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THE CURIOUS CASE OF THE CLIMBING
COSTS OF HEALTH AND TEACHING***

BY

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**Social Wants and Dismal Science: The Curious Case of the Climbing Costs of
Health and Teaching**

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"Between 1981 and 1991 the University's health insurance costs...increased by 635%. This rapid and continuing inflation parallels the experience of most employers in the nation....among [the] reasons...Doctors' and hospitals' charges for each procedure and operation increase each year at a rate that exceeds the rise in the cost of living" (Karen Bradley, Director of Personnel, NYU, Memorandum to the Staff, October 7, 1991).

"There were twelve postal deliveries on weekdays in Kentish Town [then in suburban London] at that time [the 1860s] and one on Sundays" (Kapp [1972, p. 48n]).

Writings related to economic issues go back before the ancient Greeks. Yet, not without reason, there are many who regard the appearance of Adam Smith's Wealth of Nations in 1776(!) as the event representing the inauguration of the arena as a systematic discipline. Thus, it seems appropriate here to focus my few remarks on the history of my discipline to the period since then. This seems particularly apt, given the near coincidence of that publication date and that of the founding of the American Philosophical Society, as well as the frequent claim by specialists that Benjamin Franklin was Smith's source of information for his many observations on the economy of the American Colonies (for which Smith advocated independence, largely as an economical step for Britain).

Though my fellow economists have frequently pretended that their research is driven purely, as Veblen put it, by idle curiosity, they have traditionally permitted themselves to be guided in their choice of research topics by the pressing social issues of the moment. This has been true since some of the earliest specialized studies of the economy, from the

value and distribution theories of Ricardo and Malthus, that were hastily brought to fruition as contributions to the heated debate over the corn laws during the Napoleonic wars¹, to the employment analysis of John Maynard Keynes, produced in 1936, obviously in response to the urgent problems presented by the great depression. One can even suggest that the Wealth of Nations itself was a response to the need for freedom of enterprise of the emerging industrial revolution.²

It is my belief that one cannot understand the history of economics except in this light. In the past, work in this discipline has been influenced heavily by economic, social and political developments that urgently demanded illumination of the accompanying economic issues, and the body of economists has generally responded as best it could. Though much of current work in economics, like that in a number of other disciplines, seems for the moment to be mired in formalism and technicality, I see little reason to expect that the ultimate course of research in economics will differ sharply from its past in terms of the susceptibility of its research topics to guidance by current social needs.

¹This issue was the strengthening of the protective duties on the importation of grain into the United Kingdom, the earlier duties having been eroded by wartimes inflation. The pressure to provide an analysis that could shed light on the issue yielded no less than five major contributions on rent theory, two by Malthus and one each by Torrens, West and Ricardo, all published during the month of February 1815. For more details see Piero Sraffa's introduction to volume IV of Ricardo's collected works. pp. 1-5.

²Contemporaries focussed on a different side of Smith's contribution toward solving the urgent problems of the time. As a reward for providing so many ideas for new taxes Lord North arranged a lucrative sinecure for Smith. Ironically, for this advocate of freedom of trade, the post he was given was that of Collector of Scottish Customs, whose duties he carried out assiduously, apparently to the surprise of those who had provided the position to him. Thus, this free trader, himself the son of a customs official, reverted to the family's arena of activity in the end.

Smith, incidentally, had many connections with the philosophical and scientific community of the time. A colleague of Joseph Black at the University of Glasgow, he also helped to provide a university job for James Watt (as "mathematical instrument maker" to the university); David Hume was Smith's closest friend, and he had substantial exchanges with persons as variegated as Francois Quesney, Samuel Johnson, James Boswell and (probably) Benjamin Franklin. For more on this see, e.g., Ray [1895].

As always, I will eschew any attempt to foresee the future, leaving that to better qualified individuals such as storefront readers of palms and crystal balls. Rather, the remainder of this paper will be devoted to an illustration -- to a social issue that most of us will readily consider to be pressing, and to an indication of what light the dismal science can shed on the subject and what it can contribute to the design of appropriate public policy.

I. The Cost Crisis of Health Care, Education, and Some Other Valuable Services

The exploding cost of health care is patently a matter eliciting widespread concern. There is hardly an election in an industrialized country nowadays in which commitment to containment of these costs is not expected of every viable candidate. In the United States the new president has repeatedly stressed this issue as one of the most critical facing society. The health care systems of other nations are cited as attractive models for this country, noting that the current U.S. arrangements exclude the poor and perhaps the middle class as well from the attainment of what are generally considered adequate standards of care, because rising costs raise the price beyond the means of a substantial proportion of the population.

Those of us who have children or grandchildren who attend private universities are only too painfully aware that education is beset by similar problems that already are also eliciting growing political attention. The discussion that follows will suggest that these two fields, health and education, (and a number of others) not only share a problem but that this problem of growing costs has at least one source that is common. Until that source is recognized, it will be argued, programs to deal with the difficulty are likely to prove ineffective or worse. Once understood, however, promising courses of action for the problems or, rather, ways of living with them, do suggest themselves.

Thus, while the beginnings of the discussion will appear suitably grim, as one may expect of a product of the dismal science, the story, it can be promised, will have a rather happier ending -- though one that does still depend on the rationality and insight with which policy makers are prepared to approach the matter.

It is often noted that the cost per capita (or cost as a share of average income) of health care in the United States is considerably higher than that in most other countries. We can be fairly certain from the statistical evidence that this is true, despite the well known pitfalls besetting comparison of prices in different countries with their different currencies. The shortcoming of this conclusion, in my view, is not that it is suspect, but that it focuses upon the wrong issue. The pain society experiences from the costs of health care and education does not derive primarily from their levels at some particular date but, rather, from their growth rates. What makes the problem so difficult to deal with is the fact that high as these costs may have been yesterday, they are considerably higher today, and will be substantially higher still tomorrow. Note that here I refer not to price inflation, but to what economists call "real price increases," that is, price increases above and beyond the rate of general inflation of prices in the economy.

The magnitude and persistence of the rates of growth of these real prices are sufficiently striking to leave little doubt that even if the time derivatives of the real costs of health care and education are not the only difficulty, they are surely a major component of the problem we are examining. Let me review some of the facts. From 1948 to 1992 the annual rate of increase in the price of a physician's services (the price charged by the doctor to the patient) was more than 5.5 percent per annum, compared to an average annual increase of four percent per year in the government's measure of overall inflation, the Consumer Price Index, or CPI (see Figure 1 for the graphs of these two series). This difference may not seem very large, but over the 44 years in question it means that the price of a doctor's services has increased by approximately 1100 percent in absolute terms,

or more than 100 percent in terms of dollars of constant purchasing power. In Figure 1 we see how the price of physicians' services (upper curve) has cumulatively outstripped the economy's rate of inflation (lower curve).

Over the postwar period, 1948-1992, the price of a hospital room increased even more rapidly, by a considerable margin, than the cost of a visit to a physician. The cost of a hospital room is reported by the U.S. Bureau of Labor Statistics to have risen at an average annual rate of 8.8 percent compounded, which over the 44-year interval cumulated to nearly a 5,000 percent increase. This amounts to a 700 percent rise in terms of dollars of constant purchasing power--that is, after full correction for the economy's overall inflation during this time interval. Figure 2 reports the hospital-room cost data and shows how it makes the rise in real price of a physical visit seem modest by comparison.

Increases of this magnitude clearly constitute a serious threat to the quality of medical care that middle and lower income persons, whether older or younger, can afford. In an affluent society such as ours, that is dedicated to promoting the general welfare--including the provision of medical care meeting some minimum standard of acceptability--the rising price of medical care clearly represents a problem of the utmost importance.³

The cost of education has shown patterns very similar to those of medical care. Education expenditure per student has also risen steadily and cumulatively at a rate markedly outstripping that of inflation. It increased at a rate of 7.6 percent for the postwar years, intermediate between that of a physician visit (5.5 percent), and that of a hospital room (8.8 percent). Figure 3 (constructed from data from the U.S. Department of Education) reports the information, Costs of higher education exhibit similar patterns.

³There have, of course, been some offsetting, beneficial developments. Growing scientific knowledge and improved medical techniques indisputably mean that patients are getting better care for their money than they were forty years ago. More than that. To the extent that innovation has reduced the length of treatment some illnesses require, expenditure *per illness* must have risen correspondingly less quickly than cost per patient-day.

There remains the question whether the problem of steadily growing real cost of health care and education is an issue peculiar to the U.S. It has been suggested that other countries exercise firmer control over their medical costs, and continue to offer better and more affordable public services. There is, undoubtedly, much truth to this contention, and it reflects, among other influences, a variety of public policies--a greater commitment to social services financed by tax rates far higher than those in the United States, stricter controls on the fees charged by physicians, and so on. Still, it must be remembered that there are few industrialized countries in which similar complaints about rates of cost increase are not heard.

Let us, then, examine what the data show. Statistics for the required comparisons are surprisingly difficult to obtain. In part, this is attributable to measurement problems. There are a number of services, such as those of government, whose outputs are very hard to measure or even to define and observe. Others, such as health care, are so heterogeneous that the statistics are likely to be exceedingly difficult to compare from one country to another. Still, we have been able to obtain some such data for education and health care.

Figures 4a 4b and 4c show the cost of education per student for six countries: Japan, United Kingdom (1965-1988), Germany (1965-1989), Canada, France (1965-1990) and the U.S. (1965-1991)⁴. The figures simply show indexes (1965 = 100) of total expenditures by educational institutions divided by total enrollment. Figure 4a provides indexes uncorrected for inflation (i.e., nominal expenditure per student). It shows that, for the most part,

⁴The data for the U.S. include expenditures of all educational institutions, public and private, at all levels. The expenditure figures for the other countries are confined to public institutions, which constitute the bulk of their educational institutions. The U.S. figures are from U.S. Department of Education, while the source for the statistics for the other countries is the United Nations Educational, Scientific and Cultural Organization (UNESCO). The general price indexes--the gross domestic product (GDP) deflators--come from the Organization for Economic Cooperation and Development (OECD).

education costs rose at a substantial rate throughout most of the period. Since 1965 is selected as the base year, all of the countries are given the same initial point. In these terms, with no correction for the different rates of inflation in the different countries, we see that foreign education expenditures grew more rapidly than in the U.S. in all but one country--Germany. But this may be attributable to the fact that over the period inflation in the U.S. was slower than that in most other countries.

We correct for the effects of inflation in the usual way, by dividing the nominal figures by the corresponding value of the overall price index (the GDP deflator) for each year for which statistics are reported. The resulting indexes of real education cost per student are shown in Figure 4b. Here we see that for each country despite the deflation of the numbers, every one of the curves remains upward-sloping, meaning that cost of education per student rose quite consistently faster than the general price level. Moreover, we see that in three of the six countries this cost rose more rapidly than it did in the U.S.

Figure 4c sums up the results. The height of the bar for each country shows the average rate of increase of real education costs per annum in that country. We see once more that each of these countries suffers from the problem of rising real costs, and that in terms of the rate of increase the U.S. is below the middle, with Japan, Canada and France having the dubious distinction of being well ahead of us, and Germany and the U.K. lagging behind us.

