years immediately after the introduction of universal public coverage in 1968. It is unclear, however, to what extent this was an adjustment after a de facto increase in real fee levels resulting from changed billing practices and improved collections ratios (Barer and Evans, 1983).

Second, the period from 1980/81 to 1986/87 was characterized in the first three years by a sharp increase in fee levels, possibly as a result of over-estimates of the general rate of inflation. The relatively rapid "squeezing out" of inflationary expectations from North American economies, through severe recession, caught many people, including those responsible for negotiating physician fee schedules, by surprise. Over the subsequent three years, however, the pre-1980/81 ratio of fees to the CPI was restored. Third, in the harsher economic climate of the 1990s the ratio has declined again, falling sharply below the linear trend in 1992/93.

Taking Figures 3 and 4 together, one is struck by the relatively limited role of fees. Over the period as a whole, there was an increase of 105.7% in the "real" volume of services -- that is, total payments adjusted for changes in fees -- per capita. But fees fell by 12.6% relative to the general price level, so that inflation-adjusted expenditure per capita rose by

only 79.7%. The use of physicians' services was thus rising at an average rate of 3.2% per year, while fees were falling by 0.6%.¹³

A somewhat different story emerges, however, if we compare the two sub-periods before and after 1983/84. As observed above, all of the increase in expenditures per capita (adjusted for general inflation) takes place in the earlier period, with an average annual increase of 4.2% per year. But the "spike" that peaked in 1983/84 brought fees almost exactly back to their 1969/70 level in real terms (actually 2.3% higher) so that taking this earlier period as a whole, virtually the entire increase in expenditures is a consequence of increases in use rates.

From 1983/84 on, however, fees increasingly lag behind the general inflation rate while use rates rise much less rapidly. Taken together, the two effects cancel each other out. Fees fall by 14.6%, or about 1.7% per year, while per capita use rises 17.6%; their product is a net increase of 0.4% in per capita, inflation-adjusted, expenditures over nine years.

Accordingly one might say that the change in the rate of expenditure escalation after 1983/84, from 4.2% per year to zero, is accounted for by less rapid growth in both use rates and fees. Per capita use had been rising at 4.1% per year; this fell to 1.8%. Fees had increased by 0.2% over the period prior to 1983/84; afterwards they fell by 1.7% per year. The reduction in annual growth rates is roughly similar for both components, although the reduction in the rate of growth of use is somewhat larger (2.2% compared with 1.9%).

On the other hand, a large proportion of the decline in fees after 1983/84 occurs on the downside of the "six-year hill" at the beginning of the 1980s. That period might be

¹³. Rates of growth must be combined by multiplication -- they cannot simply be added and subtracted -- and their averages are calculated geometrically, not arithmetically. For small rates, rounding-off will give the (false) impression of similar results from either addition or multiplication. All calculations herein are multiplicative.

thought of as an aberration, a one-time bargaining "error" caused by a large and unexpected change in general inflation rates, and subsequently recouped. After this rise and fall, the ratio of physicians' fees to the CPI during the rest of the decade looks much the same as it did in the 1970s. From this perspective, and taking the 1980s as a whole, the decline in real fees looks substantially less significant than the reduction in rates of growth of utilization, as contributors to the flattening of expenditure growth.

That is not to say that changing fee levels are no part of the story, much less that the whole process of fee negotiation which absorbs so much of the effort and attention of the provincial Ministry of Health and the B.C. Medical Association is without effect. Even if that process appears, over much of the period, to have ended in fee increases matching (or running just behind) the general inflation rate, there is no reason to assume that that result would have emerged in the absence of negotiation. Moreover it is clear that when fee increases and general inflation rates diverge, there are observable effects on trends in per capita costs.

Fees Are Only Half the Story: Trends in the Use of Care

But even during the clearest example of such divergence, the six-year period from 1980/81 to 1986/87, changes in "real" fees account for only a part of the changes that occurred in overall costs. In the three years of run-up, to 1983/84, costs per capita increased by 22.3% relative to the CPI, while fees rose only 12.3%. Over the next three years, fees fell in real terms by 8.8%, while real costs per capita fell only 1.4%. During this most dramatic example of large swings in the real value of physicians' fees, important changes were also taking place in the volume and/or mix of services received per capita.

These changes are illustrated in Figure 5, which overlays on Figure 3 a corresponding series of total expenditures per capita divided by the index of physicians' fees. This latter series thus represents the real volume of services received per capita -- the numbers of different services weighted by their values. The two series show roughly similar patterns, but the volume of services rises more rapidly than expenditures when fees are falling in real terms, and conversely.

[Figure 5 about here]

Any interpretation of this Figure is critically dependent on the reliability of the 'utilization per capita' series generated by deflating expenditures using the publicly available fee index. This index is calculated by linking together the estimates of average fee increases that are generated as part of the periodic (usually annual) negotiation between the B.C. Medical Association and the B.C. Ministry of Health. During negotiations a calculation is made of what the previous period service patterns and volumes would have cost, under the new schedule, and this is then compared with the actual outlays, to yield the percentage increase. It is thus a quantity-weighted index, but with constantly changing weights.

As part of the larger project noted above, we have developed a constant-fee quantity index for the period 1979/80 to 1990/91. Every service provided during that period has been valued at the applicable fee as of April, 1988, and then aggregated to yield the total value of services provided in each month of each of those fiscal years. This aggregation then represents the total value of all services provided during each month, if valued at constant April 1, 1988 fee levels. Dividing actual monthly expenditures by this constant fee-level expenditure series yields a current-quantity-weighted Paasche index which provides a more accurate record of fee movements over the period and which, more importantly, provides a means of 'deflating' actual expenditures to yield information on changes over time in (weighted) service use.¹⁴

¹⁴. This would have been a straight-forward computational exercise, if the individual service items in the fee schedule had remained constant over time. But they did not. New services, or variants on existing services, are introduced; older ones are phased out. Moreover, as part of the negotiation process, services may be "bundled" or "unbundled" from one period to the next. Thus there is a substantial amount of effort required to gather information and make judgements as to what the fee for a particular service, or bundle of services, would have been, in April, 1988, if they had been in the fee schedule at that time -- when they were not. Typically (and this project was no exception) such problem items account for a relatively small proportion of all billings, and a relatively large amount of research effort.

This constructed deflator can then be compared with the fee index that we have used for the whole 1969/70 to 1992/93 period, as calculated from the periodic published revisions to the fee schedule. It turns out, fortunately, that these two indices differ remarkably little from each other. In the twelve years for which our Paasche price index is available, it always lies within 1% of the longer series we have used. This implies that there have not been large changes over time in the quantity weights, such as to bias the published index. The latter thus appears to be quite satisfactory for aggregate-level analysis of annual data.

How Many Physicians, How Many Bills From Each?

