THE FEDERAL STATISTICAL SYSTEM'S RESPONSE TO EMERGING DATA NEEDS *

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1. Introduction

A number of recent reports on economic statistics (Juster, 1988; National Association of Business Economists, 1988; Office of Technology Assessment, 1989; Council of Economic Advisers, 1990), as well as articles in the press (for example, *New York Times*, October 20, 1989, page 1) have pointed to data gaps and inadequacies in the outputs of statistical agencies. Though one might argue some of the specifics, the content of these reports will evoke broad agreement among professional users of economic statistics. Budget cuts during the 1980's, alleged lack of "coordination and leadership" from the Office of Management and Budget (OMB), increasingly noncompetitive Federal salaries for technical occupations, and increasing resistance by respondents to Federal statistical surveys are listed as causes of the data gaps; curiously, criticism of statistical agencies themselves is muted.

Though it is undoubtedly true that statistical agencies could have made some head way toward filling data gaps had, e.g., more resources been available in the 1980's[2], a longer historical view of the statistical system suggests that

* Views are my own, do not represent official positions of either the Bureau of Economic Analysis or the Department of Commerce, and are not necessarily those of other staff members of those agencies. A shortened version of this paper, consisting of a slightly condensed form of the introduction and sections 2 and 3, appeared in the *Papers and Proceedings* issue of the *American Economic Review* (May, 1990) under the title: "Reviving the Statistical System: A View From Within."

1. For comments on earlier drafts of the paper, I am indebted to Joel Popkin, B. K. Atrostic, Daniel S. Hamermesh, and Frank C. Wykoff, to F. Thomas Juster and Richard G. Ruggles, both of whom discussed the paper at the Atlanta American Economic Association meetings, and, for insights from within the statistical system, to William G. Barron, Eva E. Jacobs, Marilyn E. Manser, and George L. Stelluto of the Bureau of Labor Statistics, William P. Butz and Charles A. Waite of the Bureau of the Census, Allan H. Young and Robert P. Parker of the Bureau of Economic Analysis, and Fritz Scheuren, Statistics of Income Division, Internal Revenue Service.

2. I am not necessarily arguing that more resources for statistics *should* have been made available in the 1980's, for that is an assessment that unmet statistical needs were more important than other areas of government expenditure; consideration of this issue is beyond the scope of the present paper.

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recent factors account for only a part of the data gap problem, and perhaps not the largest part. For one thing, complaints that statistical agencies do not anticipate and keep up with data needs are not new – they motivated, in part, the Bonnen (1981) Report ten years ago, and were not new then. The Federal statistical system has steadily lost – for good reasons and bad – its market share of the data used for economic research and for business and marketing purposes, and this decline is not uniquely a phenomenon of the 1980's (longitudinal data sets, for example, were new products of the 1960's and 1970's, developed largely outside statistical agencies, partly because of agency antipathy).

Secondly, many of the unmet data needs documented in recent reports have long been apparent. All of the reports agree, for example, that service sector data are inadequate; however, this is hardly a new lacuna in statistical agency outputs. The proportion of the U.S. labor force engaged in the non-goods producing industries surpassed 50% in 1940; and over 20 years ago, Victor Fuchs (1968, 1969) emphasized both the increasing importance of the "service economy," and its lagging data development. Yet, little service sector data – and minimal planning for it – existed by 1980. Factors affecting statistical agencies during the 1980's contribute little to explaining, in the sense of scientific causality, why U.S. data for services remain inadequate in 1990. Similar statements, unfortunately, can be made about other data gaps.

I focus on the "long term" question that is relatively neglected in recent reports: Why does the statistical system respond so slowly to developing needs for economic data, and what might be done about it? Reversing the usual order, I present in summary form the prescription first, followed by the diagnosis. Section 4 expands on, and provides a rationale for, the proposals summarized in section 2.

2. What Might Be Done?

(1) Statistical agencies need increased capability for research and analysis. Though the most important activity in a statistical agency is to get out the monthly or quarterly numbers and to get them right, research on concepts and methods (mentioned in many reports on the statistical system) serves design and development functions in statistical agencies. Moreover, because research points to emerging needs for economic data, the role of analysis in statistical agencies must be expanded to use researchers' skills in the program planning process. Increasing the *role* (not merely the quantity) of research, analysis and evaluation is the most important single contribution toward making statistical agencies more responsive to emerging needs.

(2) Mechanisms for the integration of disparate data sets produced by different statistical agencies need to be improved; increased links are needed between collecting and compiling agencies and governmental integrating units, including policy analysis units outside the statistical system. Improving data integration mechanisms will increase contact between statistical agencies and analytic

users of their data, thereby making statistical program managers more aware of analytic needs. Locating budgetary authority for incremental data needed for integrated programs with the integrating agency, rather than solely with the collecting agencies (the traditional practice), would be a useful step; this also reduces the amount of coordination that is required from the statistical arm of OMB, because it circumvents some of the worst managerial problems that arise from the decentralization of the U.S. statistical system. Despite some inherent dangers, I favor the "purchase" of statistical data by non-statistical government analytic units that are major users; such institutional linkages provide much needed increases in user-producer contacts.

(3) Professional advisory groups are important to statistical agencies. Each statistical agency should have one. Advisory committees should be composed of analytic data users, with representation as well for respondents to government surveys. I recommend further that the administrative responsibility for advisory committees be lodged in statistical agency analytic units, partly for the sake of implementing the advisory committee's recommendations, and partly to enhance the "clout" of analytic staffs within the agency. Moreover, the advisory group should explicitly be charged with identifying low-priority statistical programs whose elimination would improve the relevance of statistical agency outputs. This proposal does not preclude the formation of special outside review groups to examine particular programs or issues of statistical methodology; however, special reviews should be linked more closely than they usually have been in the past to inside-agency analytic and research groups.

(4) Professional associations can help the statistical system improve its performance in several ways. I urge professional societies not only to encourage more measurement research (a recommendation that appears in other reports on the statistical system), but also to take steps to improve the quality of such research, with much more attention to replication and verification. Outreach activities to assure that statistical agency professionals are not inappropriately isolated from researchers in other employments would be valuable (and as a corollary, societies should bestow professional honors on statistical agency staff only for professional accomplishments, and not merely because they hold high-level administrative jobs).

