Status and Future Direction of Purchased Services Data Collection in the United States

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Abstract

This paper presents current status of data collection of Purchased Services in the U.S., classification of these services relative to the CPC, and data collectability and standardization issues. The conclusions are those of the author and may not reflect final decisions relative to the 2002 Economic Census, after final analysis of the 1997 Economic Census data is completed.

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Overview

The United States Bureau of the Census began collecting data on purchased services with some degree of uniformity and regularity in conjunction with the 1977 Economic Census. This paper will discuss our measurement experience since then, some related classification issues, and some of the future work planned. Specific topics include:

- The need for expanded data coverage of the services sector in terms of both supply and demand
- Classification compatibility issues relative to the Central Product Classification (CPC) system
- Current level of coverage of purchased services and analysis of available results
- Data collectability issues and standardization of inquiries across all sectors

Background

The United States began collecting data on industrial output for manufactures in conjunction with the 1810 Decennial Census. This process continued through the 19th Century adding a few questions on the minerals industry in 1840. Because of the increasing dominance of manufacturing in the 20th Century, Congress, in 1905, directed that more frequent data on the U.S. economy were needed and ordered a smaller scale census of manufactures every 5 years.

In the 1930's, coverage of the retail and wholesale trade sectors, and selected construction and services were added, and in 1940, the mineral industries. In 1963, the transportation sector was added to the scope of the census and as other industries were deregulated and not measured elsewhere, they were added. By 1992, the economic census, including Federal, state, and local government and agriculture, covered 98 percent of the United States Gross Domestic Product.

While census coverage of output is now virtually complete, data on inputs are still somewhat sparse in terms of detail. Manufacturers have long reported costs for materials, fuels, and electricity. But a

number of services “consumed” such as legal, advertising, repair and maintenance, research and development, and marketing were generally provided within the company, and costs were not separately estimated. Total operating expenses had been collected from merchant wholesalers for many years but with little detail other than payroll; and payroll, supplemental labor costs, and rental payments were the only cost variables collected in retail trade and services until 1977.

Meanwhile the Bureau of Economic Analysis (BEA), which has had various other titles over the years, began preparing input-output accounts in the 1940's; the first covered 1947, with subsequent input-output tables issued following each economic census. However, except for manufacturing and mining, most of the input cost cells were estimated based on the value of domestic output in producer prices, adjusted for exports and imports, and with output distribution and input consumption patterns determined by assorted external data sources and a large degree of interpolation.

Changes in marketing techniques and information technology, and increases in outsourcing of services in the 1960's and early 1970's inspired economists and statisticians to come to grips with the growing deficiencies of using distribution of output as the primary estimators of the source and costs of inputs, and even more basic, the inadequacies of aging commodity and industry classification systems. To begin to ameliorate this deficiency, detailed operating costs, including some purchased service items, were collected from merchant wholesalers in 1967 and from manufacturers, retailers and some service industries in 1977.

1991 Presidential Economic Statistics Initiative

A presidential initiative for improving economic statistics for use in policy formulation was issued in 1991 after several years of discussion. The initiative cited three particular phenomena to gain recognition of the seriousness of the data measurement part of the problem, and to stimulate approval for funding of initiatives that would begin to improve and update these economic data measures.

The first issue cited in the report was the increasingly rapid expansion of the services sector. While only two decades earlier in 1970, service sector jobs, excluding finance, insurance, real estate, transportation, and communications, accounted for 16 percent of all nonfarm employment; by 1997 they accounted for 29 percent of these jobs.[1] During that same period, manufacturing employment dropped from 27 percent to 15 percent of nonfarm employment. Service sector output by 1997 contributed over 20 percent to Gross Domestic Product (GDP) or nearly $1.7 trillion, $300 billion more than manufacturing.[2] When considering all services-producing industries in total, compared to goods-

[1]Statistical Abstract of the United States, 1998, Table 685.

[2]Survey of Current Business, July 1999, page D-28.

producing industries in 1970, services-related jobs outnumbered goods-related jobs 2 to 1; by 1997 the ratio doubled to 4 to 1.

