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Consumer spending and U.S. employment from the 2007–2009 recession through 2022

In the latest recession, employment supported by U.S. consumer spending declined by an estimated 3.2 million jobs between 2007 and 2010, over a third of total job declines during that time frame. Compared with the overall economy, consumer-related employment demonstrated relative resilience, recovering in 2012. Through 2022, consumer spending is projected to support stable job growth with increasing expenditures on labor-intensive services like health care. However, consumer spending and its related employment are projected to grow slower than in the past and at rates similar to the overall economy.

For the past several decades, U.S. consumers have been considered an “engine” of economic growth in the United States.[1] In 2012 they were responsible for just under 71 percent of U.S. gross domestic product (GDP), almost 8 percentage points higher than in 1960.[2] American consumers have also played a prominent role in the global economy, accounting for just over 15 percent of world GDP in 2012[3] (see figure 1).

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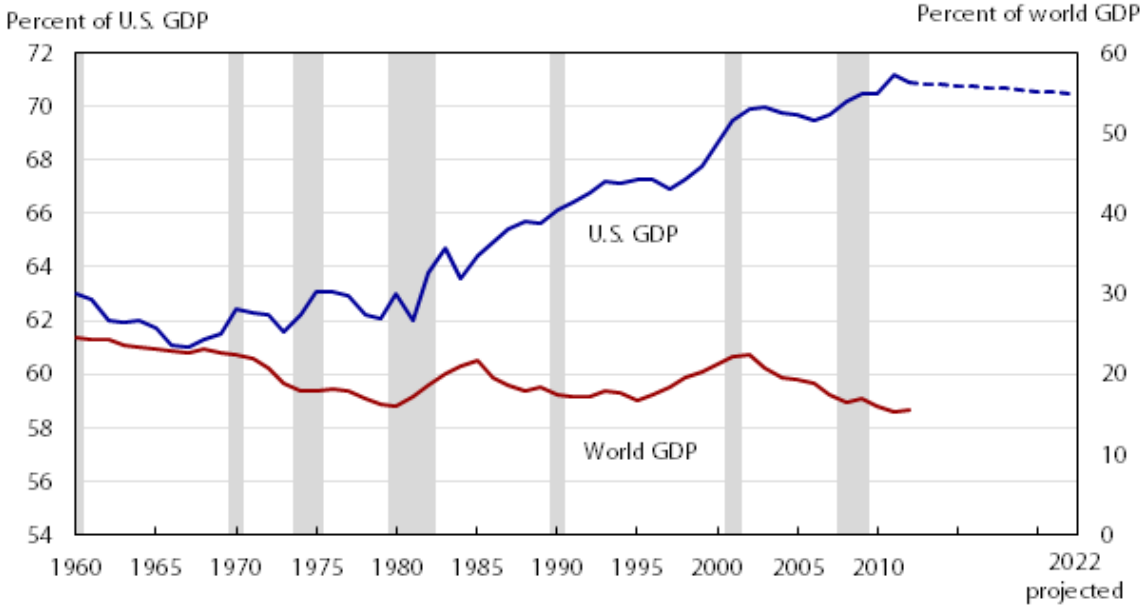
Figure 1. Personal consumption expenditures as a percent of gross domestic product, 1960–2012 and 2022 projected

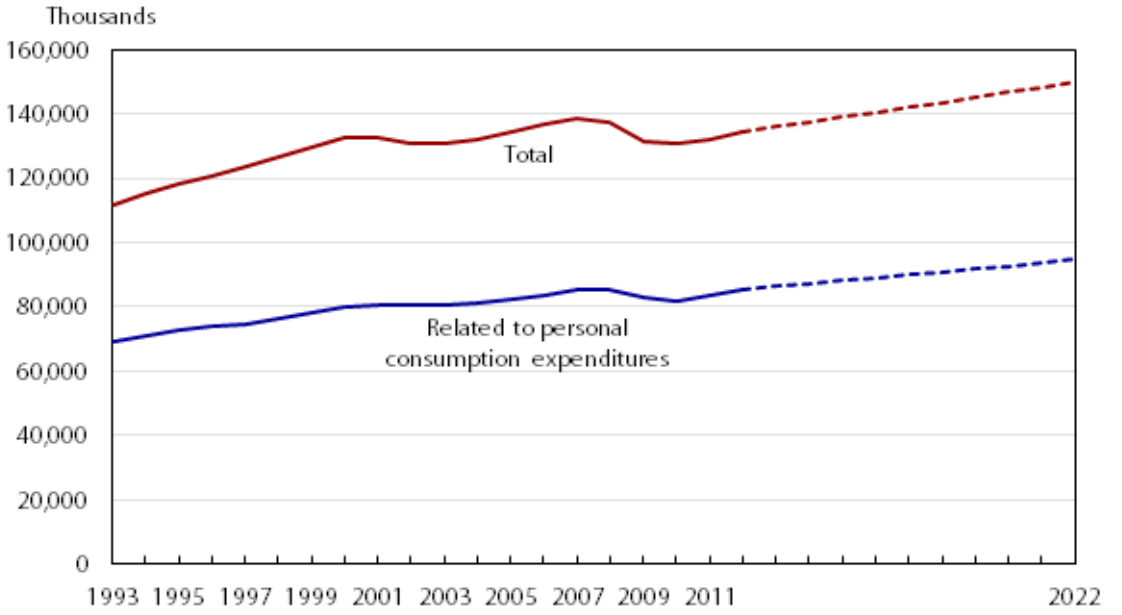


Note: Shaded regions are NBER-designated recessions. Recessions are depicted here on an annual basis. Because of this, the recessions of 1980 (January–July 1980 and July1981–November 1982) appear as one combined recession.

Sources: Bureau of Economic Analysis and World Bank for 1960–2012, U.S. Bureau of Labor Statistics for 2022 projected.

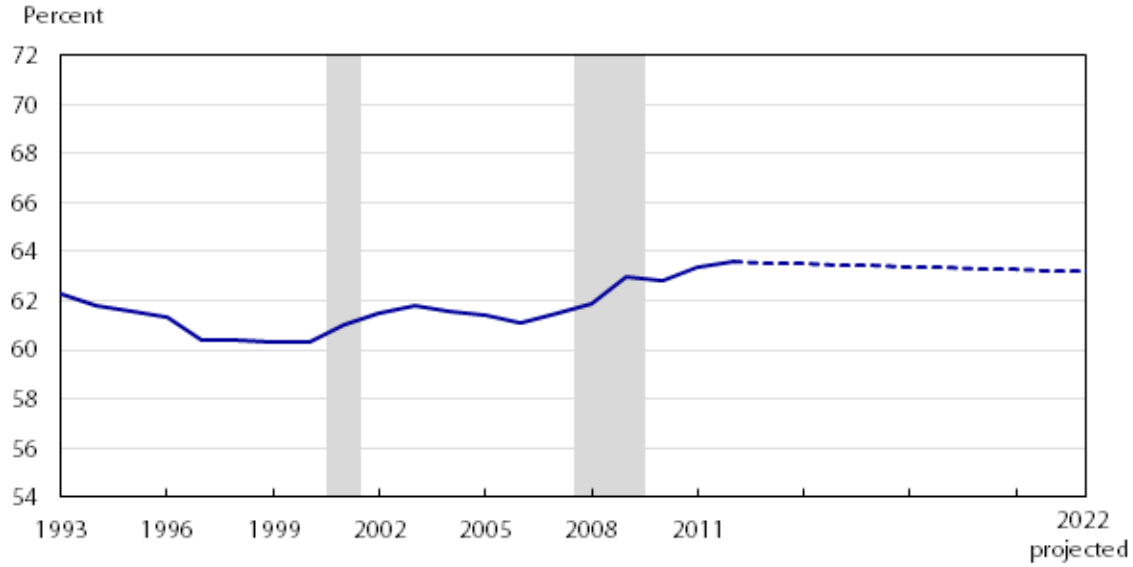
When consumers shop, they directly support[4] jobs in companies that produce, transport, and sell final goods and services. Consumers also indirectly support jobs that make inputs (intermediates) requisite for final production. More U.S. jobs directly or indirectly relate to consumer spending than to all other sectors of the economy combined. In 2007, which was the business cycle peak prior to the latest economic downturn, 85.1 million nonagricultural wage and salary jobs related to consumer spending; these jobs were 61.5 percent of total nonagricultural wage and salary employment in the United States[5](see figure 2). But unlike GDP, the percentage of U.S. jobs tied to consumption has fluctuated within a relatively stable range since the late 1970s because of labor-saving technologies and increased consumption of imports (see figure 3).

Figure 2. U.S. nonagricultural wage and salary employment, 1993–2012 and 2022 projected



Source: U.S. Bureau of Labor Statistics.