Returning to per capita utilization, this can be factored into the product of the number of physicians per capita, and the volume of utilization, or workload, per physician. Both of these components rose substantially during the period under study. The number of physicians per person in B.C., as reported by Health Canada's measure of "Active Civilian Physicians, excluding Interns and Residents", rose 47.7% between 1969/70 and 1992/93, while average MSP payments per physician, divided by the index of fees (henceforth fee-adjusted payments), rose 39.3%.

But the rate of increase of both components slowed markedly after 1983/84. In the earlier period, the supply of doctors per capita increased slightly faster, at an annual rate of 2.2% compared with 1.8% in fee-adjusted payments per doctor, yielding an overall increase of 4.1% in fee-adjusted payments per capita. But after 1983/84 those increases slowed to 0.9% per year for both components, combining to yield a 1.8% annual increase in utilization per capita. Figures 6 and 7 show the pattern of growth of physician supply and volume of utilization.

[Figures 6 and 7 about here]

These observations suggest that reductions in the rate of increase in both components contributed significantly to the much slower growth of payments to physicians after 1983/84. Figures 6 and 7 also show, however, that the reported data imply a much less stable pattern of change for utilization per physician than for physicians per capita. The number of physicians per person in B.C. increases quite steadily over almost the whole period, halting only after 1988 and rising again in 1992. Reported utilization per physician, on the other

hand, fluctuates markedly from one year to the next.¹⁵

B.C. Ministry of Health annual reports also include data on the total number of discrete services reimbursed during each fiscal year, unweighted by fees. The trend in this count of "apples and oranges" will deviate from that of the {fee-adjusted} utilization above, if the mix of services provided shifts toward either higher or lower average fee per service. These service count data are only available from 1971/72 on; they do in fact show shifts over time in the mix of services reimbursed. But the changes are not large, relative to the overall changes in costs per capita.

Figure 8 shows the ratio of total payments to physicians (not including salaried and sessional payments in this case), divided by the fee index, and by the reported number of services provided. The result is the average fee level (in constant fees) per service provided. Again there are a couple of years in which sharp and unsustained changes cast doubt on the precision of the connection between annual activity levels and annual payments. But there is also quite a clear U-shaped pattern, with a decline in the average value per service provided from 1971/72 until the early 1980s. The decline then stops, and the later trend is upwards, such that the values in the first and last years of the Figure are virtually identical.

[Figure 8 about here]

¹⁵. It seems very doubtful that annual physician workloads, averaged over the whole province, actually fluctuate to the extent suggested by Figure 7. These variations reflect the fact that payments within each fiscal year, and reported in the public record, do not always correspond closely to the volume of services actually provided by physicians during that year. For example, if a target rate of increase for utilization in a given year has been established in annual negotiation, and is exceeded, some portion of the excess is held back from payments during the following fiscal year. In the larger project described above we will be able to identify from the computerized billing records the actual dates on which particular services were provided. In this paper we are simply taking the published record as given, with the exception of the retroactive payment of \$42 million in 1990/91 (Note #10 above).

The irregularities in the series make it difficult to identify an exact turning point. But the up-trend since 1983/84 is quite clear. From then until the end of the period, the mix of services provided shifted towards more expensive services, at an average annual rate of 0.9% per year. During the previous twelve years, the average value per service fell at a rate of 0.7% per year.

It would appear then that during the earlier period the escalation of average payments per physician (at constant fees) was associated with a decline in the average fee per service, implying an even more rapid increase in the number of discrete services provided per physician. Apparently the less remunerative services were more rapidly increased.

After 1983/84 this process was reversed, and the mix of services shifted back towards higher-fee services. In this latter period, however, there was very little change in the average number of services per physician. The shift to higher-valued services appears to have accounted for most of the (much smaller) increase in fee-adjusted payments per physician during this period.

By 1992/93, the average fee per service had risen virtually back to where it started with the first reported data in 1971/72. Thus over the period since that date, the unweighted count of discrete services provides a measure of volume increase that is very little different from the dollar value of payments in constant fees. But the U-shaped pattern in Figure 8 does suggest that changes in the mix of services provided were of some importance within the two sub-periods. Their effect was to moderate somewhat the effect of the change in the trend in service volume per physician -- from rapid increase in the first period to virtually flat in the second -- on the trend in the average dollar value of payments (in constant fees) per physician. The pattern of increase of average services per physician, from 1971/72 on, is displayed in Figure 9.

[Figure 9 about here]

Pulling All the Levers at Once...

Taken together, these data indicate that less rapid increases in all three components --

average fee levels (relative to inflation), numbers of physicians per capita, and average payments per physician (in constant fees) -- contributed to the sharply reduced rate of escalation of inflation-adjusted physician payments per capita after 1983/84.

Limits on fee increases were obviously a necessary part of cost containment, although it is notable that for the most part, and with the exception of the seemingly aberrant period in the early 1980s, fee levels in real terms were not very different in the 1980s from what they had been for most of the 1970s. The expenditure turning point at 1983/84, however, is clearly associated with the beginning of a period of declining real fees.

Explicit efforts to limit the growth in numbers of physicians per capita began in British Columbia as early as 1983, although the long-established growth trend does not flatten until near the end of the decade. The national series flattens at the same point, even though no other province had yet tried to limit the numbers of practising physicians. But the number of physicians per capita grew much less rapidly in B.C. than in the rest of Canada after 1983 -- 8.7% from 1983 to 1992 compared with 15.3% in the country as a whole -- suggesting that, whatever the fate of the explicit restriction policies, Canadian physicians viewed B.C. as a relatively less attractive practice environment.

But Are All the Levers Connected?

The third component of the changed trend in total outlays is the much less rapid increase in the volume of payments per physician, adjusted for fee change. Arguably, this too is a consequence of explicit policies, introduced at various times during the 1980s as part of the fee negotiation process, to discourage physicians from increasing their activity, or at least billings. An alternative hypothesis, that the steady increases in the supply of physicians per capita had simply "saturated" British Columbia with physicians, such that average physician workload could not continue to increase, seems implausible for a couple of reasons.

First, "saturation" would imply falling workloads as supply increased, and there is no sign of a downtrend in the reported average payment data. In the 1970s, physician supply and payments per physician rose rapidly together; in the 1980s physician supply continued to

rise for much of the decade. But payments per physician, while moving irregularly in the later period, also continued to trend slowly upward.

Secondly, that irregular movement of average payments is itself suggestive of responses to a series of "on again, off again" policy initiatives. If "saturation" were occurring, one might expect to see a slow tailing off of the rate of increase in payments per physician, followed perhaps by a decline. But that is clearly not what is shown in Figure 7.

But the presumption that physician behaviour changed in response to global policies designed to discourage increased billings, raises another interesting question. A number of these policies imposed various forms of ex post "give-backs" -- temporary reductions from negotiated fees -- on the profession as a whole, when utilization increased more rapidly than some pre-determined rate. Yet each individual physician continued to benefit directly from the whole of any increase in his or her own billings, with the subsequent give-back costs being borne by the profession as a whole. The amount of any subsequent fee discount that could be attributed to a physician's own billing patterns, is too small to be of interest.