The second issue cited in the initiative was the increasing internationalization of the U.S. economy. Industry relies much more extensively on foreign materials and human resources than a few decades ago. This dramatic change exacerbates the complexities in the U.S. input-output tables, which rely heavily on assumptions about the distribution of output for consumption or input estimates. U.S. domestic output of both goods and services is adjusted for exports and imports, where data on services exports and imports are of marginal quality. Conversion of producer prices for output to purchaser prices of inputs, which are primarily built up from margins in the output sectors, and adjusted for foreign exchange rates, adds another dimension to the globalization measurement part of the problem.

The third issue cited in this initiative was belief that the October 1987 U.S. stock market crash was triggered by economic data. While this allegation was never quantified, it should be noted that virtually all of the goods-producing sector, that is, manufacturing and construction, are well represented with monthly and quarterly data collections. U.S. principal economic indicator series, include statistics on manufacturers new orders and shipments, value of new construction, both residential and nonresidential, housing starts and building permits, corporate profits, and exports of manufactured goods. The services-producing sector, however, depends only on monthly data collected in the wholesale and retail trade areas, limited communications, utilities, and financial data, and quarterly corporate profits. All other current period estimates for service producers, including business and personal services, health and social services, repairs, etc., are indirectly estimated based on pockets of actual data from many different sources other than the Census Bureau.

In summary, this presidential initiative specifically ordered U.S. statistical agencies to develop and implement improvements in data coverage of the services sector of the economy to prevent a stagnant economic information system; and to update, and in fact restructure, the industrial classification system to assure that current and future changes in the structure of the economy are properly and adequately presented in our body of economic statistics in a timely manner.

NAICS, NAPCS and the CPC

Work on a new industry classification system began in 1991 with an international conference to discuss concepts of a new system and procedures for its development. Culmination of this effort is the North American Industry Classification System known as NAICS, which was implemented with our 1997 U.S. Economic Census. The NAICS expanded the Standard Industrial Classification (SIC) based services sector, adding 9 new service-based sectors and 250 new service industries. NAICS, being an industry classification system, did not address classification of types of services produced per se, although the number of service lines included in the census increased substantially.

Beginning this year, work is underway to develop a North American Product Classification System (NAPCS) which will be more demand based in concept than the industry classification system, which is primarily supply and process based. Among the several principles to be followed in structuring the new system are:

- to classify all products and services produced by NAICS industries, but create a structure independent of the NAICS classification system

- to give special attention to service products in general, new products and advanced technology products

- to strive for comparability between the NAPCS and the Central Product Classification System to the extent appropriate

- to focus initially on products of the Information, Finance, Professional, Scientific and Technical Services, and Administrative and Support and Waste Management and Remediation Services sectors

Principles of the Central Product Classification system include:

- to classify everything that can be the object of a transaction, covering goods and services, certain produced assets and even nonproduced assets such as land

- to classify products into categories based on the physical properties and the intrinsic nature of the product or service, as well as the principle of industrial origin

While the principles of the two commodity classification systems in theory may not be explicitly compatible, in application there may be minimal differences. As you know, the Voorburg Group on Service Statistics made significant contributions to the preparation of CPC version 1.0, with Statistics Canada playing the key role as coordinator. Voorburg members used and tested the services part of the classification in the area of business services, which results I hope we will hear about during our meetings here.

Development of NAPCS is just now getting underway and will again include concordances with Mexico and Canada. Time is too short to have a complete system in place for the 2002 Census, so detail development work will focus on the Information, Finance, Professional, Scientific and Technical Services, and Administrative and Support, Waste Management and Remediation Services sectors. These sectors are problematic because detailed product data are not available at the traditional establishment or physical location unit of companies. Alternative data collection units will be determined within the next year and a plan to implement this methodology and processing change developed.

Comparability of U.S. Purchased Service Classifications with the CPC

Since demand for services is the focus of our meetings here, I speculated what the possibilities of comparability with the CPC were for the current list of purchased services collected in the U.S. economic census. Of nine specific categories, most relate directly to a level of detail in the CPC: sections 6, Distributive Trade Services, including Utilities; 7, Financial and Related Services including Rental and Leasing; and 8, Business and Production Services. Examining each category revealed the following, which are summarized in attachment A:

- Advertising services seems to be a good fit, one to one with group 836, also titled Advertising services.

- Legal services similarly has a one to one correspondence with CPC group 821, legal services.