The content of the first two proposals parallels major recommendations of the Bonnen (1981) Report. I propose, however, locating these activities for the most part within statistical agencies themselves, or in major user groups, rather than in a greatly enlarged statistical unit in OMB. One reason is my belief that it is desirable to locate research as close to data production as practicable; in addition, I do not regard a large OMB analytic unit for *statistical* purposes as likely in the foreseeable future, even if OMB were a preferable location for these activities. Section 4 of this paper contains a more complete statement of the proposals and their rationale.

3. Why Does the System Respond So Slowly?

The justification for the Federal Government's production of economic statistics arises largely from economic policy needs – economic statistics are used directly by policy-makers (and especially their staffs) in Congress and in the executive branch, and they also provide factual information for the citizenry, for use in understanding the economy and current and prospective economic issues.

Recently, Charles Schultze asserted that the specification of data needs for economic policy must originate from economic and social research agendas, because research provides the information that is ultimately decisive for policy making: "With some clear exceptions, bodies of statistical information will be useful not so much because they directly suggest answers to policy problems, but mainly indirectly as the research based on such information helps us better understand how society and the economy work" (Schultze et al., 1991). The key role Schultze has assigned to research is a view with which I am wholly in agreement.

Indeed, I would go further. Today's research need for data becomes tomorrow's policy-analytic need. For example, Robert Lipsey (1990, p. 339) describes international services data as a case where "what had been a mere academic complaint [eventually] became a deficiency felt by Congress...." In parallel, today's research methodology – which implies a specification for the way data should be organized – is the method employed for tomorrow's policy analysis. Moreover, I expect that in the future the lag between "tomorrow" and "today" will shorten; the technical gap between what is done in the more sophisticated Washington policy analysis shops and the state-of-the-art in academic research has greatly narrowed in recent years, which means that data needs for "Washington" policy analysis and for economic research are more closely aligned today than might have been the case in the past.

Thus, perceiving developing and unmet needs for economic data requires knowledge of economic research and policy analyses, and the ability to communicate with analytic users of data. Such human capital is in relatively short supply in statistical agencies, and where it exists it is frequently isolated from agency priority setting. Too frequently, statistical agency program managers and administrators are unfamiliar with economic policy analysis, and have neither the inclination nor the ability to fathom data needs for basic economic research. A regrettable but pertinent example is a statistical program administrator who adamantly insisted in the mid-1980's that the demand for longitudinal data had "peaked," and therefore determined that it should receive no priority in labor market data programs. Given the advantages from specialization of labor, it is neither necessary nor desirable that statistical program managers all be economic researchers. Nevertheless, this perhaps extreme example serves to make the point: Statistical agencies are slow to respond to developing data needs partly because the voice of analytic and research needs for economic data

is weakly heard in statistical agencies. As a result, research needs for data are too seldom factored into the statistical planning process.

A second causal factor is a variation on the first: The statistical system's information on data needs is filtered through aspects of the Washington policy-making environment that are, paradoxically, not conducive to the development of data for policy analysis.

The policy-making environment has had a strong bias toward macroeconomic forecasting of quarterly or monthly numbers. As a result, a statistical program classified as a "principal macroeconomic indicator" has implicitly been regarded as more deserving of budgetary support than one that is not. In the mid-1970's, for example, the relatively non-cyclical nature of many service industries was one reason for rejecting proposals for service sector data (thus, went the argument, service sector data made no contribution to macroeconomic indicators). Obviously, a priority-setting system that relies on an existing set of macro-indicators is one with a great deal of inertia in it, and is biased as well. Macrodata needs are important, but they are not the only needs. Overemphasis of aggregate, macro-indicators has caused under-emphasis on the micro data sets that are necessary to, among other purposes, understand movements in the macro-indicators.

In the Washington policy environment, many policy issues represent doctrinaire disputes on outdated programs. One can find, for example, economists who make persuasive cases that U.S. farm programs do not raise returns to farming, that middle-income homeowners' mortgage programs do not lower housing costs to middle-income homeowners, and that government labor market and training programs do not increase worker incomes. Yet, the policy debate usually concerns – not whether 20, 40, or 60 years of program failure is evidence itself – but whether, e.g., the labor force "needs" more training, with an affirmative answer taken as justifying an expanded Federal government role (for a recent example, see U.S. Department of Labor, 1989). For the statistical system, this means, e.g., resources put into labor market projections and data that supposedly help program administrators "correct" deficiencies in the operation of labor markets. Such data programs – though they may have once seemed policy-relevant, and may even be mandated by some piece of legislation – strike economists engaged in either research or policy analysis as irrelevant statistical dinosaurs. Regrettably, marginal or counter-productive statistical activities may soldier on for decades, sapping budgetary resources that could be used more productively, adding to respondent burden, thus provoking resistance to new collection, and distorting statistical agency staffs' own perceptions of policy-related needs for economic data.

Another aspect of the policy environment is represented by periodic hullaballoos over naive issues (such as the recent debate over whether the U.S. is "losing the good jobs," and the demand ten years ago for measures of "labor market related hardship"). Such issues frequently result in demands on statistical agencies – often for some statistic that could be enlisted to support a

particular policy agenda. Healthy debate is the way ideas are evaluated in a democracy. Statistical agencies, however, need the intellectual insight to see beyond the issues that thrive in the press – and that can be especially difficult when (as was true of both of my examples) such issues originate from respected academic research institutions!

The second reason, then, why statistical agencies are not responsive to emerging data needs is that they are pressured by, and are too likely to respond intellectually to, short-run crises and current fads. They lack, in other words, sufficient ability to distinguish the transitory from what will be significant in the long run – so the second reason is complementary with the first.