We also have some comparative health care cost figures, for whatever they may be worth. In 1990 (updated 1993) the OECD provided, as they put it, "At a more aggregate level, a new 'total' medical-consumption price index..." [1990, p. 122]. This price index is calculated for the years 1960 through 1990 for 18 countries, including all of the major free-market industrial countries. In all of them the nominal health-care price index rose rapidly, as is hardly surprising. As Figure 5a (analogous to Figure 4c for education) indicates, after correction for inflation, in 14 of the 18 countries, health care prices rose

more rapidly than prices in general. That is, in those 14 countries the real cost of medical care rose (and rose quite steadily). The U.S. rate of increase was exceeded by that in seven of these countries: Austria, Australia, Canada, the Netherlands, New Zealand, Norway and Switzerland.⁵ More recently, however, the growth rate of U.S. costs has accelerated relative to that of the other leading economies (Figure 5b). It must also be reported that in three of the countries, including the U.K. and France, the real medical price index fell. I am not in a position to judge whether this represents a fall in the quality of the services, a rise in the efficiency of their production or is merely a phenomenon that is purely statistical.⁶

⁵It should be reemphasized, however, that the *level* of U.S. per-capita medical care expenditures (in contradistinction to their *rate of growth*) is far higher than that in other countries. Using what economists consider the proper approach to translating foreign currencies into dollars (taking into account their relative purchasing power), it is estimated that, "Americans spend 2.8 times as much per capita as the British, 2.6 times as much as the Italians, 2.3 times as much as the Japanese, 1.7 times as much as the French, 1.5 times as much as the Swedes, and 1.4 times as much as the Canadians" (Schieber and Poullier [1987, p. 112]). A regression correlating per-capita health care spending with per-capita GDP for the 24 OECD countries in 1989 found a surprisingly tight relationship (health care spending per capita = $-419 + 107X(\text{per capita GDP})$, $R^2 = 0.85$, both parameters significant at the .01 level). Of the 24 countries, only the U.S. fell far from the regression line, exceeding its predicted outlay by about 25 percent (Scheiber, Poullier and Greenwald [1991, pp. 23-26]).

⁶One plausible explanation is that in periods of rapid inflation the prices of services that normally suffer from the problems of rising real costs described in the next section cannot overcome the forces that always cause lags in their cost-adjustment processes. In our initial study of the subject, on the economics of the performing arts, William Bowen and I found that in periods of rapid inflation, and only then, real costs of arts organizations fell [1966, p. 189 ff]. As is clear from Figure 5c (using slightly earlier data than those employed in Figure 5a), a similar relationship holds for health care costs. That graph plots for each of the 19 countries the rate of inflation on the horizontal axis and the rate of increase of real health care price on the vertical axis. We see that all of the countries in which real health care cost fell between 1960 and 1987 were also countries in which the rate of inflation was high (they lie at the right hand side of the diagram). In general, the higher the rate of inflation, the more slowly a country's health care cost rose, with a one percent higher inflation corresponding, approximately to a 0.25 percent fall in the rate of increase of real health care price.

It should also be noted that according to other studies France and the U.K. have not been immune from the problem of rising real health care costs. *The Economist* reports, "Over the past 40 years health spending in France has risen by an average of 7% a year in real terms" (June 22, 1991, p. 52), while in the United Kingdom, "...throughout the 1980s [there has been] a real increase of 2.8% a year...." (September 28, 1991, p. 63).

At least two conclusions are suggested by our quick review of the data. First, it should be clear that the health care or educational systems of other countries provide no sure models for a quick fix of the problem of rising real cost of those services in the U.S. Second, the universality and persistence of the problem -- the fact that it has endured for four decades at the very least, and has beset many countries beside the U.S. -- indicate that it lies deeper than the particular administrative or other institutional arrangements adopted in this country. Let us, then inquire into at least one possible source of the rising-cost phenomenon.

II. The Persistence of Productivity-Growth Differentials and the Cost Disease

The issue is surely complex, and no single explanatory hypothesis can pretend to account for a set of problems whose roots are undoubtedly sociological and psychological as well as economic. Still, there is one influence that goes far in accounting for the difficulties that have just been described, and that at the same time at least suggests the general directions one must pursue if a way out is to be found. It should be kept in mind that the following discussion focuses throughout, not upon the level of costs, but upon their real rates of increase. There are many influences, actual or alleged, notably lawsuits against doctors and others involved in health care, lack of competitiveness in the profession and high earnings of physicians, that clearly may help to explain the levels of those costs, but I am aware of none beside the one about to be described that seems to account for the many countries in which growth in health and education costs persistently outpaces the rate of inflation.

If litigation were to be capable of explaining the persistent rise in medical cost it, and the size of jury awards would have to have been increasing throughout the many decades during which the evidence indicates that real medical costs have been rising. I know of no evidence that this was so, or was so in the other countries in which costs have

been rising faster than ours, and recent evidence even seems to suggest that the pertinent litigation in the U.S. has been leveling off or declining (see, e.g., Hay [1992, p. 121, Table 6.1]). Students of the subject indicate that there has been no discernible trend in the size of jury awards, but that the frequency of victories by the plaintiffs has been declining, meaning that the total cost of malpractice awards and other related payments also has probably been falling.

Similarly, if lack of competitiveness were the cause of growing health-care costs, the degree of competitiveness would have had to be declining over the years. The evidence, however, is distinctly to the contrary. For example, the advent and very rapid growth in number and membership of HMOs and comparable organizations has certainly added to the forces of competition. The number of physicians per capita has been expanding since 1960 and, with that, the pressures for doctors to compete for patients. Moreover, the number of admissions to U.S. medical schools and the proportion of medical students who graduate have also grown. This and much other evidence indicates that, whatever one may judge on the presence or absence of competition in the field, it has certainly been increasing, not declining with the passage of time, as it would have had to have done if it were to constitute an explanation of rising health-care costs.⁷

Finally, if doctor's incomes were an explanation, they would have to be rising in real terms. Again, the facts indicate otherwise. Over much of the period after World War II the real (inflation-adjusted) earnings of doctors in the U.S. have been virtually constant. The 1991 U.S. Statistical Abstract reports the trends in median net physician incomes for the period 1975-1988. During these thirteen years, when the income figures are not corrected for the effects of inflation, we find that incomes have approximately doubled, on

⁷For a much more thorough study of the subject by an economist employed by the Federal Trade Commission, see Noether [1986]. That study provides strong evidence for the conclusion in the text.

average, rising from \$58,400 to \$117,800--an average annual rate of increase of about 5.4 percent. However, because during this time interval the Consumer Price Index more than doubled, real average physician income at the end of the period was somewhat less than where it had begun, at \$53,600 in 1975 dollars.⁸

This also shows that the problem cannot be attributed to physician greed and unscrupulous overcharging or other forms of villainy. While the ethics of doctors are probably no better than those of professors, or the members of other professions, the temptation to attribute the problem to villainy is surely misguided.

How, then, can one explain the source of the rising- cost problem? It is almost exactly a quarter century since William Bowen and I [1966] first reported our analysis of what is now called "the cost disease of the personal services," including health care, education and a number of other services, with its profoundly disturbing presage of the future. I remind the reader of this not to gloat over the accuracy of our depiction of the future (though I cannot deny that it is a source of some uneasy satisfaction). Indeed, we were not the first to offer such an analysis, and we explicitly denied at the time that we were providing a forecast. Still, the course taken by the economy since then, as it had for so long a period before, followed disturbingly closely the gloomier of the scenarios that our model suggests and undertakes to explain.

A major source of the cost disease was traced to the differences in the productivity growth rates of the various parts of the typical developed economy. It is productivity growth that, on this view, creates both private affluence and public squalor, and it is not by mere happenstance that at the same time, in the words of the poet, "wealth accumulates and men decay." For it is inherent in the technological structure of the

⁸During this same period teachers' salaries in elementary and high schools were increasing slightly in real terms (U.S. Department of Education [1992, p. 811]), so that doctors' incomes were actually falling behind those of schoolteachers.

economic growth process that a particular set of economic activities, many of them the very activities that are generally considered most critical for the health of the society, are condemned to a pattern of spiraling increases in their real prices that appears to put them beyond the reach of both the individual and the state.

It is hardly surprising that, while overall productivity in the industrial world has been growing rapidly, the pace of growth in different industries has varied substantially. What is more unexpected is the persistence of the pattern of differences in productivity growth between economic sectors. A given sector of the economy does not usually fluctuate haphazardly between periods of relatively slow and relatively rapid advance in productivity. Rather, the industries in which productivity was expanding slowly a century ago are, by and large, the very ones that are still the laggards today. And the endurance of productivity stagnancy in those industries has imposed upon them a distinctive price history that is the fundamental symptom of the cost disease of the personal services. This cost disease phenomenon occurs when the services, in a class that will presently be described, are plagued by cumulative and persistent rises in their costs, increases that normally exceed to a significant degree the corresponding rate of increase for commodities generally, i.e., almost always outstrip the economy's rate of inflation.

The services in question, which I call The Stagnant Services, include, most notably, health care, education, legal services, welfare programs for the poor, postal service, police protection, sanitation services, repair services, the performing arts, restaurant services and a number of others that will soon suggest themselves. The common element that characterizes them all is the handicraft attribute of their supply processes. None of them has, at least so far, been fully automated and liberated from the requirement of a substantial residue of personal attention by their producers. That is, they have resisted reduction in the amount of labor expended per unit of their output. Not that the growth rate of their labor productivity has always been zero. On the contrary, in almost every

case there has been some rise in the productivity of these personal services with the passage of time; but over longer periods it has been far slower than the rate of productivity increase characteristic of the economy as a whole. That is why we call them the stagnant services.

There are at least two reasons why rapid and persistent productivity growth has eluded the stagnant services. First, some of them are inherently resistant to standardization. Before one can undertake to cure a patient or to repair a broken piece of machinery it is necessary to determine, case by case, just what is wrong and the treatment must then be tailored to the individual case. The manufacture of thousands of identical automobiles can be carried out on an assembly line and much of the work done by industrial robots, but the repair of a car just hauled to a garage from the site of an accident can not be entrusted completely to automated processes. A second reason why it has been difficult to reduce the labor content of these services is the fact that in many of them quality is, or is at least believed to be, inescapably correlated with the amount of labor expended on their production. Teachers who cut down the time they spend on their classes or who increase class size, doctors who speed up the examination of their patients, or a police force that spends less time on the beat are all held to be shortchanging those whom they serve. This, then, is why the stagnant services have consistently proved unamenable to steady and substantial productivity growth, that is, to reduced labor content. To see the implications for costs and prices, let me return to a (slightly edited) quotation from our earliest description of the relationship (Baumol and Bowen [1966, pp. 167-171]).⁹

⁹There is little new in these observations on the effects of differential rates of productivity change on costs and prices. See, for example, Scitovsky and Scitovsky [1959]. Only the application of these to the state of the arts is relatively new. Some of the general ideas are suggested in Poggi [1964], in some of the annual reports of the Royal Opera, and in Toffler, [1964, Chapter XI, esp. p. 163 ff.]. See also Jean Fourastie's interesting comparisons of productivities, by century and nation [1960, Chapter IV].

