

Appendix C

Adapting BEA's National and Industry Accounts for a Health Care Satellite Account

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INTRODUCTION

The Bureau of Economic Analysis (BEA) covers the production of health care goods and services in its national income and product accounts (NIPAs) and in its industry accounts. The NIPAs include estimates of nominal and real spending by consumers and government on health care goods and services, and the industry accounts include nominal and real estimates of output, intermediate inputs, and value added for the health care industries. As BEA begins to think about a possible health care satellite account, some important modifications to the existing framework underlying the NIPAs and the industry accounts may be required to emphasize the interrelated nature of health care provision and to facilitate the use of improved price indexes.

An important aspect of developing a health care satellite account involves a change in the definition of the final good(s) provided by the health sector from the individual treatments to the provision of “medical care.” Using the latter definition, the BEA satellite account will use disease-based price indexes to deflate consumer spending on medical care and thus potentially change the growth rate of real gross domestic product (GDP).

This paper discusses how BEA's accounts might be modified to accommodate this new definition. The delivery of medical care generally requires the coordinated provision of goods and services by several providers. BEA's accounts have traditionally focused on separately measuring the output of each type of provider (e.g., physicians, hospitals, outpatient facilities, pharmaceutical manufacturers and distributors, etc.). Consequently, the accounts do not directly measure the improvements that are possible through substituting or more efficiently combining the various modes of service. We suggest a modified framework in which a

physician orchestrates and manages patients' medical care by making diagnoses and pointing the patient to other providers for procedures, lab work, and the like. The services provided by these other providers would be viewed as intermediate goods and services in the provision of the final output, medical care. The advantage of adopting this view of the health sector is that it provides a natural way to accommodate the new definition of the "good" through standard double-deflation methods. An important side benefit is that the new structure provides a role for both disease-based price indexes—to deflate nominal spending—and the Bureau of Labor Statistics' Producer Price Indexes (PPIs)—to deflate the intermediate goods.¹

REROUTING OF HEALTH CARE TRANSACTIONS IN BEA'S ACCOUNTS

The financing of health care, whether by private health insurance or government social insurance funds, involves complicated transactions. The standard presentation of BEA's core accounts already involves *rerouting* transactions—that is, recording transactions as taking place through channels different from the ones through which they actually occur—to identify the economic purpose of these transactions.² As part of developing a health care satellite account, some different forms of rerouting are likely to be required.

Some of the actual transactions for health care provided through an employer-provided traditional health insurance plan are shown in Figure C.1. Typically, both the employer and the employee pay premiums into the plan. The employee and his or her family then obtain goods or services from various health care providers. The health plan pays an agreed-upon portion of the cost to the provider, and the employee also pays copayments and deductibles.

BEA's accounts, in contrast, show the entire employer contribution as part of labor cost (compensation of employees) for the firm and as part of personal income for the employee (Figure C.2). All of the purchases of health care are shown as purchases by households, representing the ultimate consumer of the health care goods and services, rather than as shared purchases by the household and the health insurance plan. In the economic accounts, the principal role of the health insurance plan is as a provider of health insurance services, an imputed transaction equal in value to the difference between premiums and expected benefits, which is treated as a service purchased by the covered employees.

A similar rerouting of transactions is associated with Medicare Part A (hospital insurance). (Other types of health care funding, such as Medicare Parts B,

¹Aizcorbe and Nestoriak (2007) used this framework to interpret differences in disease-based and treatment-based price indexes.

²See Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and the World Bank (1993, paragraphs 3.24-3.27).