A third causal factor, interacting with the other two, lies in the decentralized structure of the U.S. statistical system. It happens that for historical reasons producers of most U.S. economic statistics are located remotely from major government analytic users of those statistics.[3] Remoteness impedes statistical agencies' access to information on policy-analytic needs for economic data. Though economists in using analytic agencies have valuable insights on the shortcomings of economic statistics, they lack organizational lines of communication with statistics producers. Informal channels for user feedback suffer from communication difficulties and costs: There may be no obvious point of contact for the individual using economist to make his views known to statistical agency decision-makers. Conversely, statistical agency program managers may not have the analytical perspective to determine whether views of individual analytic users are idiosyncracies or are representative of broad analytical uses. Because of these costs, government analytic users of economic statistics frequently express the view that statistical agencies are unresponsive, while statistical agency staffs maintain that problems with statistical output are not communicated to the appropriate statistical agency personnel, or that analysts are unrealistic. The same description, significantly, applies to much interaction between academic users and statistical agencies.

In summary, I argue that a major reason why the Federal statistical system responds slowly to evolving analytic needs lies within statistical agencies themselves. Agency staffs do not understand analysis or communicate well with analytical users; whatever their potential for understanding analytical economists, they do not in fact talk with analytical users very frequently because of lack of organizational lines of communication between statistics users and statistics producers; and, partly because of the lack of communication with, or understanding of, analysis, statistical agencies' perceptions of the

3. The literature on the U.S. statistical system frequently contains statements to the effect that decentralization locates the collection of statistics close to the major users of them. The statement has validity for a few statistical programs (crime statistics, for example, where the responsible statistical agency is located in the Justice Department). For the major producers of general-purpose economic statistics, however (the Census Bureau, the Bureau of Labor Statistics, the Bureau of Economic Analysis, and a substantial portion of the output of the Energy Information Agency), the notion that collection is organizationally close to major users is a fairy tale.

demands for policy-related data are dominated by macrodata and by current issues that garner space in the newspapers.

3.1. Other Views and Other Causes

Several alternative explanations for the statistical system's performance exist.

Factors external to statistical agencies influence the introduction of new economic data programs. The receptiveness of budgetary review authorities to analytic data proposals, the political effectiveness of various constituencies for existing or proposed data series, and the cooperation of potential respondents to new collections all have roles in limiting what even the most enlightened statistical agency program planners could achieve. These factors function as limits on what can be accomplished, so their effects ought to be evidenced in long lists of proposed – but rejected – analytic data programs from statistical agencies.

A less benign view is that statistical agency personnel behave according to a prevailing hypothesis in economics about how bureaucracies function. Bureaucracies behave, many economists and political scientists have argued, not as proper agents of the public, or the voters, but to serve other objectives that emerge from the internal compensation and reward structure. In other words, where I have argued that statistical agencies suffer from inadequate information and knowledge about the needs for analytic data, this alternative view says that agency staffs may not want to improve data for economic research and policy analysis, because they have other objectives.

Though I believe that inadequate understanding of analytical data needs is indeed the major problem, confusion on statistical agency objectives may also contribute something. A clearly-defined rationale for Federal data collection has not been developed: "For whom, or for what purpose, does the Federal Government collect economic statistics?"[4] In addition, some administrators confuse the constraints under which some statistical programs operate with the objectives of the programs.[5] I do not see the usual "agent" problems considered in the economics literature on bureaucracy as a major contributor. Of course, I am also a member of that bureaucracy, which may bias my observation.

Many reviews of the U.S. statistical system emphasize an alleged lack of coordination or "leadership" from OMB, rather than factors within statistical

4. This subject cannot be treated here. It probably deserves a paper in itself.

5. For example, obtaining respondent cooperation is usually easier if the statistical agency can provide data that the respondent finds useful (for marketing, say), and state agencies may more willingly cooperate with Federal statistical agencies if they receive local area data from the program. These constraints may justify producing marketing data or local area data by Federal statistical agencies, even when no Federal government purpose is served. Provision of such data is clearly, however, a cost of the collection effort, not an objective, or output of the program.

agencies, as a major reason that the statistical system has failed to anticipate needs for economic policy analysis.

There is certainly lack of coordination. Consider consumption statistics. The Bureau of Labor Statistics' Consumer Expenditure Survey, which contains both consumption and demographic information, provides a general consumption database for policy analysis (tax-policy modelling, for example). A companion Point of Purchase Survey collects information on the kinds of stores where households purchase, e.g., durables, which could in principle add another dimension to the consumer expenditure database. The Federal Government also conducts many special-purpose consumption surveys (such as household energy consumption surveys). The surveys are not drawn from common sampling frames by methods that would permit integration; sample totals are "blown up" to economy-wide estimates by counts of consumer units (rather than by controlled totals of consumption, such as benchmarked GNP Personal Consumption Expenditures, less its non-household component); and none of the potentially useful data from the Point of Purchase Survey has ever been published.

Government consumption data are often cited to exemplify "statistical coordination" problems in the Federal statistical system – each decentralized collecting agency pursues its own program needs, without sufficient attention to integrating the data for analysis.[6] On one level, that is true. But on another level, consumption statistics problems reflect lack of analytic input – they reveal a producer perspective, when a user one is needed. An energetic OMB unit with a user perspective would undoubtedly act; but so would statistical agencies, individually and in concert, had they more analytic perspectives in their own statistical planning processes. Integration of government consumption data was raised, after all, by Houthakker and Taylor (1970) twenty years ago.

Though it is undoubtedly true that an analytic unit within OMB might have some positive effect on the statistical system as a whole, I believe that recent (and not so recent) reports on the U.S. statistical system attribute too many of the system's ills to OMB as the coordinator for the U.S. decentralized statistical system,[7] and too few to the statistical agencies themselves. Whether enhancing

6. For example, OTA (1989, p. 5) states (among a listing of tasks that OMB "has not performed...effectively"): "The statistical system lacks an organization which is charged with ensuring that a complete and balanced picture is available from [consumption] data and that links can be drawn between changes in aggregate levels of spending, changes in household spending, and changes in the quality of things such as health care, education, and transportation available to households."

7. I cannot go into statistical system structures in any detail. There are two issues. First, how serious or how costly are the problems created by insufficient coordination through the system as a whole, and by lack of central direction?

