



Technical

Discussions

Washington, D.C.
October 1961



CD13/DT/3 (Eng.)
30 September 1961
ORIGINAL: ENGLISH

METHODS OF EVALUATION OF THE CONTRIBUTION OF
HEALTH PROGRAMS TO ECONOMIC DEVELOPMENT

Discussion of Dr. Atilio Macchiavello's Paper

"Evaluation of the Economic Impact
of Health Activities"

by

Dr. Mark Perlman
Department of Economics
The Johns Hopkins University

DISCUSSION OF DR. ATILIO MACCHIAVELLO'S PAPER

"Evaluation of the Economic Impact
of Health Activities"

By Dr. Mark Perlman

The opportunity to comment on Dr. Macchiavello's paper presents both a responsibility and a challenge. First, may I mention my thorough agreement with him on the pressing need for an understanding of the relationship between public health programs and economic development?

Like Dr. Macchiavello, I too urge that great effort be expended immediately in the development of indices which reflect health and economic well-being. With such indicators, the efficiency of public health programs will be tremendously enhanced. Later, I want to mention the directions which I believe we should pursue in order to construct these indicators. But there is no need to wait for the establishment of refined indicators to give an economic development dimension to public health programs.

I am concerned, however, with what I believe to be a criticism which Dr. Macchiavello levels at my fellow economists. Although I may have misunderstood his intent, I note that at one point in his paper he comments that economists do not appreciate the capital value of human resources. One does not have to be cognizant of the WHO achievements to realize how short public health is of people and funds. The question of using these limited resources wisely brings public health planners to economic analysis.

Let me review very quickly what economists do. They start with the assumption that all resources are scarce, so scarce that they have to be allocated or rationed with care. If the allocation is wisely handled the supply of available resources can be increased in the future; otherwise, a bad situation can grow worse.

But the problem of allocating resources is not an easy one. Resources of one type may be present in great quantity, but unless they are combined with other resources in some properly defined way, production may not be increased; indeed, it may even be diminished. Virtually all production needs some quantity of labor — that is, population with a modicum of production skills. Yet too many workers (to say nothing of too many completely untrained people) are not an aid towards greater production; indeed, they may get in the way at worst, and be merely unproductive at best.

For several reasons — of which medical and environmental sanitation are among the principal ones — the rate of population growth in most less-developed countries has become so high that they cannot support all who are born. Our pressing concern as economists is to figure out ways to expand the production of goods and services in order to present as many of these augmented populations as is conceivable with at least the necessities of life, and, if possible, with something more. The usual economic indicators

of success in this effort are a larger Gross National Product and an improved GNP per capita. The topic has two faces; improved economic performance may (but does not always) require improved public health, and improved public health usually (but not always) requires improved performance of the economy.

Fortunately the problem is not like the precedence of the chicken or the egg. We can look at some geographic areas which presently support fewer people, but which could be made to support more, were one or more improvements (including a public health program) made. Also, in some other geographic areas sick and weak unemployed populations can be made productive at the same time they are made healthy. Yet in other instances no improvements are presently technically possible to cause deserts to bloom or to bring urban prosperity to frontier areas. And in many instances sick and weak unemployed populations, if offered adequate public health facilities, become unemployed healthy people with no diminution in their sense of frustration (presuming that frustration can be measured ordinally).

Economists and public health program planners must work together. Initially they must isolate the criteria to be used to determine whether Area A or Area B can use public health programs most fruitfully. Beyond this question of geographic selection, they must consider which group in the population needs public health assistance the most from the standpoint of increasing production. Thus I find that I reject Dr. Macchiavello's assertion of the abstract callousness of my profession. Like others we value human life, and to maximize its meaning we have occasionally to recommend painful courses of action. Economics, so Thomas Carlyle said, is a dismal science; it deals with unpalatable facts and forces unpleasant choices.

Sometimes the task of economists is to encourage the addition of alternatives. For example, an economist looking at a typical public health program might well ask --need the government pay for it all? Or possibly could some consumers be led to assume part of the burden, thus releasing public funds, raised by taxes, for other purposes? In other words, the economics of public health is not only concerned with establishing criteria for the allocation of resources, but it also involves alternative methods of financing programs-- that is, the possibility of allocating more of a nation's resources without necessarily allocating more of the government's expenditures. About this I shall say more shortly.

Finally, we economists have to note that in some instances scarce public resources must first be allocated for provision of power, or education or modern means of communication and transportation. True the areas need public health aid too, but they need the other services more and sooner. If these other needs are met, then the areas will become productive, and therefore able to support augmented population.