Figure 3. Employment related to personal consumption expenditures as a percentage of U.S. nonagricultural wage and salary employment, 1993–2012 and 2022 projected



Note: The estimated 1977–1993 range is 60–64 percent in Janet Pfleeger, "U.S. consumers: which jobs are they creating?" *Monthly Labor Review*, June 1996. The estimated 1985–2000 range is 61–63 percent in Mitra Toossi, "Consumer spending: an engine for U.S. job growth," *Monthly Labor Review*, November 2002.

Source: U.S. Bureau of Labor Statistics.

During the “Great Recession,” which took place from late-2007 through mid-2009, the economy steeply contracted and nearly 8.7 million jobs were lost.[6] Consumer spending experienced the most severe decline since World War II.[7]Households cut spending, shed outstanding debt, and increased their rate of personal savings in response to reductions in income, wealth, confidence, and credit access.[8]

With persistently high unemployment rates, the weak revival in job growth has been one of the most debated aspects of the recent recession.[9] Several structural and cyclical factors have been proposed as causes, including the nature of the financial crisis, dependency of the economy on services, economic and policy uncertainty, extended unemployment insurance, and high long-term unemployment rates.[10] Many have also blamed sluggish consumer spending: as Federal Reserve Chairman Ben Bernanke stated in 2011, “Consumer behavior has both reflected and contributed to the slow pace of recovery.”[11] Others made stark statements, such as, “Don't expect [U.S.] consumer spending to be the engine of economic growth it once was.”[12]

Using an input–output methodology, this article estimates U.S. employment related to each final demand component in the latest recession (2007–2009) and during the recovery years through 2012, with a focus on consumer spending. Though consumer behavior during and after the recession has been documented in various papers,[13] the relationship between consumption and employment has not yet been quantified in the literature.[14] This article also projects the number and type of U.S. jobs relating to consumer spending in 2022 using the most recent economic and employment projections developed by the Office of Occupational Statistics and Employment Projections at the Bureau of Labor Statistics (BLS).[15]

BLS estimates that the number of jobs tied to consumer demand declined by 3.2 million from the 2007 employment peak to 2010, the year of the employment trough. The 3.2 million were over a third of the total 8.7 million jobs lost in that time frame, and most of the consumer-related job losses were concentrated in three industries: manufacturing, professional and business services, and retail trade.[16] In contrast, over half of total job losses between 2007 and 2010 occurred in investment-related employment, which is typically more sensitive than consumer-related jobs to the business cycle. The largest annual decline in consumer-related employment occurred in 2009. In 2010, after the recession officially ended, consumer-related employment accounted for the majority of job declines in the entire economy.

Despite the postrecession decline in consumer-related employment and the historic decline in spending, consumer-related employment demonstrated relative stability both during and after the recession, upheld by gains in two sectors: health care and social assistance,[17] and educational services.[18] The percentage of jobs in the economy supported by consumers increased (see figure 3) as the share of investment-related employment fell to unprecedented levels. And by 2012, consumer-related employment reached prerecession marks, while overall employment did so in 2014.[19] The relative resilience of consumption reflects its stability in comparison with other GDP components during economic slumps.

As the economy continues to recover and the baby boomers age, BLS projects that consumer spending will grow 2.6 percent annually from 2012 through 2022, expanding slower than in the past and at the same pace as the overall economy. The rise of consumer spending as a percentage of GDP is also anticipated to stabilize, thus ending past decades of relative growth in comparison with other GDP components (see figure 1). Consumer-related employment is projected to increase 1.0 percent annually to reach 94.7 million jobs in 2022 (see figure 2), slightly slower than both past growth rates and the projected 1.1 percent annual growth rate for all employment. But as consumer expenditures on traditionally labor-intensive services like health care continue to grow, 63.2

percent of jobs in the U.S. economy are expected to relate to consumption in 2022; this percentage is within the stable historic range (see figure 3). Over half of the new 9.1 million consumer-related jobs are anticipated to be in the health care and social assistance sector, and 94.5 percent of all consumer-related jobs are projected to be in services.

This article is arranged in the following manner: the first section reviews the methodology to translate consumer spending to employment using the input–output system, while the second section goes over prerecession consumption and employment trends. The third section summarizes consumer-related employment during the latest recession and recovery, comparing it with the economy as whole and other GDP components. The fourth section looks at consumer-related employment for major sectors and detailed industries during the latest recession and recovery. The last presents BLS projections of consumer-related and total employment through 2022.

Methodology

Consumer spending, referred to interchangeably in this article as “consumer demand” or “personal consumption expenditures” (PCE), measures the purchase of goods and services by households and nonprofit institutions serving households. Furthermore, by definition PCE includes other expenditures, such as employer contributions for health insurance and workers’ compensation, imputed rent of owner-occupied housing, indirect financial services, in-kind social benefits, and expenses for pensions and life insurance.[20] BLS uses annual PCE data from the National Income and Product Accounts published by the Bureau of Economic Analysis (BEA). To estimate the number of U.S. jobs related to consumer demand, BLS first adjusts PCE to reflect only the purchase of U.S.-produced goods and services. Otherwise, the purchase of imports would artificially inflate U.S. production data (and jobs) according to the input–output methodology used.[21] Import-adjusted consumer expenditures, or “domestic PCE,” are reported for 189 diverse industries that correspond to 17 major sectors that are then coupled into either goods-producing or service-providing categories. Domestic PCE for the 17 major sectors are listed in table 1.

Table 1. Domestic (import-adjusted) personal consumption expenditures

Industry	Billions of 2005 constant dollars[(1)]							Percent change	Annual percent change
	2007	2008	2009	2010	2011	2012	2022	2007–2010	2012–2022
All industries	8,723.8	8,684.0	8,561.2	8,708.4	8,950.7	9,137.1	11,860.2	-0.2	2.6
Goods-producing	1,054.3	1,014.4	1,013.1	996.5	1,031.2	1,063.5	1,273.7	-5.5	1.8
Mining	< .1	.1	.1	< .1	< .1	< .1	.1	<.1	1.6
Construction	.0	.0	.0	.0	.0	.0	.0	—	—
Manufacturing	1,054.3	1,014.4	1,013.1	996.4	1,031.2	1,063.5	1,273.7	-5.5	1.8
Service-providing	7,669.5	7,669.6	7,548.1	7,711.9	7,919.5	8,073.6	10,586.5	.6	2.7
Utilities	215.3	211.2	213.6	216.9	212.3	207.7	252.8	.7	2.0
Wholesale trade	381.8	386.7	345.4	374.7	406.1	418.5	544.4	-1.8	2.7
Retail trade	1,029.4	1,000.3	982.5	1,059.2	1,100.0	1,148.5	1,572.5	2.9	3.2
Transportation and warehousing	205.1	197.7	189.4	183.5	189.0	189.9	247.3	-10.5	2.7
Information	405.5	418.8	415.0	438.9	471.3	482.7	721.3	8.2	4.1

See footnotes at end of table.

Table 1. Domestic (import-adjusted) personal consumption expenditures

Industry	Billions of 2005 constant dollars[1]							Percent change	Annual percent change
	2007	2008	2009	2010	2011	2012	2022	2007–2010	2012–2022
Financial activities	1,111.3	1,110.6	1,058.7	1,070.4	1,081.5	1,092.2	1,394.9	-3.7	2.5
Professional and business services	200.0	200.5	190.7	190.5	190.0	195.9	238.5	-4.7	2.0
Educational services	226.8	230.7	232.3	237.0	244.8	249.7	300.5	4.5	1.9
Health care and social assistance	1,531.5	1,578.5	1,609.0	1,633.4	1,691.8	1,719.3	2,346.0	6.7	3.2
Leisure and hospitality	734.0	727.2	695.3	712.9	737.1	761.4	920.4	-2.9	1.9
Other services	459.5	455.0	422.6	422.2	429.9	439.4	548.6	-8.1	2.2
Federal government	6.4	6.0	5.5	5.0	4.6	4.4	3.0	-20.3	-3.5
State and local government	52.1	52.0	53.4	53.0	53.4	55.4	69.5	1.7	2.3
Special industries[2]	1,110.7	1,094.5	1,134.6	1,114.2	1,107.6	1,108.7	1,426.7	.3	2.6

Notes:

