

The Small Business Share of GDP, 1998-2004

by

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for



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This study extends work previously sponsored by the Office of Advocacy to examine small businesses' contribution to GDP. It incorporates an additional level of detail made possible by the availability of data classified according to the North American Industrial Classification System (NAICS). The most recent report on the topic was published in 2002.¹

Gross domestic product (GDP) is the market value of goods and services generated by labor and property located in the United States. This report considers each component of private nonfarm GDP and estimates the proportion of it attributable to small businesses and the proportion of it attributable to large businesses. (For purposes of this analysis, small businesses are defined as those with fewer than 500 employees.)

Overall Findings

Small businesses continue to play a vital role in the economy of the United States. During the 1998-2004 time period, small businesses produced half of private nonfarm GDP.² It is worth noting that while the share of GDP attributable to small business has remained relatively stable over the years, a detailed look at the industry level reveals a more dynamic picture. While the small business share of many of the industries studied declined during this time period, strong growth in small business-dominated sectors helped the overall share remain at 50 percent.

The small business share of GDP has held virtually constant from 1998 through 2004 starting at 50.5 percent in 1998, reaching 49.9 percent in 2000 then rising to 50.7 percent in 2004. This represents several years of relative stability in the small business share since the mid-1980s.

Highlights

The adoption of the North American Industrial Classification System (NAICS) has allowed researchers to examine industries in greater detail. The current estimates cover 16 nonfarm industry sectors. Of these sectors, two have small business shares greater than 80 percent: construction and other services.³ Five sectors have small business shares greater than 50 percent: real estate and leasing, professional and technical services, health and social services, arts and entertainment, and accommodation and food services. One industry, holding companies, is about equally split between large and small businesses. Two industries have shares that are nearly 50 percent: trade (wholesale and retail) and administrative and waste management services. Six sectors' small business shares are less than 50 percent: mining and manufacturing, utilities, transportation and warehousing, information, finance and insurance, and education services.

The small business share of compensation has stabilized in several industries. It shows little change from 1998 through 2004 in manufacturing, utilities, finance and insurance, education, and other services.

1. Joel Popkin and Company, *Small Business Share of NAICS Industries*, U.S. Small Business Administration, Office of Advocacy, June 2002. www.sba.gov/advo/research/rs218tot.pdf.

2. Historically, the source data for making estimates of small business GDP have often not covered the agricultural sector.

3. "Other services" are defined in NAICS 81. This sector, officially titled "other services except public administration," comprises establishments from a variety of industries solely because they are engaged in services that are not specifically classified elsewhere in the system. The range of activities spans equipment and machinery repair, dry cleaning and laundry services, photofinishing services, and dating services. NAICS 81 covers 212,485 firms, 211,835 of which are small (99.7 percent).

The small business share of the nonlabor components of GDP has risen from 1998 to 2002, the last year for which there are benchmark data for estimating the noncompensation shares.

Scope and Methodology

The U.S. Department of Commerce's Bureau of Economic Analysis (BEA) publishes GDP by major industry and by major value-added component. The researchers estimate small- and large-firm shares for each value-added component in each industry for the years 1998-2002. Those shares are then applied to the BEA data to separate each component into a large and small-business share. Once all the components are divided, they can be added up to determine each industry's contribution. All the small business components can then be added to determine how much of private nonfarm GDP was produced by small businesses and how much was produced by large businesses. The 2003 and 2004 data are estimates based on preliminary small business receipt shares.

Additional data sources are needed to generate business-size shares for each value-added component in each industry. The data that underlie the firm-size shares come from the Census Bureau's Statistics of U.S. Businesses. The calculation of the small business share of the noncompensation components is based on SUSB data and annual data from the Internal Revenue Service's Statistics of Income program.

This report was peer reviewed consistent with the Office of Advocacy's data quality guidelines. More information on this process can be obtained by contacting the director of economic research at advocacy@sba.gov or (202) 205-6533.

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Introduction and Background

Small businesses produced half of U.S. private nonfarm gross domestic product (GDP) in 2002 and preliminary data indicate that they maintained this share in the 2003-2004 period.¹ (Small businesses in this analysis are those with fewer than 500 employees.)

The methodology used to produce this analysis assumes that all non-corporate businesses are small businesses when making estimates of the noncompensation components of GDP. However, newly available data for 2002 indicate there are now some industries that have a significant number of unincorporated businesses with 500 or more employees. A rough estimate of the impact of that finding shows that the small business share in 2002 would be approximately 2 percentage points lower than the estimates shown in these tables.² It is unlikely the unincorporated large businesses have been a constant share of value added over this entire time period. Unfortunately, the data are not available to determine the size of the adjustment for earlier years, and therefore it

¹ Historically, the source data for making estimates of small business GDP have often not covered the agricultural sector. While more data are available now, there are still difficulties in finding the appropriate source data for making such estimates. This study thus focuses on the nonfarm sectors of the U.S. economy.

² The methodology used to allocate the noncompensation components of GDP to business size classes has always assumed that non-corporate businesses are small businesses. For the most part, non-corporate businesses have tended to be small businesses. However, newly available data for 2002 show that there are three industries where a noticeably large share of the receipts of partnerships and proprietorships are generated by businesses with 500 or more employees. Those industries are manufacturing, finance and insurance, and professional and technical services. A gross adjustment to the non-corporate gross operating income for these three industries reduced the small business share by almost 2 percentage points in 2002. The data are not available to make a more extensive adjustment for the full time period of this analysis. The only other indicator we have of the possible magnitude of this type of classification problem is a 1992 table of payroll by legal form of organization and firm size. That table indicates that a decade ago a much smaller share of payroll was accounted for by large non-corporate entities than in 2002 and implies a similar finding for receipts if those data were available. Consequently, it would not be correct to use the 2002 data to make an adjustment for the entire time period under consideration. This analysis continues to place non-corporate businesses in the small business category but going forward more analysis should be done on making an adjustment to the non-corporate components since changes in tax laws have made it easier for companies to remain non-corporate entities even though they are large employers.

is not possible to produce a complete time series that includes such adjustments at this time.³

Small business participation varies widely by industry, and following a long term trend, the small business share of GDP in many of the individual industry sectors is declining. However, small businesses have continued to play a vital role in the service sectors of the economy, sectors which have increased as a share of the economy. Further, the small business share in some industries, where it had previously been falling, appears to have stabilized. For example, the most recent data show a small improvement in the small business share of the combined mining and manufacturing sector.

Many changes have taken place in the U.S. economy since the last estimates of small business GDP were made. Those changes help to understand the small business numbers that are presented here. The last set of estimates of small business GDP covered the period through the 1997 benchmark and estimates for 1998 and 1999. They presented an economic expansion that had started after the 1991 recession and continued strongly into mid and late 1990s. From 1991 through 2000, real GDP grew, on average, 3.7 percent per year, and during the last five years of that period grew at over a 4 percent annual pace. However, by 2000 some cracks were beginning to appear in this rosy picture of the economy. The technology boom that had helped drive this growth began to waver, and manufacturing was already weakening by the end of 2000. A recession began in early 2001 and was compounded by the economic turmoil that followed the September 11 attacks; this turmoil hit the transportation and tourism industries particularly hard. By 2002, when the industry censuses were conducted, the economy was only beginning a

³ Unincorporated businesses have become more popular due to the creation of the limited liability company (LLC). This form of business organization was first available in all 50 states and the District of Columbia in 1997, and has grown relatively rapidly during the time period of this analysis. In 1997, the share of business receipts that were produced by partnership LLCs was only about 1.6 percent of all business receipts. By 2002, that share had grown to 5 percent (the IRS did not identify sole proprietorship LLCs until 2001 and they are not included in these LLC totals). For more information on LLCs see "Integrated Business Data, 2003," by Luttrell, Treubert, and Parisi in *SOI Bulletin*, Internal Revenue Service, Fall 2006.

fragile recovery. Real GDP growth averaged only about 1 percent per year between 2000 and 2002 and averaged about 3.2 percent per year between 2003 and 2005. Hence 2002, the primary benchmark year for these estimates, represented a cyclical low point for the economy.

However, at the same time that those cyclical changes were taking place in the economy, there were longer-term structural changes taking place as well. For several decades the U.S. economy has been experiencing a shift from goods-based production to an economy that is much more services-based. Table 1 provides an overview of the changes in the distribution of economic output and employment during the period from 1997 to 2004. The top half of the table shows the industry distribution of nominal GDP for the period, and the bottom half of the table shows the distribution of employment by industry in the private nonfarm economy during the period 1998 through 2004. It reflects a combination of both the cyclical changes and the longer term structural changes discussed above.

