POLICY RESEARCH AND HEALTH STATUS

Selma J. Mushkin, Public Services Laboratory, Georgetown University

What policy research concepts have an impact on the health of the population? The question may surprise you. Why consider policy research as a means of improving health care? More specifically, why, in the context of a Carnegie-financed inquiry on nonhealth factors that make a difference in health status, should policy research as such be identified?

Definitions and Some Implications

Policy research is defined as research that uses analytical and evaluative techniques to examine public policies, programs, and projects. It is essentially application of scientific method, with a continuing questioning of problem, process, and research design and the probing of the findings for their significance.

Analysis involves examination of many questions: What are the purposes or objectives of the policy or program? How can they be measured so that we can quantify and record success in achieving them? What are the optional methods of attaining the objectives sought? What are the comparative costs of each method--now and later? What are the gains that may be expected--immediately and in the longer run? And in any case, how certain are the estimates; how sensitive are they to the assumptions on which they are built?

Clearly the drive toward policy analysis and evaluation is not restricted to health programs. Nonhealth programs with health impacts also come into question as part of the inquiry into program outputs for resources spent. What types of nonhealth activities are at issue to which policy research can be directed? In various combinations the factors are these:

Consumption and "problem item with some health impact"	Illustrative public policies
nutrition and food safety	food and drug laws; school lunch; food stamps
housing	public housing; rental allowances
safety of property and person	fire and police protection; auto regulation; driver regulation; alcoholism control; street lighting
transportation	highway and street construction; air-transport safety controls
income security	income maintenance
job opportunities and advance	work training; employment services; public service employment
leisure time activities	parks; playgrounds; ball fields; libraries
education	schooling; right to read; compensatory education.

Benefit assessments underscore the commonality of program purposes. Many public programs involve pricing human life, programs that are not directly associated with health care and that do not bear the label of health programs. The most familiar example is the highway construction program, where life-saving costs or death and disability costs must be equated in deciding whether or not to construct a clover leaf or add another highway lane. (1,2) Airway safety and convenience in time may sometimes be traded off in the congested air terminals of the major cities. (3,4) Building codes clearly have health and safety purposes, as do water supply and waste-treatment measures. (5,6) Energy production not only affects jobs and industrial development but also is linked to hazards of atomic wastes and water and air pollution. (7) For many programs or components it is difficult to draw a line between health and nonhealth programming.

Three Health and Nonhealth Programs

The broad questions are far from new, but it is important now to restate the issues of policy research as a health status input and to consider it in the specific terms of program analysis. Three policy issues are summarized here: lead poisoning prevention in children, transportation as a component of health care, and drug addiction and abuse. (8,9,10,11) A series of inquiries would help answer the question: Would policy research make a difference in health status? Among the issues that need to be considered are those ennumerated below. Only a start to an examination of the issues is made in this paper.

- Are the program options designed specifically to meet health objectives or is the impact on health a by-product.

- If health purposes are involved, are there special policy characteristics of the health care?

- For the nonhealth programs, what are the health data and research findings and what additional knowledge do we need for policy purposes? And if we had those data and that knowledge, would the health status of the people be improved.

Lead Poisoning Prevention in Children

Lead poisoning in children is typically regarded as an environmental health problem to be prevented by removing the hazard--in this instance the lead paint used in old housing. Old housing can be torn down, or leaded surfaces removed by various methods.

Analysis of lead poisoning in children in the specific environment of Washington, D.C., raised first the question about statistical reporting of health problems. National data were not available when the study was initiated. The size of the lead risk was defined by prevalence counts obtained by screening in New York City where, in an initial count, it was reported that 25 percent of the children aged 1-6 living in old homes had "undue" blood-lead levels. Blood-lead level defined as "undue" in the standard adopted by the Surgeon General was 40 micrograms of lead per 100 milliliters of whole blood.

Analysis suggested that young children who were teething and mouthing objects had a higher rate. As children grow older the lead is excreted and the blood lead levels are lowered. But does the subsequent excretion correct the damage done? The answer from those physicians expert in lead poisoning was "no," a "no" that was followed by the suggestion that the peak rate cited for the young ages was the minimum exposure to the hazards from lead. What was the actual risk? When corrected for the observed (but poorly understood) higher lead levels in the warm summer months and also for the few children exposed after the first three years of life, the proportion of the children living in hazardous neighborhoods and exposed to an undue blood-lead level before reaching school age was estimated for the District to reach perhaps as high as 50 percent in some neighborhoods. Thus analysis showed first the inadequacies of the usual statistical counts and then opened the question of what is in fact medically known about the damage lead poisoning does to the child.