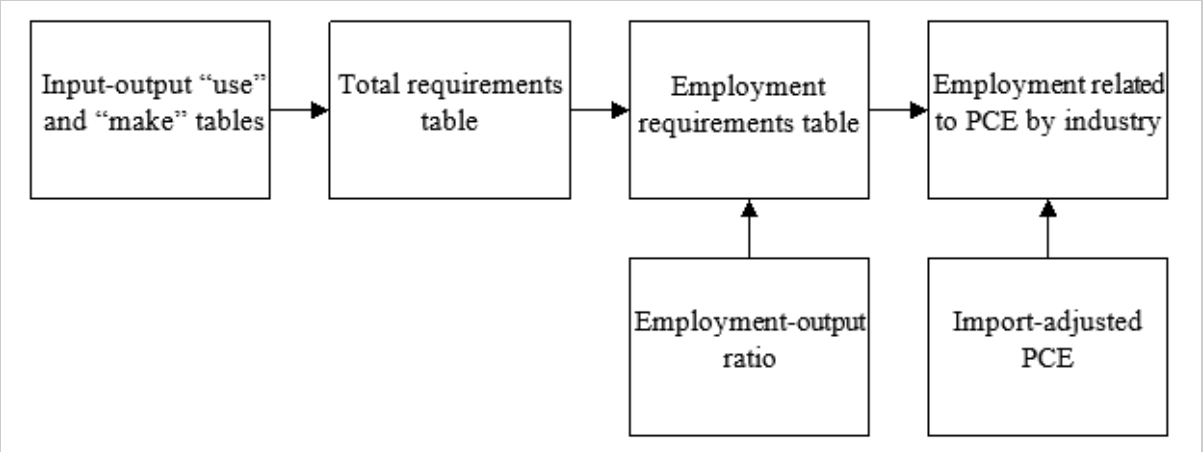
[1] For convenience, industry figures have been summed rather than chain weighted.

[2] Special industries, such as imputed rent of owner-occupied dwellings, affect GDP but do not lead to employment.

Note: Figures may not add because of rounding.

Source: U.S. Bureau of Labor Statistics.

BLS translates import-adjusted expenditures to employment using an input–output system, which traces the purchase of a good or service through the entire chain of production, from intermediate production to final sales. The diagram summarizes the input–output system.



BLS utilizes input–output "use" and "make" tables to determine interindustry production relationships. The "use" table shows what commodities each industry uses for production (inputs), and the "make" table shows what commodities each industry ultimately creates (outputs). Both tables are used to calculate a "total requirements table," which shows how much total output directly and indirectly is required based on interindustry relationships

per final demand dollar. Then, the total requirements table is transformed to an employment requirements table using employment–output ratios that reflect labor productivity. Import-adjusted PCE is then multiplied by the employment requirements table—which is also import-adjusted—to arrive at net annual PCE-related employment.[22] The employment figure includes jobs both directly and indirectly related to PCE, but not induced employment.[23] In summary, BLS first determines how much production (output) supports domestic consumer demand, and then production (output) is translated to employment using trends in labor productivity, or employment–output ratios.

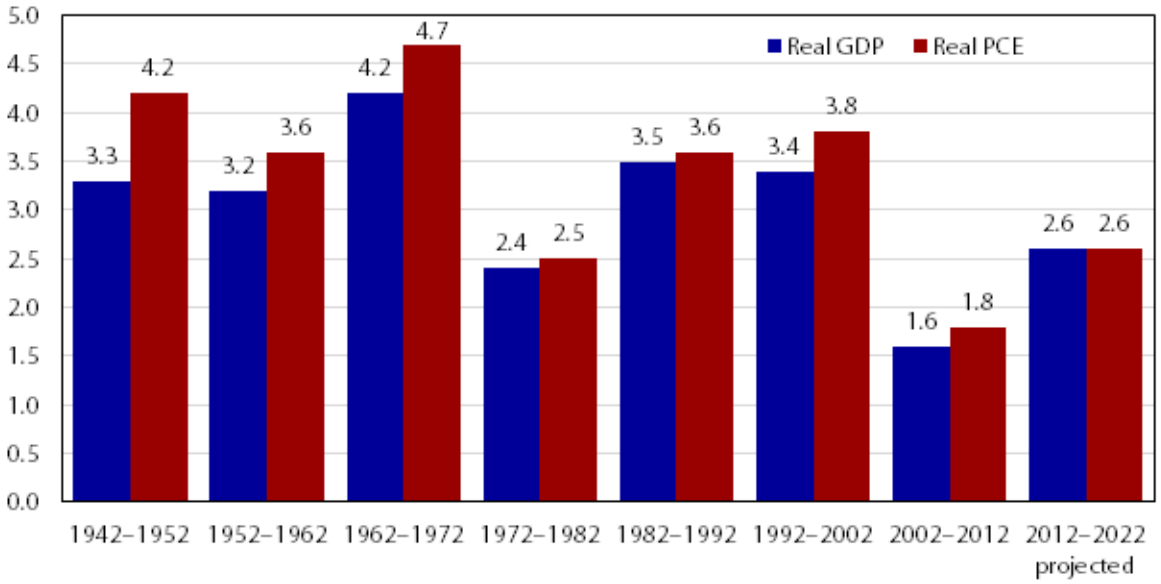
In contrast to past BLS publications, in this article the terms “consumer-supported” or “consumer-related” employment are preferred to “consumer-generated” employment. This is because changes in consumer-related employment are driven not just by consumer demand, but also by factors such as the commodity distribution of demand, relationships between output and demand (total requirements matrix), and employment–output ratios. Furthermore, in the context of the recession, a simultaneity issue exists between consumer spending and total job loss: do consumers cut spending in response to an economic downturn, or is a downturn caused or worsened because of consumer behavior? For this analysis, BLS simply estimates the correlation between consumer spending and overall employment but does not assert the causal direction of the relationship.

Though most attention in this article is given to 2007–2012 and projections through 2022, long-term trends for consumption and employment use a time series dating back to 1993. Historical BLS publications are relied upon to determine approximate ranges for the period from 1977 to 1993. All spending figures are in 2005 real (inflation-adjusted) dollars and based on BEA data published in March 2013.[24] Only nonfarm wage and salary employment is addressed in this article, at both an aggregate and PCE-related level.

Prerecession trends

Leading up to the 2007–2009 recession, consumer spending as a percentage of GDP had risen for 40 years, increasing from just over 61 percent in 1966 to just under 70 percent in 2006 (see figure 1). PCE growth also outpaced general economic expansion (see figure 4). Consumers bought increasingly more services, and the composition of PCE shifted over time with rising in-kind social benefits and third-party contributions towards health insurance and workers’ compensation.[25] As a result, the percentage of PCE stemming from direct household expenditures declined from 84.5 percent in 1960 to 67.6 percent in 2006.[26]

Figure 4. Annual percentage growth in real gross domestic product and personal consumption expenditures

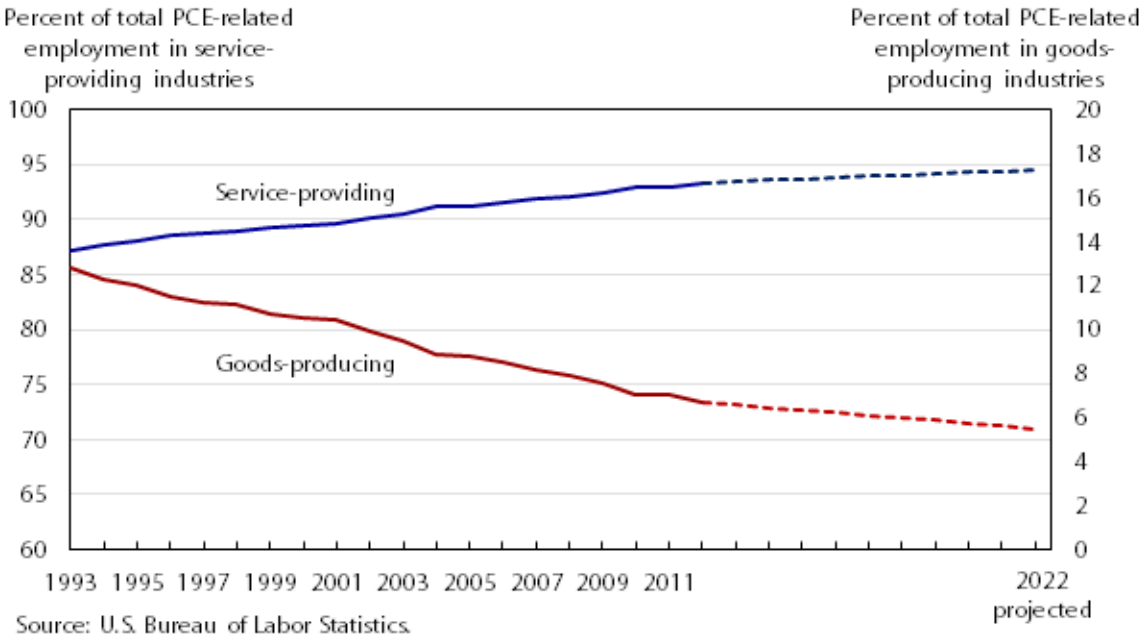


Sources: Bureau of Economic Analysis for 1942–2012, U.S. Bureau of Labor Statistics for projected 2012–2022.