Table 1: Change in Industry Distribution of Nominal GDP and Employment 1997- 2004 (Percent)

Share of Nominal Private Nonfarm GDP (excluding owner-occupied housing)								
	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Mining	1.40	1.07	1.15	1.54	1.47	1.28	1.64	1.85
Utilities	2.72	2.58	2.49	2.40	2.50	2.50	2.56	2.53
Construction	5.11	5.35	5.47	5.53	5.81	5.81	5.76	5.90
Manufacturing	19.36	19.21	18.47	18.11	16.60	16.28	15.73	15.25
Wholesale trade	7.88	7.76	7.77	7.51	7.52	7.41	7.27	7.46
Retail trade	8.68	8.56	8.55	8.41	8.56	8.66	8.63	8.49
Transportation and warehousing	3.84	3.91	3.87	3.83	3.68	3.67	3.70	3.58
Information	5.26	5.46	5.91	5.82	5.90	5.81	5.65	5.79
Finance and insurance	9.01	9.17	9.14	9.40	9.69	9.90	10.17	9.96
Real estate, (ex. owner occupied housing) rental, and leasing	7.16	6.98	7.00	7.00	7.22	7.11	7.30	7.38
Professional technical services	7.84	8.08	8.26	8.57	8.65	8.49	8.36	8.42
Holding companies	2.20	2.24	2.29	2.33	2.20	2.21	2.20	2.37
Administrative and waste management services	3.52	3.63	3.77	3.58	3.58	3.61	3.64	3.72
Educational services	0.94	0.97	0.98	1.01	1.05	1.12	1.15	1.14
Health care and social assistance	7.73	7.63	7.55	7.61	8.10	8.50	8.63	8.62
Arts, ent., and recreation	1.12	1.10	1.13	1.13	1.18	1.23	1.22	1.20
Accommodation and food serv.	3.26	3.28	3.28	3.32	3.29	3.36	3.36	3.36
Other services, except gov.	2.99	3.02	2.93	2.91	2.99	3.04	3.04	2.98
Share of Private Nonfarm Employment								
	<u>1997*</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Mining	----	0.52	0.46	0.46	0.47	0.45	0.45	0.46
Utilities	----	0.56	0.54	0.53	0.53	0.53	0.52	0.50
Construction	----	5.76	6.00	6.10	6.20	6.20	6.22	6.35
Manufacturing	----	15.98	15.38	15.24	14.49	13.63	13.02	12.68
Wholesale trade	----	5.36	5.31	5.13	5.11	5.07	5.07	5.05
Retail trade	----	13.49	13.52	13.62	13.75	13.77	13.75	13.70
Transportation and warehousing	----	3.83	3.85	3.90	3.87	3.79	3.76	3.77
Information	----	2.92	3.01	3.18	3.17	3.00	2.85	2.75
Finance and insurance	----	5.16	5.15	5.11	5.13	5.23	5.34	5.30
Real estate and rental and leasing	----	1.81	1.82	1.84	1.86	1.88	1.90	1.90
Professional technical services	----	6.14	6.32	6.56	6.42	6.31	6.32	6.35
Holding companies	----	1.57	1.56	1.57	1.50	1.50	1.49	1.50
Administrative and waste management services	----	7.39	7.63	7.06	6.83	6.78	6.78	6.95
Educational services	----	2.13	2.14	2.18	2.27	2.41	2.47	2.50
Health care and social assistance	----	11.35	11.33	11.45	11.93	12.47	12.84	12.92
Arts, ent., and recreation	----	1.50	1.52	1.57	1.66	1.70	1.72	1.73
Accommodation and food serv.	----	8.71	8.71	8.83	8.99	9.19	9.36	9.48
Other services, except gov.	----	5.84	5.78	5.68	5.81	6.09	6.15	6.11

Source: Tabulation by Economic Consulting Services based on industry totals produced by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).

*The BEA does not provide employment estimates on a NAICS basis earlier than 1998.

The employment and GDP shares show similar trends. The most dramatic change is a sharp decline in manufacturing's share of nominal GDP, falling 4 percentage points between 1997 and 2004.⁴ Annual job growth in the private nonfarm economy averaged 0.6 percent between 1998 and 2004, but employment declined by over 3 percent per year in the manufacturing sector. Three major sectors with substantial small business components (construction, professional and technical services, and health care) grew faster than the rest of the economy and faster than several of the large-business-dominated industry sectors thus increasing their share of GDP. The rapid growth in the small businesses in these sectors helped to maintain the small business share of the overall economy although the small business share of these three sectors, individually, drifted down slightly.⁵

The following estimates are the first to show the small business share of GDP by industry sector as defined by the North American Industry Classification System (NAICS). The previous reports were based on the Standard Industrial Classification or SIC system.⁶ There is a greater amount of industry detail under the NAICS system, especially for the service-producing sectors. The previous reports showed small business shares for the private nonfarm economy and six industry sectors; whereas, this report shows the private nonfarm economy overall and sixteen industry sectors.⁷ While the

⁴ In real terms, manufacturing value added has not declined as quickly as it has in nominal terms. That is because of the sharp slowdown in manufacturing prices as computer and semiconductor prices declined, and globalization increased competition in several of the other manufacturing industries.

⁵ This probably partially reflects small businesses growing into large businesses in these growing sectors.

⁶ *The Small Business Share of Economic Growth*, Joel Popkin and Company for the Small Business Administration, Office of Advocacy, December 2001, is the most recent report on the SIC based shares.

⁷ Mining and manufacturing have been combined in this report, as they have been combined in previous reports. This was originally done to maintain the consistency of the petroleum sector between the different source-data used. The compensation portion of the wholesale and retail trade sectors are shown separately but the noncompensation components are shown only for the two trade sectors combined because the IRS data only show a single trade sector. Holding companies are only a subsector of the NAICS "management services" category but the GDP by industry data include only the holding companies as a separate category in those statistics. The other industries under the NAICS classification are: utilities, construction, transportation and warehousing, information, finance and insurance, real estate and leasing, professional

added detail provides a more detailed look at the economy and the role small business plays in it, the new sector breakdown also adds some complications to making the estimates.

The presentation of the components of GDP by industry has also changed. Previously the value added for each industry was broken down into five major components: compensation, indirect business taxes and non-tax payments, net interest, capital consumption allowances (depreciation) and profit-type income. The Bureau of Economic Analysis (BEA), the agency that provides the source data for GDP by industry, no longer presents the value added data in this manner. BEA's current breakdown shows three major components: compensation, business taxes, and gross operating income which encompasses the remaining components. The latter category does have transfer payments presented separately but the other components are combined.⁸ Compensation is about 59 percent of private nonfarm GDP, and the noncompensation components are about 41 percent.⁹ However, compensation tends to be a smaller part of small business GDP than it is of large business GDP because compensation to unincorporated business owners is included in gross operating income rather than in the compensation component of GDP.

and technical services, administrative and waste management services, education services, health services, arts and entertainment and other services (excluding government).

⁸ This change in the presentation of the industry accounts comes about due to a change in the method used by BEA to produce the numbers. The industry accounts are now tied to the benchmark and annual I-O tables. Therefore, those numbers may be somewhat different from the industry estimates of net interest, profits, and capital consumption allowances in the National Income and Product Accounts (NIPAs).

⁹ Owner occupied housing is excluded from this calculation. If owner-occupied housing was included in GDP, compensation would be only 54 percent of the total.

Results for 1998 through 2004

The small business share of GDP has held virtually constant from 1998 through 2004 starting at 50.5 percent in 1998, reaching 49.9 percent in 2000 then rising to 50.7 percent in 2004. That represents several years of relative stability in the small business share since the mid-1980s; it is worth noting that this share peaked in the 1950s at 58 percent.¹⁰ (Table 2 shows the value of nominal GDP disaggregated by industry and firm size, and Figure 1 shows the distribution of the small business portion of GDP by industry in 2002.)

Of the sixteen industry sectors shown, six have small business shares of less than 50 percent. Ordered from smallest small business share in 2002 to largest those are: information (20 percent), utilities (23 percent), mining and manufacturing (33 percent), finance and insurance (40 percent), transportation and warehousing (41 percent), and education services (42 percent). Seven industries have small business shares of greater than 50 percent. Ordered from smallest to largest those are: health and social services (56 percent), accommodation and food service (58 percent), professional and technical services (70 percent), arts and entertainment (75 percent), construction (85 percent), and other services (85 percent). Two industries have shares that are almost at 50 percent: trade, and administrative and waste management services (both 49 percent). The final sector, holding companies, is volatile but also roughly half small businesses.

¹⁰ *The Small Business Share of Economic Growth*, Joel Popkin and Company for the Small Business Administration, Office of Advocacy, December 2001. Prior to 1998 the estimates were on an SIC basis. While theoretically the estimate of overall GDP on an SIC basis and a NAICS basis should be the same, these two sets of estimates are based on different sets of data and are benchmarked to different data. The adjacent years of 1997 and 1998 are quite close for the overall calculation but are not precise. One issue may be a somewhat broader coverage of economic activity in the current estimates. The NAICS treats nonprofits somewhat differently than did the SIC, and there is now much better coverage of the education and health care sectors than there were when the early estimates were made.