III. Cumulating Real Price Increases: The Fate of the Stagnant Sectors

Let us imagine an economy divided into two sectors: one, the progressive sector, in which productivity is rising, and another, the stagnant sector, in which productivity is constant. Suppose the first economic sector produces automobiles, and the second, performances of Mozart quartets. Let us assume that in automobile production, where technological improvements are possible, output per work-hour is increasing at an annual rate of 4 per cent, while the productivity of quartet players remains unchanged year after year. Imagine now that the workers in the automobile industry recognize the growth in their own productivity and persuade management to agree to a matching rise in wages. The effect on the auto industry is easy to trace. Each year the average worker's wage goes up by 4 percent, but her output increases by exactly the same percentage. Then the one effect on cost is exactly offset by the other -- total cost and output both rise four percent. As a consequence, labor cost per unit (the ratio between total labor cost and total output) remains absolutely unchanged. This process can continue indefinitely in our imaginary world, with auto workers earning more and more each year, with cost per car remaining stationary, and with no rise in automobile prices necessary to maintain company profits.

But what of the other industry in our little economy? How is quartet performance faring in this society of growing abundance? Suppose that the quartet players somehow succeed in getting their wages raised, and that their standard of living, though below that of the auto workers, maintains its relative position, also increasing 4 percent per year. What does this situation imply for the costs of quartet performance? If the earnings of string players increase by 4 per cent per year while their productivity remains unchanged, it follows that the direct labor cost per unit of their output must also rise at 4 per cent, since cost per unit is equal to total cost divided by the number of units of output. If in a

forty hour week the string player provides just as many performances as he did the previous year, but his wage is 4 per cent higher, the cost per performance must have risen correspondingly. Moreover, there is nothing in the nature of this situation to prevent the cost of performance from rising indefinitely and at a compounded rate. So long as the musicians are successful in resisting erosion of their relative incomes, the cost per performance must continue to increase along with the performer's income. Cumulatively rising costs will beset the performing arts with absolute inevitability.

Indeed, with productivity per work-hour roughly constant, any increase in the musicians' wage rates, however modest, must lead to a corresponding increase in costs. If wages go up 4 per cent elsewhere in the economy, but performer incomes rise by only 2 per cent, the direct labor cost of each performance must also increase by 2 per cent unless there is an offsetting reduction in the number of labor-hours per performance, that is, an offsetting rise in productivity.

It is important to recognize that ordinary price inflation plays no role in the logic of our analysis. That is, so long as the wages of musicians in this two-sector economy continue to increase at all, the cost of a live performance will rise, cumulatively and persistently, relative to the cost of an automobile, whether or not the general price level in the economy is changing; the extent of the increase in the relative cost of the performance will depend directly on the relative rate of growth of productivity in the automobile industry.¹⁰ Moreover, though it is always tempting to seek some villain to explain such a cumulative run of real price increases, there is no guilty party here. Neither wasteful expenditure nor greed plays any role. It is the relatively stagnant technology of live musical performance--its inherent resistance to productivity improvements--that accounts

¹⁰Any overall price inflation in the economy, which affects the prices of *all* goods and services, contributes a separate, additional monetary cost increase on top of the stagnant services' innate price increases.

for the compounding rise in the cost of performance of quartets.¹¹

It will be evident that the foregoing analysis is applicable to many other personal services. In particular, the services that have been labelled "stagnant" all appear to have difficulties persistently impeding growth in their productivity very similar to those that beset the musicians in our parable. Clearly, health care has taken giant steps in quality improvement over the decades, but while the amount of physician time spent per patient-visit or per illness may have declined somewhat, it has done so only marginally; in education there has been no marked change in class size, and therefore no large variation in number of students served per teacher-hour, and it is widely judged that there has been little if any improvement in quality. The output of an hour of police protection, or an hour of postal delivery time, or an hour of street cleaning time has probably been enhanced by the use of motor vehicles in terms of territory covered, but the increase has probably been modest (criminal activity has also been "enhanced" by the use of motor vehicles), and certainly has not been continuous and cumulative. The productivity of trial lawyers and actors or musicians engaged in live performances has risen to a minuscule degree at most, and while automotive repair services have done somewhat better, the increase in their productivity has still been well below that of manufacturing, as we will see presently. The circumstances of the insurance industry follow directly from what has just been said, for the purchaser of an insurance policy simply is acquiring a bundle of several stagnant services--health care, auto repair, legal services, and so on, and as we have just noted,

¹¹The advent of mass media has, of course, contributed spectacularly to productivity in musical performance, increasing enormously the number of listeners reached by a given number of hours of performance. Yet, that has not solved the problem. The costs of television broadcasting, for example, are increasing at a compounded rate very similar to that of live performance. The reason is that the very rapid growth of productivity in the high-tech portion of broadcasting has made the cost of television transmission an ever-declining portion of the total budget of broadcasting activity, leading the live performance component to constitute a constantly *rising* share of the total. For a full discussion and the statistical evidence, see Baumol, Blackman and Wolff [1989, Chapter 6].

productivity growth in the supply of this bundle has surely lagged. A final class of stagnant activities to be noted here is particularly significant in terms of the state of society. The care of the indigent, government welfare, and related programs seem to benefit from no significant source of productivity growth—they appear to remain fundamentally unchanged, handicraft activities.

The upshot is that all of these services suffer from a rise in their costs that is terrifyingly rapid and frighteningly persistent.¹² They threaten the strained budgets of the individual families, the municipalities and the central governments of the entire industrialized world. And, as financial stringency becomes more pressing, it is understandable that spending on these services is cut back or, at most, increased by amounts barely sufficient to stay abreast of the overall price inflation in the economy. But since the costs of the stagnant services are condemned to rise, persistently and cumulatively, with greater rapidity than the rate of inflation of the economy, the consequence is that the supply of these services tends to fall in quantity and quality. This undoubtedly is not the only source of increasing public squalor, but it must surely have made a significant contribution.

IV. Some Further Evidence

There is another way in which one can seek pertinent evidence. If the lagging productivity explanation is valid, it should be valid in arenas other than health care and

¹²The cost disease analysis also has an implication that may help to account for the high relative level of health care cost in the U.S. It must be remembered that, despite widespread impressions to the contrary, productivity levels in all or virtually all other countries still remain well below those in the U.S. If that is so, we should expect the graphs for their medical costs as well as those for other stagnant services to have intertemporal shapes very much like those shown for the U.S. in Figures 1-3, but that their heights should not yet have reached the levels of the American figures. The point is that we are all going rapidly uphill, but this country began climbing earlier.

education. Some other services that are apt to have been infected by the cost disease have already been listed. If the analysis is valid, these arenas should also exhibit the rising real prices that are the symptom of the disease. The evidence suggests that this is in fact so.

For example, Figure 6 provides data obtained from the U.S. Bureau of Labor Statistics on the relative trends in the prices of automobile insurance, automotive maintenance and repair, and the CPI. For the entire period 1948-1992 the CPI grew at a compound rate a bit more than 4 percent per annum. For auto maintenance and repair the price increase averaged nearly 8 percent, while that for auto insurance was about 15 percent--presumably also reflecting the rising cost of litigation. The Bureau of Labor Statistics has also calculated a price index for legal services but only for the seven years 1986-1992. Still, it is suggestive that during this brief period it, too, grew consistently faster than the consumer price index, by about one percentage point per year, though at a rate nearly 1.5 percentage points more slowly than the price index for physician services.

The productivity growth record of these sectors (as reported in the U.S. government's Survey of Current Business) is consistent with our analysis. While the average growth rate of productivity in the auto repair subsector was a respectable 1.6 percent per annum over the period 1948-86, it had declined significantly over the period, and that average productivity growth rate was only a bit more than half of the 3.1 percent rate achieved by the manufacturing subsector, motor vehicles and equipment.

The case of legal services is more extreme. Computerized information services have helped to save lawyers' time, as has air travel and the availability of telephones in automobiles. But such productivity-enhancing innovations are peripheral to the work of an attorney, whose research can perhaps be assigned to paralegal assistants but not left to machines, and whose planning of a case and its presentation in court must be done, in essence, the old-fashioned way--as an almost pure expenditure of labor time. There simply is no mechanical or electronic equipment capable of reducing the labor time

expended, say, per legal case to any significant degree. And, as a matter of fact, the productivity growth (or, rather, decline) rate for the legal services subsector averaged -2.26 percent compounded (!) throughout our 38-year period. The implications for the time pattern of legal costs should by this point of the discussion have become all too obvious.

As for the case of the insurance industry, the U.S. Department of Commerce provides labor-productivity growth figures for the U.S. economy for the entire period since the Second World War, dividing the economy into eleven sectors which, in turn, are divided into 66 subsectors. One of the eleven sectors is finance, insurance and real estate (FIRE), and it contains seven subsectors, including insurance carriers and insurance agents. In terms of average productivity growth over the postwar period this FIRE sector is one of the poorest performers (with only the categories dubbed miscellaneous services, government, and construction turning in a less exemplary record). Output per person-hour in the FIRE group of services increased at the very modest annual rate of 0.9 percent, while the average for all sectors was some 55 percent higher than this. Not only was the average growth rate of productivity in the FIRE sector low, but it fell through most of the period, and its rate of decline relative to its initial level was greater than that of any sector other than mining and construction.

The productivity pattern of the insurance agents and brokers subsector was very similar to that of the FIRE sector as a whole. Moreover, its productivity growth rate actually was negative: -0.99 percent per year over the 38-year period. In contrast, the productivity growth of the other insurance subsector, insurance carriers, showed no significant trend, downward or upward, and its average growth rate, 1.25 percent per year, was substantial (even if below the average for the economy), but well below the 2.77 percent growth rate for manufacturing and the 5.37 percent productivity growth rate for the telephone and telegraph subsector.

We see that the industries that are characterized by persistently rising real prices are

precisely those that the cost disease analysis would lead us to expect to behave in this manner.

V. Toward Viable Policy: Can We Afford Abundant Health Care and Education?

The pervasive fiscal difficulties that threaten quality of life in the industrialized countries have many roots. However, the evidence that has been presented here indicates that a considerable share of the problem is attributable to the cost disease. If inflation proceeds at a rate of, say, four percent per year, but cost of education per pupil and other municipal services rise at a rate of six percent, then a tax base that expands only a little faster than the rate of inflation is sure to lead to growing financial problems for the city. And medical costs and insurance premiums that considerably outstrip the rate of inflation year after year would appear to put such vital services beyond the reach of all but the wealthiest families. If I am right in arguing that the cause of this predicament is the nature of the technology of the supply of these services, and that the course of development of such technology does not lend itself to easy modification, then the implication would seem grim indeed--the conclusion would appear to be one that befits the natural pessimism of a practitioner of the dismal science.

Yet, I shall argue now, far from there being no exit, the very structure of the problem is such as to offer society all the resources requisite for its solution. Contrary to appearances, we can afford ever more ample medical care, ever more abundant education, ever more adequate support of the indigent, and all this along with a growing abundance of private comforts and luxuries. It is an illusion that we cannot do so, and the main step needed to deal effectively with the fiscal problem underlying the growing public squalor is to overcome that illusion. This conclusion may strike the reader as implausible in light of all that has been said. Yet, the conclusion is inescapable, if only our future productivity record bears any resemblance to that of decades past which brought the U.S.

and the rest of the industrial world ever-better health care and ever-more education, despite rising costs. There are two fundamental reasons why this must be so, and I will describe them in turn.