Certainly, coordination problems exist. OTA (1989, p. 3) mentions the allocation of statistical budgets across Federal Government departments (noting that 6.7 times as much is spent on agricultural statistics as on education statistics). That clearly is a coordination issue that cannot be addressed within statistical agencies (it might not be addressable within the statistical coordinating

statistical agencies' own perceptions of the analytical uses of their data (thus making them more responsive to emerging data needs) would be more effective than enhancing OMB's power to force the agencies to respond to emerging needs is partly a question of how one can best motivate professionals within statistical agencies; but it is also a false dichotomy. Even with enhanced OMB coordination, statistical agencies would need their own analytic capabilities in any case (see section 4).

Whatever the importance and validity of alternative explanations, I still maintain that lack of information about analytical needs and lack of communication with analytical users are major reasons why programs of statistical agencies do not adjust more rapidly to needs for economic data. I emphasize this factor – not because I believe it is the only factor – but because it seems overlooked and under-appreciated in other publications on the U.S. statistical system and in public discussion, and because I believe it is *important*.

Robert Eisner (1989) has remarked: "Econometricians, theorists, and economic analysts of all stripes have lost essential communication with the compilers and synthesizers of their data." Not all the blame for this lies within statistical agencies, but a substantial proportion of it does. Hence, my diagnosis:

arm of OMB either, since it depends in part on the Secretary of Agriculture's views on the importance of agricultural statistics in the work of his department). However, most reports on the statistical system inflate the magnitude of OMB-related coordination problems because they treat nearly every statistical problem as if OMB coordination is the only solution. The same OTA report, for example, lists data integration for the national income and product accounts as requiring "careful coordination of work in several different agencies by OMB"; alternative structures for this coordination can exist (see the data integration sections of this paper). The answer to the "how serious" question has never been determined – the question properly concerns coordination problems above and beyond those located (or that could be solved under favorable conditions) within statistical agencies themselves, were they sufficiently motivated to do so.

The second question is: If coordination problems are serious enough to justify substantial additional resources for coordination, what is the best coordination structure? If one were to start a statistical system from scratch, I believe the only reasonable structure is a centralized statistical agency for general-purpose economic statistics, such as exists in some other advanced countries (Great Britain has recently moved to a more centralized system). It is probably possible to dichotomize the 38 statistical agencies noted by Bonnen (1981) into those which obtain the advantages of decentralization (collection is close to major users – such as education statistics, justice statistics, some energy statistics) to offset the disadvantages, and those agencies that bear only the costs of decentralization, without gaining the putative advantages. Producers of economic statistics surely belong in the second group, and would accordingly gain from a less decentralized, more integrated structure (see also footnote 3).

To justify centralizing an *established* system, however, one has to weigh the gains from a more efficient structure against the costs of organizational change. The cost of organizational change would probably be higher than is usually anticipated. Even leaving aside the political costs from moving units around among cabinet departments and their associated congressional committees, organizational change in a bureaucratic structure puts a premium on staff political, organizational, and bureaucratic skills, and therefore puts professionals (who have often failed to develop those skills as fully as have other government workers) at a disadvantage. The benefits of organizational change must be quite high in order to offset the substantial costs. This, of course, turns the matter back to the first question: Are the pure coordination costs of the present system sufficiently large that their elimination justifies the costs of organizational change?

Statistical agencies have too few direct lines of communication with analytic users of their data, they have too few of the research-oriented professionals who can provide insight into analytic needs, and when agencies have such professionals, they pay insufficient attention to them in the planning process.

4. Analysis of, and Rationale for, the Recommendations

4.1. Research and Analysis in Statistical Agencies

Statistical agencies are production shops. The most important activity in a production shop is to get out the monthly numbers and to get them right.

Similarly, the most important activity for an automobile manufacturing company is to get the cars produced and made without defects. Production is even more important than design and engineering in the sense that without sales there is no design and engineering staff. But in the long run, without design and engineering the product falls behind evolving technology and buyer demands.

Research, analysis, and evaluation serve as design and engineering functions in statistical agencies. In the long run, without this activity statistical agencies also fall behind the expectations of their customers.

I draw this analogy precisely because many statistical agency administrators, and also some who are observers on the outside, have not grasped it. Some outsiders think that outside review groups, central coordination by OMB, or some other "control" on statistical agency management obviates the need for an analytical role inside statistical agencies. A correct statement is that inside and outside reviews can be complementary, but outside review does not substitute for inside-agency analytic capability.

People inside statistical agencies, on the other hand, often believe that production groups can do their own "product planning" without research and analytic input. Though there is much to be said for integrating the production of data with research and analysis, there is also no denying the advantages of specialization of labor. What demonstrably does not work is for the planning function to be carried out without research and analytic input, and this is more typical of statistical agencies than it should be.

Research and analysis within statistical agencies can be conducted within different organizational structures. One form is represented by units established in the BLS in the 1960's and 1970's, and the more recent Center for Economic Studies in the Census Bureau. Such units do research on measurement concepts, and also analysis of the data produced by the agency. Analytic units contributed to professional advances in the BLS, and the new unit has contributed promising results in Census. Research in the demographic areas of Census follows an alternative mode, where analysis is more integrated into statistical production. Other models may exist in other agencies – the Bureau of Economic Analysis, for example, has a quite different organization that

reflects, partly, its dual role as producer and user of statistics.

The experience of existing statistical agency research units suggests that much more can and needs to be done, and also suggests mistakes to be avoided and approaches to be taken in the future.

Research and evaluation groups, like automobile engineers, must produce something that is useful for the organization in which they are employed, and it would be remiss not to admit some failures on this score. Program managers have faulted (sometimes correctly, sometimes not) statistical agency researchers for maximizing journal publications rather than conducting meaningful research. It is well known that papers frequently find publication outlets even when they make no substantive additions to the state of economic knowledge; moreover, papers that contribute to research in a larger perspective may yet fail to contribute to a statistical agency's mission (which is, after all, the funding justification for statistical agency research).

There is, however, an opposite side to this coin: Publications are a researcher's assurance of job mobility. The less committed an agency's researchers become to their current employer the more their incentives for outside publication, to facilitate a job change. Thus, though the charge that an agency's researchers are not contributing to the agency is sometimes correct, sometimes the cause may be the way the agency is using (and rewarding) its researchers. Developing a successful statistical agency research and evaluation program requires an agency environment that is conducive to success, and that has not always been achieved.