Table 2: Gross Domestic Product by Industry and Business Size on a NAICS Industry Basis, 1998-2004 (Millions of Nominal Dollars and Business Size Percent of Total)														
	1998		1999		2000		2001		2002		2003		2004	
	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>
Mining and Manufacturing														
Small Business GDP	446,226	31.5	466,751	32.0	509,321	32.9	490,877	33.6	474,168	32.5	496,164	32.8	521,178	32.7
Compensation	296,316	34.5	304,122	34.3	328,601	34.4	320,766	35.0	313,419	34.4	321,897	34.3	332,367	34.7
Nonlabor Components	149,910	26.8	162,629	28.5	180,720	30.5	170,111	31.2	160,749	29.4	174,267	30.4	188,811	29.8
Large Business GDP	972,410	68.5	991,758	68.0	1,038,231	67.1	969,190	66.4	985,006	67.5	1,015,393	67.2	1,070,830	67.3
Compensation	563,621	65.5	583,518	65.7	626,236	65.6	594,881	65.0	598,632	65.6	615,880	65.7	626,307	65.3
Nonlabor Components	408,789	73.2	408,240	71.5	411,995	69.5	374,309	68.8	386,374	70.6	399,513	69.6	444,523	70.2
Utilities														
Small Business GDP	31,866	17.6	33,334	18.0	37,231	19.7	44,497	22.0	48,369	23.3	50,117	22.5	52,667	22.4
Compensation	4,386	10.7	4,574	10.7	5,020	10.8	5,334	11.0	5,939	11.6	5,691	10.8	5,920	10.7
Nonlabor Components	27,480	19.7	28,760	20.1	32,211	22.5	39,163	25.5	42,430	27.2	44,426	26.2	46,747	26.0
Large Business GDP	148,939	82.4	152,083	82.0	152,060	80.3	157,788	78.0	158,956	76.7	172,512	77.5	182,595	77.6
Compensation	36,795	89.3	38,055	89.3	41,321	89.2	43,078	89.0	45,276	88.4	47,150	89.2	49,512	89.3
Nonlabor Components	112,144	80.3	114,028	79.9	110,739	77.5	114,710	74.5	113,680	72.8	125,362	73.8	133,083	74.0
Construction														
Small Business GDP	329,638	88.0	354,692	87.2	372,108	85.4	399,412	85.1	407,862	84.6	427,650	85.4	470,112	85.6
Compensation	217,207	85.4	239,939	84.9	255,142	82.5	268,939	82.1	272,758	82.0	279,250	82.8	298,090	82.8
Nonlabor Components	112,431	93.6	114,753	92.7	116,966	92.3	130,473	91.9	135,104	90.3	148,400	90.6	172,022	90.8
Large Business GDP	44,749	12.0	51,910	12.8	63,806	14.6	70,123	14.9	74,414	15.4	73,306	14.6	79,394	14.4
Compensation	37,061	14.6	42,824	15.1	54,045	17.5	58,647	17.9	59,976	18.0	57,978	17.2	62,015	17.2
Nonlabor Components	7,688	6.4	9,086	7.3	9,761	7.7	11,476	8.1	14,438	9.7	15,328	9.4	17,379	9.2
Wholesale Trade														
Small Business														
Compensation	172,071	59.1	180,655	57.5	186,500	56.8	184,883	55.3	188,406	56.5	188,267	54.6	203,872	55.4
Large Business														
Compensation	118,971	40.9	133,290	42.5	142,082	43.2	149,192	44.7	145,018	43.5	156,644	45.4	163,983	44.6
Retail Trade														
Small Business														
Compensation	175,141	51.2	185,044	50.3	196,018	49.4	200,511	48.8	203,196	48.1	206,959	47.8	216,308	47.9
Large Business														
Compensation	167,161	48.8	183,181	49.7	200,593	50.6	210,018	51.2	219,139	51.9	226,158	52.2	235,207	52.1
Trade Combined														
Small Business GDP	601,614	52.7	630,282	52.0	642,946	51.3	655,450	50.5	658,529	49.3	672,888	48.6	723,526	48.7
Nonlabor Components	254,402	50.1	264,583	49.8	260,428	49.2	270,056	48.7	266,927	46.1	277,662	45.8	303,346	45.6
Large Business GDP	539,958	47.3	582,874	48.0	611,172	48.7	643,206	49.5	676,414	50.7	711,041	51.4	761,615	51.3
Nonlabor Components	253,826	49.9	266,403	50.2	268,497	50.8	283,996	51.3	312,257	53.9	328,239	54.2	362,425	54.4

Table 2, cont'd: Gross Domestic Product by Industry and Business Size on a NAICS Industry Basis, 1998-2004 (Millions of Nominal Dollars and Business Size Percent of Total)

	1998		1999		2000		2001		2002		2003		2004	
	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
Transportation and Warehousing														
Small Business GDP	106,935	39.1	113,307	39.4	117,646	39.0	121,898	41.1	124,955	41.0	125,798	39.1	128,548	38.6
Compensation	61,709	35.3	64,887	34.9	68,149	34.2	68,669	33.7	69,631	34.1	64,471	31.3	69,194	31.5
Nonlabor Components	45,226	45.8	48,420	47.8	49,497	48.4	53,229	57.0	55,324	55.1	61,327	53.1	59,354	52.5
Large Business GDP	166,768	60.9	174,103	60.6	183,975	61.0	175,050	58.9	179,602	59.0	195,782	60.9	204,360	61.4
Compensation	113,151	64.7	121,234	65.1	131,187	65.8	134,817	66.3	134,510	65.9	141,565	68.7	150,591	68.5
Nonlabor Components	53,617	54.2	52,869	52.2	52,788	51.6	40,233	43.0	45,092	44.9	54,217	46.9	53,769	47.5
Information														
Small Business GDP	100,830	26.4	111,760	25.4	104,261	22.7	92,391	19.4	98,135	20.3	100,045	20.3	97,032	18.0
Compensation	46,459	25.0	52,891	24.3	60,771	24.5	54,489	22.3	50,813	22.3	48,910	21.7	50,614	21.6
Nonlabor Components	54,371	27.7	58,869	26.5	43,490	20.7	37,902	16.3	47,322	18.6	51,135	19.2	46,418	15.2
Large Business GDP	280,743	73.6	327,554	74.6	354,043	77.3	384,544	80.6	384,847	79.7	391,762	79.7	441,707	82.0
Compensation	139,131	75.0	164,629	75.7	187,266	75.5	189,879	77.7	177,100	77.7	176,224	78.3	183,501	78.4
Nonlabor Components	141,612	72.3	162,925	73.5	166,777	79.3	194,665	83.7	207,747	81.4	215,538	80.8	258,206	84.8
Finance and Insurance														
Small Business GDP	207,576	32.4	229,576	33.8	246,603	33.3	255,768	32.7	327,780	39.8	357,978	40.4	378,930	40.9
Compensation	96,271	27.9	101,148	27.3	110,575	27.0	114,942	26.3	122,351	27.3	131,059	27.8	141,596	27.7
Nonlabor Components	111,305	37.5	128,428	41.5	136,028	41.1	140,826	40.7	205,429	54.8	226,919	54.8	237,334	56.9
Large Business GDP	433,541	67.6	450,265	66.2	493,885	66.7	526,858	67.3	494,947	60.2	527,209	59.6	548,499	59.1
Compensation	248,228	72.1	269,509	72.7	298,694	73.0	322,045	73.7	325,629	72.7	340,027	72.2	368,871	72.3
Nonlabor Components	185,313	62.5	180,756	58.5	195,191	58.9	204,813	59.3	169,318	45.2	187,182	45.2	179,628	43.1
Real Estate and Leasing														
Small Business GDP	392,423	80.4	416,314	80.0	439,801	79.8	468,147	80.3	468,902	79.4	504,500	79.5	546,791	79.6
Compensation	45,939	69.4	48,228	68.2	52,060	67.3	53,593	65.9	55,991	66.6	58,262	66.5	63,232	66.6
Nonlabor Components	346,484	82.1	368,086	81.8	387,741	81.9	414,554	82.6	412,911	81.5	446,238	81.5	483,559	81.7
Large Business GDP	95,731	19.6	104,378	20.0	111,210	20.2	114,882	19.7	121,997	20.6	130,440	20.5	140,039	20.4
Compensation	20,291	30.6	22,476	31.8	25,341	32.7	27,671	34.1	28,107	33.4	29,349	33.5	31,685	33.4
Nonlabor Components	75,440	17.9	81,902	18.2	85,869	18.1	87,211	17.4	93,890	18.5	101,091	18.5	108,354	18.3

Table 2, cont'd: Gross Domestic Product by Industry and Business Size on a NAICS Industry Basis, 1998-2004 (Millions of Nominal Dollars and Business Size Percent of Total)