The late 1990s saw a surge in spending as Americans bought new technology and globalization ushered in less expensive imports. Economic growth, rising home values and equity, easy credit, and declining personal savings rates also prompted higher consumer spending, supplemented by baby boomers reaching their highest earning years.[27] The 2001 recession and its lingering effects briefly tempered consumer spending, but growth rates rose again as Americans spent more on durable household items, new technology, and vehicles as the housing bubble peaked in 2005.[28]

Even though consumer spending as a share of GDP rose several percentage points, the percentage of U.S. jobs supported by consumers fluctuated within a lower, narrow range prior to the 2007–2009 recession (see figure 3). Between 1993 and 2006, PCE-related employment accounted for roughly 60 to 62 percent of all employment. In fact, consumers have been responsible for a relatively stable percentage of total employment since the late 1970s: BLS previously estimated that PCE-related employment ranged between 61 to 63 percent for 1985–2000 and 60 to 64 percent for 1977–1993.[29] But over time, a greater percentage of consumer-related jobs have been in services (see figure 5).

Figure 5. Breakdown of PCE-related employment into service-providing and goods-producing industries, 1993–2012 and 2022 projected



Between 1993 and 2007, PCE grew 3.5 percent annually while PCE-related employment grew 1.5 percent annually. Some of the discrepancy was due to increased consumption of imported goods. But domestic PCE, which removes imported goods and services, still grew 3.0 percent annually—about twice as fast as PCE-related employment. The remaining disparity between PCE and PCE-related employment can be attributed to productivity improvements, such as automation that reduces labor requirements. Broader measures of economic activity showed similar discrepancies. Overall GDP grew 3.2 percent annually between 1993 and 2007, while total employment grew 1.5 percent annually over the same period.

Consumers and U.S. employment, 2007–2012

To understand the complete relationship between consumer spending and employment, we must also evaluate the relationship between all GDP components and employment as well. Focusing on consumer spending, this section covers employment related to each final demand component annually during the latest recession and the recovery years through 2012. The section concludes with an analysis of long-run trends affected by the recent recession.

Tables 2 and 3 document output and employment levels in the recession tied to each final demand component, as well as showing projections to 2022.[30, 31] Even though the recession ended in 2009, employment changes for the 2007–2010 time period are included in table 3 because overall employment levels peaked in 2007 and troughed in 2010. Tables 1 and 4 break out domestic PCE and consumer-related employment by major sector—which are reviewed in more depth in the next section—and figure 6 illustrates quarterly PCE from 2007 through 2012. Figures 7 and 8 plot the output and employment path of each final demand component in comparison with 2007 levels,[32] while figure 9 shows the net annual change of employment that is related to each final demand component.

Table 2. Real gross domestic product by component, 2007–2012 and projected 2022

Gross domestic product component	Billions of chained 2005 dollars							Annual rate of change	Contribution to percentage change in real GDP
	2007	2008	2009	2010	2011	2012	2022	2012–2022	2012–2022
Total GDP	13,206.4	13,162.0	12,757.9	13,063.0	13,299.2	13,593.3	17,584.2	2.6	2.6
Personal consumption expenditures	9,262.9	9,211.7	9,032.6	9,196.1	9,428.8	9,603.3	12,380.1	2.6	1.8
Durable goods	1,232.5	1,171.9	1,109.2	1,178.3	1,262.6	1,361.0	1,935.7	3.6	.3
Nondurable goods	2,042.9	2,019.1	1,982.8	2,029.4	2,075.2	2,094.5	2,556.6	2.0	.3
Services	5,990.2	6,017.0	5,930.6	5,987.6	6,101.5	6,176.6	7,973.1	2.6	1.2
Gross private investment	2,159.5	1,939.8	1,458.1	1,658.1	1,744.0	1,914.4	3,038.2	4.7	.7
Exports	1,554.5	1,649.3	1,498.7	1,665.6	1,776.9	1,837.4	3,117.7	5.4	.8
Imports[1]	2,203.3	2,144.0	1,853.8	2,085.2	2,184.9	2,238.1	3,296.8	3.9	-.7
Federal government	906.1	971.1	1,030.6	1,076.8	1,047.0	1,024.1	861.6	-1.7	-.1
State and local government	1,528.1	1,528.1	1,561.8	1,534.1	1,482.0	1,461.7	1,615.1	1.0	.1
Residual[2]	-1.4	6.0	29.9	17.6	5.3	-9.5	-131.7	—	—

Notes:

[1] Imports are subtracted from the other components of GDP because they are not produced in the United States.

[2] The residual is calculated as real gross domestic product, plus imports, less other components.

Sources: U.S. Bureau of Economic Analysis (2013) and U.S. Bureau of Labor Statistics.

Table 3. Employment related to each gross domestic product component, 2007–2012 and projected 2022

Gross domestic product component	Employment in thousands							Change	Percent change	Change	Annual percent change
	2007	2008	2009	2010	2011	2012	2022	2007-2010	2007–2010	2012–2022	2012–2022
Total nonagricultural wage and salary employment	138,351.3	137,600.2	131,608.4	130,535.5	132,171.9	134,427.6	149,751.3	-7,815.8	-5.6	15,323.7	1.1
Personal consumption expenditures	85,144.0	85,136.4	82,971.5	81,982.0	83,839.3	85,505.8	94,650.1	-3,162.0	-3.7	9,144.3	1.0
Gross private investment	16,999.4	15,512.8	12,203.0	12,218.2	12,505.8	13,553.8	17,374.2	-4,781.2	-28.1	3,820.4	2.5
Exports[1]	9,215.8	9,531.0	8,434.9	8,808.5	9,293.3	9,426.2	12,334.3	-407.3	-4.4	2,908.1	2.7
Federal government	5,252.2	5,562.4	5,940.8	6,090.6	5,700.8	5,458.8	4,200.4	838.5	16.0	-1,258.4	-2.6
State and local government	21,739.9	21,857.5	22,058.1	21,436.2	20,832.7	20,483.0	21,192.3	-303.7	-1.4	709.3	.3

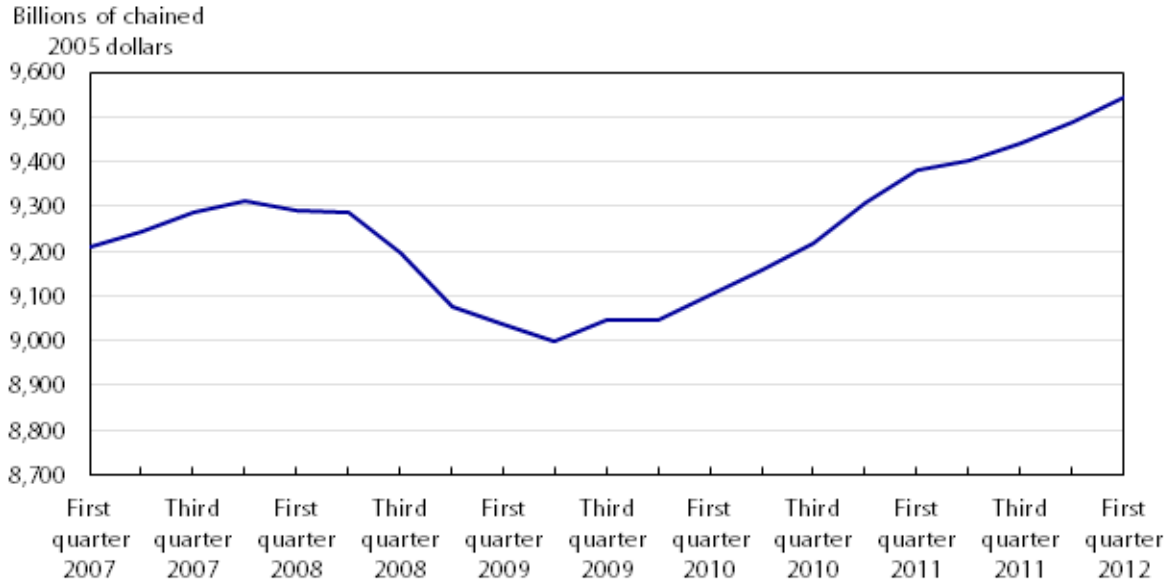
Notes:

(1) See endnote 30 in accompanying article.

Note: Figures may not add because of rounding.

Source: U.S. Bureau of Labor Statistics.

Figure 6. Quarterly personal consumption expenditures during the 2007–2009 recession and recovery



Source: Bureau of Economic Analysis (2013).