- Accounting, auditing, and bookkeeping services has a near correspondence to CPC 822; tax preparation services in CPC 823 would be needed to make the classification comparable.

- Data processing and other computer related services are in several different groups in the CPC; computer consultancy services is in group/class 8314; data processing is in 8596; purchased software which, as such, is not a service, but is included in our purchase of computer related service data line, is in any of several CPC retail trade groups, depending on the selling medium.

- Telephone and communications services is a relatively good match to CPC 841, telecommunications services; but is perhaps better matched to all of division 84, which includes on-line provision and access services, news agency, and library archiving services.

- Repair and maintenance of machinery and equipment match nicely to CPC 871; however, repair and maintenance of structures and buildings are imbedded in construction services CPC 542, with no apparent distinction between new construction and repair work.

- Lease and rental payments for machinery and equipment match relatively well to CPC 731; however, leasing of property falls in CPC 721 and leasing of some structures is in CPC 722, although leasing of industrial plants is buried in 73290, a not elsewhere classified category.

- As for purchased utility services, the matches are also relatively good. Electricity and water distribution services agree with CPC 691 and 692 respectively. Other fuel distribution is classified by means of transport, primarily water, road and rail. Waste removal and treatment, however, in the CPC is in a completely different section covering community, social and personal services; sewage services are in group 941 and refuse disposal and treatment are in 942. So while detail types of utility services allow comparability, aggregation of utility services

presents some difficulty.

- Contract labor was a new line item in the 1997 census complex on purchased services. Outsourcing of labor is expanding and obviously gives businesses much more flexibility as they upgrade technologies and downsize labor resource requirements. Here, too, there is direct comparability with CPC group 851.

In summary, for those services which are purchased, and for which we collect cost data, comparability for virtually all categories is possible with the CPC service output categories at the most detailed level.

Analysis of Purchased Services data in the 1992 and 1997 Economic Censuses

Last year, when Carole Ambler presented results of the data on purchased services collected in conjunction with the 1992 Economic Census, she suggested the 1997 census results might be available by now. However, review and analysis of the data are still underway and no aggregate statistics are available.

In lieu of the cost of purchased service estimates for 1997, I examined and compared the number and percent of responses, which are still very preliminary, to each of the purchased services items in the merchant wholesale[3], retail trade, and services sectors, to see if there were any noteworthy increases or decreases in the use of these services. Using the group of purchased services just correlated to the CPC, we found the following, which are summarized in the Attachment B.[4]

- The percent of respondents acknowledging use of purchased advertising was relatively unchanged between 1992 and 1997. For the wholesale sector, 81 percent of respondents bought advertising, for retail trade 90 percent, and services 73 percent. While at the sector level there was little change, small but persistent increases were noted by companies with more than one location or active in more than one type of business.

- As for legal services, again there was no noteworthy change between 1992 and 1997 in terms

[3]Nonmerchant wholesalers were not included in the survey on business expenses.

[4]All counts cited are unweighted and may differ slightly from weighted measures.

of percent of respondents purchasing legal services, but there were increases by the multiple location companies which were offset by no change or decreases by smaller companies. About 80 percent of wholesale respondents contracted for legal services, with retail significantly lower at 53 percent and services at 61 percent.

- Accounting, auditing, and bookkeeping purchased services also remained at about the same level of activity between 1992 and 1997, regardless of company size. The activity level was high across all sectors with 90 percent of wholesalers reporting purchases of some kind of accounting services, retailers were at 87 percent and services 86 percent. It should be noted that tax preparation services are also included in this category, which may account for the high participation rate.

- Purchase of data processing and other computer related services did show persistent increases, as might be expected. This occurred with small and large companies, except in wholesale where small companies stayed about unchanged. In total, 65 percent of merchant wholesalers reported purchasing computer related services in 1997, up from 50 percent in 1992; retailers increased from 31 percent in 1992 to 39 percent in 1997, and services were up from 37 percent in 1992 to 52 percent in 1997.

- Purchase of telephone and communication services showed no surprises. All sectors showed a 99 percent plus level of activity. The puzzling part was the lower level of activity in 1992 where over 95 percent wholesalers reported communications cost, compared to retailers at 91 percent and service providers at 89 percent.