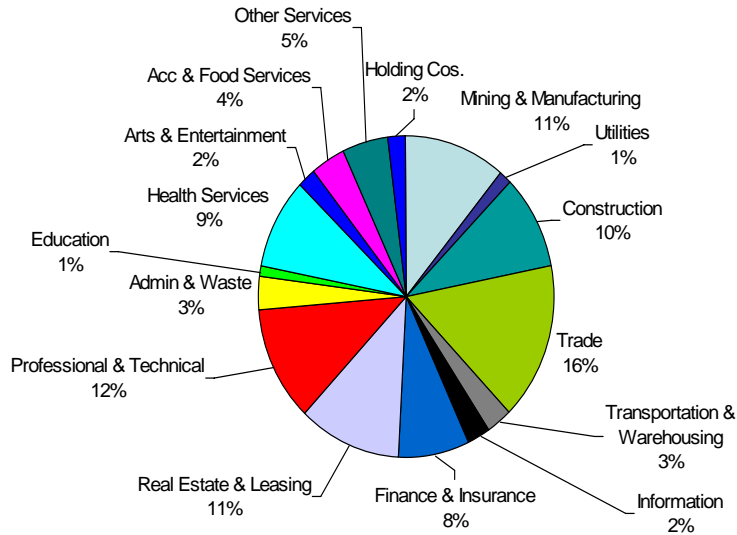
	1998		1999		2000		2001		2002		2003		2004	
	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
Professional and Technical Services														
Small Business GDP	411,483	72.8	438,889	71.5	464,036	68.7	478,284	68.4	493,605	70.0	487,213	67.0	522,464	66.6
Compensation	245,669	64.9	266,323	63.1	301,579	61.9	307,492	61.5	302,419	61.8	289,300	58.1	307,626	57.8
Nonlabor Components	165,814	88.7	172,566	89.9	162,457	86.3	170,792	85.7	191,186	88.5	197,913	86.1	214,838	85.2
Large Business GDP	153,827	27.2	175,047	28.5	211,085	31.3	220,541	31.6	211,623	30.0	240,140	33.0	261,874	33.4
Compensation	132,678	35.1	155,649	36.9	185,273	38.1	192,113	38.5	186,727	38.2	208,212	41.9	224,407	42.2
Nonlabor Components	21,149	11.3	19,398	10.1	25,812	13.7	28,428	14.3	24,896	11.5	31,928	13.9	37,467	14.8
Administration and Waste Management Services														
Small Business GDP	128,499	50.6	136,760	48.8	136,228	48.2	137,644	47.6	146,150	48.7	155,820	49.1	170,959	49.3
Compensation	85,631	44.2	89,944	42.2	84,795	40.0	85,823	39.5	88,500	39.7	91,813	39.9	100,014	39.9
Nonlabor Components	42,868	71.3	46,816	69.8	51,433	72.8	51,821	71.6	57,650	74.8	64,007	73.6	70,945	73.6
Large Business GDP	125,549	49.4	143,390	51.2	146,145	51.8	151,775	52.4	153,808	51.3	161,260	50.9	175,792	50.7
Compensation	108,290	55.8	123,132	57.8	126,946	60.0	131,210	60.5	134,422	60.3	138,327	60.1	150,394	60.1
Nonlabor Components	17,259	28.7	20,258	30.2	19,199	27.2	20,565	28.4	19,386	25.2	22,933	26.4	25,398	26.4
Education Services														
Small Business GDP	29,088	43.0	31,733	43.6	33,924	42.8	36,728	43.2	39,489	42.3	42,173	42.3	45,003	42.3
Compensation	25,522	41.7	27,810	42.2	30,124	41.8	32,946	42.2	35,482	41.5	38,108	41.6	40,582	41.6
Nonlabor Components	3,566	55.8	3,923	57.1	3,800	52.4	3,782	54.1	4,007	51.6	4,065	50.7	4,421	50.8
Large Business GDP	38,545	57.0	41,040	56.4	45,315	57.2	48,365	56.8	53,779	57.7	57,475	57.7	61,287	57.7
Compensation	35,726	58.3	38,093	57.8	41,863	58.2	45,157	57.8	50,027	58.5	53,523	58.4	57,006	58.4
Nonlabor Components	2,819	44.2	2,947	42.9	3,452	47.6	3,208	45.9	3,752	48.4	3,952	49.3	4,281	49.2
Health Services														
Small Business GDP	303,388	56.8	320,874	57.1	338,400	56.5	371,698	56.8	395,855	56.0	415,919	55.4	444,938	55.4
Compensation	218,302	51.3	230,794	51.6	247,992	51.8	267,284	51.8	282,967	51.1	299,314	50.8	318,787	50.6
Nonlabor Components	85,086	78.8	90,080	78.6	90,408	75.1	104,414	75.7	112,888	74.0	116,605	72.3	126,151	72.9
Large Business GDP	230,516	43.2	240,839	42.9	260,796	43.5	282,535	43.2	310,445	44.0	335,042	44.6	357,742	44.6
Compensation	207,579	48.7	216,338	48.4	230,792	48.2	248,958	48.2	270,873	48.9	290,322	49.2	310,744	49.4
Nonlabor Components	22,937	21.2	24,501	21.4	30,004	24.9	33,577	24.3	39,572	26.0	44,720	27.7	46,998	27.1
Arts and Entertainment														
Small Business GDP	60,349	78.6	65,056	77.6	67,299	75.9	71,917	75.2	76,824	75.0	80,409	75.6	83,597	74.9
Compensation	32,704	73.5	35,131	72.6	37,454	69.9	39,908	70.1	41,385	69.1	44,061	69.9	46,260	69.9
Nonlabor Components	27,645	85.5	29,925	84.4	29,845	85.1	32,009	82.7	35,439	83.3	36,348	84.0	37,337	82.2
Large Business GDP	16,476	21.4	18,745	22.4	21,377	24.1	23,747	24.8	25,566	25.0	25,888	24.4	27,972	25.1
Compensation	11,771	26.5	13,233	27.4	16,142	30.1	17,040	29.9	18,471	30.9	18,946	30.1	19,911	30.1
Nonlabor Components	4,705	14.5	5,512	15.6	5,235	14.9	6,707	17.3	7,095	16.7	6,942	16.0	8,061	17.8

Table 2, cont'd: Gross Domestic Product by Industry and Business Size on a NAICS Industry Basis, 1998-2004 (Millions of Nominal Dollars and Business Size Percent of Total)

	1998		1999		2000		2001		2002		2003		2004	
	<u>Dollars</u>	<u>Per-cent</u>	<u>Dollars</u>	<u>Per-cent</u>	<u>Dollars</u>	<u>Per-cent</u>	<u>Dollars</u>	<u>Per-cent</u>	<u>Dollars</u>	<u>Per-cent</u>	<u>Dollars</u>	<u>Per-cent</u>	<u>Dollars</u>	<u>Per-cent</u>
Accommodation and Food Services														
Small Business GDP	136,065	59.4	141,789	58.1	155,022	59.3	150,990	56.8	161,168	57.7	166,937	57.1	178,559	57.1
Compensation	80,548	56.0	84,426	55.2	89,213	54.2	92,918	54.5	98,466	55.4	100,470	54.2	106,895	54.1
Nonlabor Components	55,517	65.0	57,363	62.9	65,809	68.0	58,072	61.0	62,702	61.9	66,467	62.1	71,664	62.2
Large Business GDP	93,084	40.6	102,185	41.9	106,422	40.7	114,815	43.2	117,947	42.3	125,550	42.9	134,209	42.9
Compensation	63,171	44.0	68,392	44.8	75,477	45.8	77,686	45.5	79,344	44.6	84,901	45.8	90,653	45.9
Nonlabor Components	29,913	35.0	33,793	37.1	30,945	32.0	37,129	39.0	38,603	38.1	40,649	37.9	43,556	37.8
Other Services (excluding govt)														
Small Business GDP	179,991	85.2	185,538	85.2	192,755	84.1	203,249	84.2	214,580	85.0	224,610	85.0	236,204	85.0
Compensation	117,584	83.1	123,607	83.2	128,960	82.1	135,560	81.9	146,250	82.8	152,861	82.7	160,777	82.9
Nonlabor Components	62,407	89.6	61,931	89.4	63,795	88.7	67,689	89.2	68,330	90.1	71,749	90.1	75,427	90.0
Large Business GDP	31,154	14.8	32,269	14.8	36,356	15.9	38,209	15.8	37,940	15.0	39,717	15.0	41,543	15.0
Compensation	23,924	16.9	24,920	16.8	28,193	17.9	30,003	18.1	30,463	17.2	31,868	17.3	33,189	17.1
Nonlabor Components	7,230	10.4	7,349	10.6	8,163	11.3	8,206	10.8	7,477	9.9	7,849	9.9	8,354	10.0
Holding Cos.														
Small Business GDP	67,899	43.3	73,624	43.2	76,104	41.5	73,411	41.3	81,139	44.1	99,062	51.7	117,200	53.1
Compensation	40,828	32.0	41,570	30.6	42,634	28.9	37,961	27.1	39,038	28.0	54,007	37.5	60,907	37.6
Nonlabor Components	27,071	92.3	32,054	93.2	33,470	93.1	35,450	93.9	42,101	95.0	45,055	95.2	56,293	96.0
Large Business GDP	88,911	56.7	96,834	56.8	107,250	58.5	104,225	58.7	102,660	55.9	92,436	48.3	103,577	46.9
Compensation	86,654	68.0	94,484	69.4	104,766	71.1	101,924	72.9	100,425	72.0	90,176	62.5	101,239	62.4
Nonlabor Components	2,257	7.7	2,350	6.8	2,484	6.9	2,301	6.1	2,235	5.0	2,260	4.8	2,338	4.0
PRIVATE NONFARM GDP														
Small Business GDP	3,533,870	50.5	3,750,279	50.4	3,933,685	49.9	4,052,361	50.2	4,217,510	50.8	4,407,283	50.6	4,717,708	50.7
Compensation	1,962,287	48.1	2,081,093	47.6	2,225,587	46.9	2,272,018	46.9	2,317,011	47.1	2,374,700	46.7	2,523,041	46.9
Nonlabor Components	1,571,583	53.9	1,669,186	54.5	1,708,098	54.5	1,780,343	55.1	1,900,499	56.1	2,032,583	56.1	2,194,667	55.9
Large Business GDP	3,460,901	49.5	3,685,274	49.6	3,943,128	50.1	4,025,853	49.8	4,089,951	49.2	4,294,953	49.4	4,593,035	49.3
Compensation	2,114,203	51.9	2,292,957	52.4	2,516,217	53.1	2,574,319	53.1	2,604,139	52.9	2,707,250	53.3	2,859,215	53.1
Nonlabor Components	1,346,698	46.1	1,392,317	45.5	1,426,911	45.5	1,451,534	44.9	1,485,812	43.9	1,587,703	43.9	1,733,820	44.1

Source: Tabulation by Economic Consulting Services based on industry totals produced by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).

Figure 1-2002 Distribution of Small Business GDP by Industry
 (Share of Total Small Business GDP Produced by Each Industry)



Source: Economic Consulting Services based on industry totals produced by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).

Figure 1 shows private sector small business GDP in 2002 distributed across the industries that produce it. Together wholesale and retail trade produce almost 16 percent of all small business GDP, about the same share as trade's contribution to overall GDP.¹¹ Several industries produce 10-12 percent of small business GDP. Manufacturing and mining produce about 11 percent of small business GDP; that compares to its 18 percent share of total GDP. The other industries with a significant share of small business output are professional and technical services with 12 percent, real estate and leasing with 11 percent, construction (10 percent), and health care services (9 percent).

Despite its relative weakness in recent years, the manufacturing and mining sector still produces about a quarter of large business GDP. The trade sector is the second

¹¹ Wholesale and retail trade cannot be shown separately here because it is not possible to separate the noncompensation components of those industries by business size.

largest contributor to the large business sector accounting for almost 17 percent of large business GDP. Finance and insurance and information also provide relatively large shares of large business GDP accounting for 12 percent and 9 percent respectively.