Economic development, as Dr. Macchiavello points out well, is not merely measured in gross production or per capita income terms. These are very rough indicators of national well-being and are used principally because they are simple to construct and give fairly inexpensive indications of the rate of economic change. I presume that I, as a layman amongst public health scientists, can be forgiven for noting that mortality and morbidity indexes likewise do not show the true value of life—Simón Bolívar, to cite a great name, lived neither long nor, from a health standpoint, well. My point is simply that the indices which we use are admittedly only partially accurate.

In my comments I wish to suggest four lines of inquiry which I believe should be pursued. First, what are the criteria for selecting areas for public health expenditure—should one strive to improve the health of large urban populations living in squalor? should one seek to concentrate one's effort on opening new lands for industrial exploitation? should one limit one's efforts to particularly important groups in the population, or should one work out some system to divide one's limited public health resources according to these, and perhaps other criteria? Secondly, how should public health officials divide their resources among the various types of programs they can support? Should they concentrate on environmental sanitation, baby clinics, anti-tuberculosis campaigns, or anti-venereal disease? Thirdly, how can the supply of public health resources be increased—need it be done only by greater governmental appropriation or can it be accomplished by charging the person or business firm which benefits? And Fourth, when is public health among the most needed programs, or, to put it in another way, under what conditions can it be shown that increased public expenditure on public health has a greater immediate justification than increased, or even continued expenditure, of the community's money on education, transportation, power, and military protection?

I have real confidence that this framework which I have briefly presented can be used to accomplish some, if not all, of the purposes suggested in the paper. May I devote my remaining comments to illustrations of what I have in mind?

First, Criteria for the selection of the appropriate area. Should funds be allocated in some sense in proportion to present population distribution with the avowed purpose of equilibrating the morbidity and mortality rates throughout a country? Or should they be allocated according to a plan which might in some foreseeable day in the future make it probable that the nation's overall mortality and morbidity rates will be reduced? Putting this question in historical context, it is none other than asking whether in 1890 it would have been wiser to concentrate public health personnel's efforts so as to make all American cities equally healthy, or whether it would have been wiser to divert some, if not all, public health funds to draining the swamps of the South and of building proper water and sewage facilities in the then coming steel mill areas on the shores of the Great Lakes. The identifying of these growing areas is not easy, but neither is it impossible.

Second, Criteria for the optimum public health mix. Obviously, the companion problem is to decide who, within the population, can use public health help to best advantage. Should an anti-tuberculosis campaign among skilled workers (assumed to be in short supply) receive favored attention over school-children's caries-prevention campaign? To answer this, one has to know something about the incidence of both evils as well as something about the results which can reasonably be expected from given investments of time, facilities, and money in each. Possibly neither is a problem nor is a solution economically feasible. Instead, it may be that the pressing need is for malaria control or construction of a proper water and/or sewage system. In any event, what we seek is at least two sets of indicators; the first relates to the relative importance of the evils and the second to the assumed efficiency of investment in a "cure". Technically, but loosely phrased, what we want is a formula for the cost of preventing or curing each public health problem considered along with the severity of the evil it presents.

Third, Cost incidence. Economists must consider the incidence of costs (the question of on whom the costs fall) and the accrual of benefits. Costs fall on individuals, on firms, on industries (a group of firms manufacturing similar or substitutable products), and on communities. Similarly, benefits accrue to individuals, to firms, to industries, or to communities. Costs of illness, for instance, can fall simultaneously as well as sequentially on all four. An employed worker immobilized with tuberculosis is an economic burden to himself as well as no aid to his company, whose efficiency is adversely affected by his weakness or absence. Moreover, his absence from the labor force, if it does anything significant, will serve to increase labor costs for the industry, and his debility will thrust the problem of caring for his family (as well as for himself) on the community. But assume, for the moment, that he is an unemployable worker. His illness is still, in absolute terms, expensive for him --but in relative economic terms, it is less so because he would be verging on starvation anyway. Badly off as he is when sick, it is not much worse for him than it would be were he "well," but still starving. In contrast with the former instance, where he was employable, neither the firm, nor the industry of which the firm is a part, feels any direct loss, but the community which must provide for him still has the same costs of treating as well as feeding him.