- All three sectors also showed a high rate of activity in purchasing repair and maintenance services. 86 percent of wholesalers reported repair and maintenance costs, up slightly from 1992; retailers reported at an 83 percent rate, about the same as 1992; and services providers at 78 percent were down slightly from 1992.

- Most respondents in the Census also reported making lease and rental payments. Merchant wholesalers reported at a somewhat higher rate at 91 percent; retailers were at 88 percent and services at 83 percent. All were at about the same level as in 1992.

- Moving onto purchases of utilities, as would be expected electricity costs were reported at a high level; 89 percent of wholesalers reported such costs in 1997 about the same as in 1992. 94 percent of retailers reported electricity costs, up a little from 1992. Services however, were significantly lower at 77 percent in 1997. There are two probable explanations for this, one being, for large industrial complexes, businesses may generate there own electricity. But the more likely scenario is that utilities costs are included in their lease and rental payments. For example, only 48 percent of firms classified as legal service providers reported electricity costs, and only 59 percent of other types of professional service providers had such costs. Both of

these would generally rent their office space.

- About half of the firms reported fuel purchases in 1997 which is up slightly from 1992. 57 percent of wholesalers reported fuel costs, up from 52 percent in 1992. Retailers reported at a 52 percent rate, up from 45 percent in 1992, and service providers reported at a 44 percent rate, up from 41 percent in 1992.

- 74 percent of wholesalers and retailers reported water, sewer and refuse removal costs in 1997, up about 5 percent from 1992. In contrast, service providers reported at a 59 percent, which was also up about 5 percent from 1992. Presumably, the same explanation as for the lower rate of electricity use holds here, that is, such costs are included in their rental payments and are not separable.

- The one new purchased service inquiry which was added for 1997 concerned contract labor costs. 55 percent of wholesalers and service providers reported contract labor costs, although the degree of participation within the different types of service businesses varied widely. In contrast, only 37 percent of retailers reported costs for contract labor.

Still considering that these data are very preliminary, what can we learn from all these statistics?

I think we are on the right track for filling some of the gaps in the factor inputs of production functions in trying to capture costs of purchased services. The tables below highlight, for the merchant wholesale, retail trade, and service sectors, the level of total operating costs in 1992 and 1987, the proportion of those costs accounted for by the specific types of purchases collected, and their relation to total revenues. Estimates for manufacturing are also included but caution should be used because total operating costs are not collected, but estimated from other sources; they also do not include costs reported by auxiliaries or support establishments of manufacturers.

As you can see in Table A below, payroll plus fringe benefits account for well over 50 percent of total operating expenses in all four sectors. After subtracting out the other specific purchase line items, plus a few others not separately listed, such as, taxes and license fees and depreciation, we still have between 13 percent and 33 percent of operating costs unaccounted for by type in 1992. When the 1997 data become available, we will analyze and discuss with our BEA input-output architects to see if there are other generic types of purchases, that is, those consumed to some degree by all sectors, which might be added for the 2002 economic census.

Table B presents a few operating ratios for the four sectors. It is clear from the low ratios in services for total operating costs to revenues, that large gaps for some types of costs still exist.

Table A. Detailed Purchased Services by Sector: 1992 and 1987

	Merchant Wholesalers[5]				Retail Trade			
	1992 $billions	Percent of total operating costs	1987 $billions	Percent of total operating costs	1992 $billions	Percent of total operating costs	1987 $billions	Percent of total operating costs
Total Operating Costs[6]	317.8	-	239.6	-	546.2	-	419.6	-
Type of Service Purchased:								
Advertising	10.9	3.4	8.2	3.4	31.4	5.8	26.4	6.3
Legal	2.4	0.8	-	-	1.9	0.4	-	-
Accounting, Auditing and Bookkeeping	2.4	0.8	-	-	3.1	0.6	-	-
Data Processing and Computer Related[7]	1.3	0.4	-	-	1.8	0.3	-	-
Communications	6.4	2.0	4.7	2.0	5.8	1.1	5.0	1.2
Repairs and Maintenance	5.5	1.7	4.3	1.8	10.0	1.8	8.2	2.0
Rentals and Leases	16.7	5.2	12.0	5.0	52.1	9.5	35.1	8.4
Utilities[8]	5.9	1.8	4.4	1.8	22.7	4.2	17.7	4.2
*Payroll plus Fringe Benefits	173.2	54.5	127.2	53.1	289.9	53.1	223.3	53.2
*Other Operating Costs	53.0	16.7	45.2	18.8	71.7	13.1	62.3	14.9

[5] Purchased service data are available only for merchant wholesalers

[6] Details do not add to total because all data do not come from same questionnaire and are not forced to balance.