The small business share of private nonfarm compensation fell from 48 percent in 1998 to less than 47 percent in 2000. It recovered to 47 percent in 2002 and has stayed close to that share in 2003 and 2004. Compensation is made up of two major components: (1) wages and salaries and (2) benefits. The small business share of wages and salaries declined less than a percentage point between 1998 and 2004. However, the small business share of benefits payments fell more sharply, from about 45 percent of the total in 1998 to about 42 percent of the total in 2004.¹²

The small business share of compensation seems to have stabilized in several industries. It shows little change from 1998 through 2004 in manufacturing, utilities, finance and insurance, education, and other services. All but the last of these are large-business dominated sectors. The small business share of compensation has declined in construction, wholesale trade, retail trade, transportation and warehousing, information, real estate and leasing, professional and technical services, administrative and waste management services, health services, arts and entertainment, and accommodation and food services. These industries include most of the small business dominated sectors of the economy. The only industry in which there seems to have been an improvement in the small business share of compensation is in holding companies, a sub-sector of the “Management of Enterprises” sector of the NAICS. This small sector is very difficult to measure but it is included in BEA’s estimates of GDP by industry and therefore has been included in these tables.

¹² The compensation numbers can be allocated to firm-size without making any assumptions about whether non-corporate businesses are small businesses or large businesses. Therefore, the problems mentioned in footnote 1 do not apply to the compensation components of GDP.

The small business share of the nonlabor components of GDP appears to have risen from 1998 to 2002, the last year for which there are benchmark data for estimating the noncompensation shares. The small business noncompensation share is also somewhat larger than it was the last time GDP by business size class was calculated.¹³ While for several individual industries the small business noncompensation shares are falling, there are a few industries which show a relatively large increase in the small business nonlabor shares.

Notable among those industries with rising nonlabor shares are the transportation and warehousing sector and the finance sector. The first may well be a result of using 2002 as the benchmark year. The transportation sector, especially the air transportation sector, was very hard hit by the economic downturn and was showing few signs of recovery by 2002. There were substantial losses among the air carriers, predominantly large businesses, and that reduced the large business share of GDP relative to the small business share of GDP. Finance and insurance may be a similar situation with insurance payouts perhaps impacting the large companies' profits more than those of the small companies.

The 2003 and 2004 data are only estimates based on preliminary small business receipts shares calculations for 2003 compared with receipts shares for 2002. Interpolation of the receipts shares does not provide a complete picture of possible changes in the nonlabor components. Once complete data are available for corporate profits, large business may have a somewhat larger share than is shown in these calculations, especially in 2004. There was a large increase in petroleum and information sector profits in 2004, both large-business dominated industries. That may impact the share calculations more than the current shares indicate.

¹³ This may be due to an inability to benchmark the individual components of the noncompensation shares as has been done in the past. But, it is also influenced by BEA's methodology for estimating the noncorporate components of GDP. These issues are more fully discussed in the methodology section of this paper.

Data and Methodology for Making the Small Business Estimates

While the general concepts for making the small business estimates of GDP have not changed, there have been changes to many of the underlying source data that have affected the resulting numbers. The general methodology is to begin with the BEA's GDP by industry data. Those data show nominal GDP broken down into major industries and by major type of income.¹⁴ However, BEA does not show any of its data by firm-size. Consequently, to make estimates of small business GDP requires estimating the small and large business share of each of the income components for each industry. Those shares are then applied to each of the components to produce a small and large business estimate of that component. Once all of the components are estimated for each industry, the small business components for each industry are summed and compared to the total GDP allocated to that industry; that provides the small business share for that industry. Also, each of the components is summed across all industries to produce a small business and large business share of compensation for the total nonfarm private economy and a small and large business share of the noncompensation components. Summing the compensation and noncompensation components for each size group produces the small and large business shares of total GDP.

There have been many changes in the source data for making estimates of small business GDP since the previous estimates were calculated. First, BEA changed its methodology for producing the industry GDP accounts the first time it produced the industry accounts on a NAICS basis. BEA changed to using the input-output data as the foundation for the numbers rather than the NIPA estimates that it had used when doing

¹⁴ GDP is estimated both from the production side and the income side and has a statistical discrepancy item to make the two sides equal. GDP by industry is only estimated using the income side data and the statistical discrepancy is massaged away. The major income side components consist of compensation (or labor income), business taxes and capital consumption allowances, net interest, and profit-type income (these last three are considered to be the capital income components of the accounts).

the industry accounts on the SIC basis.¹⁵ The input-output data were preferred conceptually because they are on an establishment basis, and provide the detailed information on intermediate inputs that help in doing the deflation of the industry series. However, since all the industries do have to total to GDP, some rebalancing of the data has to be done. For that reason, the BEA stopped producing the separate estimates of each capital component in the income estimates.

That change has complicated the methodology for producing the small business estimates of GDP since the methodology depends on allocating each of the separate nonlabor components to the appropriate business size. To make the small and large business estimates, it is necessary to disaggregate the BEA's measure of "other gross operating income" into some of its more detailed components. The annual national income by industry tables were used to determine the distributions for separating "other gross operating income" into three components: net interest; corporate profits and depreciation; and noncorporate depreciation, rental income and proprietor's income.

When GDP by firm size was first estimated, the share estimates for small business GDP were tied back to the Census Bureau's quinquennial censuses of industries. At that time those were the only data that showed any detail by firm size. Consequently, the data were always benchmarked to small and large business payroll and receipts shares shown in *Enterprise Statistics*, one of the publications produced for each Census. However, that part of the census program was discontinued after 1992, and the data were only partially replaced by *Firm and Establishment* publications for most of the industries. This latter set of data, along with annual payroll estimates produced by the Census

¹⁵ In the process of making the national income estimates, BEA produces tables with industry detail for corporate profits, capital consumption allowances, net interest, and proprietor's income. However, the BEA also produces a different set of industry estimates that contain much more industry detail. Those are the benchmark input-output tables that are produced every five years and are based on the detailed data from the quinquennial industry censuses conducted by the Census Bureau. The two sets of estimates do not match since they are produced independently from different source data.

Bureau's Statistics of U.S. Businesses (SUSB), was used to produce the estimates of GDP by industry and firm size through 1998.¹⁶

The original plan for calculating this set of estimates was to use the SUSB data to provide the annual payroll trends on which to base the wage and salary portion of the compensation component and to use the detailed census data for the receipts trends needed to make estimates of the noncompensation components. Unfortunately, the Census Bureau changed its methodology for producing its quinquennial census estimates of firms and establishments. This produced large enough inconsistencies between the 1997 and 2002 Census data that the required receipts trends could not be produced from those data. That left only the SUSB data with which to produce the receipts trends for each industry.

Compensation Shares

The calculation of the compensation shares by industry and firm size will be discussed first. BEA provides industry compensation in two parts, wages and salaries and what it calls supplements, which are mostly costs associated with the benefits provided to employees. Separating the wages and salaries by firm size was relatively straightforward. Payroll shares for large and small businesses were calculated for each of the sixteen industries for each year from 1998 through 2003 directly from the SUSB data. Those payroll shares were used to separate each industry's wages and salaries between the two business size classes. The SUSB data for 1997 had been published on an SIC basis rather than a NAICS basis. In order to estimate a small business payroll share for

¹⁶ The *Statistics of U.S. Businesses* program produces annual estimates of firms, establishments, employment and payroll by firm size and detailed industry for firms with payroll based on the *County Business Patterns* data. Combined with the annual nonemployer's data that the Census Bureau now produces, these are the best data for watching small business trends. However, the SUSB program has only just begun to add receipts data to its files. Those data can only be produced every five years when the quinquennial censuses provide the detail necessary for it. Consequently, receipts data are only available for 1997 and for 2002.

1997, it was necessary to aggregate the most detailed industries available in the SUSB data on a NAICS basis and then calculate payroll shares for the sixteen NAICS sectors being used for this analysis.

The benefits shares were more difficult to estimate. If benefits were allocated to firm size group according to the payroll shares it would overestimate the small business share of benefits. Several studies have shown that small businesses provide fewer pension and health insurance benefits than do large businesses.

This year a new technique was used to incorporate a growing amount of information on benefits costs by firm size. The BEA separates its benefits data into two categories: those that are legally required such as Social Security, Medicare, and worker's compensation, and those that are voluntary such as health insurance, and pensions. BEA publishes some industry detail for the legally required data and for the total voluntary benefit payments. Separately, the total voluntary benefit payments are disaggregated to show the cost of the health insurance, pension payments, and life insurance separately but BEA does not provide any industry detail for those subcomponents.

The calculations of the benefits started with the supplements totals for each industry and separated them into two groups. BEA had already provided the industry detail for the legally required group. Consequently, those only needed to be allocated to large and small business. That was done using the industry payroll shares since most of the legally required benefits are calculated as a specific percentage of payroll. While there will be some differences across industries because worker's compensation costs vary by industry, the Social Security and Medicare taxes overwhelm most of the variation in the other costs. The payroll share was considered to be an appropriate way to approximate the large and small business shares of those benefits.

The total spending on health insurance by companies was also known but not the distribution across industries.¹⁷ The Medical Expenditure Panel data for the periods from 1998 to 2004 were used to estimate both the share of health insurance provided by each industry and the small and large business share of the health insurance benefits that were provided.