First, the researcher's agenda cannot be dictated by production managers, for one of the researcher's skills is asking questions, not just trying to find answers to the questions of others. The struggle to determine who will ask the researchers' questions has been repeated in many places, and is certainly not over.

Second, agency administrators have a proclivity for defining research activity as a luxury, which holds it hostage to current budget pressures and induces production staffs to regard agency researchers as a privileged elite. Tensions between manufacturing and engineering staffs are not unknown in manufacturing; the equivalent tensions are endemic in statistical agencies. A form of the "luxury activity" definition that is particularly detested by researchers occurs when agency administrators use their research staffs as ornaments to influence outside analytic review groups, or as instruments for fighting bureaucratic turf wars.

Third, though there is some sense in which research and evaluation are staff functions, in a statistical agency they must have some well-defined, explicit role that interacts with production. Otherwise, there are two pernicious effects. The researchers have no recourse if their suggestions are simply ignored (an effective bureaucratic strategy if the other party has no "clout"); and when the researchers have no accepted role in the agency's production process, support and production staffs frequently *perceive* that the researchers "do nothing,"

even when their advice may influence top agency managers (it is not unusual for the same manager who "round files" researchers' memos to complain that they "do nothing").

Obviously, the above problems represent management failures, some of them gross ones. An institutional change that will reduce such management failures is to give research and analysis groups an explicit function that will be recognized as important by all statistical agency managers; a role that fills that requirement, and is uniquely suited to researchers' skills, is program planning.

I conclude this section with a pair of examples that illustrate productive complementarity between inside-agency analytic capability and outside research and analytic users.

By the mid-1970's, a great amount of economic literature had accumulated on the importance of search activity in labor markets. A commonplace observation at the time noted the almost entirely theoretical nature of the job search literature, and the almost complete lack of data required to determine the empirical importance of the theoretical results. It was clear that the theoretical propositions were potentially of great importance in interpreting the then-rising unemployment rate, and in the design of effective macroeconomic and labor market policies.

A then-member of the Council of Economic Advisers staff wrote a memo proposing that a special supplement on job search be added to the Current Population Survey (this is the household survey from which the unemployment rate is computed). Initially, the production staff in the Bureau of Labor Statistics opposed the proposal, because they could not understand why job search data were wanted, and therefore they regarded the proposal as frivolous. Ultimately, the BLS analytic staff became involved, and explained the importance of the CEA proposal; subsequently, an analytic staff member was assigned to the team designing the survey instrument. The analytic staff member saw this as a unique opportunity to design a data set on a topic that was of great importance to labor economics at the time, and to do it in a way that, subject to the constraints of the basic CPS program, would provide researchers with the appropriate data. Not incidentally, the analytic staff member was in an unparalleled position to carry out his own research on the data set he had designed (see Mellow, 1978). In my opinion, this was one of the most useful research (and policy-analytic) supplements ever added to the CPS survey.

My second example was considerably less successful, but no less useful as an illustration. Research on the economic effects of minimum wage legislation has always been somewhat inconclusive, in that the effects predicted by economic theory are either of small empirical magnitude or do not emerge clearly from the data (see Brown et al., 1982). One data lacuna is the absence of a longitudinal data file on employers that would contain information on wages, nonwage benefits, working conditions and other variables relevant to employment decisions of employers, and that could be used to track behavioral responses from the demand side of the labor market over the interval in which changes in

minimum wage legislation occur. Largely because of an interaction between members of a commission studying the minimum wage and analytic staff members within the BLS, an employer longitudinal panel was established in the late 1970's within a BLS establishment survey (the basic survey collected wage information). I believe this was the first employer – and possibly the first establishment – longitudinal file set up within any U.S. statistical agency. Unfortunately, the program was killed for various bureaucratic reasons after only one year's longitudinal data was collected.

In both the employer-longitudinal, minimum wage survey and the household, job-search survey, interaction between inside-agency analytic staff and outside analytic users was responsible for initiating a potentially innovative and research-relevant new statistical program. I am convinced that without the inside-agency analytic capability, neither program would have begun; or if the new program had been forced on an unsympathetic statistical agency staff (by OMB ukase, for example), the design of the program would not have yielded an effective research database. Innovative collections of analytically relevant information require intimate understanding of both the research objective and the limitations and strengths of the collection vehicle. There is no substitute for having both sets of knowledge in close proximity, and experience shows the closer the better.

On the other hand, the inside-agency analytic staff needed timely outside proposals to obtain adoption of such data collections. The analytic staff was not integrated into, and had but minimal role in, the agency planning process. They needed an outside-the-agency proposal to get a more sympathetic internal hearing for their ideas. Thus, advances in the availability of analytic data may require both inside-agency professionals who understand and are sympathetic to analytical needs, and input from outside analytic data users.

4.2. Professional Advisory Committees

If statistical agencies are insufficiently in tune with evolving needs for analytic data, a second helpful mechanism is the professional advisory committee. When advisory committees are composed of research and analytic data users, with representation as well for respondents to government surveys, they provide an additional vehicle for increasing contact and interaction between agency program staffs and analytical users of data. I believe that each statistical agency should have a professional advisory committee.

I recommend further that the administrative responsibility for advisory committees be lodged in statistical agency analytic units. There are several reasons.

First, someone must translate the recommendations of professional review committees into program terms. It is astonishing how often statements by analytic economists are misconstrued or misunderstood by agency managers. Agency analytic staffs speak the same language as analytic users, and the statistical agency analytic unit is a natural intermediary between outside ana-

lytic users and the production staffs. Second, for any unit to have influence in a bureaucratic organization, it must have "clout"; the internal analytic unit's influence is enhanced if it is perceived as the spokesperson for outside groups represented on professional advisory committees. Third, the agenda for advisory committee meetings is an important determinant of what the committee can accomplish; keeping topics off the agenda can be an effective bureaucratic strategy, which is minimized if the analytic unit can put topics on advisory committee agendas.

I also believe that it is absolutely crucial that outside advisory committees conduct regular reviews of statistical agencies' outputs to search for low-priority programs that should be cut back or terminated. There are political, administrative and substantive reasons for this recommendation.