A. The small, but positive, growth rate of productivity in the stagnant services. In A Connecticut Yankee, Mark Twain devotes an entire chapter to Sir Boss's unsuccessful attempt to explain the concept of real wages to his primitive hosts. He argues with some passion that the monetary magnitudes of wages are irrelevant; that, regardless of their value as expressed in terms of money, wages are really higher only when it takes fewer hours of labor to earn the wages needed to purchase a given set of goods. Yet, as I will show now, precisely that is true of the stagnant services. Their money prices are indeed rising ever higher, and their exchange rate against manufactured goods is constantly increasing, just as I have shown here. But in terms of the number of labor hours it takes to acquire them, over the longer run, their cost is decreasing steadily, albeit relatively slowly. If so, it is immediately obvious that the claim that we cannot afford them is simply a manifestation of what economists call "money illusion."

But how can that be? The answer is that even the most stagnant of services is undergoing some productivity growth -- slowly, and not very steadily, but some growth nevertheless. The cost disease analysis does not claim otherwise; its workings merely require productivity in the stagnant services to grow substantially more slowly than that of the economy overall. To illustrate the point, let me return to my favorite example. If, in the earlier parable, the hypothetical Mozart string quartet had been scored for a half-hour performance, then its performance in 1990 required two person-hours of labor, just as it did in 1790, when it might have been written. Thus, there is apparently no scope for the slightest increase in labor productivity.¹³ Yet that is only an illusion. To see why,

¹³Or even for any increase in total factor productivity, for that matter; the latter appears frozen by the fact that the same number of instruments, the capital equipment, was required at the two dates.

assume that the more recent performance was by a Viennese group of musicians, and that it was played in Frankfurt am Main. A 1990 trip from their Austrian home base to the German auditorium surely would normally have taken no more than several hours. But when Mozart made the trip in 1790 it required six days of extreme discomfort (and, at that, Mozart wrote that he was surprised at the speed of the journey).¹⁴ Certainly, technical progress has reduced the number of hours of labor required to provide a unit of the output in question, thus raising the labor productivity of every itinerant performer, even in live performance (and we know that performers are virtually all itinerant).

This example clearly suggests that there is no service whose productivity is untouched by technical progress to some degree. The consequent rise in labor productivity means, by definition, that it requires ever less labor time to produce a unit of such a service. And every resulting reduction in labor time spent in producing the service means that those purchasing the service must expend that much less labor-time to acquire the wherewithal needed to purchase it. That is the sense in which even education and medical care have really grown steadily cheaper (albeit at a snail's pace, compared to other outputs), even as they appear to become steadily more unaffordable. Productivity growth in the stagnant services means that their real costs are steadily, if slowly, declining despite the dramatic inflation in their money prices. However, this, at best, can only make a minor contribution toward solution of the politico-budgetary problems that stem from the cost disease. More powerful aid must come from a second source:

B. Productivity growth in the entire economy means we can afford more of everything. There is a good deal more to the sanguine side of the cost disease story. Even if it were true that productivity in the stagnant services was not increasing one iota,

¹⁴Letter of September 28, 1790.

their rising prices could still not put them beyond the reach of the community; on the contrary, it would remain true that society could afford ever more of them, just as it has in fact been getting ever more of the health care and education that seem steadily to become to an ever greater degree too expensive to afford.

As was pointed out some time ago by David Bradford [1969], in an economy in which productivity is growing in almost every sector and declining in none, it is a tautology that consumers can have more of every good and service. To achieve this goal, some limited quantity of the inputs used to produce goods whose productivity is growing relatively quickly (the "progressive" outputs) need merely be transferred into the production of the stagnant services. Then productivity growth will still permit expansion of the progressive output quantities, despite the limited decline in their inputs, while the outputs of the stagnant service will grow because more input is devoted to their production. To achieve such a goal—ever greater abundance of everything—society must change the proportions of its income that it devotes to the different products. In these circumstances, it is a fiscal illusion that underlies the view that consumers as a group cannot afford to pay the rising costs of education, health care, and other such services.

We can suggest the magnitudes that may be involved by using current U.S. data on price trends and expenditures on health care and education to illustrate the point. We will now see what would be entailed if the real prices of education and health care continue to grow at their current rate for 50 years, if overall U.S. productivity rises for that period at its historic rate of (approximately) two percent, and if real educational and health care outputs maintain an unchanged share of GDP—that is, if the economy were to produce more of education, health care and everything else, keeping their relative outputs completely unchanged. It should be emphasized that the resulting numbers do not pretend to constitute anything like a forecast — they are intended to be no more than a suggestive extrapolation. Or rather, they are intended as an indication of what the economy will be capable of achieving for the public, if historic price and productivity trends continue.

In Figures 7 and 8 the left-hand bar shows the 1990 actual shares of GDP constituted by health care, education, and the remainder. It shows that the two services then constituted less than 20 percent of the total. In Figure 7 the right-hand bar reports what will happen to outputs if the number of hours of labor performed in the U.S. remains constant but productivity in the economy grows at its historic average rate and each industry's output level is adjusted to retain the same share of total output. It shows that in that period the output of every good and service, including education and health care, can increase to more than 3.5 times its 1990 magnitude. This growth is indicated by the relative heights of the corresponding segments of the two bars in Figure 7 -- that for 1990 and the one for the year 2040. That is, we see that the right-hand (2040) bar and every one of its segments is more than 3.5 times as tall as in the left-hand (1990) bar.

Figure 8, however, is the crucial one for our analysis, for it shows the modification of the apportionment of real expenditures required to achieve this result, in effect, measuring spending on each product by the relative number of hours of labor it requires to earn enough to purchase it. Our assumption that the total hours of labor does not change means that total spending on GDP, measured in terms of labor hours used, must also be constant. Thus, the 1990 bar and the 2040 bar, representing total (labor-hour) expenditure on GDP in the two years, must be exactly equal in height. However, expenditure proportions will have changed drastically. Medical outlays, instead of constituting 12 percent of the total, as they did in 1990, must rise to more than 35 percent of the total in 2040. And the share of expenditure devoted to education will have risen from under 7 percent of the total at the beginning of the period to nearly 30 percent at the end. In other words, if current relative price trends and output proportions continue as they are now, by the time four decades of the next century have passed, education and health care alone will absorb well over half of GDP! But that will not prevent consumers from nearly quadrupling their consumption of each and every good and service, including manufactured necessities and luxuries of every variety.

A little thought will confirm that this can continue indefinitely. As the Washington Post stated in an editorial (June 11, 1991), "People sometimes say the country has no money to deal with the growing tragedy of the inner cities. That is incorrect. The country has a lot of money. It is only a question of how Americans choose to spend it."

An analogy can perhaps make the sanguine character of the basic conclusion clearer. Suppose we think of the public's consumption of goods and services as the purchase of a bundle containing many components, just as the purchase of a car includes the acquisition of seats, tire, steering wheel, etc. Imagine that the price of steering wheels is increasing at an impressive rate, but that because of the decline in the costs of the other components, cars (equipped with steering wheels) grow less expensive every year. Would one really conclude that steering wheels are growing unaffordable, even when their price grows to 65 percent of the price of the car?

VI. Remaining Problems

Yet, this happy conclusion is just a bit simplistic. The path from theory to practice is beset by daunting difficulties. At least four of them require emphasis.

A. Low-income groups and universal availability of health-care and education. Even if the analysis is correct, and society will be able to enjoy an increasing abundance of health and educational services, their rising real prices can nevertheless deny them, increasingly, to the poor and, even more likely, to the middle classes. In a rich economy, that is hardly acceptable, and government will no doubt have to intervene to provide the means for the economically underprivileged to get their share of these and other vital services affected by the cost disease.

B. Education of the public. Not the least of the remaining problems is the difficult educational task of getting the public to recognize the difference between the reality and the illusion in the behavior of costs. It will not be easy to convince the intelligent

nonspecialist that, even though prices of personal services appear to be rising at a rate that is out of control, in fact the costs of those services (in terms of their labor-time equivalent) are really gradually declining, because of increases in their labor productivity. One can hardly blame such persons for their reluctance to be taken in by what appears to be sleight of hand or mere theoretical gobbledygook. The difficulty of convincing those who have not thought about the matter analytically that an item really becomes cheaper when its price doubles if, at the same time, wages rise by a factor of 2.1 is, after all, the main moral that Mark Twain seems to want the reader to draw from Sir Boss's failure in his attempt to make the matter clear to his medieval hosts. Yet the task of explanation to the public should not be beyond the most skilled of journalists and others who specialize in the art of effective communication. And an indispensable task it is, for without it effective budgetary reorientation along the lines described will undoubtedly be impossible politically in a democratic society.¹⁵

C. The large public-sector share of GDP. A third critical problem besets effective treatment of the cost disease. The extrapolations in the previous section suggest that if the services in question are supplied largely by government, in half a century well over 65 percent of GDP may easily have to flow through the public sector, and be insulated from control by the market. The experience of the planned economies indicates that this is not a viable economic arrangement, for it is likely to handicap economic growth substantially. Moreover, the analysis implies that our municipal governments face a particularly difficult task in acquiring the revenues necessary to prevent municipal services from collapsing even more completely than they have already. A large portion of the budgets of city

¹⁵A recent and sophisticated empirical study based on the analysis presented here finds evidence that shortchanging of the services suffering from the cost disease is common. The study focuses on higher education and concludes, subject to a number of caveats, that "...underallocation of resources to higher education may have become widespread, with the most acute difficulties occurring in countries showing the greatest fiscal restriction, i.e., Denmark, New Zealand and the U.K." (Ryan [1992 p. 1]).

governments consists of education, health care, and other services likely to exhibit price behavior characteristic of the cost disease -- police protection, libraries, welfare, and so on. This means that we can expect that the real outlays on these will have to treble and more (!) before the middle of the 21st century, if these service outputs are not to fall behind the outputs of the economy's remaining activities. The political task of acquiring such increases in government revenues will not be easy. And, as just indicated, even if it is achieved, the consequences for economic efficiency and bureaucratic control of so enormous an increase of the share of GDP that will have to flow through government channels rather than the private sector of the economy are hardly an attractive prospect.

D. The privatization option and susceptibility to ill-advised price controls. The popular answer of the hour to dangers such as the huge expansion of the public sector just described is greater reliance on privatization. But privatization, too, is no panacea. The public's opposition to any threat to the survival of the public school system can hardly be dismissed as groundless, and similar remarks apply to a number of other services, such as police protection, currently supplied by government.

In addition, any industry beset by the cost disease that is in private hands is sure to be suspected of greed and malfeasance. It is hard to believe that calls for price controls to limit their cumulatively rising prices will not become irresistible politically. But if the rising costs are caused by unavoidably slow growth in productivity, price controls can confidently be expected to lead to deterioration in the quality of those services or to their partial or total disappearance.