[7] Excludes purchased software

[8] Includes fuels, electricity, water supply, sewerage, and refuse removal

Table A. Continued

	Selected Services				Manufacturing[9]			
	1992[10] $billions	Percent of total operating costs	1987[11] $billions	Percent of total operating costs	1992 $billions	Percent of total operating costs	1987 $billions	Percent of total operating costs
Total Operating Costs	1,363.4	-	678.8	-	1,189.9	-	1,040.2	-
Type of Service Purchased:								
Advertising	31.4	2.3	9.5	1.4	11.9	1.0	-	-
Legal	7.1	0.5	-	-	3.9	0.3	-	-
Accounting, Auditing and Bookkeeping	7.1	0.5	-	-	1.9	0.2	-	-
Data Processing and Computer Related[7]	5.2	0.4	-	-	3.8	0.3	-	-
Communications	17.1	1.3	10.5	1.5	4.8	0.4	3.9	0.4
Repairs and Maintenance	18.2	1.3	10.8	1.6	28.7	2.4	18.8	1.8
Rentals and Leases	70.4	5.2	39.1	5.8	22.9	1.9	15.6	1.5
Utilities	21.9		12.8	1.9	61.8	5.2	56.2	5.4
*Payroll plus Fringe Benefits	787.1	57.7	421.0	62.0	626.8	52.7	575.4	55.3
*Other Operating Costs	314.8	23.1	175.2	25.8	393.4	33.9	426.5	41.0

[9]Total operating costs for manufacturing are estimated using one minus the ratio of net income before taxes to net receipts from the Quarterly Financial Report for 1992 and 1987, and will not equal the sum of the detail.

[10] Includes 1987 SIC's 70, Hotels and Other Lodging Places; 72, Personal Services; 73, Business Services; 75, Auto Repair, Services, and Parking; 76, Miscellaneous Repair Services; 78, Motion Pictures; 79, Amusement and Recreation Services; 80, Health Services; 81, Legal Services; 823, Libraries; 824, Vocational Schools; 83, Social Services; 84, Museums, Botanical, Zoological Gardens; 86, Membership Organizations; and 87, Engineering and Management Services.

[11] Includes all industries shown for 1992 except for 823, Libraries; 832, Individual and Family Services; and 839, Social Services, nec.

Table B. Receipts, Operating Expenses and Cost of Goods Sold by Sector: 1992 and 1987

	Merchant Wholesale		Retail Trade	
	1992 $billions	1987 $billions	1992 $billions	1987 $billions
Receipts/Revenues	$1,849.8	$1,491.1	$1,951.6	$1,494.1
Revenue Increase	+24.1%		+30.6%	
Operating Expenses	$317.8	$239.6	$546.2	$419.6
Expense Increase	32.6%		+30.2%	
Operating Expenses/Revenues	[12] 17.2%	[12] 16.1%	[12] 28.0%	[12] 28.1%
Cost of Goods Sold	$1,469.3	$1,190.7	$1,322.3	$1,012.0
Cost of Goods Sold Increase	+23.4%		+30.7%	
Operating Expenses Plus Cost of Goods Sold/ Revenues	96.6%	95.9%	95.7%	95.8%

[12] Operating Expenses do not include cost of goods sold in this survey

Table B Continued

	Services		Manufacturing	
	1992 $billions	1987 $billions	1992 $billions	1987 $billions
Receipts/Revenues	$1,734.8	$937.9	$3,004.7	$2,475.9
Revenue Increase	+85.0%		+21.4%	
Operating Expenses	$1,363.4	$678.8	$1,189.8	$1,040.8
Expenses Increase	+101%		+14.3%	
Operating Expenses/Revenues	[13] 78.6%	[13] 72.4%	39.6%	42.0%
Cost of Goods Sold	NA	NA	$1,514.4	$1,262.4
Cost of Goods Sold Increase	NA	NA	20.0%	
Operating Expenses Plus Cost of Goods Sold/Revenues	NA	NA	90.0%	93.0%

[13] Cost of purchased services for resale are not requested for services.