First, on the political end, in order to eliminate any program an agency administrator needs some outside demand for that action. The most useless of statistical "dinosaurs" winds up with some clientele, and sometimes it seems there is an inverse correlation between the quality of the program and the vocal strength of its backers. Moreover, accepted Washington political wisdom suggests that an administrator who offers up a low-priority program to obtain expansion in a high-priority area risks incurring the cut without obtaining the expansion; an advisory committee recommendation to shift resources from A to B may (though by no means will) enhance the perception that "reprogramming" is in order, rather than a budget cut.

If it were solely government funds that were at stake, searching out and slaying statistical dinosaurs might not be worth the effort. Dinosaurs, however, have implications for respondent burden. Significant respondent cooperation problems are reported by statistical agencies. Expanding statistical programs to meet new needs means more data collected, and accordingly increasing the respondent burden. Statistical dinosaurs are often correctly perceived by business respondents as useless, and accordingly their collection as an unwarranted Federal intrusion. A respondent with such perceptions about the Federal statistical program will be less likely to respond to new collection activities. For this reason, terminating low-priority and outdated programs is an essential administrative part of redirecting the statistical system toward more valuable activity.

Finally, poor-quality statistical programs often have "bad apple" effects on statistical agency staffs. Outdated programs almost never have good staffs, but for internal political and personnel reasons they exert a disproportionate drag on efforts to improve agency staff quality. It is easier to kill a promising new flower than it is to uproot a dead tree stump. The substantive effect on agency staffs from terminating statistical dinosaurs is salutary, and (regrettably) has seldom been considered in outside reviews of the statistical system.

Every statistical agency has low-priority programs.[8] Every agency would

8. One sometimes hears the contrary view: "All the marginal statistical programs were elimi-

benefit from periodic casting off of outdated or less useful programs, and from shifting resources so released into more vital programs.

For completeness, I should note that in my own experience, and in that of others in the statistical system, advisory committees are notably reluctant to engage in dinosaur-hunting, or in fact to offer advice on statistical priorities. Committee members often state that they do not know enough to make such judgments. However, when one recommends (as advisory committees often do) that some program be added or expanded, that recommendation implies a judgment that what is not being done must be more valuable than (at least some) things that are being done. It is, to be sure, more work to rank new proposals against existing ones, but the task is nevertheless an integral part of assessing the need for new programs, and well within the potential for advisory committees.

4.3. Data Integration

I use the term "data integration" to refer to any activity that compares, combines, or unites data from different surveys or sources according to a conceptual, organizing framework. Most analysis and research are inherently integrative activities, on this definition. Data integration promotes a broad view of data needs and focuses attention on data gaps and inconsistencies among series.

An example of an integrating activity within the statistical system is the compilation of the National Income and Product Accounts (NIPA). Construction of satellite accounts could extend the integrating potential of the NIPA framework beyond what has traditionally been available in the U.S. Another statistical agency integrative framework is the estimation of multifactor productivity in the BLS (this framework integrates around production theory). An example of an integrating analytic agency outside the statistical system is the Congressional Budget Office; many policy analytic agencies in the executive branch pursue data integrating activities as part of their missions.

Data integration was an important topic in the Bonnen (1981) report, where the focus was primarily on consistency and standards among data sets, and on identifying data gaps and facilitating record linkages. My concern on substance parallels that of the report. However, the importance of data integration for the point of view expressed in the present paper lies in my beliefs that the act of integrating data will make agency personnel more forward-looking with respect to the use of data, and that links to integrating activity outside the statistical system will bring agency staffs into closer contact with analytic uses

nated in the 1981 budget cuts." Even if this were true (I believe it is not), nearly 10 years have passed, and with the passage of time the economy changes, and statistical priorities change with the changing economy. Identifying lower priority statistical programs is an integral, on-going part of keeping statistical outputs abreast of current and developing needs for economic data.

of data, with beneficial consequences for their own appreciations of data needs.

My proposal for improving data integration has three elements. The first is some non-organizational restructuring to make existing integration activities more effective.

The decentralized structure of the U.S. statistical system imposes costs on data integration, for which the historical solution has been central coordination by OMB. For example, following the last coordinated review of data needs for GNP (the Creamer Committee report – see the session on this report in Foss, 1983), budget increments for GNP source data improvements were supposed to be added to the budgets of collecting agencies; the OMB statistical coordinating unit was to monitor the implementation of GNP data improvements. In practice, of course, these individual budget increments must run separate gantlets of the agencies' own departmental reviews and priorities, of different OMB budget examiners, and of different committees in Congress. Failure, for any reason, of one part of the data improvement package may diminish the usefulness of complementary data.

Managerially, this system maximizes the separation of responsibility, accountability and authority in a way that not only multiplies the need for coordinating activities at all levels, but makes coordination particularly difficult to carry out. The budgetary authority for collection is in the collecting agency, the responsibility for determining what data are needed for GNP is in BEA, and – traditionally – the accountability for seeing that it all gets done is lodged with the statistical coordinating arm of OMB. The OMB statistical unit must thus interpose its judgment on the expertises of both collecting and using agencies while tracking proceedings in multiple budget review processes. Under this system, failure to achieve a coordinated end is, naturally enough, attributed to the OMB coordinating unit (see for example, OTA, 1989, pages 3–4), without much consideration of the managerial impossibility of the role assigned to it.