2007. In the last quarter of 2007, the first official quarter of the recession, consumer spending peaked at $9.3 trillion (see figure 6). At that time, 85.1 million jobs—61.5 percent of total U.S. employment—related to consumer spending (see figures 2–3 and table 3). Goods-producing industries claimed 8.2 percent of consumer-related employment (just under 7 million jobs), while 91.8 percent (78.2 million jobs) was in services (see figure 5 and table 4). As the housing market collapsed and the financial crisis ensued, spending and employment relating to private fixed investment—which includes spending on structures, equipment, and software related to production—continued to decline from its 2006 peak, sparking economic contraction (see figures 7–9).

Table 4. Consumer-related employment

Industry	Employment in thousands							Change	Percent change	Change	Annual percent change
	2007	2008	2009	2010	2011	2012	2022	2007–2010	2007–2010	2012–2022	2012–2022
All industries	85,144.0	85,136.4	82,971.5	81,982.0	83,839.3	85,505.8	94,650.1	-3,162.0	-3.7	9,144.3	1.0
Goods-producing	6,983.8	6,723.3	6,267.7	5,744.8	5,880.6	5,761.9	5,233.8	-1,238.9	-17.7	-528.1	-1.0
Mining	186.5	192.7	188.5	176.8	180.4	183.1	175.7	-9.7	-5.2	-7.4	-.4
Construction	638.9	640.7	654.2	557.4	586.9	457.8	510.8	-81.5	-12.8	53.0	1.1
Manufacturing	6,158.4	5,890.0	5,425.1	5,010.7	5,113.3	5,121.0	4,547.3	-1,147.7	-18.6	-573.7	-1.2
Service-providing	78,160.3	78,413.1	76,703.8	76,237.2	77,958.6	79,743.9	89,416.3	-1,923.1	-2.5	9,672.4	1.2
Utilities	439.6	437.8	452.6	447.1	452.0	456.6	402.6	7.5	1.7	-53.9	-1.2

See footnotes at end of table.

Table 4. Consumer-related employment

Industry	Employment in thousands							Change	Percent change	Change	Annual percent change
	2007	2008	2009	2010	2011	2012	2022	2007–2010	2007–2010	2012–2022	2012–2022
Wholesale trade	3,432.2	3,324.8	3,340.3	3,073.6	3,150.1	3,197.4	3,090.9	-358.7	-10.5	-106.4	-.3
Retail trade	14,147.0	14,212.0	13,727.8	13,532.1	13,887.0	14,089.0	14,894.4	-614.8	-4.3	805.4	.6
Transportation and warehousing	2,776.0	2,752.0	2,689.4	2,562.3	2,649.6	2,716.1	2,773.1	-213.7	-7.7	57.0	.2
Information	2,150.2	2,130.6	1,998.8	1,928.0	1,913.0	1,904.6	1,827.3	-222.2	-10.3	-77.2	-.4
Financial activities	6,957.1	6,949.8	6,635.9	6,526.5	6,508.1	6,532.8	6,787.9	-430.6	-6.2	255.1	.4
Professional and business services	10,035.1	9,778.5	8,999.9	9,145.6	9,751.8	10,181.2	11,639.2	-889.5	-8.9	1,458.0	1.3
Educational services	2,823.4	2,953.4	3,020.8	3,076.7	3,188.2	3,294.0	3,947.5	253.3	9.0	653.5	1.8
Health care and social assistance	14,779.9	15,148.4	15,563.6	15,849.6	15,980.6	16,340.9	21,414.3	1,069.7	7.2	5,073.4	2.7
Leisure and hospitality	12,352.3	12,388.6	12,067.4	12,051.4	12,372.2	12,855.1	13,960.7	-300.9	-2.4	1,105.6	.8
Other services	5,828.3	5,861.8	5,703.0	5,629.4	5,717.5	5,791.7	6,362.4	-198.9	-3.4	570.6	.9
Federal government	646.9	649.0	635.6	586.0	567.0	551.4	394.0	-61.0	-9.4	-157.4	-3.3
State and local government	1,792.2	1,826.5	1,868.5	1,828.9	1,821.4	1,833.0	1,921.8	36.7	2.0	88.8	.5
Special industries[1]	.0	.0	.0	.0	.0	.0	.0	—	—	0	—

Notes:

[1] Special industries impact GDP but do not lead to employment, such as imputed rent of owner-occupied dwellings.

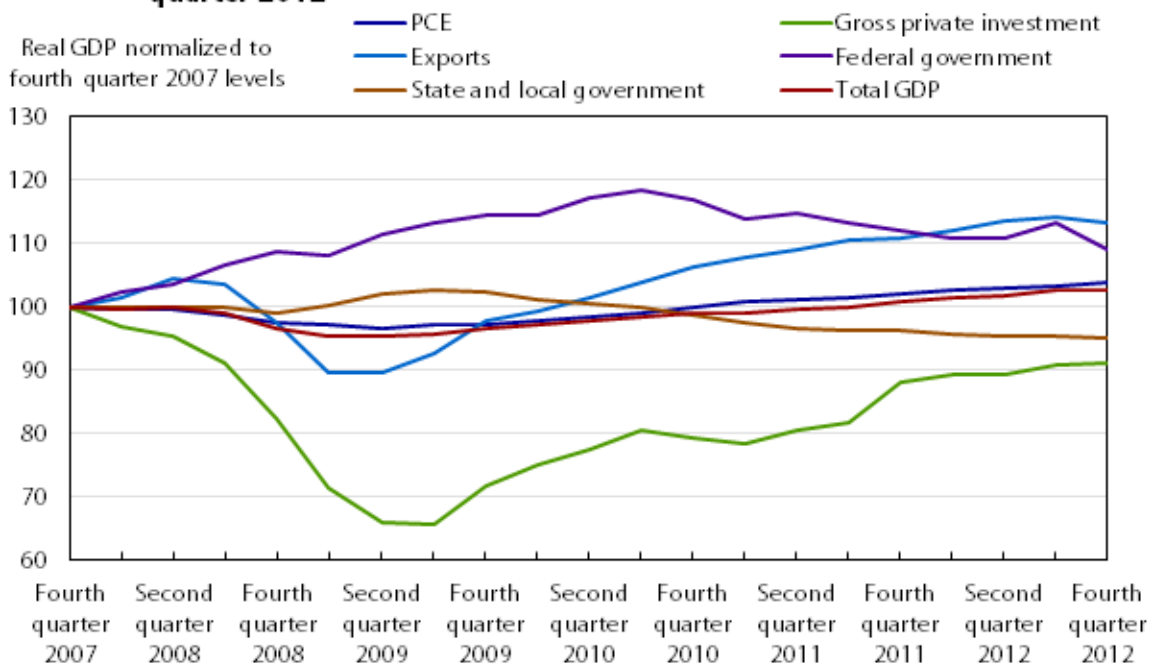
Note: Figures may not add because of rounding.

Source: U.S. Bureau of Labor Statistics.

2008. By the last quarter of 2008, as the recession deepened, consumers cut spending by over $200 billion from the previous year to just under $9.1 trillion, with lower purchases of goods, especially vehicles. Employment supported by consumer spending decreased slightly as consumer-supported jobs fell by 7,600 (see figure 9 and table 3). Nearly all PCE-related employment declines were confined to goods-producing industries (see table 4). Investment-related employment essentially accounted for the entirety of job declines for the whole economy in 2008. Government-related spending and employment at the federal level increased, while state and local

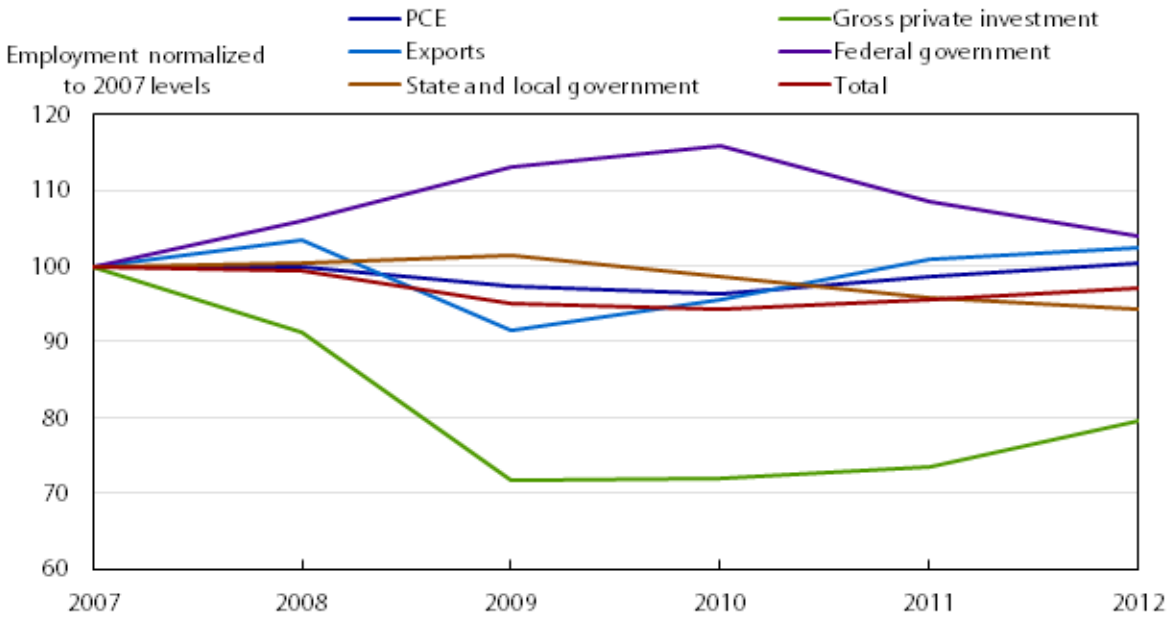
government-related spending and employment remained virtually flat. Export-related spending and employment increased slightly (see figures 7–9).