Collectability and Reporting Burden

Core to the assumption in publishing purchased services data is that the information reported by companies is reliable. I would like to briefly describe how purchased services data are collected during the census, which differs by industrial sector.

For manufacturing, mining and construction, questionnaires are mailed to individual or physical locations of companies. They include inquiries on payroll and employment, inventories, very specific questions on all types of output and/or production, limited data on cost of materials, and even more limited data on purchased services. For 1997, we attempted to ask most of the same questions on purchased services of mining, manufacturing and construction companies, as were asked on the wholesale, retail trade and services industry questionnaires.

However, for merchant wholesale, retail trade, selected services, communications, and transportation, we have annual surveys which primarily collect data on output, and, for wholesale and retail, include a question on cost of purchased items for resale. The reporting unit in these surveys is frequently not the single physical location as in manufacturing, but a legal entity or combination thereof, as may have been mediated with the company. Every 5th year, coincident with the economic census year, a supplemental, separate questionnaire is sent to these annual survey respondents requesting the information we have been discussing on purchased services.

What we have observed is a significantly lower response rate to the census year supplement than to the annual. Where we normally achieve about an 80 percent or better response in terms of counts of respondents (when values are used the level is more like 90 + percent), the census supplement on purchased services achieves only about a 60-65 percent rate. Coincidently, response to the cost of purchased items for resale question on the annual retail trade survey is also lower, about 75 percent, compared to the sales inquiry on that same report, which is about 90 percent. This problem does not persist for wholesalers, and the services survey does not consistently include an analogous question on cost of items for resale. For manufacturers, it is also believed that the questions on cost of purchased services are less well reported, although files with appropriate indicators to substantiate this are not as available.

In 1989, following the 1987 economic census, a recordkeeping practices survey was conducted with a large number of large and small companies. The majority of large manufacturing, wholesale and retail companies, between 50 and 70 percent, said they could report the expense data at the individual physical location level; whereas well less than 50 percent of construction and services companies

indicated they had data at that level. The large companies' responses were collected through personal visits. For those companies who indicated physical location data were not available, it was not conclusive as to whether the information were at a subsidiary or some other organizational unit within the company, or even at the company level itself. The smaller companies who reported via a mailed questionnaire gave opposite responses. Less than 30 percent indicated that purchased services data were available at the individual location whereas upwards of 60 percent could report them for the total company. While we did not reconcile these different response patterns, we do acknowledge that many smaller companies do not need to keep the same level of detail as larger complex companies.

Last year, we undertook a project with an academic researcher, Dr. Seymour Sudman of the University of Illinois, to address several strategic objectives relative to our economic programs, those objectives being to reduce respondent burden on companies through expanding electronic reporting, better understanding of data providers' problems, expanding use of administrative record data, and redesign of data collection programs for 2003, that is, after the next economic census. Thirty very large companies were visited, some publicly owned, some private, some with foreign subsidiaries, some totally domestic, and across all business sectors. While full details of the project will be available at our internet website soon, I will briefly summarize results of the project and in particular emphasize data collectability issues.

- First, the degree of merger and acquisition activity, as well as internal reorganization activity, make it difficult to develop permanent data reporting arrangements with the companies.

- Second, fewer and fewer companies have all information needed at the individual physical locations; that is, physical locations are generally not economic units where all factor inputs to the production functions are recorded.

- Third, detail levels of types of revenue, detailed operating costs, employment, inventory, etc. that we put together as a cohesive economic production function are rarely available at any single organizational level within or across companies.

- Fourth, completing government reports for nonregulatory data even when reporting is mandatory, has low priority, compared to filing tax returns and gathering data for annual stockholders' reports.