We must add to these considerations the likelihood that the cost disease affects many services besides health care and education vital for quality of life. For the same arguments apply to the live performing arts, to libraries, to police protection, to restaurants, to welfare support for the impoverished and to many other critical services. The implication is that if we do not think through the complex problems just described, or fail to do so in

short order, we face a society increasingly characterized, in the words of J.K. Galbraith, by private affluence and public squalor. Already, unmistakable and disquieting signs are available for all to see.

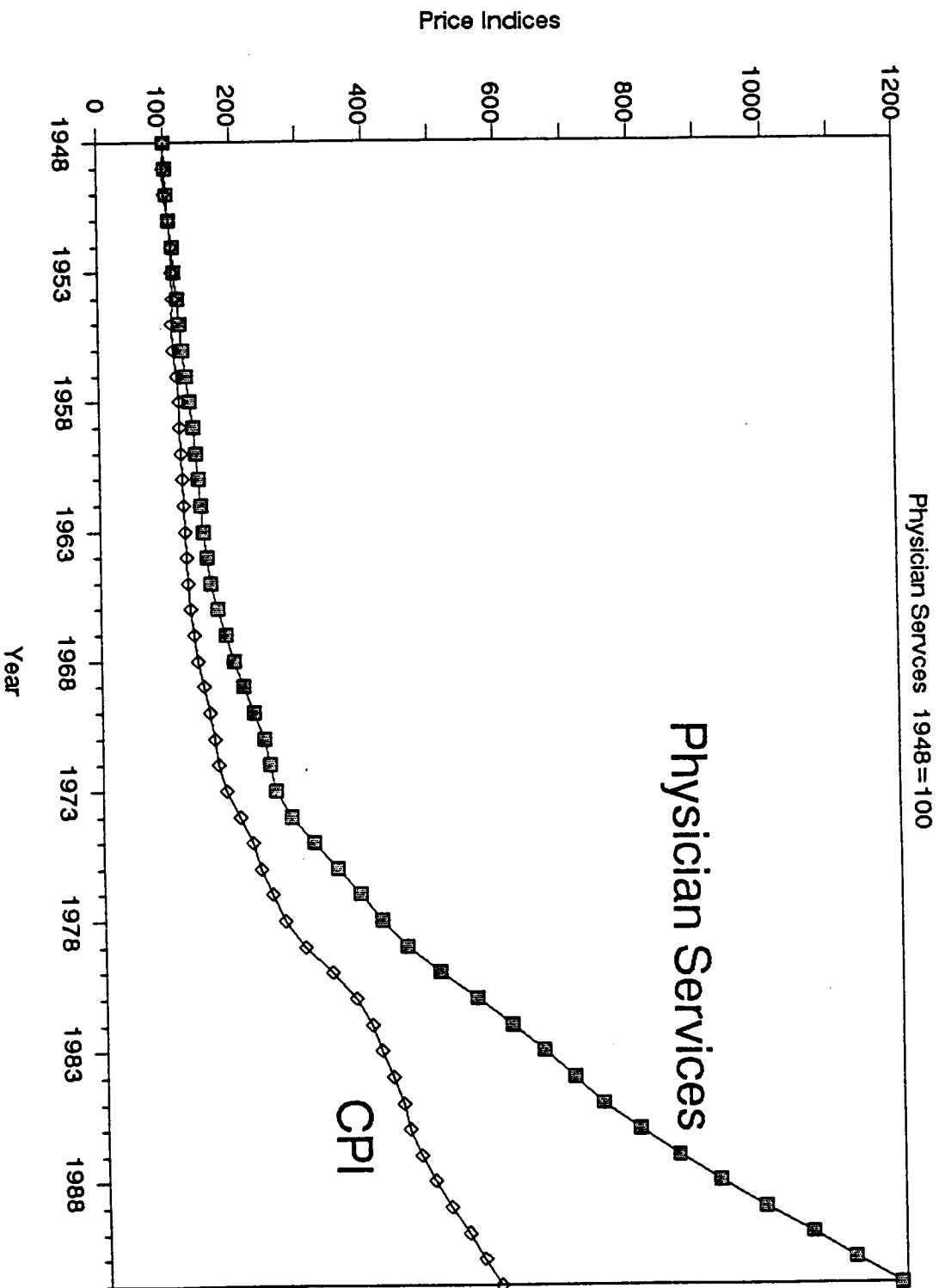
This, then, concludes my story. It is meant to illustrate how economics in the present and future can be guided in its choice of subjects for research by pressing contemporaneous social issues, just as was true in the past. Perhaps what I am saying is that economics, at its core, is an applied discipline -- we are not accompanied by a body of specialist engineers whose training prepares them to use the products of pure research wherever they are, by happenstance, applicable. Rather, the economist's predisposition is to design research in a way that is likely to yield applications, and the preceding discussion is intended to show by example how that can be done.

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Figure 1. Price Trends: Health Care vs CPI, 1948-92

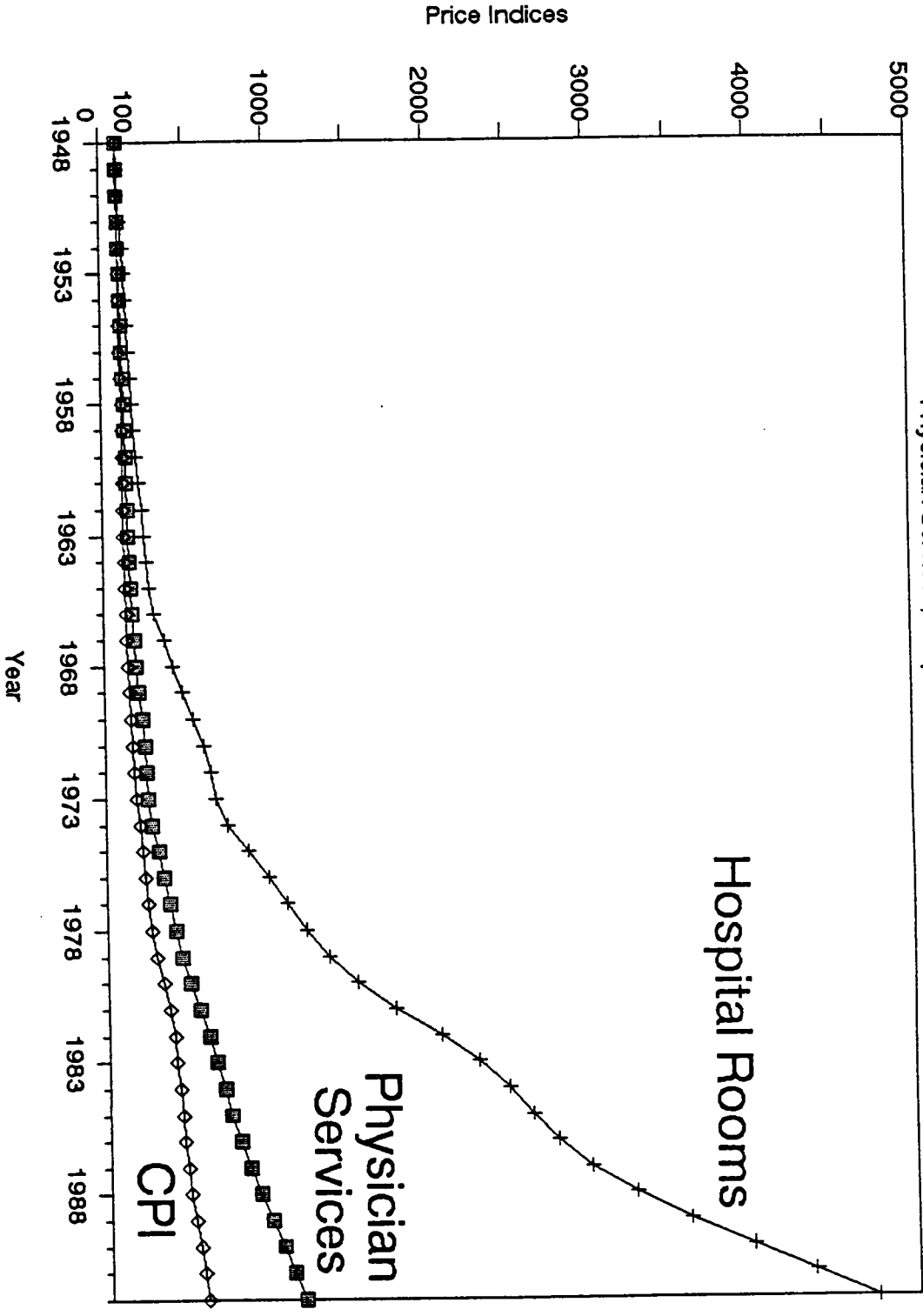


Source: BLS

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Figure 2. Price Trends: Health Care vs CPI, 1948-92

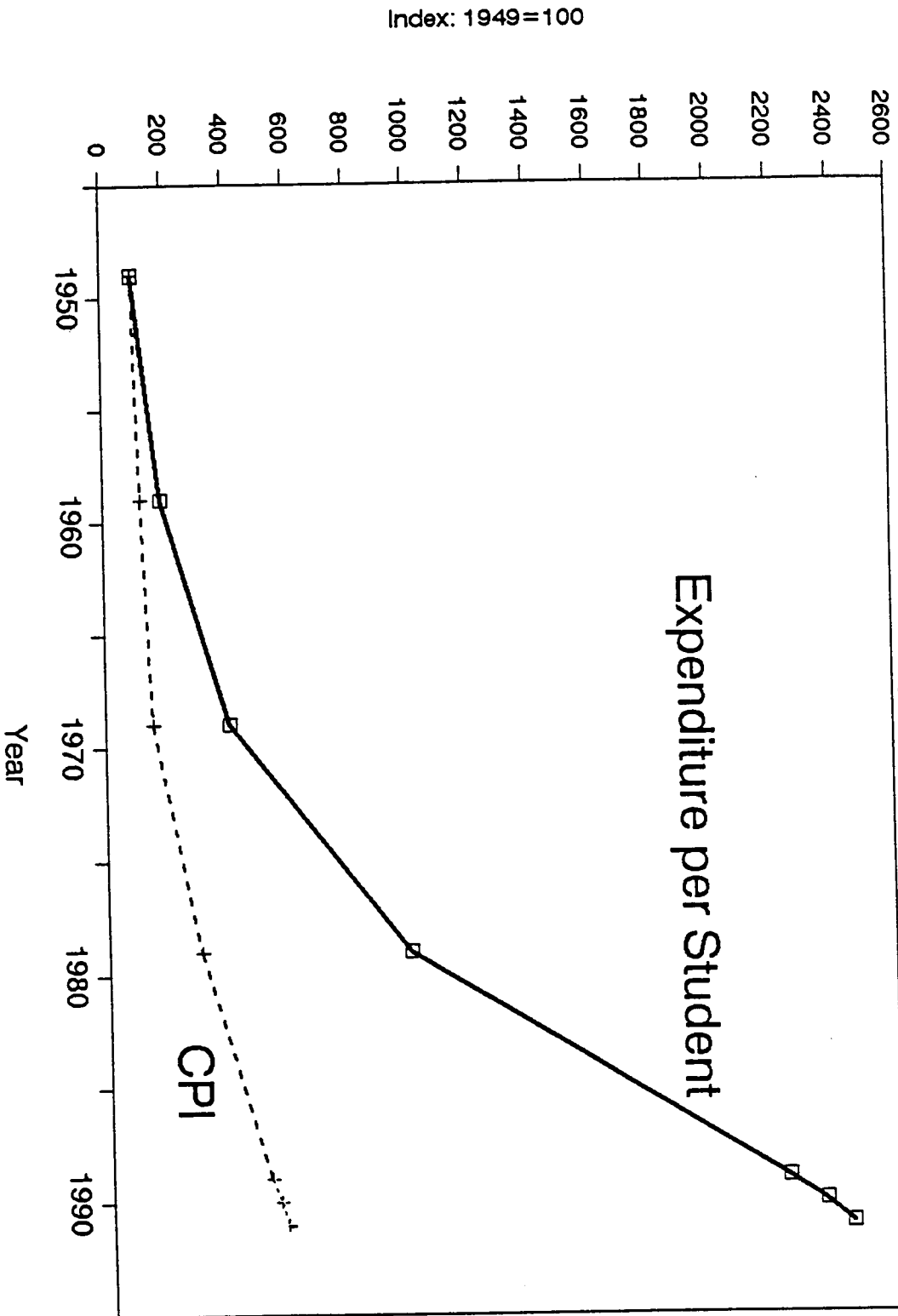
Physician Services, Hospital Rooms, 1948=100