Figure 7. Quarterly real gross domestic product, fourth quarter 2007 to fourth quarter 2012



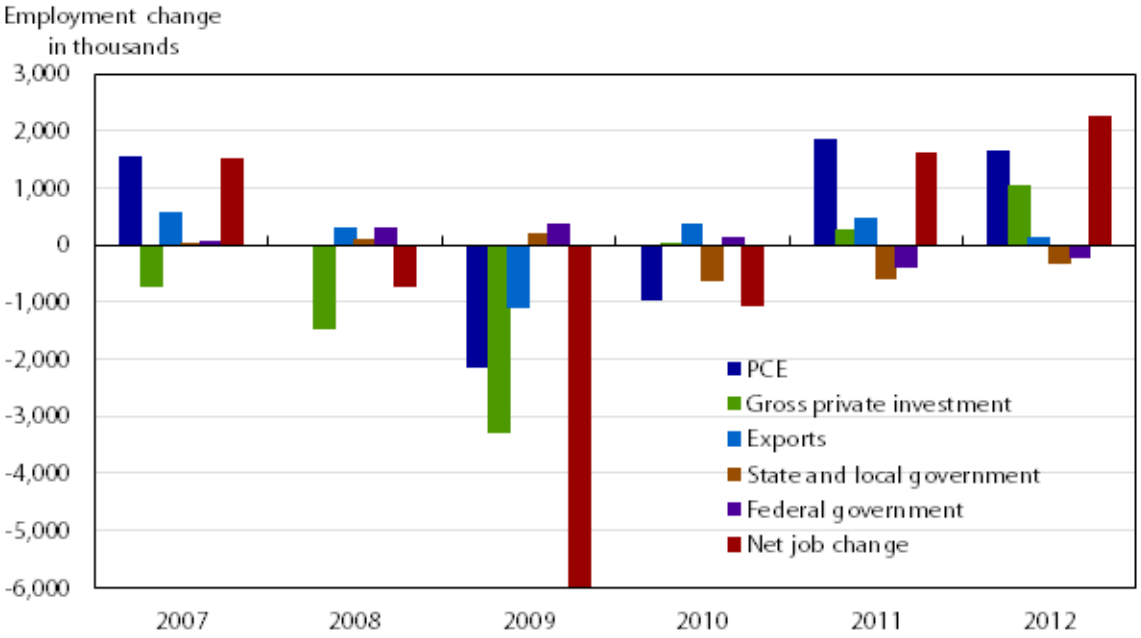
Source: Bureau of Economic Analysis.

Figure 8. Annual employment related to each gross domestic product component, 2007 to 2012



Source: U.S. Bureau of Labor Statistics.

Figure 9. Change from previous year in employment by component of gross domestic product, 2007 to 2012



2009. In 2009 consumers spent just under $9.0 trillion in the second quarter, the last official quarter of the recession. This was the lowest PCE value registered in the recession. Services were particularly affected, especially transportation, food services, recreation, and financial services. PCE-related employment declined that year by 2.2 million jobs, or 2.5 percent. Of those 2.2 million jobs, 1.7 million were in service-providing industries and 456,000 in goods-producing industries. More PCE-related (and total) jobs were lost in 2009 than any other year in the recession (see figure 9 and table 3).

Excluding government-related employment gains, lower consumer spending was associated with one-third of the 6.6-million job decrease in 2009. Half of the 6.6-million decline related to investment spending, while 17 percent related to exports. Exports have been a bright spot in the U.S. economy in recent years, and the only net annual job declines for export-related employment occurred in 2009. Meanwhile, employment related to federal, state, and local governments increased by a combined 579,000.

2010. Consumer spending slowly recovered through 2010 after bottoming out in the second quarter of 2009. The revival in spending, however, was the weakest since the 1940s, especially for services and nondurable goods.[33] Spending growth of durable goods also remained low, with little boost from low interest rates for durable goods purchases.[34] As for domestic PCE, consumer spending on U.S. goods-producing industries actually declined in 2010 (see table 1). With weak growth, in 2010 PCE contributed less to GDP growth than did gross private investment—the first time since 1984.

Typically, employment tends to lag output in recovery from recessions. This held for PCE-related and, consequently, total employment in the latest recession. Even as PCE slowly recovered, PCE-related employment continued to decline through 2010 with 989,500 fewer jobs—a smaller decrease than in 2009—as the economy began to turn around (see figures 8 and 9). (In contrast, employment levels increased (or decreased) the same year that output levels did for the investment, export, and government sectors in the Great Recession.) PCE-

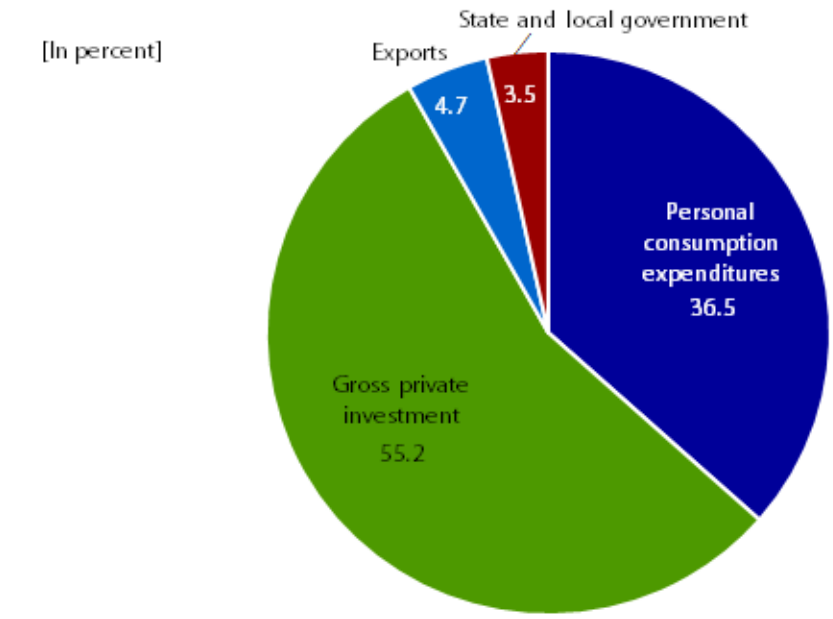
related employment recovery was also impaired by weak spending on labor-intensive services and lower purchases towards goods-producing industries. A similar number of consumer-related jobs in goods-producing industries were lost (a decline of 523,000 jobs) as service-providing ones (a 467,000 decline) in 2010 (see table 4).

Consumer-related employment accounted for the majority (61.4 percent) of job loss among GDP sectors that experienced employment declines in 2010, which was 1 year after the recession officially ended. State and local government-related employment, experiencing its first decline in this business cycle, accounted for the remainder of the decrease. Meanwhile, export-related employment improved, while investment-related employment remained essentially flat. Employment and spending related to the federal government peaked in 2010, supported by the employment increase with the administration of the 2010 Census (see figures 7–9 and tables 2–3).

In total, the number of jobs tied to consumer demand declined by 3.2 million from the 2007 employment peak to the 2010 trough, representing a 3.7 percent decrease (see table 3). By 2010, PCE-related employment stood at levels last seen in 2005. The recession had a disproportionate impact on goods-producing industries: although less than 10 percent of PCE-related jobs are involved in making goods, these industries represented 39.2 percent of consumer spending–related job reductions between 2007 and 2010. Services accounted for the remaining 60.8 percent (see table 4).