But the policy research raised still added questions: housing repair practices called for inspection of dwellings in which the children with elevated blood-lead levels lived. An order for a cleanup was issued when inspection showed lead content above the standard in painted surfaces of the dwellings. But what is to be the environment of the child while the repairs are being made. In New York City, children were reported to have been hospitalized for 30 days at a cost in 1971-1972 of about $100 a day, or roughly $3,000 per child. In Washington, D.C., consideration is being given to halfway houses where the children can stay while undergoing outpatient chelation treatment. Differences between outpatient and inpatient treatments are roughly $150-$500 per case, even when the length of hospital stay is only the five days required for the chelation.

But there is a more specific health program choice that is pertinent in the policy research--namely, the practice of the physicians and the medical community generally to place resources at the disposal of the "interesting case" to the neglect of the more parochial and perhaps more preventive treatments.

The child in a coma with encephalepathy receives much care and at great expense, so great in New York City, that the city opted for higher standards for undue blood-lead levels before cautionary action and re-screening of children generally. Much in the way of resources is devoted to the care of those who are brain damaged (35 percent of the cases) despite the care. At the other extreme, where preventive health care is possible for far larger numbers at only a small screening cost, with blood-sample testing and treatment, the access to such care is restricted to children with 60 micrograms of lead per 100 milliliters whole blood to reduce outlays. Medical practices thus come into question. New action is called for involving physicians' training, a better understanding of the risks of disablement, and the chances of getting well, with and without subsequent impairment of varying degrees.

Preventive action in lead poisoning is usually viewed, as indicated at the outset, not as a health program but as a cleanup of housing to remove lead hazards. For Washington, D.C., where 47 percent of the houses were built at a time when lead was used in paint, costs of total housing cleanup would be high. They would be high in direct costs, and perhaps higher still in the incentive that such requirements would give to property owners to demolish the houses in favor of lucrative parking lots and thus to reduce the supply of housing, especially for poor families with many young children.

I estimated the cost of a full cleanup in the District of $69-$138 million. And

this is a gross underestimate even when account is taken of the newer areas of the city, presumably free of lead hazard, where many young children live.

What then?

Careful review of the problem suggested (1) that the only feasible low-cost option was a program of parental education, and (2) that the families hardest to reach were perhaps those on welfare, making the program policies more nearly a welfare agency issue than one of the housing or health agency.

What does policy research tell us about means of communication with the poor, with the nonreading public, and even with those who are not functionally literate? Dr. Henrietta Sachs, of Chicago, reported X-ray diagnosis in lead cases. When she was asked about that practice, Dr. Sachs answered by asking in turn: How else is it possible to make sure that parents know about the disease in their children when there are no apparent symptoms? (One aspect of the disease is its asymptomatic characteristic: one study found that, in 53 percent of the cases where blood-lead levels were 2-3 times above the "undue" standard, there were few if any symptoms.)

The question of communication may be posed in the dreary terms of a specific case of children who live with a drug addict parent in a boarded-up house marked "condemned." If policy research is to have an impact on health, perhaps we must first understand how to reach those who must be reached, and then find the methods for inducing behavior change without intruding on the dignity of the individual or his personal rights.

There are many more lessons that the lead-poisoning case had for health programs: the need for research on disease detection methods in laboratories, new methods of screening with a micro blood sample only, and new methods of treatment that would be more specific to the metal "lead." New engineering research appeared to be indicated on methods of detecting lead in housing surfaces that would be less costly, require fewer inspectors, and perhaps require less conversion of statutory standards on "unsafe" housing. And at the behavioral science end, there were posed familiar questions about users of screening programs. Why did the children disappear when the mobile clinic came to the neighborhood? To what kinds of health personnel are the families in the ghetto most responsive--the neighborhood aide, the professional physician, the public health nurse, the home health aide?