Thus a purely self-interested physician, as typically postulated in economic theories, would not respond to any of these policies. For that matter, a more "professionally" motivated physician, concerned about the well-being of patients as well as of self, would still disregard the negative effects of his or her increased activity levels on the incomes of colleagues. If global policies have influenced individual behaviour, that implies some form of implicit or explicit coordination of physician behaviour.

The absence of any obvious explicit mechanisms for coordination then raises deeper questions, particularly for economic analysis, as to how physician behaviour should be represented and understood. The idea that a small group of firms might recognize their mutual interdependence, and accordingly modify their behaviour from that implied by purely myopic self-interest, is old news in oligopoly theory. But an "industry" comprised of several thousand physicians, all actually or potentially self-employed in "owner-managed" firms,

hardly looks like a textbook oligopoly.

On the other hand, physicians are not in "atomistic competition" either. Quite apart from the fact that they are all reimbursed through a common fee schedule, negotiated from time to time between their association and the provincial government, physicians also work in different regions, specialties, and sub-specialties. A general practitioner in Fort Nelson, an obstetrician in Prince George, and a cardiac surgeon in Victoria are not in competition with each other in even the most tenuous of senses -- except insofar as their reimbursements all come from the same public (and in recent years partially capped) budget. The reference group of colleagues/competitors for each of them is very much smaller -- perhaps small enough for mutual interdependence to be recognized.