Generally, it is only when individuals have a chance for gainful employment that they become fully aware of the cost to themselves of a day's ill health. Similarly, it is strange that it is only under these conditions that firms and industries first begin to appreciate what disease and disabling health conditions mean to them economically. Even under chronic labor surplus conditions firms pay heavily for the absence of their regular employees who are ill; and they often pay even more for the wasted training associated with large employee turnover. Under all conditions an alert community must be aware of the costs of illness, but the public authorities

under conditions of chronic unemployment have difficulty in getting firms to support health activities. In other words, the economic cost of illness is not clearly recognized in underdeveloped economies, except by public or charity officials engaged in giving aid. After economic development occurs, then there inevitably comes a heightened awareness on the part of industries of the losses due to debilitation. As labor becomes scarce, the demand for good health balloons and every economic level of the entire community begins to press for public health expansion.

Finally, where is public health deserving of greatest emphasis? The fourth analytical heading involves the criteria for demanding public health to the partial exclusion of other programs for regional development. In other words, in picking the areas of most likely rapid development how does one know what importance public health will have? One considers two separate sets of factors, market demand and costs of supply. What does the market appear to need, or in specific terms, what products or services, physically producible in a given area, can be expected to be produced most profitably. For example, both the Brazilian and the world markets for newsprint are tight: newsprint produced at moderately low unit prices, as compared to other commodities, will readily be purchased.^{1/} The national and world markets for iron ore, steel and steel products, and pharmaceuticals are other examples. On the other hand, the market for wheat, for watches, and for textiles seems to be comparatively loose. It would be difficult for Brazil to produce these at low unit cost, either in cash terms or in terms of other commodities. Consequently, one would rationally tend to look into the possibility of producing that which is in brisk demand, but only if one can produce it at costs equal to (or preferably lower than) those of competitors in the market.

Then we look at the second set of factors. What determines costs? the answer is simply the interaction of supply and demand for the following types of commodities and services:

1. Availability of raw natural resources, such as wood, ore, fertile soil, etc.
2. Accessibility of these resources --the degree of inexpensive transportation.
3. The availability of adequate technology --are processes known and practicable which make possible comparatively low costs of manufacture.
4. The availability of a population willing and able to provide the necessary degree of skilled labor.

^{1/} The cost of an item to the consumer includes, besides the cost of production, the costs of distribution and transportation as well as customs duties and excise taxes.

5. The availability of power and water for industrial purposes.
6. The availability of capital at sufficiently low real interest rates to make investment an actuality; and
7. The presence of sufficient managerial skill to "bring the ventures off."

All seven have to be present, although in practice there is some substitutability among them. For instance, one may substitute greater total expenditures on capital equipment, or on management, for expenditure on labor (also vice versa). With sufficient capital resources, it is possible to have a longer period of industry-construction (the period of "ripening costs"), thereby permitting the building of a plant of larger, and presumably more economic size, before profitable returns must start flowing in.

What public health officials must do is to relate their programs to these seven factors. If they can show that any would be significantly strengthened by an improved public health program and that the result would complete the requisites for profitable development of an area, they should have little trouble in getting strong support for their program.

Disease control, or the lack of it, may determine whether raw materials can economically be procured and whether transportation can be physically developed or maintained. Yellow fever, for example, for decades "closed" some areas to economic development. Malaria has done the same in more recent times. Schistosomiasis is another example of current blight, which although not dramatically as fatal as yellow fever or even as enervating as malaria, has slowed and partially prevented development of some areas such as parts of Minas Gerais in Brazil.

By and large the availability of adequate technology is not a problem of public health authorities, although it is true that an indirect effect may be felt through the availability of good environmental sanitation which will make an otherwise prohibitively expensive method technologically feasible. An example of this is the availability of vast quantities of pure water which, if originally provided for reasons of improving health, also resulted in making certain water-utilizing production methods economically feasible. The role of public health is most vital when it comes to the providing of a skilled labor force. A population handicapped by a high incidence of diseases among its mature or productive members is quite clearly not as good an economic resource as one spared from these blights.

Allusion has already been made to the place of public health regarding water. And it should be quite clear that the greater the size of the available labor force, the less should be the demands for capital or managerial skill, simply because there is some degree of substitutability among these factors.

To summarize: I note that public health programs are basically humanitarian, even though the very shortage of public health specialists makes economic analysis relevant. I add that insofar as public health has precise meaning to economic development programs some questions should be asked. First, what areas should be helped? Second, who in what group in the selected area should receive priority? Third, how can the total expenditure on public health be expanded without increasing the government's expenditures? And fourth, when should public health planners press for government programs in their administration area, or, to put it more bluntly, when should they refrain from making any promises of contributing dramatically to economic development?

I trust I will be forgiven for the time it has taken me to illustrate my points. I see no conflict between public health planners and economists; rather each has a need for the other. Most of all they have a need for a common language and what I have aimed to do is to elaborate on Dr. Macchiavello's points in order to give them added technical meaning for economists.