The total economy experienced a net decline of 7.8 million jobs between 2007 and 2010 as employment fell to levels last seen in 2000. This represents a 5.6-percent decrease, which was greater than the consumer-related job decrease and signaled the relative stability of PCE. After federal government–related employment increases are excluded, a total 8.7 million[35] jobs were lost between 2007 and 2010. PCE-related employment accounted for over a third of this decline—36.5 percent—while over half of job reductions correlated with investment spending (see figure 10 and table 3). Because of its cyclical nature, investment-related employment experienced much larger and more rapid declines than all other sectors of the economy: between its peak and trough (2006–2009), investment-related employment fell 31.2 percent, a reduction of 5.5 million jobs. Many of those jobs were related to the construction industry. The remainder of the decline between 2007 and 2010 was in export-related employment (4.7 percent, or –407,300), and in state and local government–related employment (3.5 percent, or –303,700).[36]

Figure 10. Distribution of 2007–2010 job loss by final demand component



Note: Calculated using annual data less federal government–related gains.
Source: U.S. Bureau of Labor Statistics.

2011. In 2011 consumer spending grew 2.5 percent, recovering to prerecessionary levels in the first quarter (see figures 6–7). The 3-year journey back to 2007 spending levels was the slowest recovery from recession since World War II.[37] As for employment, PCE-related jobs increased 2.3 percent as nearly 1.9 million jobs were added. Because of the unavailability of historical PCE-related employment time series, the growth rate can't be compared with postrecessionary time periods prior to 1993. However, 2.3 percent was generally in the range of PCE-related employment growth in the late 1990s. With 83.8 million PCE-related jobs, levels remained over a million shy of the 2007 peak (see figure 8).

In 2011 overall employment increased by 1.6 million jobs or 1.3 percent, well below the job growth following other recessions and slower than PCE-related gains. Federal government–related employment began to decline from its 2010 peak, while export-related employment reached 2007 levels. Declining government-related employment at the federal, state, and local levels, as well as weak investment-related employment growth, were the primary causes of low employment growth in 2011 (see figures 8–9 and table 3).

2012. In 2012 consumer spending and its related employment expanded slower than in 2011, as the unemployment rate remained elevated around 8 percent in the United States and the Eurozone slipped into another recession. PCE increased 1.9 percent—the slowest growth rate for a nonrecessionary year (except 2010) since 1951—while PCE-related employment expanded 2.0 percent (see figure 9 and table 3).

In 2012 PCE-related employment finally recovered recessionary losses (see figure 8). Because the time series of employment relating to consumption only extends back to 1993, the recovery from the latest recession can only be compared with the 2001 recession. In the 2001 recession, PCE-related employment took 3 years to recover to 2001 highs, and total employment took 4 years to recover. In the most recent recession, PCE-related employment recovered in 5 years, while total employment required 7. The quicker recovery of PCE-related employment in

comparison with the overall economy reflects the relatively stability of consumption during the business cycle, the strong performance of some of its subsectors (see next section), and the negative toll of low investment spending on broader economic recovery in the latest recession.

In contrast to PCE-related employment, total employment expanded faster in 2012 than in 2011 as investment spending began to show stronger recovery (see figure 9)—nonetheless, the overall employment growth rate remained lower than rates typically seen following recessions. In addition to slow consumer-related employment growth, declining government-related employment and diminished export-related growth all hindered overall job growth in 2012. Total employment stood 3.9 million below 2007 levels, and investment-related employment remained at 76.4 percent of its prerecession 2006 peak.

Long-run trends. Despite the historic decline in spending, consumers nevertheless supported a higher proportion of jobs during the latest recession than they had from the inception of the data series in 1993 through 2008, although the percentage of employment related to consumer spending from 2009 to 2012 was still within the long-run historic range (see figure 3). Between 1993 and 2007, consumer-related employment fluctuated between 60 and 62 percent of total employment—at the lower end of the historic range dating to the late 1970s—when the percentage of investment-related employment increased to fuel economic expansion. But in 2009, the worst year of the recession, PCE-related employment increased to 63 percent of U.S. employment and then rose again in 2011 and 2012 as investment-related employment remained near historic lows and government-related employment began to decline (see table 3). In fact, investment-related employment declined to levels previously unobserved in this time series (which, as previously noted, dates back to 1993).

The larger role of consumption during the latest recession and recovery reflects its stability in comparison with other GDP components in the business cycle; the relative stability has been a consistent pattern with all recessions following WWII.[38] Consumers still need vital goods and services like food and shelter during economic downturns even as some businesses entirely shut down. The relative stability also reflects the positive performance of specific sectors for PCE-related employment in the recession, as is discussed in the next section. Furthermore, the larger percentage of PCE-related employment as a share of all employment underscores the severity of the recession. As seen in figure 3, PCE-related employment as a percentage of all employment tends to increase during economic contractions, when investment-related employment declines more rapidly, and decrease during expansions, when investment-related employment rises more quickly. Figures 7 and 8 also demonstrate the volatility of each GDP component and the whole economy for output and employment and further reveal the relative stability of PCE.

Detailed PCE-related employment, 2007–2012

This section analyzes PCE-related employment at the major sector and detailed industry levels, including the most consumer-dependent industries, from 2007 through 2012. For major sectors, it analyzes overall 2007–2010 employment changes, specific declines in 2010 (the year when consumer-related employment constituted the majority of job declines), and the recovery. For detailed industries, the research focuses on 2007–2010 changes exclusively. The section then concludes with an analysis of long-run sector trends that were affected by the recession. Table 1 shows domestic PCE and table 4 breaks down PCE-related employment for 17 major sectors.

PCE-related employment by major sector. A few sectors were not as affected by the latest recession, and they added PCE-related employment from 2007 to 2010. Because of the aging of baby boomers and the increased demand for health care, the health care and social assistance industry added nearly 1.1 million jobs related to PCE (see tables 1 and 4). With tight economic conditions, enrollment in postsecondary education programs increased—especially community colleges—leading to over 253,000 more PCE-related jobs in educational services.[39] With a 9.0 percent growth rate, this sector grew faster than any other for consumer-related (and total) employment during the recession, followed by the health care and social assistance industry, which grew 7.2 percent. State and local government employment related to consumers grew 2.0 percent by adding 36,700 jobs. These jobs included mostly transportation and enterprises such as utilities, transit systems (including parking and tolls), and gambling. Consumer-related employment also increased, by 7,500, in private utilities.

The remaining sectors were responsible for nearly 4.5 million consumer-related job losses between 2007 and 2010. Of those 4.5 million jobs, just over three-quarters were concentrated in five industries: manufacturing, professional and business services, retail trade, financial activities, and wholesale trade. Manufacturing jobs related to U.S. consumption declined by over 1.1 million, while professional and business services declined by 889,500. Most of the declines in professional and business service jobs were in the employment services category, primarily an intermediate service that includes employment placement agencies, temporary help services, and professional employer organizations. PCE-related employment also declined by 614,800 for retail trade (4.3 percent), 431,000 for financial activities (6.2 percent), and 358,700 for wholesale trade (10.4 percent).[40]

From 2009 to 2010, when the majority of employment declines were consumer-related, five major industry sectors were primarily responsible for the PCE-related job declines: manufacturing, wholesale trade, retail trade, transportation, and financial activities. PCE-related manufacturing jobs alone declined by 414,400. As for services, wholesale trade was particularly affected, with PCE-related employment decreasing by 8 percent (266,700 jobs). In total, more goods-producing jobs tied to consumption were lost than service-providing jobs in 2010. This differs from 2009, when more service-providing jobs were lost. The larger decline in goods-producing jobs in 2010 coincided with a larger decline in consumer demand for those industries than the previous year (see tables 1 and 4).

The recovery of PCE-related employment in 2012 to prerecession levels varied by major sector, and largely occurred in industries that weren't as affected by the recession. In 2012 six major sectors surpassed 2007 levels: utilities, professional and business services, educational services, health care and social assistance, leisure and hospitality, and state and local government. Only two of those sectors actually had experienced PCE-related declines between 2007 and 2010: professional and business services, and leisure and hospitality. As for sectors that did not recover, in 2012 PCE-related wholesale trade jobs remained 235,000 jobs below 2007 levels, while PCE-related employment in retail trade had 58,000 fewer jobs than in 2007 . Financial activities had 424,000 fewer PCE-related jobs, while manufacturing lost more than 1 million such jobs.

In comparison with the recovery from the 2001 recession, the severity of the recent recession can be observed at the major sector level. For example, both the professional and business services sector and the leisure and hospitality sector required 1 more year to recover PCE-related employment in the latest recession than in the 2001 recession. Furthermore, PCE-related jobs in retail trade had not recovered as of 2012—5 years after the recession

began—while they required 4 years to recover from the 2001 recession. PCE-related jobs in wholesale trade hadn't recovered as of 2012 either, whereas they took 6 years to recover after the 2001 recession.