But such questions are impossible to address at the aggregate level. Implicitly treating the physicians of British Columbia as if they were one big single physician, or equivalently one "representative" physician whose behaviour scales up to the aggregate, is unsatisfactory, both theoretically and empirically.¹⁶ If a major factor "explaining" the dramatic change in the rate of escalation of physician payments is a change in the (trends in) billing activity of physicians, these changes must then be documented, and if possible understood, at a much more disaggregated level.

It is that task that is being taken up in the larger project, which will involve not only analyses of the more detailed service data using a more fine-tuned fee index, but also interviews with physicians 'at the coal-face', who have had to decide how, or whether, to

¹⁶. The fallacy of this assumption shows up clearly in the findings of Hurley *et al.* (1994) in Ontario. They found that physicians were in aggregate able to compensate for a steadily falling number of people per physician by increasing the average volume of services per patient, through either or both of increased services per visit, or increased visits per patient. But the pattern of adaptation varied widely from specialty to specialty, so that the aggregate result was achieved in very different ways.

react to the rich policy mix that has been thrown their way over the past decade.

Figure 1

Canada Real GDP per Capita

\$1986, 1960 - 1993

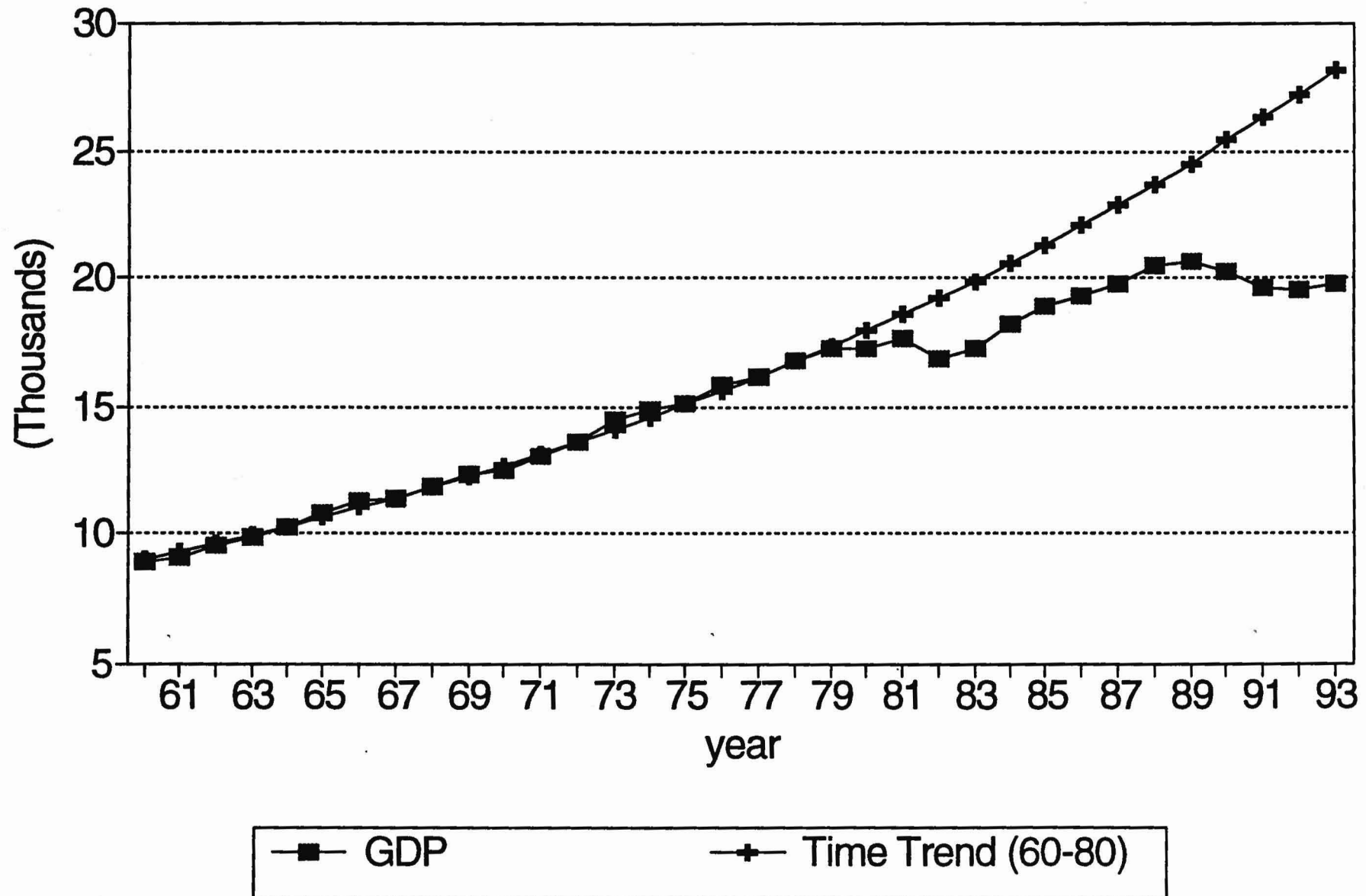
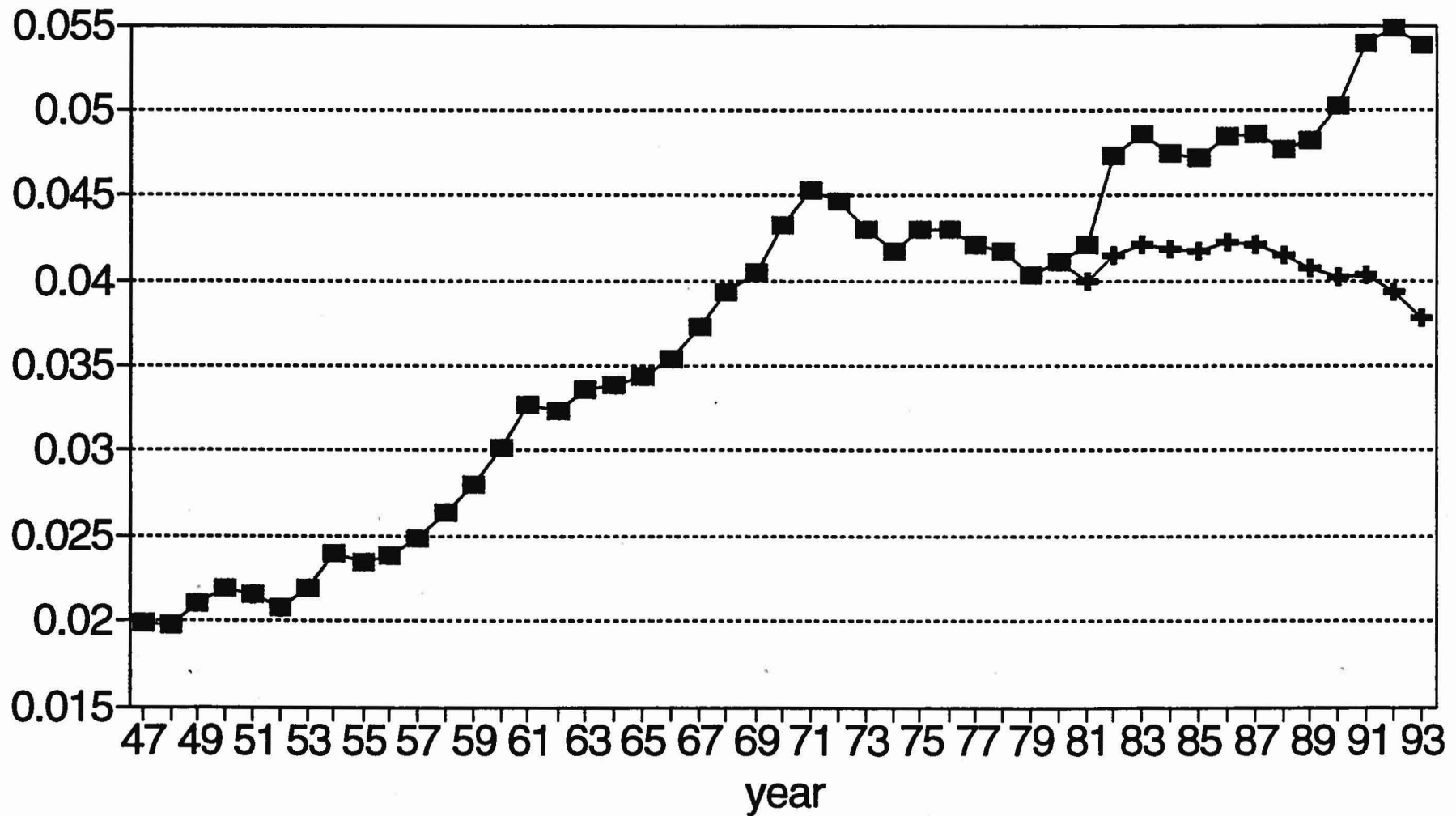