Transportation as a Component of Health Care

The District of Columbia runs three major transportation services having a special bearing on health care: a contractual service for transportation of vocational rehabilitation patients who cannot use public transportation, a public ambulance service for emergency transportation run by the Fire Department, and a small transportation service run by the D.C. Department of Human Resources for those too old, too infirm, and too poor to use public transportation. (10)

The initial objectives of the transportation study were simply to reduce the health hazards to persons who do not show for treatment or screening and to reduce the loss in time for physicians who scheduled appointments for those persons. As the study progressed--and it still remains incomplete--the health objectives shifted in part toward reducing the costs of health care by substituting transportation services for new hospital facilities, including new beds at Cafritz Hospital and a new hospital facility in the Northeastern part of the city. Important nonhealth objectives came to the fore. Those objectives, in brief, were maintaining income and jobs for low- and moderate-income persons in the city and reducing loss of earnings and of employment time for those with disabled persons in the home or with children who required emergency backup or occasional assistance in reaching medical attention.

Two health care practices are bound up in transportation policy research. The first is the trend toward ambulatory primary care that provides easier access to care for patients; the second is the trend toward lower cost methods. Together, they suggest more transportation services to health facilities, with escort services and links to caregiver services, as well as differentiated transportation services that reflect differences in individual needs and costs.

Many factors over the years have made for ever-increasing use of hospitals as the center of health services. Hospitals are known as centers of specialities and of quality health care. The transition to the hospital center has had a profound effect, as the hospital has built up its emergency room, social service departments, ambulatory clinics, liaisons with other medical care facilities such as extended care facilities, and home health care units. Through the establishment of neigborhood centers the hospital has extended its interests actively into the community, both to keep costs down and to reach persons who otherwise would not be reached. And more recently, hospitals have been working toward the development of health maintenance organizations that will permit medical care to

be provided on a prepayment basis, with emphasis on preventive care.

Patient and family use of hospital centers for outpatient care should come as no surprise. Hospital facilities are manned around the clock, while physicians, especially in this age of specialists, are hard to reach; care in hospitals is known to be good; care outside hospitals is often not accessible. Emergency rooms in hospitals require no appointments; in the out-of-hospital medical world there are long waits for appointments, and the hours in which appointments will be made are limited. Home visits are rare today, and even health maintenance organizations refer patients to emergency rooms in the late night hours. Heavy patient loads, the transient population characteristic of the district, and the extent to which the black population customarily uses clinics compound to result in extensive use of hospital outpatient services.

Increases in the use of high-cost ambulance services accompany the use of hospitals for outpatient services. In the District the ambulances run by the Fire Department are known popularly as "red taxis," which suggests the undue use of ambulances for nonemergency purposes and at no charge to the user. In New York City a similar use of ambulances and the long waiting time that resulted, on analysis, pointed to the application of screening devices to reduce use and to decentralization of dispatching points. The screening of calls is reported to have reduced wait times, to have improved the service from the perspective of the users, and to have reduced costs. Manned by trained nurses, the screening operation has, at the same time, provided access to medical advice and guidance for some persons, a service otherwise lacking in New York City--and also lacking in Washington. (11) From other cities including Baltimore, come cautions about the difficulties of over-the-telephone screening of patients. (12)

.Thus far, assessment of the transportation problems in the District of Columbia points to a trial at least of differentiated services that would provide people with easier access to health services and facilities or with home health care as indicated by screening arrangements. Among the services would be the dispatching of nonemergency vehicles that would be manned optionally by drivers, by drivers and attendants, or by drivers and caregivers, or ambulances would be sent in other cases, and in still others caregivers would be sent. Escort services also might be provided for children or aged persons, using public transportation.

When transportation to existing health care is inadequate and at the same time a shortage of facilities exists in any one region of a city, new hospital beds and outpatient facilities come to be demanded. Because of population shifts in the District of Columbia, a sizable segment of the population resides in areas where few health facilities are located. While the District as a whole has perhaps more than enough beds and other health facilities, in one area the bed-occupancy rates are running at 94 percent of capacity and the number of health practitioners is relatively low. With adequate transportation, available on demand, and with fees for the service scaled to cover age under Medicaid and other third party payments, building of new facilities could be avoided and perhaps lower cost neighborhood health services or group-practice units could be established as required.

The second objective relates to transportation services as a means to job continuity and income maintenance. This non-health objective still remains to be assessed. Mothers who work and have young children at home--no matter what the income level--clearly need the safeguard and assurance of quick response in an emergency. The same backstopping of a high-quality emergency care is also a requisite for those, both men and women, who have aged or chronically ill persons in the home. If emergency facilities are available promptly in response to calls, less emphasis has to be given to the ability of those watching over the children or the ill at home. One question is often uppermost: Can those at home, a grandmother for example, respond to emergencies? The question becomes less important when quick response service is available in a community.