Source: BLS

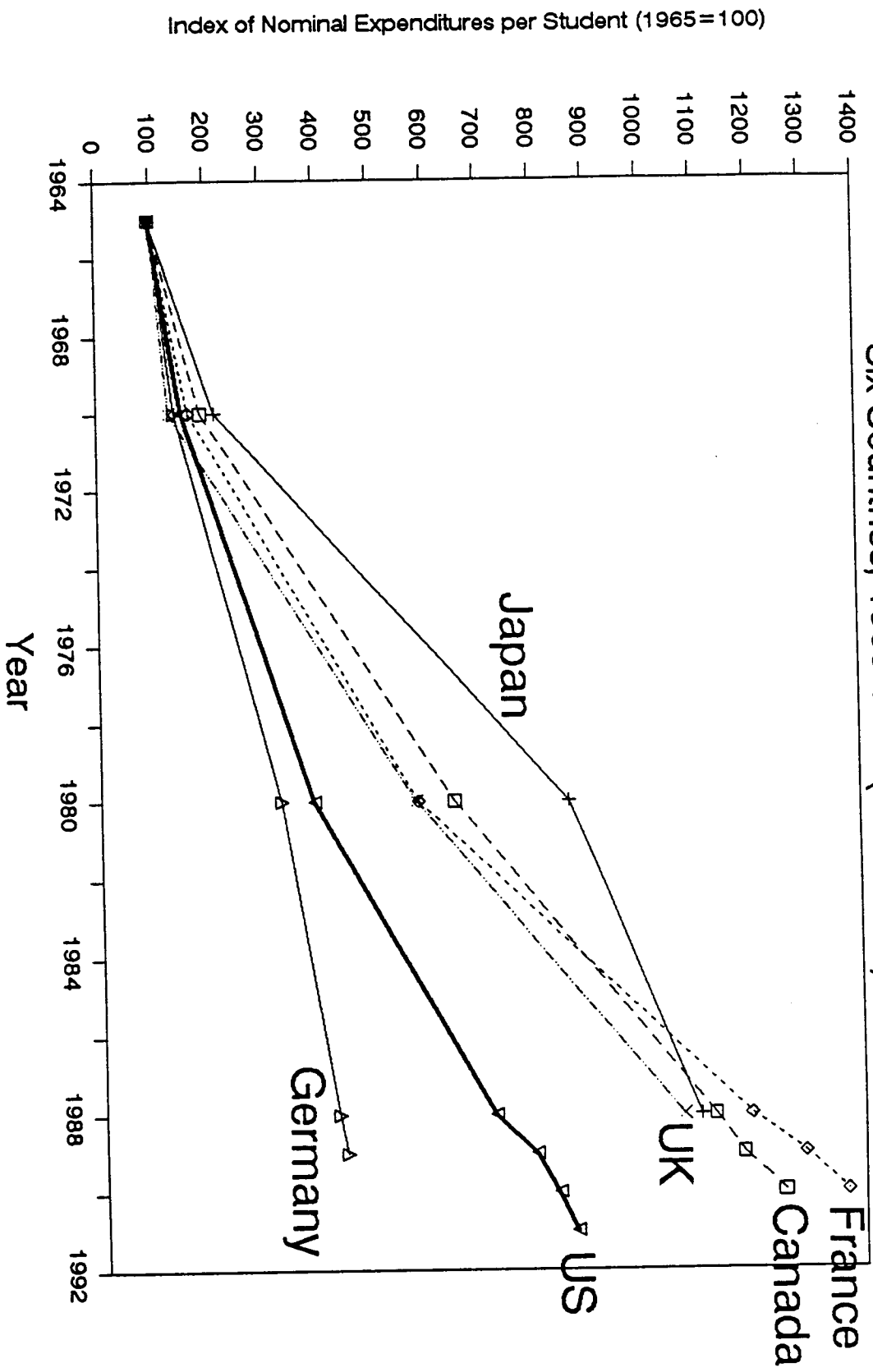
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Figure 3. Index of Education Expenditure per Student vs. CPI
1949-1991 (1949=100)



Sources: U.S. Dept. of Education and U.S. Dept. of Commerce, BLS

Figure 4a. Index of Nominal Education Expenditures per Student
 Six Countries, 1965-1991 (1965=100)

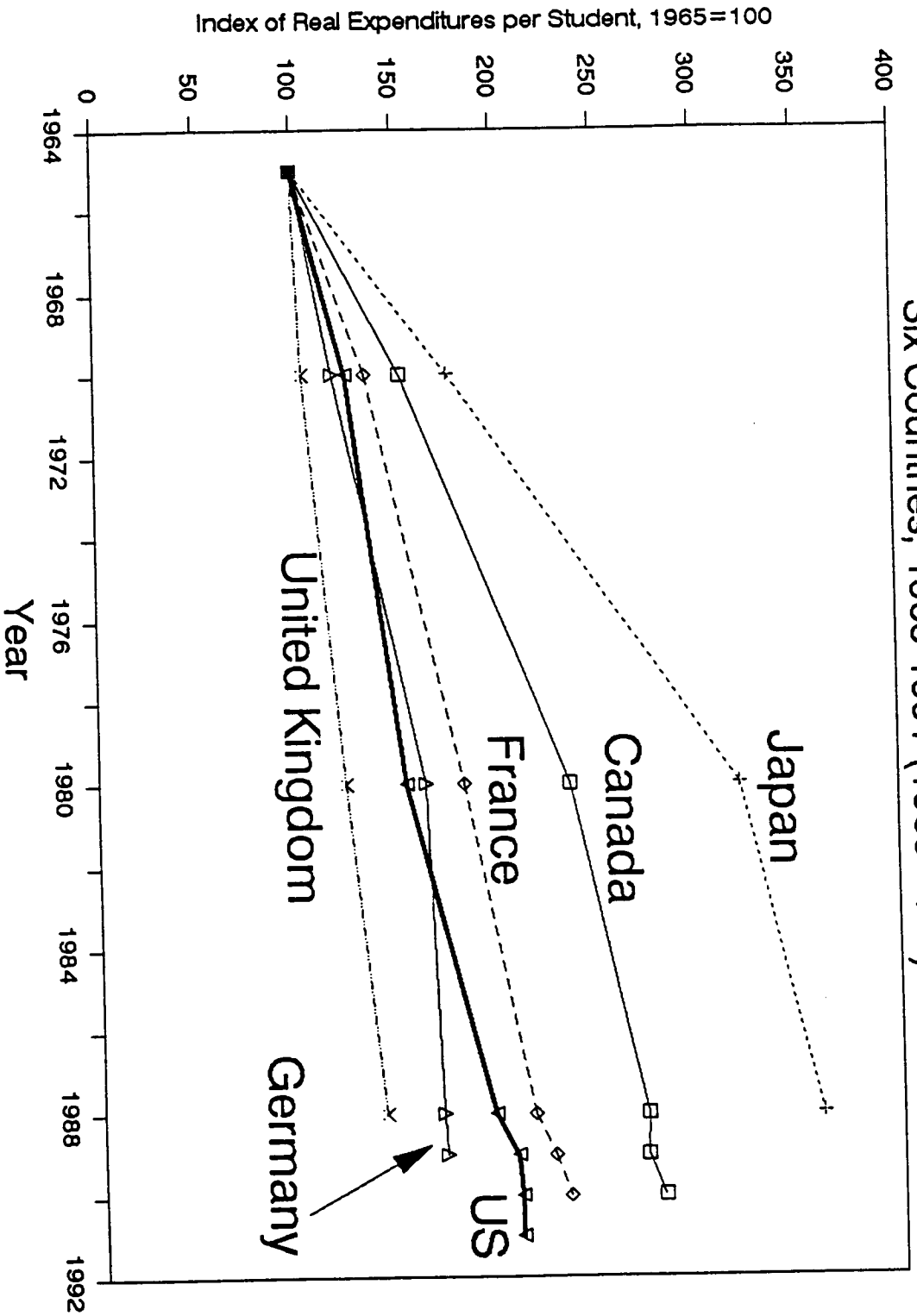


Sources: UNESCO and U.S. Dept. of Education

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Figure 4b. Index of Real Education Expenditures per Student

Six Countries, 1965-1991 (1965=100)