The final large component of benefits was pensions. Again, BEA provided the total amount spent by companies on private pensions but the data did not provide any industry distribution. Unfortunately, there is no good source for data on pension costs by company size as there is for medical insurance costs. However, there is one method for approximating it. The IRS provides information on the deductions that companies take for payments into pension plans in its Statistics of Income (SOI). Those data were collected following the procedures discussed below for the noncompensation components and used both to allocate the pension payment totals across industries and to estimate the large and small business shares of the pension costs for each industry.¹⁸

Once these three categories of benefits were separately allocated to large and small businesses, they were added together for each business size and an overall benefits share by industry was calculated. There was a small residual of benefits that did not get directly allocated because it was not assigned to one of the three groups. Those were predominantly the costs associated with life insurance benefits and long term disability insurance. Implicitly those were shared out as a weighted average of the three other types of benefits.

¹⁷ This amount is actually the amount of health insurance that is produced through private insurance companies and thus includes insurance provided by government employers. An adjustment was made to the total to reduce it to just private sector employers using data provided by Centers for Medicare and Medicaid Services.

¹⁸ One problem is that the IRS statistics cover businesses that are paying taxes. For three industries a further estimate had to be made to include the relatively large number of nonprofits in their ranks. Those were health services, education, and other services (which includes a large number of membership organizations).

Once the wages and salaries and benefits were separated between large and small business for each industry, they could be added together to determine a compensation total for large and small business for each industry. The compensation totals for small business for all industries were totaled to determine a small business share of overall compensation for the private nonfarm economy.

Noncompensation Shares

The calculation of the small business shares of the noncompensation components is a multi-step process that uses data from SUSB combined with IRS statistics. The first step in the methodology is to produce a large business share of receipts for each industry sector for two benchmark years from the Census Bureau's data. For this set of estimates, the 1997 and 2002 SUSB data were used for this purpose, but in the past either enterprise statistics or receipts data directly from the censuses have been used. The nonemployer receipts were added to the small business receipts totals from SUSB so that all small business receipts were included. A straight line trend between the two years was calculated for each industry which produced a large business share of receipts for each year. However, to use the IRS statistics requires the large business share of corporate business receipts.

A special table was produced by the Census Bureau from the 2002 SUSB data for this project. That table provided receipts by legal form of organization for each industry separated by the employment size of the firms. From that set of data and the information on receipts for nonemployers by legal form of organization it was possible to calculate the large business share of corporate business receipts for 2002. The legal form of organization data was not available for any year but 2002. Therefore, the trend line calculated in the first step was used to approximate the change in the large business corporate receipts share for each year from 2002 back to 1997. Once the large business

share of corporate receipts was calculated for each year, the IRS's SOI data could be used to make share estimates for the detailed noncompensation components of GDP.

The Internal Revenue Service's SOI data provide tax return detail for the three major tax paying forms of legal organization: corporations, partnerships and sole proprietorships. It shows detailed tax related totals for these businesses such as the amount of business receipts, interest paid, depreciation and net income (or loss) for each year by industry. For corporations, it shows all of these components by major industry category and broken down by major receipts size classes. This latter set of tables is used to estimate the small and large business shares of corporate payments, and the SOI's estimates for partnerships and proprietorships are added to the small business corporate total to produce an estimate for all the legal forms of organization.

In general the large and small shares of SOI business receipts for all legal forms of organizations are used to divide two of the GDP components, "indirect business taxes" and "business transfer payments," since those are often tied to receipts. The GDP component, "net interest payments," is allocated to business size using the SOI's large and small shares of interest paid for all three legal forms of organization. The GDP component "other gross operating income" for corporations is divided between large and small business using the sum of the depreciation and net income (less deficit) lines from the SOI corporate tax tables. The noncorporate "other gross operating income" component was not divided since all noncorporate business is assumed to be small business under this methodology.

To calculate the corporate business size shares from the SOI tables, the large business share of corporate receipts is used to determine the average receipts size of a large business. For each industry the large business share is applied to the business receipts total and then the different categories of business receipts sizes are subtracted off, starting from the largest one, until the large business receipts amount is accounted for. That provides the breakpoint in the distribution of the other components by business

size that approximates what should be allocated to large corporate businesses and what should be allocated to small corporate businesses. The amount allocated to small business corporations is added to the amount reported for partnerships and sole proprietorships in order to produce an estimate of the total small business payments for each of the SOI proxies that are used to divide the noncompensation components of GDP.

Once each of the shares was calculated from the IRS SOI tables they could be used to proxy the large and small business shares of the BEA data. The calculated SOI shares were applied directly to the corporate business components of the GDP by industry data. This is a different methodology than was used in making earlier estimates of GDP by business size. When the SIC-based estimates were calculated, the SOI shares were first benchmarked to a special SBA study that had allocated the IRS SOI data by firm employment size with the firm size being determined by payroll tax form no. 941. That study is now quite old and was only done on the SIC basis. Therefore, it could not be used to benchmark these numbers. But, to the extent that the SOI proxies over- or under-estimate the shares by business size of the corporate business GDP component, that could impact the small business share of noncompensation components of the calculations.

The resulting small business share of the noncompensation components is somewhat higher than it was when GDP by business size was calculated in the past. It is somewhat surprising that it is over 50 percent when the small business receipts share of private nonfarm business is about 40 percent. However, receipts share is not necessarily a good indicator of value added share for several reasons. First, the distribution of receipts is different from the distribution of overall value added because intermediate inputs are a much larger part of some industries (such as manufacturing) than others (such as trade). A reweighting of receipts shares by GDP weights added 4 percentage points to the small business share. Table 3 shows such a reweighting.

Second, a larger share of small business income is probably allocated to the noncompensation shares than it is for large businesses because the wage income of partners and proprietors is allocated to profit-type income for noncorporate businesses, whereas the wages of corporate owners is considered part of compensation. Another factor in this result is the lack of benchmarks for the specific components. A fourth factor is that the distribution between corporate and noncorporate depreciation and profits, as measured in the GDP numbers, weights the noncorporate side more heavily than it is weighted in the IRS statistics. This may be because the BEA makes estimates for underreporting of income and that is somewhat more likely to occur in the noncorporate sector. The receipts share alone probably does underestimate the small business share but it is possible that the lack of solid SOI benchmarks for the individual nonlabor components may cause the shares to be somewhat overstated.

Table 3: Small Business Share of Private Business Receipts in 2002 and Those Shares Reweighted with Nominal Value Added Shares

Industry	Total Employers and Nonemployers (\$000)	Total Small Business (\$000)	Small Business Share (Percent)	GDP	Share of GDP	Reweighted Small Business Share Based on GDP Weights (Percent)
Receipts						
Total X Unclassified and Management	22,494,667,047	9,162,736,138	40.7	8,219.0		44.2
Agriculture, forestry, fishing, hunting	34,867,126	30,331,683	87.0	95.4	0.012	1.0
Mining	242,496,618	54,311,698	22.4	106.5	0.013	0.3
Utilities	396,625,509	59,578,480	15.0	207.3	0.025	0.4
Construction	1,292,813,120	1,051,098,813	81.3	482.3	0.059	4.8
Manufacturing	3,950,566,216	987,856,095	25.0	1,352.6	0.165	4.1
Wholesale trade	4,520,088,026	1,881,287,436	41.6	615.4	0.075	3.1
Retail Trade	3,212,348,433	1,569,656,692	48.9	719.6	0.088	4.3
Transportation & warehousing	539,919,632	216,412,824	40.1	304.6	0.037	1.5
Information	877,654,361	149,861,515	17.1	483.0	0.059	1.0
Finance and Insurance	2,806,091,538	520,138,601	18.5	822.7	0.100	1.9
Real Estate and Leasing X OOH	512,340,084	381,455,658	74.5	590.9	0.072	5.4
Professional, scientific, & tech. srv.	1,040,460,921	666,874,888	64.1	705.2	0.086	5.5
Educational services	184,860,182	79,346,416	42.9	93.3	0.011	0.5
Health Services	1,263,552,299	587,206,713	46.5	706.2	0.086	4.0
Arts, entertainment, & recreation	167,554,094	114,401,777	68.3	102.4	0.012	0.9
Accommodation and Foodservice	460,894,446	264,685,513	57.4	279.1	0.034	2.0
Admin Waste & Other services	991,534,442	548,231,336	55.3	552.5	0.067	3.7

Source: Census Bureau's Statistics of U.S. Businesses 2002 and Bureau of Economic Analysis' GDP by Industry 2002.

"OOH" stands for the imputations for owner occupied housing, which BEA includes as part of the real estate industry in the industry GDP accounts. Owner occupied housing is not a business for the purpose of this analysis and these imputations have been removed from all the calculations.

Special Issues with the Data Sources

There were two complications to using the SUSB data for the receipts trend. The first was that the 1997 SUSB data were only available on an SIC basis, and the 2002 data were only available on a NAICS basis. The 1997 data were reallocated 4-digit SIC code by 4-digit SIC code, to match the new NAICS industries. In cases where a 4-digit SIC code was divided among more than one industry the 1997 Census bridge tables were used to make allocations of employment, payroll and receipts. This produced the 16 NAICS industries for 1997. At that point employment, payroll, and receipts shares could be calculated for each NAICS industry for 1997. Those shares were checked for reasonableness against the 1998 payroll and employment shares and against the 2002 receipts shares. Once this was done, the receipts trends between 1997 and 2002 could be calculated. However, those trends still only covered the full set of data, all legal forms of organization. The corporate receipts trend was estimated from this receipts trend by benchmarking the 2002 corporate share.