Figure 2

Canada Hosp. and M.D. Exp. over GDP 1947 - 1993



—■— Actual

—+— Trend GDP Projected

Figure 3

B.C. MSP Payments per Capita

Medical Fees plus Alternative Payments

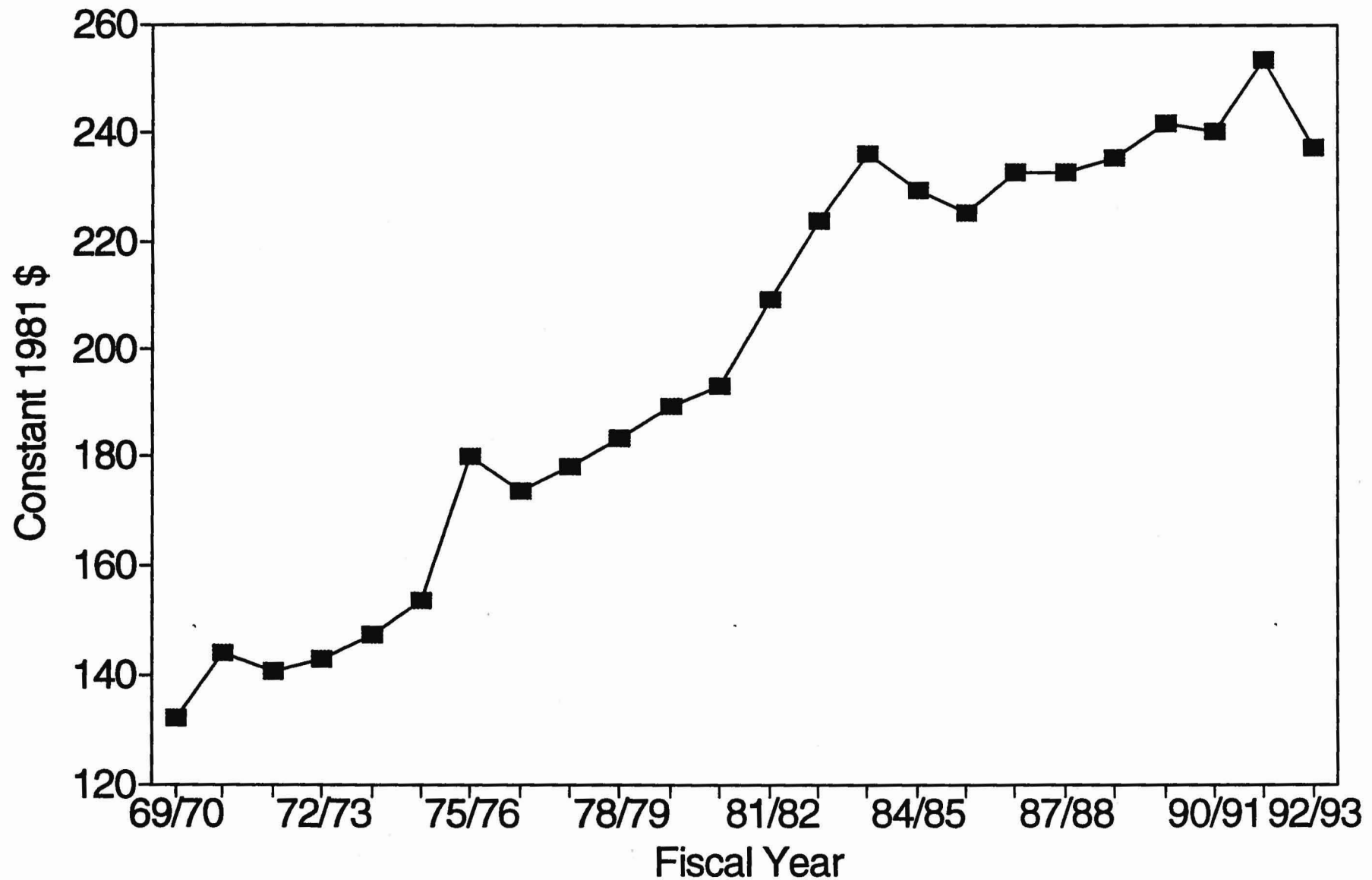


Figure 4

B.C. Physicians' Fees in Constant \$

Fee Index over Vancouver CPI

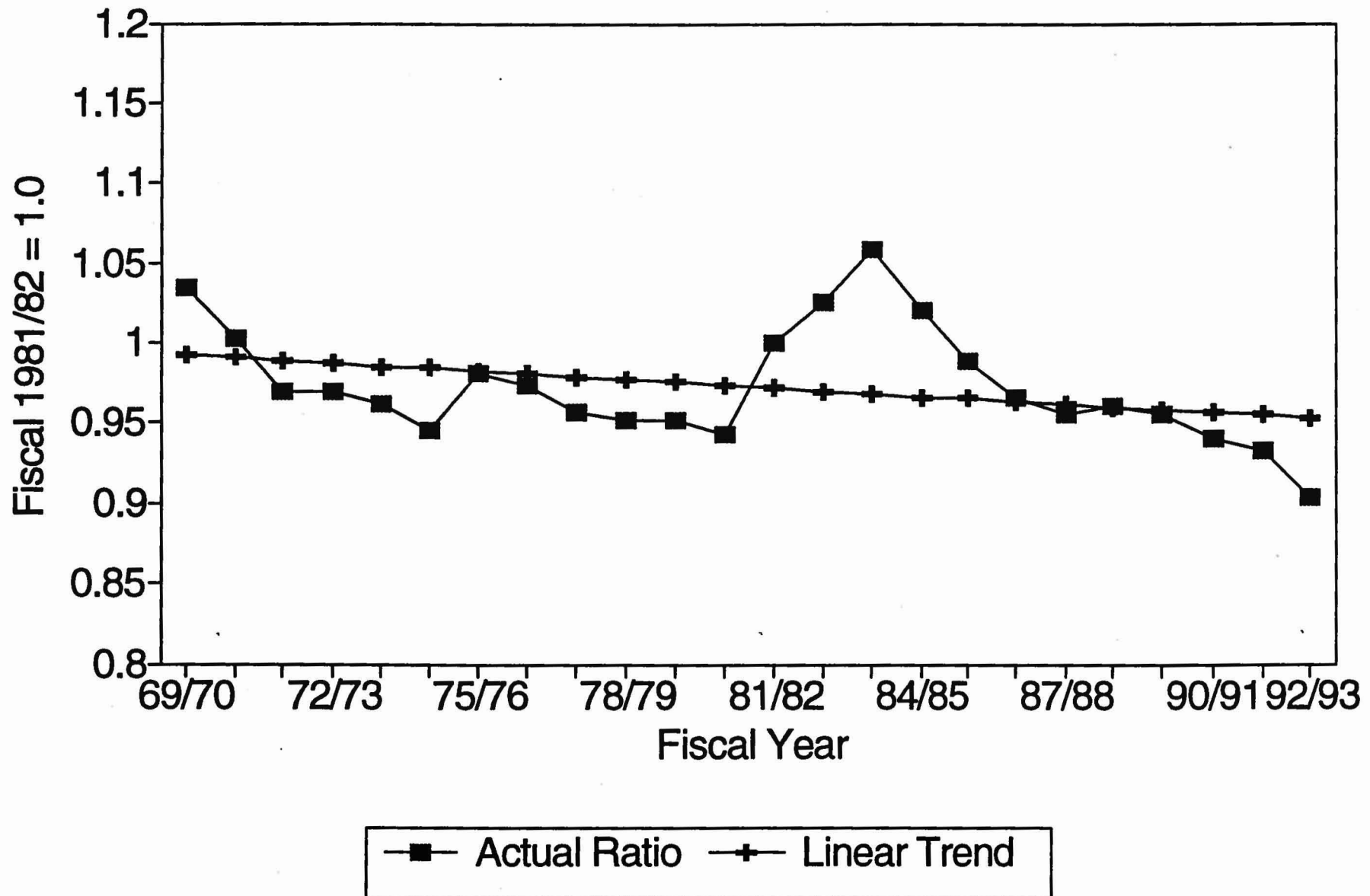


Figure 5

B.C. MSP Payments per Capita

Medical Fees plus Alternative Payments

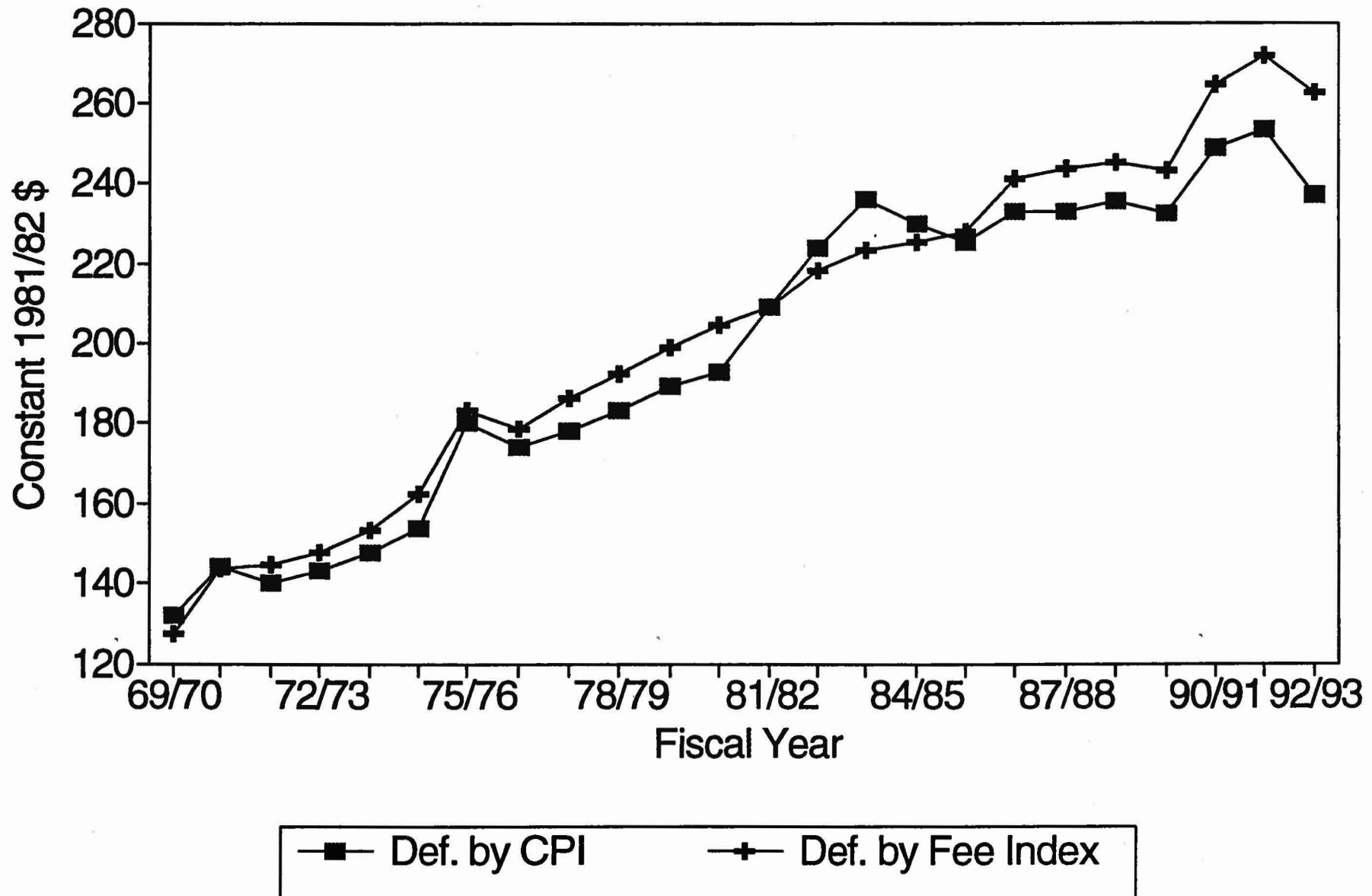


Figure 6

B.C. Physicians per (000) Capita Excluding Residents and Interns

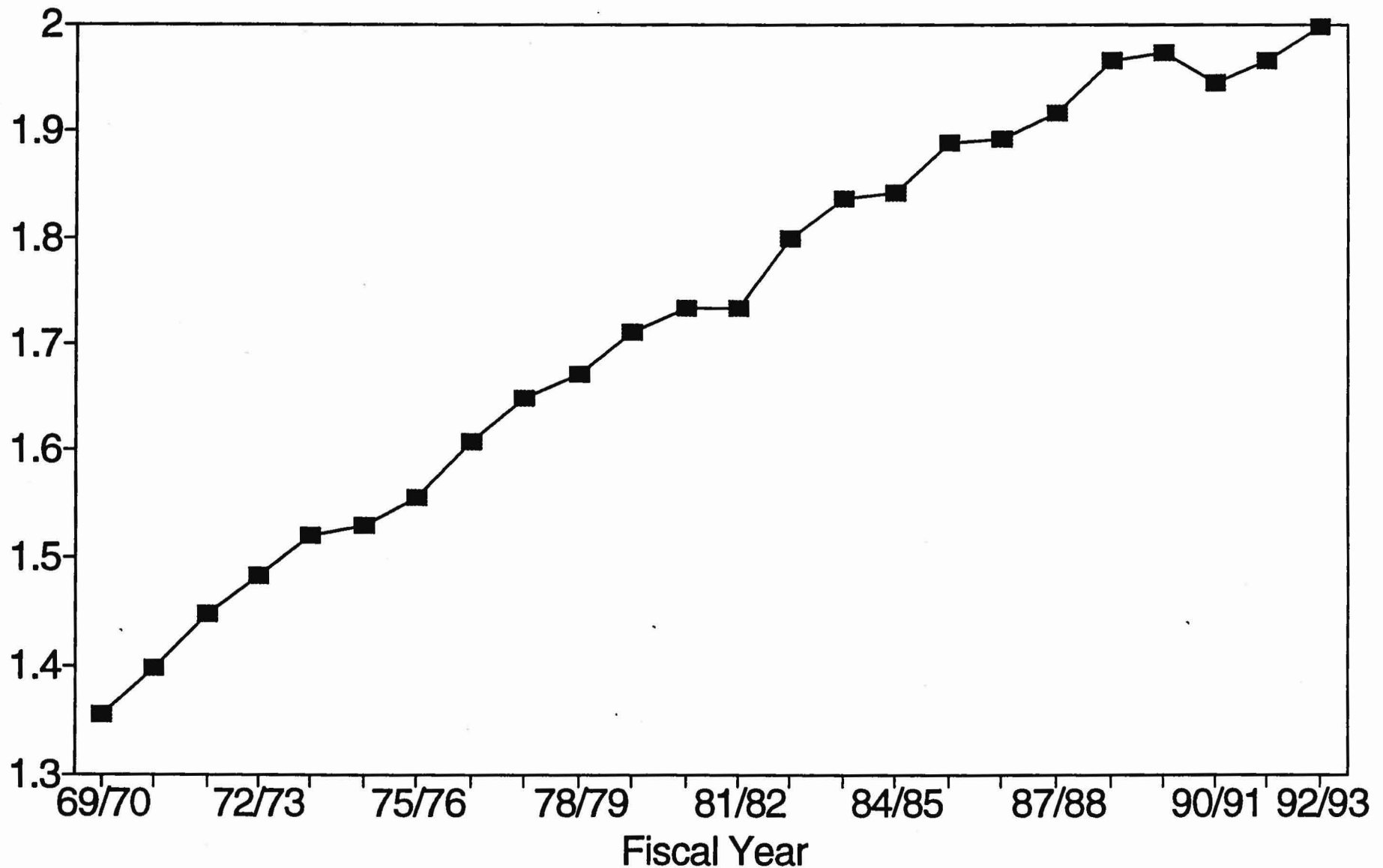


Figure 7

B.C. MSP Payments per Physician at Constant 1981 Fees

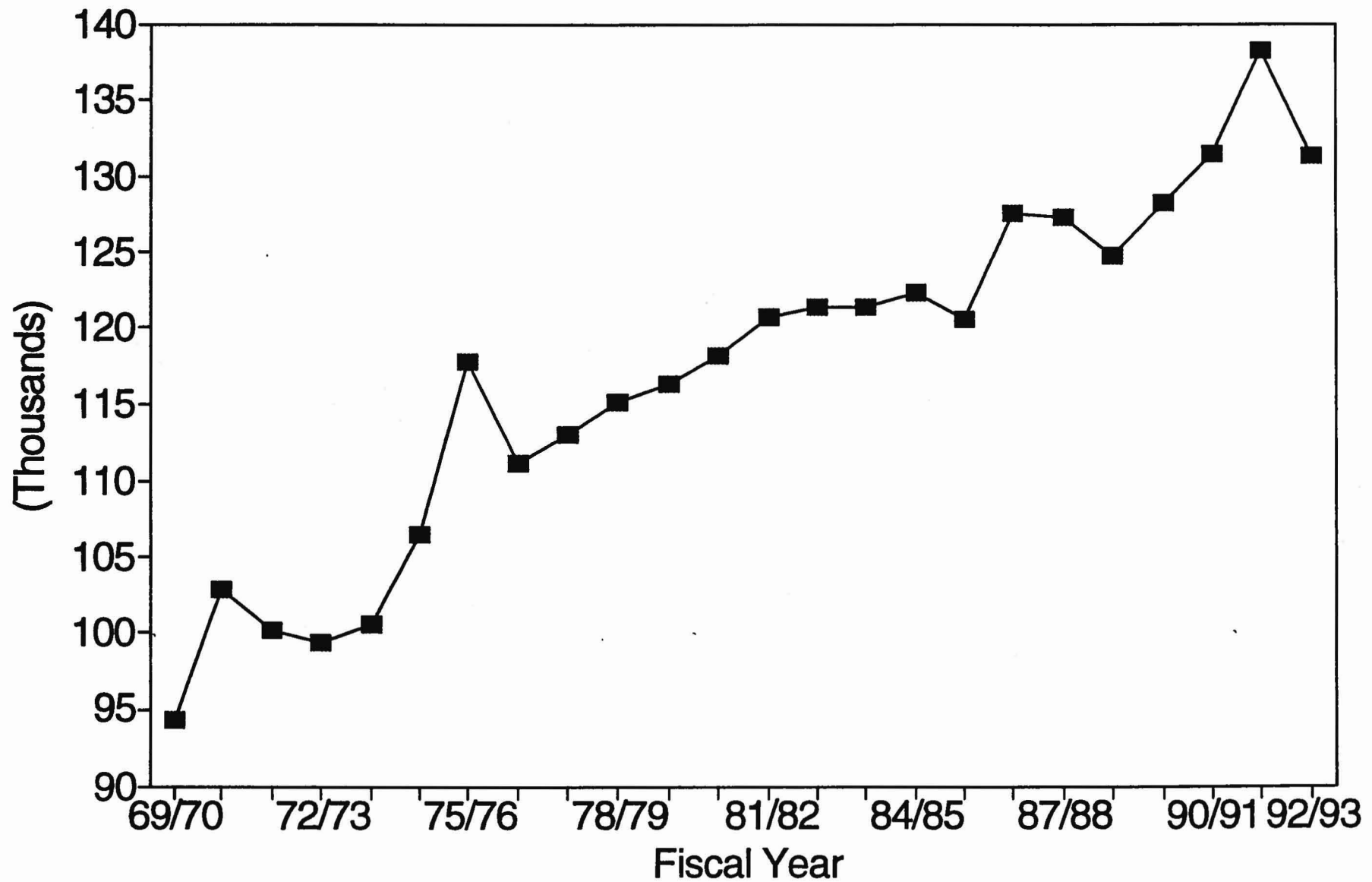


Figure 8

Average Payment per Physician Service At 1981/82 Fees

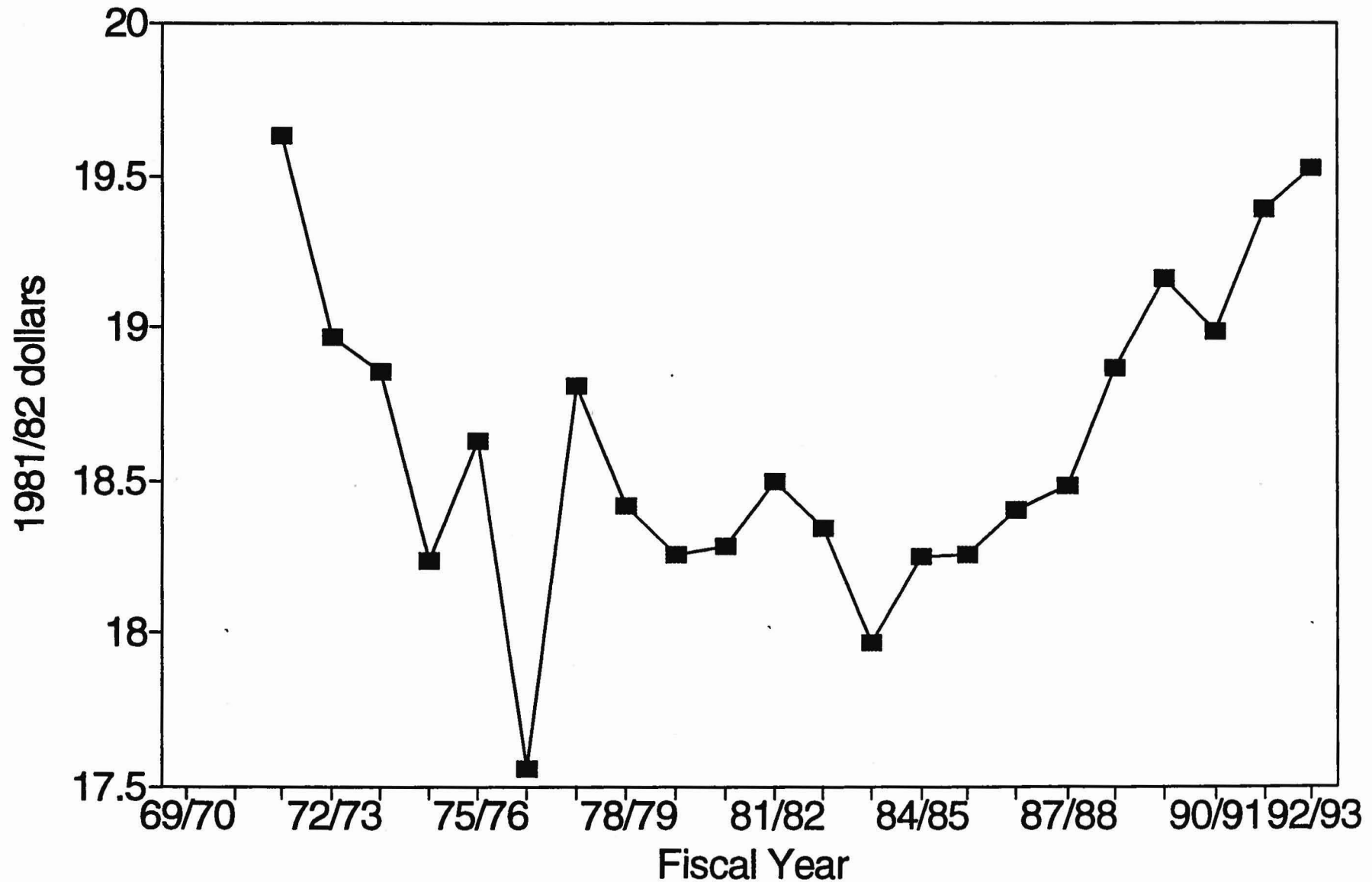
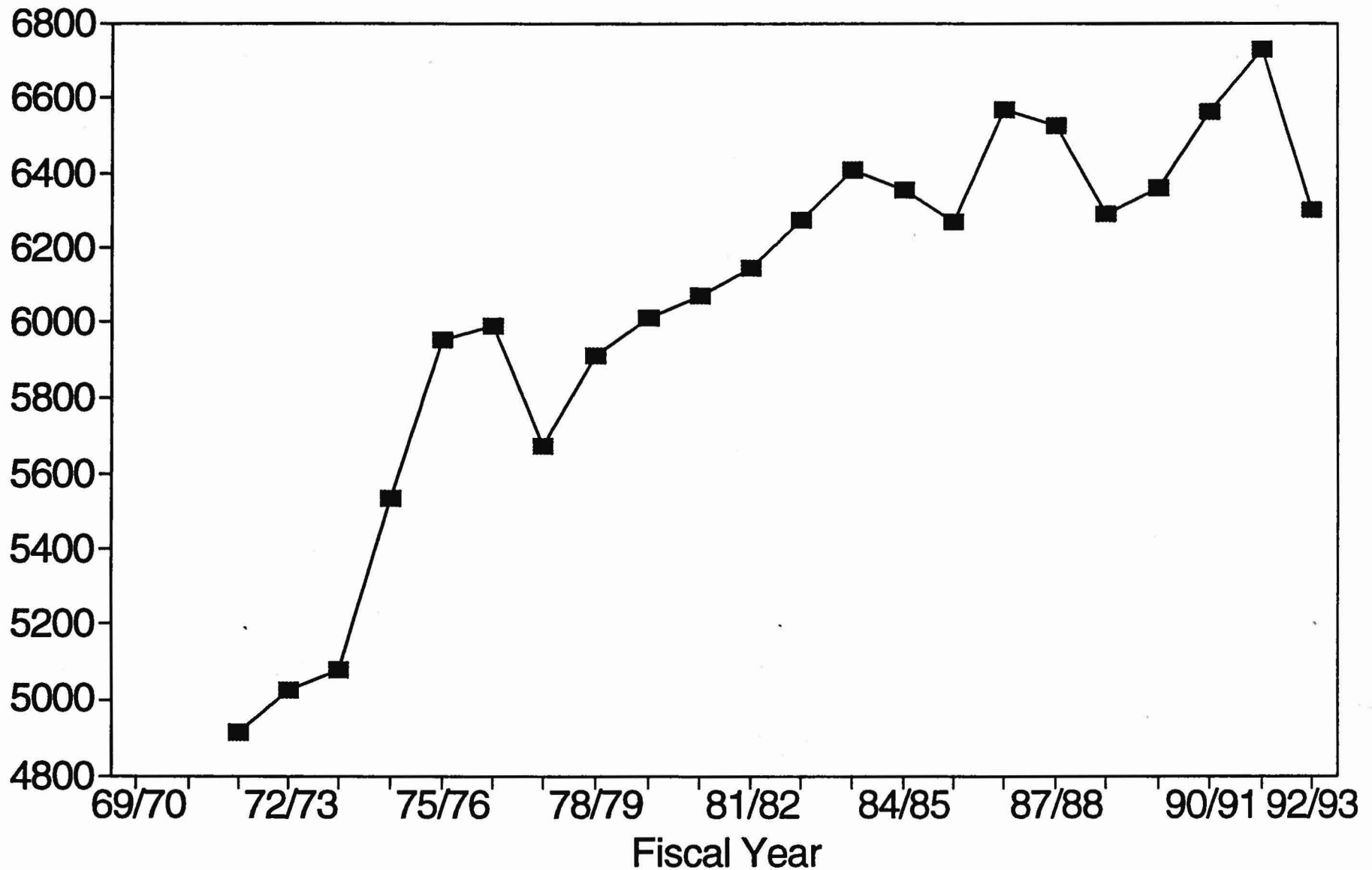


Figure 9

Average Services per Physician (Not Weighted by Fees)



Data Appendix