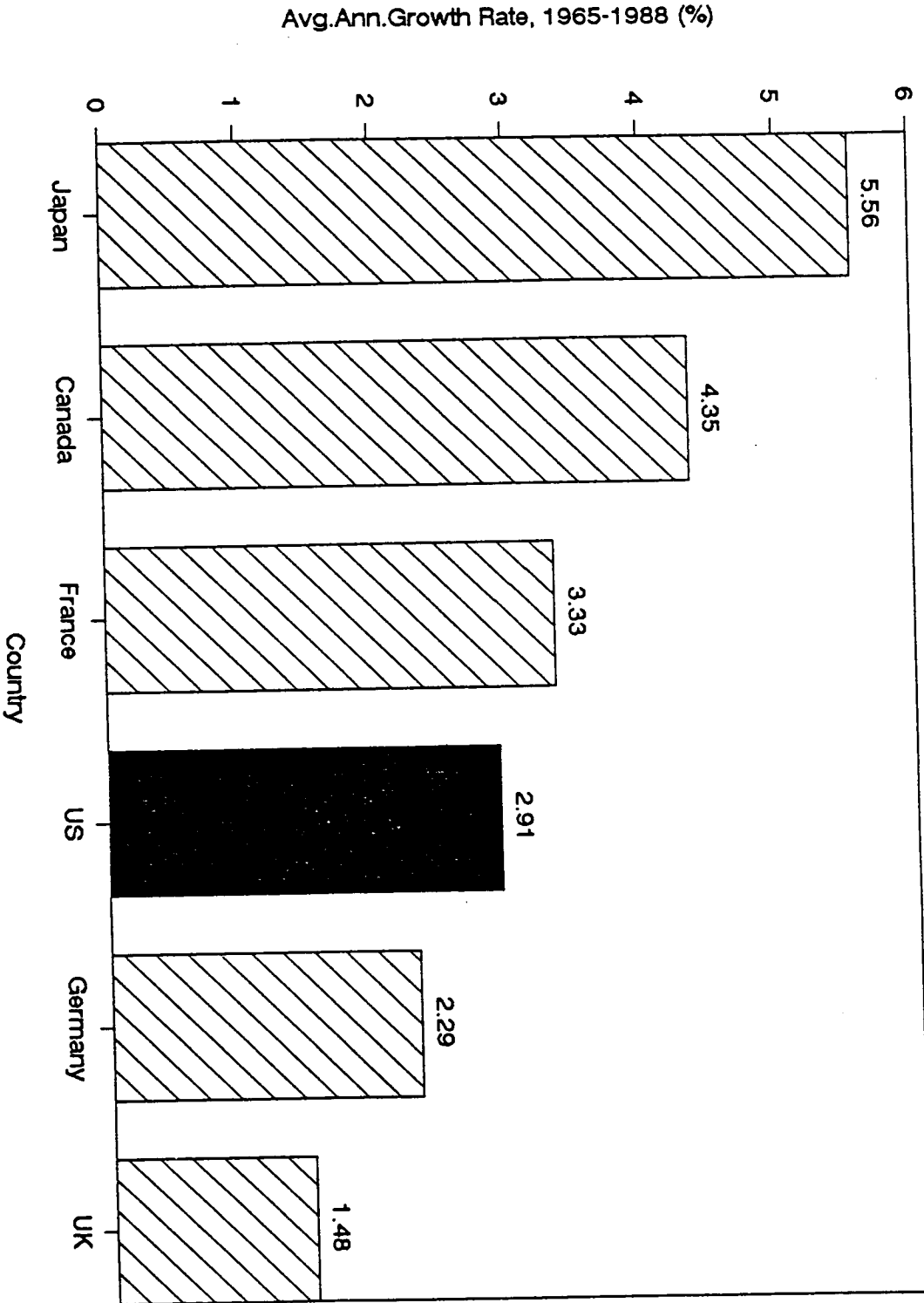


Sources: UNESCO and U.S. Dept. of Education

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Figure 4c. Real Education Price Growth Rates

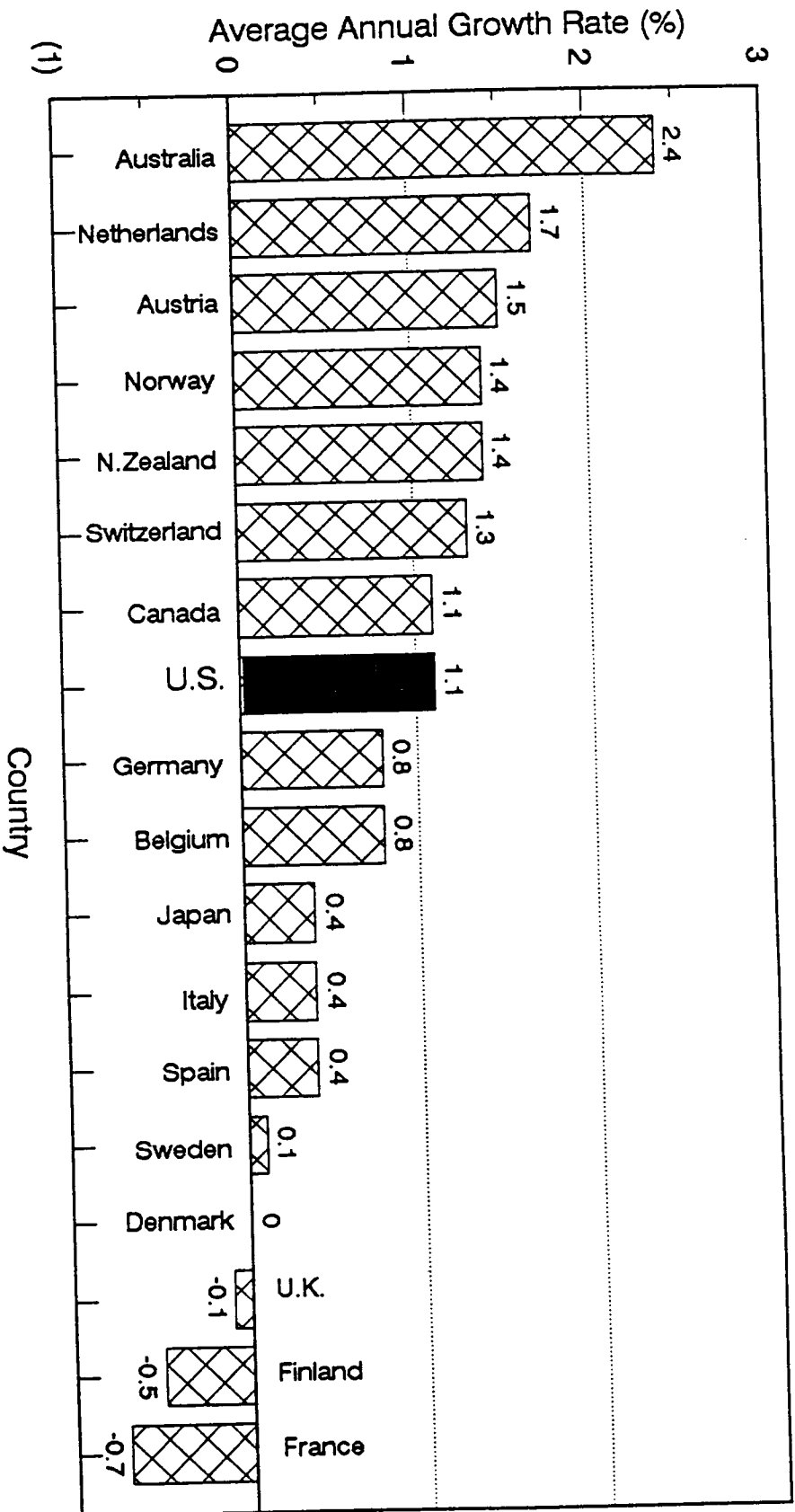
6 Countries, 1965-1988



Source: UNESCO

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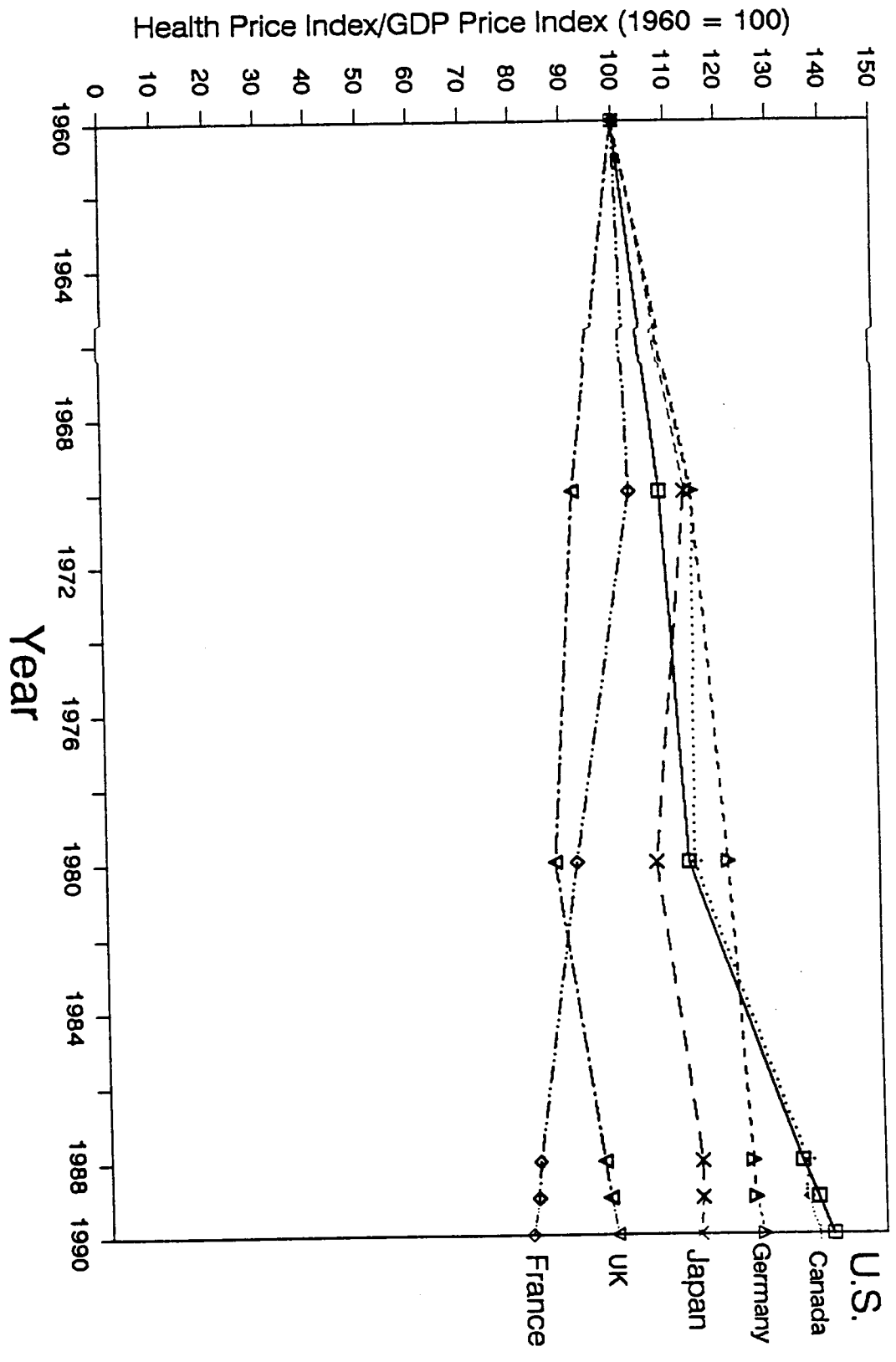
Figure 5a. Real Health Price Growth Rates
18 Countries, 1960-1990