If I had to generalize regarding the data collection issues across the companies visited, it seems that they frequently have an equivalent of cost centers, where accountability for specific and total costs are tracked. However, specific commodity or service revenue data are not usually available at the cost centers. Value of output for commodities and some services are frequently estimated via unit cost algorithms. Actual revenues are available where realized, that is, where accounts receivable are recorded, which is not where specific operating expenses are recorded. Ideally, one would prefer to collect input and output information from the same observation unit, but at this point it is uncertain that the quality of the assumed relationship is reliable, or that the increased respondent burden would be acceptable.

While most of what we found out from these companies was not new, the findings are now well documented and give us ammunition for pursuing more aggressively a program of changes in data collection. By improving rapport with companies, understanding better their organizational structures and accounting and recordkeeping practices, we must reduce respondent burden by implementing technology improvements in data collection, eliminating duplication in data collection, and strive to have data sharing across government agencies legislated and approved. All of these will improve the quality, quantity, and timeliness of economic statistics.

We are also currently pursuing a joint initiative with the Private Sector Council, a nonprofit organization of representatives of about 50 of America's largest corporations whose mission is to improve efficiency, productivity and management of our Federal government. With their help, we hope to take the issues documented in the large company visit program and break them into solvable units by:

- increasing understanding of existing corporate information systems
- keeping abreast of changes in corporate data collection and reporting systems
- improving our timing of recognizing when mergers, acquisitions and other corporate organizational changes occur
- significantly expanding electronic reporting
- facilitating continuous 2-way communications with companies, providing feedback from our data collection efforts and demonstrating how census data can be useful to their economic performance.

Future Directions

We are not far enough along on any of the issues I've presented here to formalize our next step in improving data on purchased services. However, I think we can conservatively suggest some optimal approaches.

First, with the expansion of the services sector under NAICS, the scope of purchased services collection should expand to include all of the service sectors. If we do this, however, the methodology of data collection must change since our current procedure for wholesale, retail, and services is to use the samples for the annual surveys. While we are introducing a new annual survey to cover the Information sector for 1999, we will not have annual surveys to exhaustively cover all service sectors. Nor do we expect any budget windfalls to provide for this.

Second, I would hope our work on the NAPCS, and in pursuing compatibility with the CPC, might provide insights into analyzing the 1997 census results to determine if there are other types of specific services from an output perspective which might be generically consumed or purchased by many industries. The BEA, which is responsible for the construction and contents of the U.S. input-output tables will be instrumental in making such determinations. Timing will also be a determining factor in that any additions to the current set of purchased services must be tested for availability and collectability.

Third, with the results of our large company visit program just completed, we need to pursue with companies at what level cost and revenue data have a meaningful financial relationship, and then how to drill down or aggregate to find reliable estimates of costs of specific purchased services. As we pursue electronic reporting with companies, we hope to mediate means to access their own electronic spreadsheets to reduce their burden and to improve data quality and timeliness, not just for purchased services, but all levels of output valuations, inventories, capital expenditures and other critical entries in their income and balance sheets.

Our expectations are ambitious, but we are in the process of allocating resources to these projects, in particular those affecting many of the services providing industries.

Thank You

Attachment A

SELECTED PURCHASED SERVICES
CLASSIFIED AS OUTPUTS IN THE SIC, NAICS, AND CPC

SERVICE	SIC CODE	NAICS CODE	CPC CODE
Advertising Services	731	5418	836
Legal Services	811	54111	821
Accounting, Auditing, and Bookkeeping Services	872 + 7291	5412	822 + 823
Data Processing and Other Computer-Related Services	737	pt 541, pt 542	8314 + 8596, 62__
Communications Services	48	513	84
Repair and Maintenance:			
Equipment	76	811	871
Buildings	154	5617	542
Lease and Rental Payments:			
Equipment	735	532	731
Buildings	653	531	721, 722, 73290
Utilities:			
Fuels	44, 46, 47	483,486,488	64, 65
Electricity	491	2211	691
Water Supply	494	22131	692
Sewerage	4952	22132	941

Refuse Removal	4953	562	942
Contract Labor	736	561	85

Attachment B

	1997				1992			
Advertising Services	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**
Wholesale	**6,998**	**4,795**	**69%**	**81%**	**6,143**	**3,959**	**64%**	**82%**
Retail	**28,172**	**17,607**	**63%**	**90%**	**25,510**	**15,052**	**59%**	**90%**
Services	**35,711**	**23,578**	**66%**	**73%**	**31,403**	**19,757**	**63%**	**73%**