The other major issue concerned sectors that have a large number of nonprofit entities. This was not a problem with the compensation data because the payroll numbers include nonprofit organizations.¹⁹ However, the IRS' SOI data covers only the universe of companies paying taxes. Consequently, there was a problem with the allocation of the noncompensation components. Estimates from the SUSB table showing legal form of organization combined with Census data from 1997 did provide a basis for making an adjustment to the health services and education services noncompensation shares for the nonprofits in their data. The SUSB special table provided an estimate of the amount of large and small receipts that were missing from the IRS tables and roughly how they should be distributed between the large and small business parts of those tables. The adjustment was made to both the health services and the educational services sectors

¹⁹ Government hospitals are also included in the SUSB data, but they are removed before any of the shares are calculated since they belong in the government services sector of the GDP by industry tables.

using the IRS distributions as a basis. This is probably somewhat more accurate for the health services since for-profit and not-for-profit hospitals are probably not dramatically different except possibly for their “net income” lines. It is less likely that private colleges and universities have financial statements that resemble the large corporate part of the tax paying educational services group but there were no other data on which to base the adjustment.

For education services there was no impact on the overall noncompensation share of GDP because its share is relatively small. However, it did lower the education industry’s small business share and that was the main purpose of making the adjustment. The health services adjustment had a small impact on the small business share of private noncompensation GDP. However, the main purpose for making the adjustment was to make a better estimate of the small business share of the health care industry.

Conclusions

Small businesses continued to play a vital role in the economy of the United States during the 1998-2004 time period. The small business share of private nonfarm GDP held relatively steady from 1998 through 2004 at 50 percent of the total. However, there is a more dynamic picture when looking at the individual industries. While the small business share of many individual industries continued to decline during this time period, the share stabilized in the other services sector and rose slightly in the manufacturing sector. The heavily small business dominated sectors of construction and professional and technical services saw their small business shares reduced over this time period.²⁰ But, the rapid growth in the size and number of all the businesses in several of the small-business dominated sectors of the economy offset the decline in the small

²⁰ This may partly reflect the growth of small businesses into large businesses in a rapidly growing sector.

business share of several of the individual industries and resulted in a stable share for small business GDP overall.

There are methods of extending the estimates of small business GDP beyond the current benchmark and using new data sources and different methodology to improve the estimates in the future. Those are discussed in the Appendix. Also discussed in the Appendix is a preliminary analysis of small business productivity growth for selected small business sectors.

Appendix

Potential Methodological Changes to Improve the Estimates

Up until now, little was known about the size distribution of the different types of legal forms of organization by industry. The methodology for making small business estimates of GDP has assumed that the majority of unincorporated businesses were small businesses. While overall that assumption is true, the information that the Census Bureau provided showing the 2002 SUSB line items separated by legal form of organization and major industry highlighted some changes taking place in business organization. While virtually every industry showed some noncorporate large businesses, only three industries had substantial amounts of receipts in those categories. Those were: professional and technical services (probably a large percentage of legal services), manufacturing, and finance and insurance.

For this set of estimates, only data for 2002 were available. It is clear that if an adjustment was made for this it would lower the small business share to below 50 percent in 2002. A rough approximation of such an adjustment in 2002 lowered the small business share by two percentage points. But, it was not possible to determine what the trend would be if these noncorporate entities were assigned to the large business side of the allocation. Nor is there a good method for determining the share of the noncorporate profit-type income and depreciation that should be allocated based only on a receipts share. There are relatively good reasons to think this change away from a corporate structure and toward a partnership structure is a relatively recent phenomenon. Limited liability companies (or LLCs) are the primary reason that partnerships have become more attractive, and those have only been an accepted form of legal organization in all 50 states and Washington, D.C. since 1997.

A more accurate assessment of this problem will be possible once the next benchmark set of SUSB receipts is calculated by Census from the 2007 data. Once the 2007 SUSB receipts data are available by employment size, a second set of tabulations could be produced that show the breakdown by legal form of organization. Then it would be possible to determine a trend for the five-year period from 2002 to 2007.²¹ With the growing popularity of limited liability companies being used in place of the corporate form, this adjustment probably will be required in the future. The IRS reports that 71 percent of businesses that formed in the 1994 to 1996 time frame used a corporate form of organization and 29 percent were formed as partnerships. In tax year 2003, approximately 57 percent of new businesses formed as corporations and 43 percent formed as partnerships.²²

Ideally, it would be preferable to separate the partnership data by firm size using the same technique as used for corporations. However, there is no similar breakdown in the SOI data of the partnership and proprietorship totals by receipts size of business; therefore, it is not possible to divide those into small and large businesses using the same methodology. Once the magnitude of the shift is more evident it should be possible to make some adjustments directly to BEA's noncorporate components to more accurately reflect this change in businesses' preference for legal form.

Projecting Years from the Benchmark

The BEA produces the GDP by industry numbers each year, albeit with a time lag. The 2005 numbers will be available in the spring of 2007. The payroll data are published each year by SUSB, also with a lag but the 2004 data will be published in

²¹ That could not be done this time because the 1997 SUSB tables were on an SIC basis and the 2002 tables were on a NAICS basis. The SIC-based numbers cannot be converted to a NAICS-based estimate without at least 4-digit SIC detail. It is not possible for Census to produce the extremely detailed 4-digit SIC breakdowns and also distribute the data by legal form of organization without there being some significant disclosure problems. Consequently, the special legal form of organization table was only produced for 2002.

²² Luttrell, Kell, P. Treubert and M. Parisi. "Integrated Business Data, 2003," *SOI Bulletin*, Fall 2006, p. 54.

January 2007. Consequently, the wage and salary portion of the compensation components can be updated relatively easily with those numbers. Estimates for more current years can be made using the BLS' *Quarterly Census of Employment and Wages* (QCEW). The QCEW provides some information about payroll totals by establishment size by NAICS industry. While it would be preferable to have a firm size indicator rather than an establishment size indicator, these data can provide some basis for adjusting the last set of payroll shares available. For these calculations the 2004 payroll shares were estimated by using the 2003 payroll shares from SUSB and analyzing the changes that the QCEW data indicated had taken place between 2003 and 2004. An increase in the share of payrolls in establishments with more than 500 employees was used as an indicator that the large business share has increased relative to the small business share. An increase in the share of payrolls in the small establishments is less definitive since those establishments could be in either large or small businesses. Where the QCEW data did not provide a clear indication of direction, the 2003 share was used for 2004.

Just as the final edits were being made for this paper, the 2004 payroll shares were published by SUSB. This allowed a check on the QCEW methodology. Table A-1 shows the 2003 actual SUSB share, the share that was used in the 2004 calculations based on the changes indicated by QCEW, and the actual 2004 SUSB share.

The QCEW data indicated the right direction of change in about half of the industries. The average error for those industries was only 0.1 percentage point since some estimated slightly high and others estimated slightly low. For five other industries, the QCEW did not provide a clear direction and therefore the 2003 share was used for 2004. However the actual 2004 small business shares for three of those industries were higher than was estimated, and for two industries they were lower. The QCEW indicated the wrong direction of change for four industries. Those were wholesale trade, education, health, and other services. In three of those industries the small business share declined while the QCEW indicated it would go up and in one case, wholesale trade, the actual

Table A-1 Comparison of Estimated 2004 Payroll Shares to Actual 2004 Payroll Shares					
	Actual 2003 from SUSB	2004 Estimated from QCEW	Actual 2004 from SUSB	Right Direction?	Difference Act-Est
Mining and Manufacturing	36.98	37.18	37.59	Y	0.41
Utilities	11.36	11.36	12.33	N	0.97
Construction	82.78	82.98	82.96	Y	-0.02
Wholesale Trade	55.42	54.65	55.87	N	1.22
Retail Trade	48.98	48.98	48.20	N	-0.78
Transportation & Warehousing	32.50	33.00	33.32	Y	0.32
Information	22.06	22.06	22.87	N	0.81
Finance & Ins.	28.05	27.85	27.56	Y	-0.29
Real Estate & Leasing	66.52	66.52	65.94	N	-0.58
Professional & Technical	57.95	57.75	57.57	Y	-0.18
Adimin & Waste	40.52	40.72	40.86	Y	0.14
Education	41.80	41.94	40.89	N	-1.05
Health	50.74	50.84	50.10	N	-0.74
Arts & Enter.	70.56	70.71	71.04	Y	0.33
Accommodation & Food Service	54.91	54.91	55.25	N	0.34
Other Services	83.04	83.24	82.76	N	-0.48
Source: Tabulation by Economic Consulting Services based on industry totals produced by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).					

share for 2004 increased while the QCEW calculations had indicated it would decline. Thus, for a relatively short time period, a year or two, the QCEW does provide some basis for determining the direction of change in the payroll shares, but it is not a precise proxy for payroll share changes.

Of course, wages and salaries are not the only part of compensation. Benefits payments are the other part. For the legally required benefits, the payroll shares and the QCEW-based estimates of changes in the payroll shares provide some information. The MEPS data are released once a year in June or July and can provide some information of the direction of change for the health insurance costs. Therefore, it would be possible to approximate the direction of change for the benefits out a year or two as well.

Since compensation makes up 59 percent of private nonfarm GDP, estimating changes in the direction of the small business share of compensation provides significant information about the direction of the overall small business share of GDP. However, the other 40 percent of the total, the noncompensation components, tends to be the more volatile and unpredictable portion because it includes profit-type income. BEA does make estimates of noncorporate profit-type income by industry on an annual basis, usually the summer after the year has been completed. Those provide some indication of the relative change in small business health.