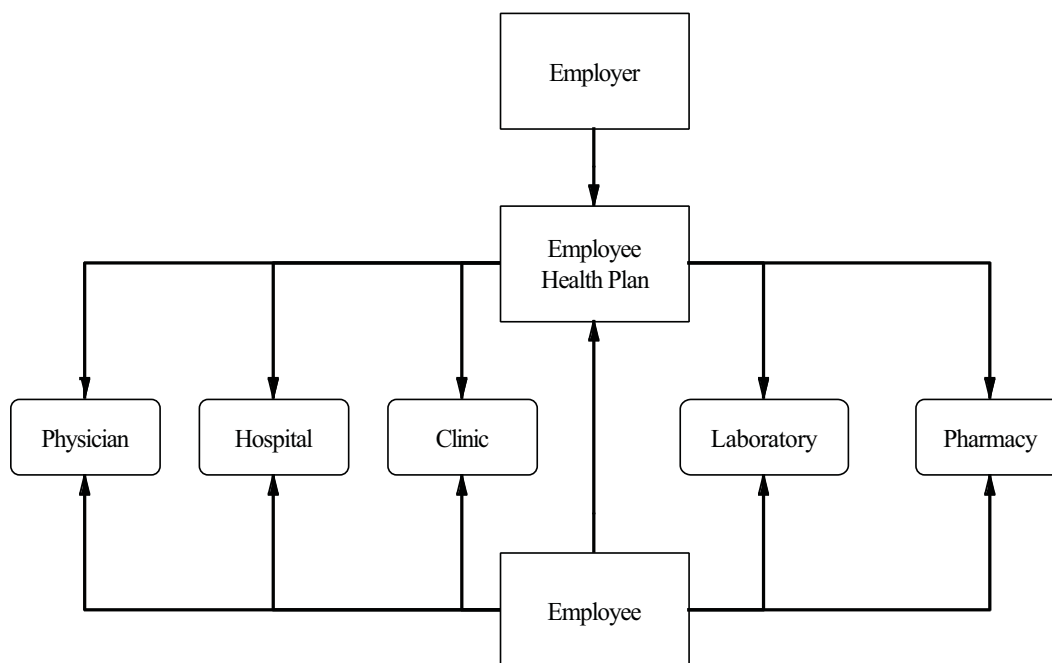


FIGURE C.1 Funding of health care, employer-provided health insurance.
 SOURCE: Paper prepared for the Health Accounting Workshop by Brent R. Moulton, Brian C. Moyer, and Ana Aizcorbe.

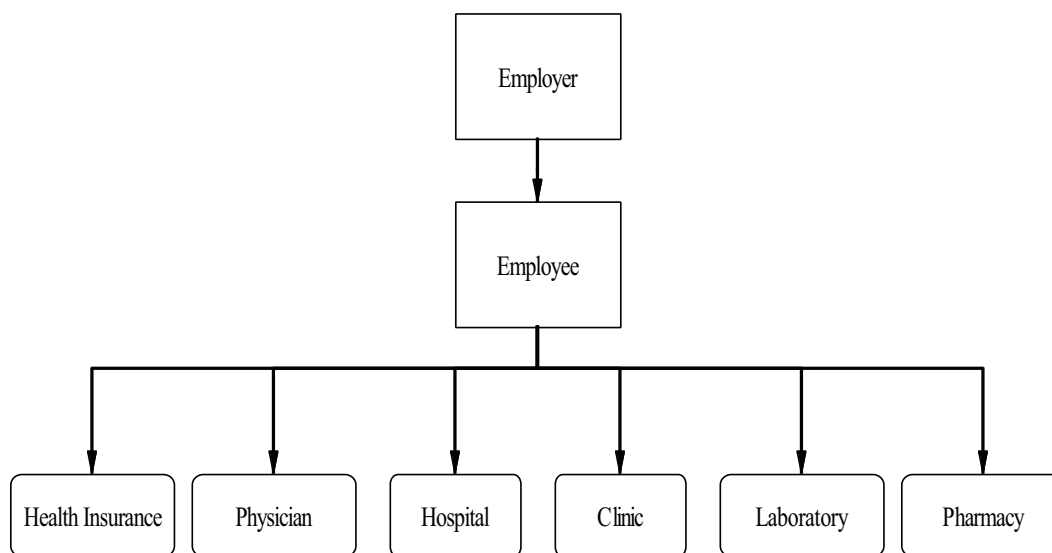


FIGURE C.2 Private employer-provided health insurance after rerouting.
 SOURCE: Paper prepared for the Health Accounting Workshop by Brent R. Moulton, Brian C. Moyer, and Ana Aizcorbe.

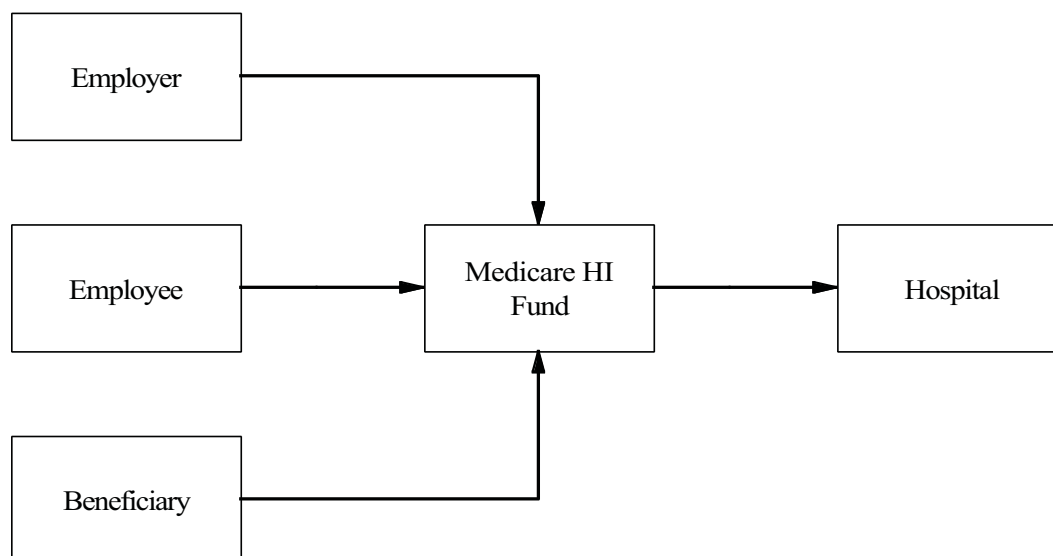


FIGURE C.3 Funding of Medicare Part A (hospitalization insurance).