In contrast, suppose the budget for incremental data needed for GNP improvement had been added to the budget of the Bureau of Economic Analysis, which has responsibility for constructing GNP. If this were done, the data improvement schedule runs only one budgetary track, not multiple reviews; the responsibility for a balanced set of priorities for GNP lies with the agency responsible for producing GNP, and Congressional oversight on that process lies with one committee, rather than being parcelled out among several (in which the overall objective is easily obscured by other concerns). By contracting with collection agencies for the incremental data needed for GNP improvements (and not needed for their own agency missions), the agency that is concerned with the data has control, or as much control as can be exerted, on the entire process.[9,9a]

9. To assure that BEA, in this example, has not itself too narrow a conception of the uses of GNP (and therefore of what portions of it most need improvement), other portions of the present

Centralizing the budget for integrative programs is no revolutionary change, merely an extension of what is already done. A budgetary procedure along these lines now exists for some Internal Revenue Service data used in GNP. Moreover, the Census Bureau conducts surveys for many government agencies under contract. Decentralizing the entire activity, as has been done historically, and then charging a statistical unit in OMB with coordinating a nearly unworkable administrative structure is bound to lead to dissatisfaction with the coordinating body; in my opinion, the solution is to change the administrative structure for planning for, and obtaining, data for integrative activities.[10]

Consolidating budgetary authority with integrating agencies may cure old problems at the expense of creating new ones. BEA, for example, may be wrong on what is required for GNP, and may therefore ask that the wrong data be collected (but see footnote 9). One discussant of the paper has characterized the proposal as "Putting the fox in the hen house," presumably because it would give the integrating agency too much influence over the collecting agencies; on the other hand, in the present system the collecting agencies have control over the concepts of the data used by the integrating agency.

There are also problems of budgetary and managerial control. For collecting agencies, when work is done under contract, there is always danger of acceleration effects (when budget cuts in other agencies cause disproportionate reductions in contracted surveys); conversely, contracting agencies complain that they cannot monitor the costs of collecting agencies, so that the output effects of budget cuts may fall disproportionately on contracted surveys. Potential "free rider" problems may also emerge, because an integrating agency may find itself forced to pay for what is truly a multi-use statistic (and properly in a general-purpose statistical agency's budget). All these points have greater or lesser validity, but all of them either exist to some degree in some different form in the present structure, or also have counterpart and opposing problems in the present system.

The second element of the integration proposal is parallel to the first. It involves enhancing the interaction between integrative activities that already exist and the agencies that produce data for them. Analytical economists inside government complain almost as much (and possibly more) than those outside

paper propose more analytic resources within BEA, a professional advisory committee for BEA, and inside and outside government input on the uses of GNP (such as CBO, OMB's own economic analysis staff, and – in the case under discussion – the Creamer Committee itself).

9a. (Note added in proof) Aspects of this proposal appeared in the "Boskin initiative" for improving Federal statistics:

"Selected improvements in source data would be supported with funds provided to BEA. BEA would use these funds to secure additional information from administrative records, to support new statistical surveys or extensions to existing surveys, and to carry out research to determine feasible ways of closing gaps in source data." *Survey of Current Business* 71 (March, 1991), p. 4.

10. This proposal diminishes part (though not all) of the traditional case made for a large OMB statistical coordinating unit (see footnote 7).

that the outputs of Federal statistical agencies do not mesh together well enough to permit them to do their jobs.

To improve communication between statistical agencies and government policy users of their data, I favor giving government non-statistical analytic units resources to contract for data collection from statistical agencies. The Census Bureau already collects a substantial amount of data on contract, for example, and the Treasury Department's Office of Tax Analysis has major input into the provision of Internal Revenue Service (IRS) data. It is but one further step to propose that the solution to, say, the needs of the Congressional Budget Office for IRS data, as noted by Rudolph Penner (in Schultze et al., 1991), is for the CBO to contract with the Statistics of Income Division for the incremental data it needs. If there are incremental costs to integrating government consumption data (see the example in section 3), and if, say, the Treasury Department's Office of Tax Analysis requires an integrated database for its household tax model, or the Federal Reserve Board for analyzing and forecasting consumer expenditures, one solution is for the Treasury Department or the Federal Reserve Board to contract with collecting agencies and to assume responsibility for guiding and directing the data integration. This might also be done, as already noted, by BEA in order to improve consumption data in the NIPA, or might be done jointly by BEA, as an integrating agency within the statistical system, and by Treasury-FRB as analytic integrating government agencies outside it. The precise mechanism is unimportant; the important point is to increase communication between the too-often frustrated government users of economic data and the suppliers of it.[11]

It has been proposed that a data integrating unit be set up as part of the OMB statistical coordinating arm (Bonnen, 1981), or that the existing OMB statistical coordinating unit should oversee data integration (OTA, 1989). The notion that the OMB coordinating arm should be the repository of knowledge about data integration seems to me neither realistic (it has not happened, and probably will not) nor efficient (transferring the knowledge from where it exists and is *used* for some substantive purpose to a separate unit that will impart the information to collecting agencies risks large expenses, and large losses, in the transmission process). Rather than creating a new or expanded analytic unit in OMB for the sake of statistics, my proposal is to make use of integrating units that already exist in the Federal Government, units for which integration is a part of their larger missions – to take advantage, in other words, of existing activities that integrate data, and of the expertise these activities generate, to improve the usefulness of Federal statistics for the purposes for which integrated data are actually employed.

Two potential dangers must be recognized. First, the proposal opens in-

11. This proposal appears similar, both in financing and in increasing ties between statistics producers and statistics users, to mechanisms that Statistics Canada refers to as "cost recovery surveys."

creased avenues for politicization of data. Though none of the recent reports on the statistical system mentions the politicization issue, politicization of statistics would have topped the list of statistical agency problems ten years ago, and Feinberg (1989) argues that some recent statistical decisions have reflected political agendas of decision-makers. The risk is minimized, though not eliminated, if analytic units (CBO, for example) are funding data production. I do not favor increased contracting of statistics from program agencies, precisely to avoid potential opportunities for politicization. A more effective insurance policy against politicization is an increased role for agency professional advisory committees, as proposed above. The more professional stakeholders there are in a statistical agency's operations, the fewer the chances that politicization attempts will be undiscovered. Nevertheless, potential politicization is a continuing concern.

A second potential concern arises from historical experience: Some of the worst Federal statistical programs have been commissioned by governmental users who mis-specified what should be collected. However, when statistical agencies have analytic units as purchasers of data, professional advisory committees to review agency programs, and an increased planning role for agency research and analytic units, all these institutions greatly lessen the chance that agencies will contract for new statistical dinosaurs – such cases in the past have been strongly opposed by analytic groups.