The receipts trends that are the basis for calculating the remaining noncompensation components are more difficult to estimate without the census data. The last benchmark point for this analysis is 2002, the year of the economic census which provides the receipts trends used to project the noncompensation components. This is also the last year for which corporate SOI data are currently available. It is possible to make a partial estimate of the receipts trends beyond the benchmark year. The most straightforward way is to calculate the benchmark year's (2002 in this case) receipts per employee for each size class for each 4-digit NAICS industry code.²³ The receipts per employee can then be applied to the next year's employment totals (in this case the 2003 employment totals are available) to calculate new receipts levels for the next year for each 4-digit industry. The large and small business estimates of receipts can then be added up to produce the more aggregate industry shares that are used for this analysis. The nonemployer receipts are usually already available, the Census Bureau already has published nonemployer estimates through 2004.²⁴ This does not provide a complete

²³ While it could be done at the NAICS 6-digit level, it is much less likely that there will be withheld data if the 4-digit levels are used.

²⁴ This probably tends to slightly bias the results toward small business because the nonemployer results will have the inflation changes from the benchmark year to the next year already incorporated in them but the other data do not. One further adjustment that might be made is to apply an inflation estimate to each industry's benchmark receipts per employee number. This was not tested because there are no price indexes for many of the 4-digit industries. However, for some industries and in some years it would be a useful addition to the analysis. The sharp rise in raw materials costs during the last couple of years, for

picture of all the changes that will have taken place between the two years but it will provide an estimate of the shift in receipts that will occur solely due to a change in the industry distribution. There are changes that this methodology cannot provide information about. It will not provide information about the change in the relative industry productivities, for example. However, it is at least a first test as to whether the trend between the last two benchmarks should be continued or not. This analysis was used when projecting the 2003 receipts shares for estimating the noncompensation components beyond the 2002 benchmark point and some adjustments based on changes in the trend were made for 2003.

Projecting the receipts share does not provide all the information needed to project the noncompensation components because the share of receipts does not always provide a picture of the distribution of profits growth. The distribution of profits is one of the main factors that cause year-to-year changes in the small business corporate share. The only data that shows the distribution of profits are those provided by the SOI. However, the preliminary SOI data for 2003 are beginning to be published. Once the full set of tables are available the projected receipts share could be applied to the SOI data to provide a further refined projection for estimating all the proxies used to divide the noncompensation components.

These methods of estimating the small business share of the various components of GDP would allow the small business share of GDP to be estimated between the benchmark years. Since compensation is a large portion of GDP, updating just that component provides a fair amount of information about the small business share. However, productivity growth often changes the relative share of labor and nonlabor income; therefore, it is useful to look at the full set of data periodically.

example might make it a useful exercise for estimates of the mining and manufacturing receipts that are projected for more than a year or two.

Discussion of Small Business Productivity and Deflators

The above estimates of small business GDP are all in nominal dollars. That is because there are no separate price indexes for deflating small business and large business GDP. However, it would be very useful to be able to produce small business GDP in real terms, removing the impact of inflation over time, because that could be used for an analysis of labor productivity which is generally defined as real output per hour worked.

The BEA does produce price deflators for estimating real GDP by industry but those include price changes for businesses of all size. While within a relatively narrow industry competitive pressures would tend to produce similar price changes for small and large businesses, the industry sectors used for this report are quite aggregated. The small business-dominated portions of the aggregate industry sector may be quite different than the large-business portions of it. For example, within transportation and warehousing, airlines are heavily dominated by large businesses, trucking is about equally split between the business sizes, and taxi and limousine services are primarily provided by small businesses. The price deflators for each of those sectors would reflect different economic conditions. Consequently, it is not appropriate to use the overall deflator for GDP to deflate small business GDP nor is it recommended to use the industry deflator for industries like manufacturing or information services where the industry deflator may be heavily influenced by prices changes in the large-business dominated industries.

However, the NAICS has produced much less aggregated industries than were available under the old SIC system, especially in the service-producing sector, and several of those industries are heavily dominated by small businesses. For those industries there is a smaller risk for error in using the overall industry deflator to produce a deflated small business GDP trend. Once the series is deflated and a real output estimate is produced, it is also possible to compare the growth in that output to the growth in employment in that industry. This should approximate the small business

productivity change in that sector. It should be noted that this is experimental and because of the problems noted above should not be considered a precise measure of productivity.²⁵

It was decided to test construction, other services, accommodation and food service, and professional and technical services. The first two of these industries both have over 80 percent of their compensation accounted for by small businesses. The last two have a smaller share of their compensation in small business, between 60 and 70 percent, but hopefully have a relatively good representation by small businesses across all of the sub-industries included in these industry categories. That would minimize the problems with using the overall industry deflator. Real estate and leasing was also considered but rejected, primarily because the BEA includes imputations of owner occupied housing in its estimates of GDP for this industry. While those have been removed prior to estimating the small and large business shares for this project, it is not straightforward to remove them from the deflator. Consequently, that industry was not included in these calculations.

Once deflated, small business construction and small business other services show no output growth over the 1998 to 2004 time period. That seems an unlikely result given the other anecdotal information about those sectors. Real output for professional services grows by about 14 percent over the entire period, and accommodation and food service grows by about 10 percent.

²⁵ Industry productivity is not generally calculated at the value added level. It is generally calculated using a gross output measure. Secondly, productivity is usually a measure of output per hour and small business hours are not available. Consequently, these estimates are based on growth in value added per employee.

Table A-2 : Real Small Business Value Added per Employee for Selected Industries								
Construction	Small Business GDP	Industry Price Deflator	Deflated Output 98=100	Employees	FTE Employees	SB Emp. Share	VA per Emp	VA per FTE
1998	329,638	88.46	100.00	6301	6197	0.883	100	100
1999	354,692	93.83	101.45	6729	6638	0.875	96	96
2000	372,108	100.00	99.86	6991	6907	0.863	92	92
2001	399,412	107.54	99.67	7071	6853	0.851	92	93
2002	407,862	112.66	97.15	6978	6745	0.850	91	93
2003	427,650	118.60	96.76	6974	6725	0.860	90	92
2004	470,112	126.94	99.39	7215	6975	0.860	89	91
Professional & Tech Services	Small Business GDP	Industry Price Deflator	Deflated Output 98=100	Employees	FTE Employees	SB Emp Share	VA per Emp	VA per FTE
1998	411,483	96.49	100.00	6722	6485	0.663	100	100
1999	438,889	98.40	104.59	7089	6795	0.651	101	102
2000	464,036	100.00	108.82	7515	7114	0.647	100	102
2001	478,284	102.91	108.98	7317	6933	0.641	103	105
2002	493,605	105.45	109.77	7103	6700	0.642	107	110
2003	487,213	106.31	107.47	7089	6654	0.619	109	112
2004	522,464	107.04	114.46	7214	6771	0.619	114	117
Accommodation & Food Services	Small Business GDP	Industry Price Deflator	Deflated Output 98=100	Employees	FTE Employees	SB Emp Share	VA per Emp	VA per FTE
1998	136,065	94.50	100.00	9532	8118	0.614	100	100
1999	141,789	97.13	101.38	9778	8381	0.607	100	99
2000	155,022	100.00	107.66	10116	8626	0.603	103	103
2001	150,990	103.77	101.06	10248	8325	0.602	96	101
2002	161,168	107.77	103.86	10345	8356	0.606	97	102
2003	166,937	108.85	106.51	10499	8471	0.608	98	103
2004	178,559	112.54	110.19	10771	8491	0.608	98	106
Other Services	Small Business GDP	Industry Price Deflator	Deflated Output 98=100	Employees	FTE Employees	SB Emp Share	VA per Emp	VA per FTE
1998	179,991	90.47	100.00	6394	5283	0.863	100	100
1999	185,538	94.84	98.33	6484	5407	0.860	97	96
2000	192,755	100.00	96.88	6502	5489	0.859	96	94
2001	203,249	107.17	95.32	6626	5629	0.855	93	90
2002	214,580	111.71	96.55	6859	5768	0.862	90	89
2003	224,610	115.62	97.67	6891	5789	0.864	91	89
2004	236,204	120.03	98.91	6934	5843	0.864	91	89
Source: Tabulation by Economic Consulting Services based on industry totals produced by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).								

The next step is to look at the deflated series in conjunction with the small business employment in these industries. This provides an indicator of how much value

added per employee has changed during this time period. Normally, productivity is measured as output per hour but since there are no data that provide estimates of hours shares by firm size, employment is being used in place of hours. BEA has two sets of employee data that it provides on an industry basis. One is a count of full-time and part-time employees and the other is a count of full-time equivalent employees (FTE). The latter would be preferable since it controls somewhat for the problem of differing hours among the employees. However, the employment shares needed to separate the employment measures by business size only can be calculated from SUSB and are based on employment totals not on FTE. It was decided to try both series and look at the results.

In construction and other services industries, the industries where the small business shares are the highest, and therefore the deflator would seem to be closest to what might be an actual price index, the implied value added per employee falls sharply regardless of the labor measure used. That reflects the lack of growth in output that was mentioned above. In accommodation and food services the real value added per employee falls slightly if the total number of employees is used but rises slightly if the full-time equivalent employees are used. For professional services the value added per employee rises using either set of employee counts.

The first result is difficult to understand since businesses are hard pressed to remain in business if they are actually experiencing productivity declines such as those implied by this result. The Bureau of Labor Statistics does not produce productivity measures for these industries so it is not possible to compare this outcome with a BLS measure for those entire industries. However, one notes that the outcome using the BEA's industry quantity index and the full-time equivalent employees for the entire industry is similar to the result obtained here for small businesses for both construction and other services. This may imply there is a measurement problem in producing deflated output for those industries.

Output per employee data would be useful in the analysis of small business growth. However, these results should be considered carefully in the context of the other things that are known about the small businesses in these industries. Further work is called for before this method is more widely employed. Price indexes that better represent the industry mix of small businesses might be developed and tested on a broader number of industries. Other problems with using a value added approach to make these calculations should also be considered. The disaggregation of the services industries to a NAICS basis provides promise for this general method but further analysis is required to make those data more useful.