SOURCE: Paper prepared for the Health Accounting Workshop by Brent R. Moulton, Brian C. Moyer, and Ana Aizcorbe.

C, and D and Medicaid, exhibit similar rerouting of transactions.) As shown in Figure C.3, the Medicare hospital insurance fund is financed largely through employer and employee contributions (payroll taxes). Note that in contrast to the last example, in most cases the employee is not a current beneficiary of the program and therefore is not the consumer of the health care, although the employee and employer contributions provide for future eligibility. Most beneficiaries are not required to pay premiums for Part A, but some individuals who are not otherwise eligible pay premiums to buy coverage; thus they are another source of funding for the Medicare HI (hospitalization insurance) Fund. In most cases, Medicare Part A pays for covered medical services (primarily hospital inpatient services and inpatient services in skilled nursing facilities) without requiring copayments or deductibles.

After rerouting, the Medicare Part A transactions take the form shown in Figure C.4.³ The employer contributions are counted as part of the compensation of employees, so that they are included in the enterprise's labor costs. They are then shown as contributed to the Medicare fund, so that they are not included in personal income. The value of the benefits is shown as a transfer (social benefits) to persons and included in personal income. The consumption of health services by covered individuals is recorded as an imputed purchase of health services in

³The treatment of government-funded health care is discussed in Bureau of Economic Analysis (2005).



FIGURE C.4 Medicare Part A after rerouting.

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personal consumption expenditures. The administrative costs of the Medicare program are included in government consumption expenditures.

SATELLITE HEALTH CARE ACCOUNT

One of the key features of a BEA health care satellite account will be the classification of health expenditures by type of disease or condition rather than by type of provider. This will allow for the use of deflators organized by type of disease and therefore that better capture substitution across types of providers—for example, substituting outpatient for inpatient hospital treatment or substituting pharmaceuticals for more invasive treatments, such as surgery. The disease-based approach will also allow BEA to focus on the costs and benefits of treatments for specific types of diseases.

To have a comprehensive accounting of the productivity gains from this type of substitution, the gains must be attributed to one or more of the provider industries. One simple possibility would be to simply allocate the productivity gains across industries, assuming that they all contribute proportionally to the gains. However, we note that physicians may play an especially important role, since they tend to serve as managers and decision makers in combining the goods and services of various providers in producing medical care. For example, physicians tend to make decisions about what lab tests to run, when hospital services are needed, and so forth. That suggests another approach that BEA is currently investigating, the possibility of rerouting existing health care transactions through the physician services industry, whose output can then be classified by products defined along lines of type of disease.

Consider an example in which the management services are provided by a primary caregiver. (Depending on the type of care, the manager/decision maker may be a physician specialist or a nonphysician medical professional.) Comparing with Figure C.2, there is a rerouting of transactions to create a primary caregiver who then treats each of the other types of providers as an intermediate input to the caregiver's production. The notion underlying this modification to the existing framework is that patients have a primary caregiver who acts as a manager in orchestrating patients' medical care. This is the type of organization used, for example, by health maintenance organizations, which consolidate all types of services so that customers transact with a single organization with respect

to copayments or other billing. In many cases, it seems reasonable to think of other providers as performing an intermediate role to the primary caregiver. For example, for lab work associated with a routine office visit, the patient probably has no direct interactions with the lab and probably does not know the identity of the lab until the bill arrives; it seems a bit anachronistic that the billing is done separately, rather than being charged through the physician who ordered the lab work. For other types of providers, the patient may exercise more discretion—for example, the patient may choose a pharmacy based on price or convenience, but the physician controls what drug is prescribed. Similarly, a physician may or may not offer a patient a choice of hospitals when an inpatient stay is required. These examples suggest that the relationship between the primary caregiver and other providers may have important similarities to the typical general relationship between a producer and the providers of intermediate inputs. Figure C.5 illustrates the rerouting that may be used in this case.