Those providing home health services in the District of Columbia also called attention to the importance of transportation services of a less urgent kind for their patients. Such service is needed, they report to transport patients to medical and dental appointments, for consultants and observations, to get lab tests taken, and have braces and other devices fitted. (13)

What we have to determine in further analysis is the cost in lost time and earnings of the family member balanced against the cost of providing emergency services and home health aides as a contingency service, when needed. With another type of link between home health care and transportation services, it might be easier to transport young children to the clinic for working mothers, or those with large families, or to have someone stay with the children who need watching while the mother goes to the clinic herself or with another child. For many persons, particularly the poor, the availability of such services could make the difference

between job and no job, between independence and public dependency. The extent of the problem, the costs involved in provision of services, and the gains from that provision as an income- and job-maintenance method remain to be examined.

Drug Addiction and Abuse

The third case used for illustration is that of drug addiction, or more specifically, drug abuse and preventive measures. In a study that the Public Services Laboratory staff made for the National Commission on Marihuana and Drug Abuse, evaluations of the federal programs were assessed. (14) The starting point was a formulation of the objectives of a heroin addiction preventive program. Though health care is among the public objectives, other purposes are also prominent. The most apparent is the reduction of crime. A listing of objectives in drug control and drug prevention programs follows. It is presented partly because it is so suggestive of the multiple purposes of government programs, multiple purposes that further indicate the difficulties of gaining simplicity in analysis or evaluation. (15)

(1) To decrease the amount of drug addiction-related crime.

(2) To lower the number of drug addiction-related deaths.

(3) To rehabilitate the drug addict as a "useful" citizen within the community (employability).

(4) To decrease the number of new drug addicts.

(5) To enforce the laws pertaining to the flow of hard drugs and reduce the number of drug addicts.

(6) To reduce the number of drug addiction-related illnesses.

(7) To minimize the transfer of antisocial attitudes to other areas (crime, alcohol, other drugs).

The health care objectives of drug abuse prevention programs are fairly clear. They center first on the need to prevent a spreading of the disease. Each addict, it has been estimated, creates 20 addicts as he resorts to traffic in the drug to maintain his own habit. (14) And in an analytic vein a differentiation may be made between the extent of contagion in a community of young persons unaccustomed to addiction and in a community where addiction has long been a part of the scene. Reason suggests that the potential for contagion is greater in the former type of community than in the latter.

For each individual addict the objective in concept is a cure--freedom from addiction. A range of therapies has been developed to treat the addiction. Some of the treatment modalities are mental health methods, many call on the support of a therapeutic community to keep a former addict off the drug, and still others are chemotherapeutic.

Drug addiction prevention is one of a number of health measures in which the outcome of the resources spent may be favorable for neither the body politic nor the individual. For years, the Public Health Service provided care to addicts at its Lexington hospital. When the outcomes of that care were evaluated, the findings were simple: those who came for treatment continued to be addicts after treatment once they were outside the hospital again. (16) Similarly, few real cures over a sustained period are reported for the many different treatment modalities. It is not that temporary spells of nonaddiction are not achieved. And enthusiasm runs high among those who direct the treatment communities. This is a necessary part of the therapy, the belief of those who run the therapeutic communities in the efficacy of cure--the favorable outcomes. But few hard evaluations have been independently made that can throw light on a process that has a reasonable chance of long-term cures.

Does the temporary nature of the successes mean no further "tries?" On the contrary, in the case of drug addiction as in other social ills of deep concern to society, resources continue to be spent. If anything, there appears to be an even harder effort to find ways to meet some of the many objectives. But perhaps the suspicion is accurate that the spending policy, despite lack of success, originates in other than health purposes.

The high cost of crime associated with drug addiction has repeatedly been documented. The analysis starts with the size of the dosage required to support a habit of addiction, the cost of that dose, the required stealing to meet the cost, and therefore the amount of crime that is involved to support heroin addiction. Out of this analysis plainly comes some quantification of the size of the thefts. The total amounts stolen in support of the habit must exceed by sizable sums the amount of the heroin market. Nor can the heroin trading be neglected in the program assessment and design of options, for when the options are generated the behavior of the Mafia still remains to be factored. To reduce deaths from heroin and control the spread, the disease requires much analysis of nonhealth factors, including in this instance, crime.