A third integrative element, interrelated with the first two, is increased integration of aggregate measures with relevant microdata, along the lines proposed by Ruggles (1983, p. 38): "It is important that...microdata sets...be conceptually and statistically integrated with the national accounts; and, conversely, the national income accounts of the future will have to take these bodies of data into account...." Consumption statistics, noted above, are an excellent example: There is need for microdata from the various federal consumption surveys to be consistent with the corresponding consumption component of the national income and product accounts – and the converse. Obviously, I expect such integration as an outcome of the institutional strengthening of links between collecting and integrative agencies, as discussed above. Integration of macrodata and microdata sets is so important substantively, however, that for emphasis I list it separately as a third point.

4.4. What can Professional Societies Do?

Gerard Debreu's letter to Zvi Griliches, the organizer of the American Economic Association's session "Reviving the Federal Statistical System" (at the Atlanta, 1989, meetings), solicited suggestions for ways that professional associations could help improve the performance of the statistical system.

Juster (1988) proposes that the economics profession put more emphasis on research on measurement issues. Though it is hard not to concur with a suggestion for more research, I feel it necessary to add the caveat that better research is needed, and not simply more examples of the same quality.

If there is any part of economics in which it is vital to take data seriously, it is in measurement research. Yet, a portion of the measurement research that I see has glaring deficiencies which actually result in driving a wedge between analytic users of data and statistical agencies. It is simply too easy for statistical agency personnel to examine some of the measurement research that is floating around, perceive its obvious shortcomings, and to decide that there is nothing useful to be gained by paying attention either to research findings or to research uses of data. I have heard statements to this effect many times, and I think it is an honest reaction by statistical agency people – though perhaps also an excuse – and has served to widen the already extensive gulf between research and some statistics producers. In addition, then, to research on measurement issues, much more attention to replication and verification of published results (Dewald et al., 1987) before citing and using them would improve the credibility of economic measurement research, and therefore its usefulness to, and influence on, statistical agencies. I believe the AEA and other professional societies should take a stronger and more positive position on the replication issue.

A second concern of professional organizations should be recognition of professional work within statistical agencies. This is actually a part of the interaction problem between statistical agency staffs and other professionals. Statistical agency professionals, particularly the younger ones, often feel they are "left out," or treated as outsiders, by academic researchers, especially. That is, they feel their work is not given the same recognition, and they are not as likely to be invited to conferences and so forth, as would an academic professional with the same research attainments.

It is not so clear to me that the agency professionals' perceptions are accurate. Nevertheless, there are sometimes signals that are taken as conferring status. For example, when the American Economic Association's committee on economic data met with "top statistical agency staff," that meant that they talked with administrators; they did not talk, to my knowledge, with research professionals, or staffs of evaluation units. This pattern, which is generally duplicated in studies by organizations such as the Committee on National Statistics, implies that academic researchers do not see agency researchers as their natural counterparts. It is also regrettably a fact that some professional journals require a copyright assignment form that cannot legally be signed by a government researcher who is reporting work done as part of his job. That is also taken as a signal of "second class status" (though actually my investigation of this matter suggests that most academics who have government-funded research contracts likewise cannot legally assign copyright in the form required by many academic journals).

Whether or not the agency professionals' views are justified, more outreach activities by professional societies, including the AEA, would be beneficial in improving the professionalism of statistical agencies and their lines of contact with academic and research users. The American Statistical Association, with National Science Foundation and statistical agency support, conducts an

"ASA fellow" program that places academic visitors in statistical agencies. This is a worthwhile activity for increasing contact between analytic users and statistical agency staffs, but it is outreach *by* statistical agencies *to* academics (government or other analytic users are not eligible). A comparable outreach program from academic and research institutions to statistical agency professional staffs would provide valuable contact in the other direction – for example, universities and independent research institutions might set up economic measurement programs for which statistical agency researchers would be eligible as resident scholars for some period, or even establish fellowships in non-measurement topics that cannot be supported in statistical agencies, for the purpose of broadening the horizons of government measurement researchers. A perhaps less expensive alternative would be a program, preferably sponsored by a professional association, to place qualified statistical agency researchers as regular academic teaching visitors, which would serve to broaden agency staff experiences and increase communication with academic peers.

Much more can be done by professional organizations, academic economists, and research institutions to break down the "two different worlds" barriers that exist between academic and statistical agency professionals.

My third recommendation to professional societies (not solely to those in economics) is a corollary to the second: Professional societies should not single out nonprofessionals in statistical agencies for professional honors, just because the nonprofessional holds a high-level administrative job. Almost all professional society honors are normally for research accomplishments. Seldom, for example, is an academic considered for an honor because he has, say, been appointed provost. A wholly different, and wholly inappropriate, rule has sometimes been followed for statistical agency personnel. In government statistical agencies bureaucratic and professional forces often struggle, and where that struggle exists, the bureaucratic forces often control the internal reward structure. When the young professional sees his own professional association honoring the least professional of his superiors, who thus win the external rewards as well, where are his incentives to pursue professional ends? The bestowing of professional honors without professional accomplishments can, and has, dealt crushing blows to both morale and motivation of professionals within statistical agencies.

5. Concluding Remarks

No single solution can cure all ills. These proposals are addressed toward a set of problems that are not emphasized in recent reports on the statistical system, though they are long-standing problems.

The paper does not address the substantial needs in statistical agencies for research – and implementation of best professional practice – on statistical methodology and survey techniques. There are still, for example, Federal surveys that do not employ a single professional with an advanced degree in statis-

tics. It does not address the problem of recruiting and holding qualified economists, statisticians and other professionals in a day when starting government salaries for new Ph.D.'s lag behind those paid by academic institutions (which also offer better nonpecuniary amenities and opportunities for professional mobility).[12] And it does not address what is perhaps the most intellectually demanding problem of program planning for Federal statistical agencies: Given that the Federal Government will not provide all data needed for research, or for business (and non-profit institutions, labor unions, and so forth) purposes, how should the line be drawn between data needs that are filled by the Federal Government, and those that are left to the private sector or other providers of information?

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12. The fact that numerous studies by academic labor economists report that government workers are overpaid does not move me to qualify this sentence. On the other hand, I would qualify it for cases of some statistical agencies who refuse to fill senior positions from outside their own staffs, even when better qualified outsiders apply.

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