This proposed modification to BEA's accounting framework would have no direct impact on the aggregate estimates of consumer spending in the NIPAs (the detailed estimates would be presented by type of disease). It would, however, impact the estimates of real consumer spending, and therefore, real GDP. Under the modified framework, consumer services provided by the physician

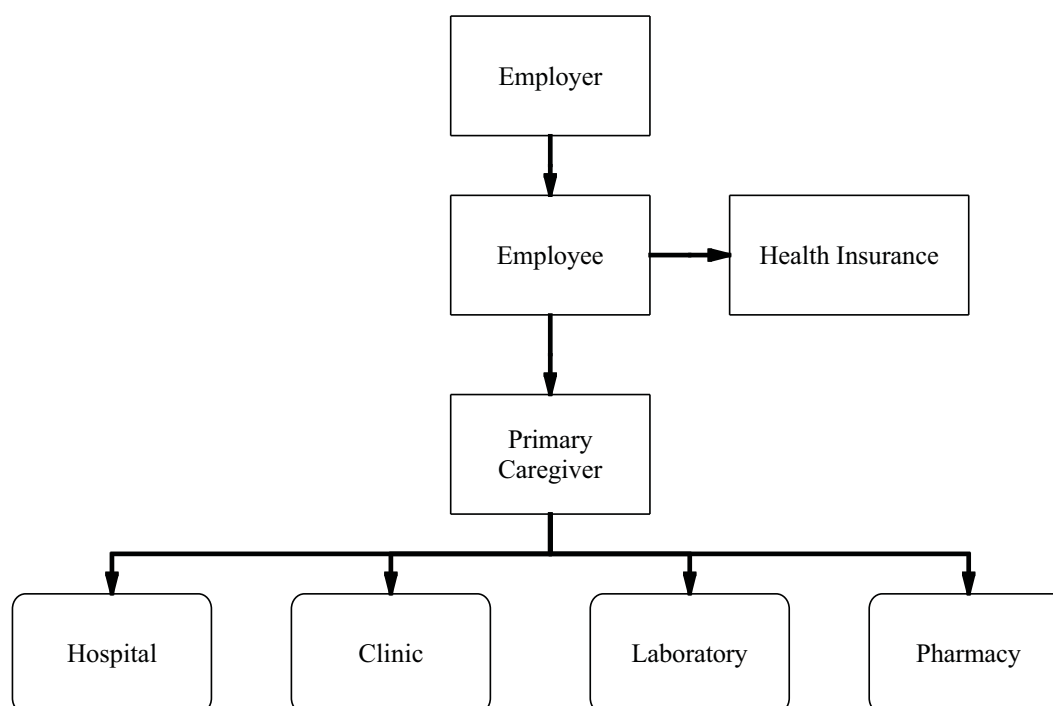


FIGURE C.5 Consolidated health sector.

SOURCE: Paper prepared for the Health Accounting Workshop by Brent R. Moulton, Brian C. Moyer, and Ana Aizcorbe.

or other professional serving as manager (defined by type of disease) would be deflated using disease-based price indexes, which better capture substitution across types of providers. This is in contrast to BEA's current framework (presented in Figure C.2), which relies on PPIs to deflate the goods and services for specific health care providers.

Within BEA's industry accounts, the modified framework would introduce a new, primary caregiver industry that would subsume the existing industry, "offices of physicians." The output of this new industry would include the value of the intermediate inputs purchased from the individual health-care-providing industries and the value added of offices of physicians. The output of the consolidated health care industry would then be deflated using disease-based price indexes, while its intermediate inputs would be deflated using PPIs. Real value added—computed using the double-deflation method as the difference between real output and real intermediate inputs—would reflect this new industry's contribution to real GDP, including industry productivity gains. One can think of a health care system that facilitates the diffusion of new goods by providing information on new treatments. When these efforts successfully prompt the primary caregiver to prescribe different, lower cost treatments, this is reflected in the real value added of the consolidated health care industry.

ONGOING AND FUTURE WORK

BEA is in the beginning stages of developing a health care satellite account. As discussed in this paper, efforts are under way to identify how existing accounting frameworks can be adapted to best suit a satellite account. Efforts are also under way to develop disease-based estimates of health care spending using private insurance claims data, Centers for Medicare and Medicaid Services data on Medicare and Medicaid recipients, and data on the uninsured from the U.S. Department of Health and Human Services. In addition, BEA is developing disease-based price indexes that will be used to deflate these new nominal health expenditures.

When complete, BEA's health care satellite account will generate measures of health care spending that can be used to better track the sources of rising health care costs. In addition, BEA is working with economists and health care experts to explore ways that these cost measures may be integrated with models of disease prevalence and health status in order to better assess the potential benefits of spending on health care.

REFERENCES

- Aizcorbe, A., and Nicole Nestoriak. (2007). *Changes in Treatment Intensity, Treatment Substitution, and Price Indexes for Health Care Services*. Paper presented at the National Bureau of Economic Research Productivity Workshop, December 5, Cambridge, MA.