Research on Policy Research Application

But does the research on specific questions find its way into public policy so that it can impact on health status? Or, more directly, are the policy research studies used? To have an impact, the studies clearly must be applied in policy or program action.

There are two schools of thought about the issue of use. The first alleges that the findings are not now used; (17,18) the second that the major research studies become a guide to policy decision. (19) The current Presidential budget gives evidence of the Administration's intent to use program evaluations in deciding which programs to continue, which to terminate, and which to expand. (20)

The processes of converting research into implemented policy have received altogether too little study and research support. There are many and not unimportant unknowns. A brief list of items for research as at least a partial agenda for research would include:

--- Research transmission channels--Some research fairly quickly enters into the debate. The Brookings Institution studies are among those that come into use with little delay. The Agenda volume prepared at the outset of the new Administration in 1968 (21) and the subsequent volumes by Schultze, Fried, Rivlin, and Teeters on national priorities are good examples of materials that are read by those who make decisions. (22,23,24) The summarizations of research included in those volumes stand up well, through their readability and balance, as illustrations of "means to communicate."

But what of research done in remoter places in the United States, and research that does not bear the endorsement of a prestigious institution? How is the work of researchers in the "boonies" especially of the coming generation of researchers to be screened and applied where appropriate?

The conference of professionals is one means of transmission. Other devices include the nationwide recruitment by policy agencies of personnel, including interns; the publication in policy journals of summaries of research; and the Washington internship organized around policy problems. Still other means have been tried, including the structuring of meetings and publications by a mix of highly regarded scholars in their field and younger persons whose research is little known, the design of interuniversity study teams, and computerized bibliographical reference materials.

Essentially we must know better than we do, and far more systematically, what works to get important research findings into the policy debate, and it is necessary that we know the processes of formulating transmission means that do not become overloaded. More specifically, we need screening devices that work and that at the same time do not obscure.

--- Selection devices for screening research There is a recognized elitism in the professions, especially in the research communities, that makes for single lines of research and of research findings. Though this phenomenon has been the subject of much discussion over the years as it applied to breakthroughs in medicine--for example, the recorded response of the medical profession to Pasteur's work--there is much less examination of the phenomenon as it occurs in the social sciences. Many factors contribute to such singleness of view. I recall one time in the 1960's when the jockeying for position as Economic Advisor of the Labour Government in the United Kingdom blocked diversity of opinion among scholars qualified for the post. Yet the unusual concensus was on a conceptual problem of human investments and other residual factors in economic growth. Here were 11 scholars, all with a single view on a very complex theory. (25)

The question of who screens whom and for what is difficult. The elitism and the follow-the-leader phenomenon within that elitist structure create much difficulty in a screening program that will encourage needed policy research rather than production of research that is only rewarded because it fits the pattern that is fashionable among scholars.

--- Organization of governments for responsiveness to research--Unless there is a structure for asking for research findings and a "need to know," it is unlikely that research will be sufficiently supported, that the right research questions for policy purposes will be defined, or that research will find its way into policy applications. The structure, organization, and staffing provided by the move toward program analysis and evaluation at all levels of government make it necessary to define problems, search for options, examine optional means for cost and effect, and also to isolate impacts of increments of research use and program services.

At present, however, the Federal evaluations and analysis need beefing up. But Federal encouragement of good analysis and evaluation at state, city, and county levels is even more important. The requirements for evaluation by the states and the local governments in some Federal statutes mark a beginning but far more study is needed to find ways to support those efforts, to buttress them by staffing, and to provide necessary

technical assistance.

It is essential, too, that we know the feedback consequences of requirements for analysis and evaluation that cannot feasibly be met, and that are not now met with the staff resources and support in funds and other assistance that are provided. Requirements that are realistic in size and timing have to be explored for use at each of the levels of government.

--- University support of analytical and evaluation efforts by governments--Few dispute the facts about university inputs into policy. University research has become policy oriented only recently and still in only some places. The second-rate position of applied research within the academic disciplines affects both the role and the quality of policy-directed research. Such research as is done is often viewed by the governments as untimely, unusable in terminology or construct, and expensive compared with alternative means for the responsiveness to public problems gained. In some instances, the financial incentives work to the disadvantage of those who undertake policy studies in terms of pay, promotions, tenure, and optional opportunities, as well as professional respect.