Population data are from Statistics Canada, quarterly estimates, as reported in CANSIM series 1.1 (Canada) and 1.1.10 (British Columbia). They include the revisions for Census undercount released in September, 1993, back to 1971. Unrevised data prior to 1971 have been linked by the authors; the percentage revision for the 1971 value was simply applied to each of the earlier years. The Canada data are July 1 (mid-calendar year); the B.C. data are October 1 (mid-fiscal year). Gross Domestic Product at 1986 prices is taken from Reference Table 4 of the 1994 issue of the Department of Finance Economic and Fiscal Reference Tables. National expenditures on hospitals and physicians' services from 1975 to 1993 are reported in the 1994 issue of National Health Expenditures in Canada, compiled by Health Canada. Earlier values of these series were assembled from earlier publications and reports from Health and Welfare Canada, as described in the data appendix to Barer and Evans (1986).

Payments to physicians from the Medical Services Commission of British Columbia for fiscal years 1983/84 to 1992/93 are reported in Appendix Table 2, page 83, of the Annual Report of the British Columbia Ministry of Health for 1992-1993. Total services reimbursed are reported in Appendix Table 4, pages 86/87. Earlier years' data are compiled from previous issues of the Ministry Annual Report. As noted in the text (Note #10 above), a retroactive payment of \$42 million has been transferred from the 1990/91 figure to the 1989/90 figure; otherwise the data are as reported by the Ministry.

Numbers of physicians in British Columbia (as of December 31) for the years 1981 to 1991 are reported in Health Personnel in Canada, 1991 issued by Health Canada. Data for 1992 were provided by Ministry staff; earlier years' data were compiled from earlier annual issues. The index of physicians' fees for British Columbia is assembled from the compilations of changes in physician payment schedules issued from time to time by Health Canada. The most recent is for July, 1994 and reports fiscal-year indices from 1981/82 to 1993/94. These tabulate only the changes in average fee levels in each province. Comparisons of levels of fees in the different provinces are also issued from time to time; the one referred to in the text is as of July 1, 1985.

The Consumer Price Index for Vancouver from 1971 to 1993 is reported in Reference

Table 49 of the 1994 issue of the Department of Finance Economic and Fiscal Reference Tables. Values for 1969 and 1970 were estimated by assuming that the Vancouver index had changed in the same proportion as the national index in those years. Calendar-year data were converted to fiscal years by adding three quarters of one year's value to one quarter of the next.

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