Source: OECD Health Data File, 1993

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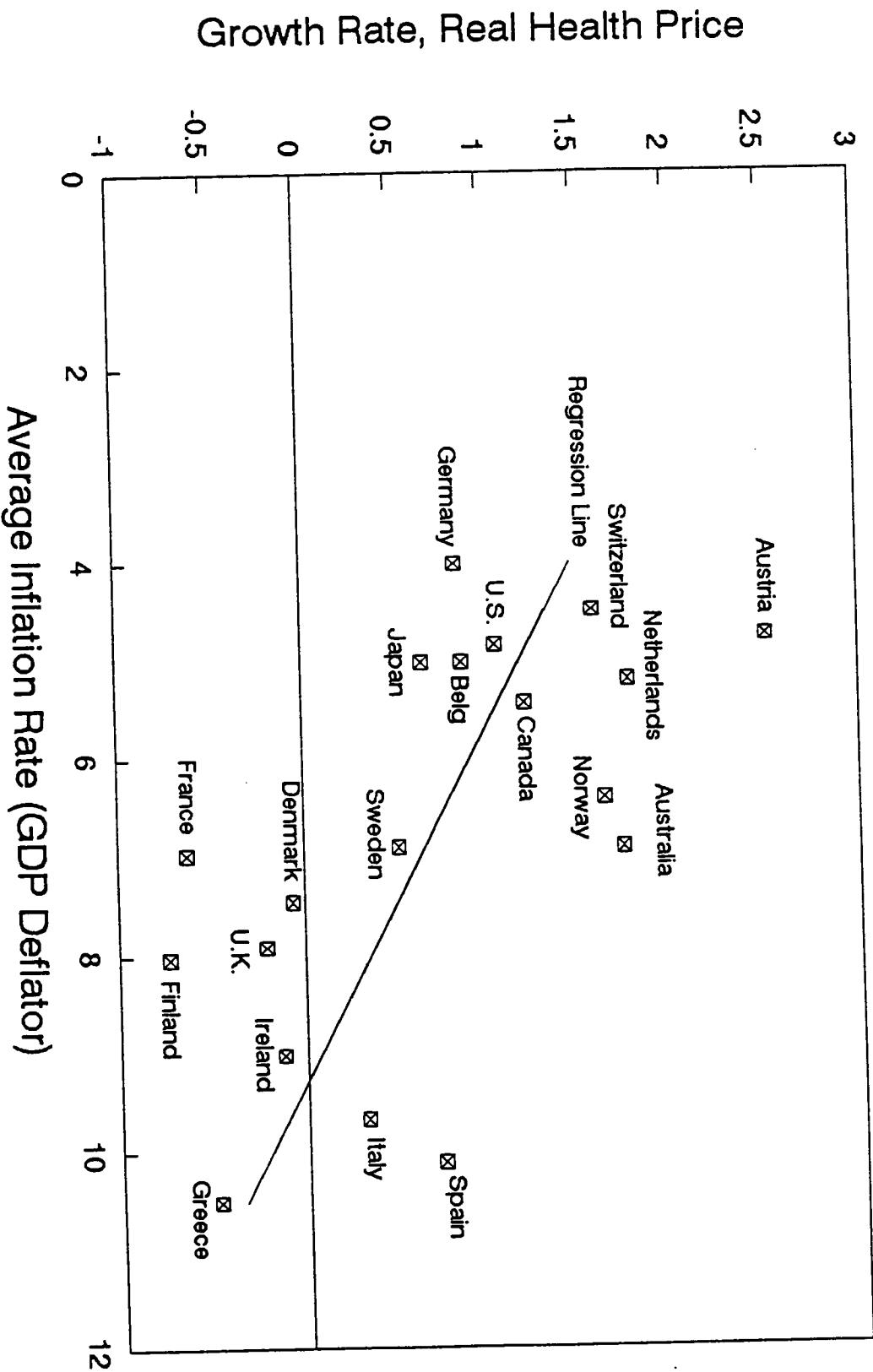
Figure 5b. Real Health Price Indices, 6 Countries, 1960-1990



Source: OECD Health Data File, 1993.

Filename: Health93.drw

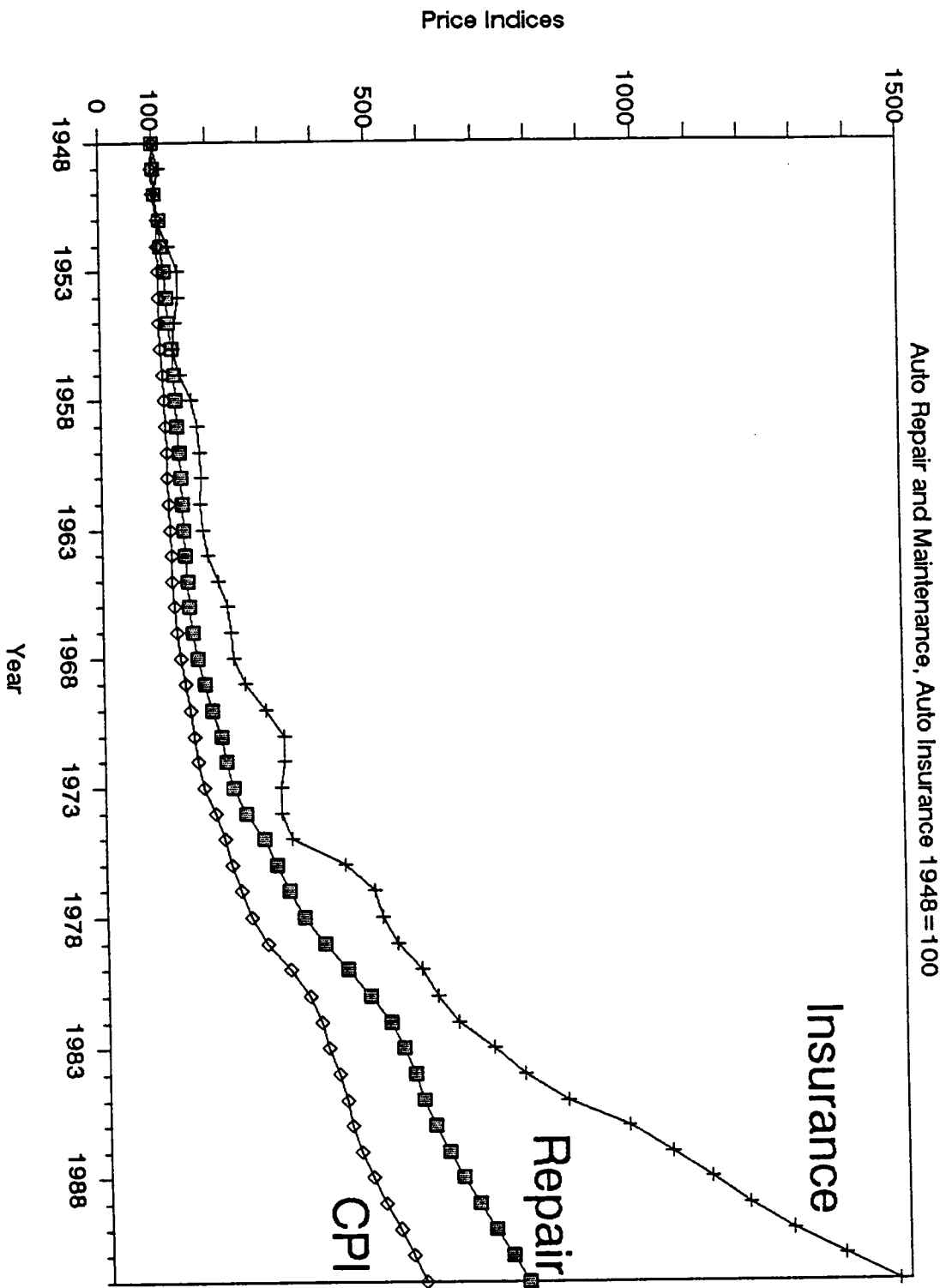
Figure 5c. Real Health Price vs Inflation
 Growth Rates, 1960-1987



Source: OECD.

File: healthpri 20 April '93

Figure 6. Price Trends: Auto Services vs CPI, 1948-92



Source: BLS

File: autosvc 16 April '93

Figure 7. Hypothetical Changes in Total Outputs Over 50 Years

Assuming Historic General Productivity Growth Rate and Constant Sector Shares

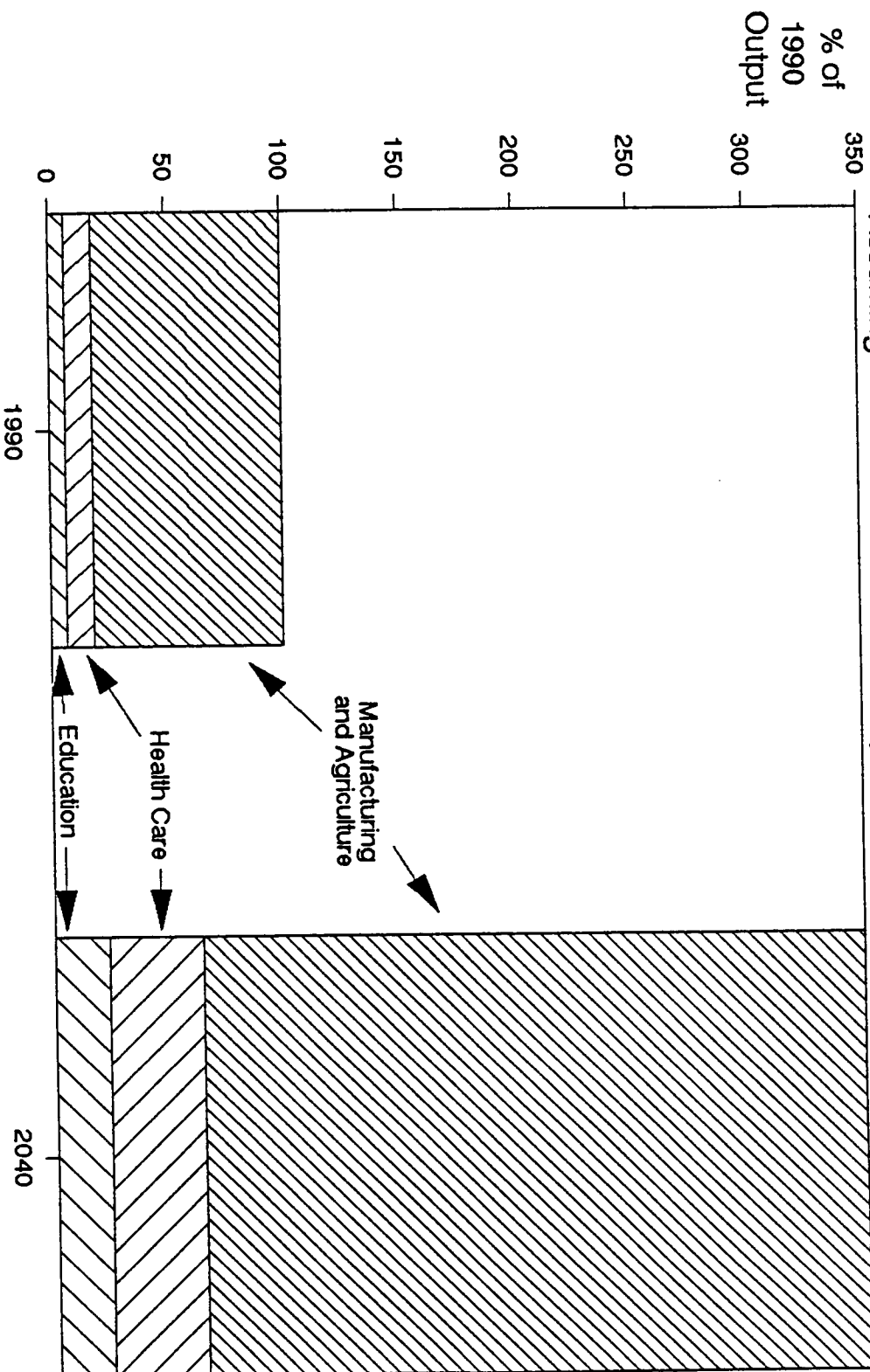


Figure 8 Hypothetical Changes in Total Spending
 Over 50 Years, Assuming Historic Sectoral Productivity Growth Rates