Yet in the health field the universities and in particular the schools of public health have played an important role. They traditionally have been training centers for personnel going into public service and have carried out much public health research, including policy studies. The centers are now being buttressed by other policy centers in universities.

How to structure incentives for the university scholars so that the research is policy oriented and encourages by its usefulness governmental application of policy findings is the primary question for study.

Footnotes

1. Robert Dorfman, ed., Measuring Benefits of Government Investments (Washington, D.C.: Brookings Institution, 1965).

2. S. Mushkin, "Health as an Investment," Journal of Political Economy 70 (October 1962): 129-57.

3. T.C. Schelling, "The Life You Save May Be Your Own," in Problems in Public Expenditure Analysis, edited by Samuel Chase (Washington, D.C.: Brookings Institution, 1968).

4. William Vickrey, Comments on the discussions prior to the publication of Measuring Benefits of Government Investments, edited by R. Dorfman (Washington, D.C.: The Brookings Institution, 1965).

5. H. Klarman, The Economics of Health (New York: Columbia University Press, 1965).

6. A.R. Prest and R. Turvey, "Cost-Benefit Analysis: A Survey," The Economic Journal 74 (December 1965): 683-735.

7. Lester Lave and E.P. Seskin, "Health and Air Pollution," The Swedish Journal of Economics 73 (May 1971): 79-95.

8. Selma Mushkin and Ralph Freidin, Lead Poisoning in Children: The Problem in D.C. and Preventive Steps (Washington, D.C.: Public Services Laboratory, 1971).

9. Selma Mushkin and Ralph Freidin, The Case of Lead Poisoning: Prevention Control in D.C., PPB Note #13 (Washington, D.C.: Public Services Laboratory, 1972).

10. Public Services Laboratory, Transportation as a Component of Health Care in the District of Columbia: An Analysis (Washington, D.C.: Public Services Laboratory, in process).

11. Richard Gill, "Emergency Ambulance Service A & B," in Teaching Cases in Planning Programming Budgeting for State and Local Governments, edited by G. Taylor and R. Gill (Boston: Intercollegiate Case Clearing House, 1969).

12. Personal Communication with Dr. Paul Gertman, Boston University (May, 1973).

13. Personal Communication with Home Care Services of the District of Columbia (October 1973).

14. S. Mushkin, J. Surmeier, J. Kane, and D. Detling, "Federal Funding and Intergovernmental Coordination for Drug Addiction Programs," in Drug Use in America: Problem in Perspective, Appendix, edited by National Commission on Marihuana and Drug Abuse (Washington, D.C.: Government Printing Office, 1973).

15. John Surmeier, "Comprehensive Planning for Community Service: Drug Abuse," in Program Evaluation: An Analysis of Performance vs. Original Plan and Promise (Washington, D.C.: Association for Public Program Analysis, 1972), p. A13.

16. Task Force on Narcotics and Drug Abuse, Task Force Report: Narcotics and Drug Abuse: Annotations and Consultants' Papers (Washington, D.C.: Government Printing Office, 1967).

17. Carol Weiss, "Utilization of Evaluation: Toward Comparative Study" in Readings in Evaluation Research, edited by Francis Caro (New York: Russell Sage Foundation, 1971).

18. Joe Wholey, J. Scanlon, H. Duffy, J. Fuxumodo, and L. Vogt, Federal Evaluation Policy (Washington, D.C.: The Urban Institute, June 1970).

19. S. Mushkin, "Evaluations: Use with Caution," Evaluation 1,2 (1973): 30-35.

20. U.S. President, "The Budget Message of the President" in The Budget of the U.S. Government, Fiscal Year 1974 (Washington, D.C.: Government Printing Office, 1973).

21. Kermit Gordon, ed., Agenda for the Nation (Washington, D.C.: The Brookings Institution, 1968).

22. C. Schultze, E. Fried, A. Rivlin and N. Teeters, Setting National Priorities, The 1972 Budget (Washington, D.C.: The Brookings Institution, 1971).

23. C. Schultze, E. Fried, A. Rivlin and N. Teeters, Setting National Priorities, The 1973 Budget (Washington, D.C.: The Brookings Institution, 1972).

24. E. Fried, A. Rivlin, C. Schultze, and N. Teeters, Setting National Priorities, The 1974 Budget (Washington, D.C.: The Brookings Institution, 1973).

25. John Vaizey, ed., The Residual Factor in Economic Growth (Paris: OECD, 1964).