	1997				1992			
Legal Services	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**
Wholesale	**6,998**	**4,113**	**59%**	**80%**	**6,143**	**3,960**	**64%**	**81%**
Retail	**28,172**	**14,744**	**52%**	**53%**	**25,510**	**14,930**	**59%**	**52%**
Services	**35,711**	**20,842**	**66%**	**61%**	**31,403**	**19,797**	**63%**	**60%**

	1997				1992		1992	
Accounting Services	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**
Wholesale	**6,998**	**4,145**	**59%**	**90%**	**6,143**	**3,969**	**65%**	**88%**
Retail	**28,172**	**14,902**	**53%**	**87%**	**25,510**	**15,054**	**59%**	**85%**
Services	**35,711**	**21,115**	**59%**	**86%**	**31,403**	**22,175**	**63%**	**86%**

	1997				1992			
Computer Related Services	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**
Wholesale	**6,998**	**4,069**	**58%**	**65%**	**6,143**	**3,927**	**64%**	**50%**

Retail	28,172	14,451	51%	39%	25,510	14,823	58%	31%
Services	35,711	20,601	58%	52%	31,403	19,645	63%	37%

	1997				1992			
Communications Services	# Mailed	# Responding	Percent Responding	Percent Positive Responding	# Mailed	# Responding	Percent Responding	Percent Positive Responding
Wholesale	6,998	4,157	59%	93%	6,143	4,082	66%	95%
Retail	28,172	14,909	53%	99%	25,510	15,649	61%	91%
Services	35,711	20,832	58%	98%	31,403	20,468	65%	89%

	1997				1992			
Repair and Maintenance	# Mailed	# Responding	Percent Responding	Percent Positive Responding	# Mailed	# Responding	Percent Responding	Percent Positive Responding
Wholesale	6,998	4,101	59%	86%	6,143	3,965	65%	83%
Retail	28,172	14,799	53%	83%	25,510	15,015	59%	82%
Services	35,711	20,862	58%	78%	31,403	19,888	63%	80%

	1997				1992			
Lease and Rental Payments	# Mailed	# Responding	Percent Responding	Percent Positive Responding	# Mailed	# Responding	Percent Responding	Percent Positive Responding
Wholesale	6,998	4,761	68%	91%	6,143	3,981	65%	90%
Retail	28,172	17,449	62%	88%	25,510	15,093	59%	86%
Services	35,711	23,422	66%	83%	31,403	19,985	64%	82%

	1997				1992			
Electricity Purchased	# Mailed	# Responding	Percent Responding	Percent Positive Responding	# Mailed	# Responding	Percent Responding	Percent Positive Responding
Wholesale	6,998	4,010	57%	89%	6,143	3,865	63%	89%
Retail	28,172	14,509	52%	94%	25,510	14,522	57%	91%
Services	35,711	19,971	56%	77%	31,403	19,319	62%	75%

	1997				1992			
Purchased Fuels	# Mailed	# Responding	Percent Responding	Percent Positive Responding	# Mailed	# Responding	Percent Responding	Percent Positive Responding

Wholesale	**6,998**	**3,669**	**52%**	**57%**	**6,143**	**3,875**	**63%**	**52%**
Retail	**28,172**	**12,619**	**45%**	**52%**	**25,510**	**14,535**	**57%**	**45%**
Services	**35,711**	**18,512**	**52%**	**44%**	**31,403**	**19,334**	**62%**	**41%**

		1997				1992		
Water, Sewer and Refuse	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**
Wholesale	**6,998**	**3,661**	**52%**	**74%**	**6,143**	**3,879**	**63%**	**69%**
Retail	**28,172**	**12,977**	**46%**	**74%**	**25,510**	**14,604**	**57%**	**66%**
Services	**35,711**	**18,484**	**52%**	**59%**	**31,403**	**19,378**	**62%**	**54%**

		1997		
Contract Labor	**# Mailed**	**# Responding**	**Percent Responding**	**Percent Positive Responding**
Wholesale	**6,998**	**4,082**	**58%**	**55%**
Retail	**28,172**	**14,682**	**52%**	**37%**
Services	**35,711**	**20,897**	**59%**	**55%**