PCE-related employment by detailed industry: Table 5 shows the detailed industries with the top 10 largest and most rapid consumer-related employment declines from 2007 to 2010. All of the industries with the largest job declines were services—such as trade, finance, information services, and food services—with the exception of printing and related support activities. Seven of the industries with the largest PCE-related declines were among the industries that also experienced the largest employment declines in the overall economy, with the exception of private households, telecommunications, and printing and related support activities. Lower consumer spending correlated with the most PCE-related job reductions in the retail trade industry, which declined by 614,800 jobs.

Table 5. Changes in consumer-related employment, 2007–2010

Largest declines	Level change	Most rapid declines[2]	Percent change
Retail trade[1]	-614,832	Motor vehicle body and trailer manufacturing[1]	-49.2
Employment services[1]	-588,033	Ship and boat building	-45.1
Wholesale trade[1]	-358,651	Navigational, measuring, electromedical, and control instruments manufacturing	-40.3
Monetary authorities, credit intermediation, and related activities[1]	-238,303	Spring and wire product manufacturing	-38.2
Food services and drinking places[1]	-158,388	Motor vehicle parts manufacturing[1]	-38.1
Private households	-146,000	Motor vehicle manufacturing[1]	-38.0
Newspaper, periodical, book, and directory publishers[1]	-109,163	Veneer, plywood, and engineered wood product manufacturing[1]	-37.9
Telecommunications	-102,229	Other transportation equipment manufacturing	-37.3
Truck transportation[1]	-99,068	Manufacturing and reproducing magnetic and optical media[1]	-37.2
Printing and related support activities	-89,841	Audio and video equipment manufacturing[1]	-36.8
Largest gains	Level change	Most rapid gains[2]	Percent change
Hospitals[1]	303,348	Federal enterprises except the postal service and electric utilities[1][3]	20.0
Junior colleges, colleges, universities, and professional schools[1]	176,006	Home health care services[1]	18.8
Home health care services[1]	171,148	Individual and family services[1]	16.2
Individual and family services[1]	168,950	Grantmaking and giving services and social advocacy organizations[1]	13.0
Offices of health practitioners[1]	163,749	Outpatient, laboratory, and other ambulatory care services[1]	12.8
Nursing and residential care facilities[1]	149,089	Junior colleges, colleges, universities, and professional schools[1]	12.0
Outpatient, laboratory, and other ambulatory care services[1]	120,413	Software publishers	11.5
Religious organizations	70,754	Other educational services[1]	11.4
Other educational services[1]	60,757	Hospitals	7.1
Local government enterprises except passenger transit	44,500	Nursing and residential care facilities	5.4

Notes:
See footnotes at end of table.

(1) Also listed among the top 10 industries that changed in the total economy.

(2) Note that industries with rapid gains or losses may have low personal consumption expenditures-related employment, hence small absolute changes translate to large percentage changes.

(3) Federal enterprises are typically intermediate services, like the National Flood Insurance Program.

Source: U.S. Bureau of Labor Statistics.

The 10 industries with the most rapid declines in PCE-related jobs were all manufacturing industries. Several were involved in the housing and auto markets, such as motor vehicle body and trailer manufacturing (–49.2 percent); motor vehicle parts manufacturing (–38.1 percent); motor vehicle manufacturing (–38.0 percent); and veneer, plywood, and engineered wood product manufacturing (–37.9 percent). Six of the industries with the most rapid PCE-related job declines were also among the top 10 industries with the most rapid declines in the overall economy. The remaining four industries with the most rapid job declines for the overall economy were all investment-related in the construction industry. (Note that some of the industries that shed jobs most quickly when consumer demand lessened had a low base of consumer-related employment to begin with).

Table 5 also shows the detailed industries with the largest and most rapid gains in consumer-related employment during the latest recession. Industries that gained the most jobs related to consumer spending were typically in the health care or education sectors. Health care and education jobs were also among the fastest growing for both consumer-related employment and total employment.

Table 6 ranks the top 20 detailed industries that were most dependent on consumer spending in 2010—meaning industries with the highest ratio of PCE-related jobs to total jobs—and shows how they fared during the recent recession. With the exception of beverage manufacturing, the last in the ranking, all industries most dependent on consumers were service-providing industries. Just over half of the most consumer-dependent industries gained jobs between 2007 and 2010, many because they are in the health care and education fields. Other heavily dependent industries with higher income elasticities of demand, such as recreation and personal services industries, experienced declines associated with lower consumer spending in the recession.

Table 6. Industries most dependent on consumer spending

Detailed industry	Percent of total employment related to PCE, 2010	PCE-related employment change (in thousands), 2007–2010	Percent change, 2007–2010
Private households	100.0	-146.0	-18.0
Personal care services	99.9	-7.2	-1.2
Home health care services	99.9	171.1	18.8
Religious organizations	99.8	70.8	4.4
Grantmaking and giving services and social advocacy organizations	99.8	43.6	13.0
Museums, historical sites, and similar institutions	99.5	-2.1	-1.6
Individual and family services	99.2	168.9	16.2
Elementary and secondary schools	98.9	16.6	2.0
Hospitals	98.2	303.3	7.1
Outpatient, laboratory, and other ambulatory care services	98.1	120.4	12.8
Death care services	98.1	-3.5	-2.6

See footnotes at end of table.

Table 6. Industries most dependent on consumer spending

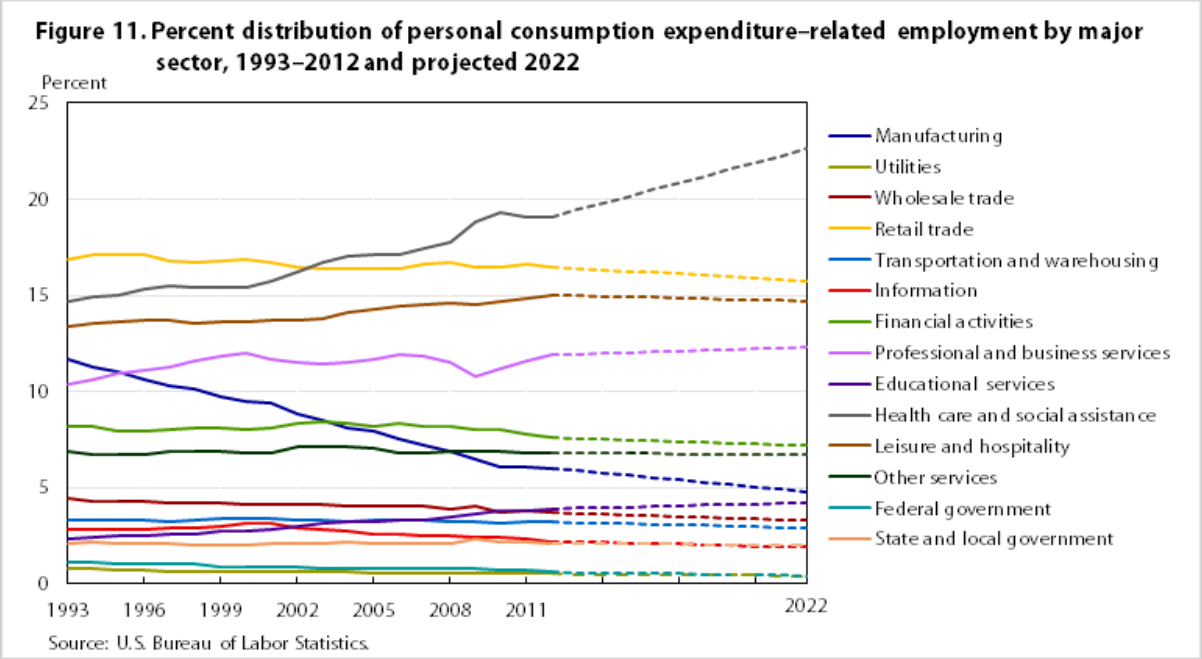
Detailed industry	Percent of total employment related to PCE, 2010	PCE-related employment change (in thousands), 2007–2010	Percent change, 2007–2010
Child day care services	98.0	-.9	-.1
Funds, trusts, and other financial vehicles	98.0	-3.0	-3.4
Community and vocational rehabilitation services	97.7	-6.1	-1.2
Insurance carriers	97.4	42.4	3.1
Junior colleges, colleges, universities, and professional schools	97.4	176.0	12.0
Amusement, gambling, and recreation industries	96.8	-53.1	-3.8
Other educational services	96.1	60.8	11.4
Offices of health practitioners	95.9	163.7	4.7
Beverage manufacturing	95.3	-9.7	-5.7

Source: U.S. Bureau of Labor Statistics.

The industry composed of grantmaking, giving services, and social advocacy organizations is also heavily dependent on PCE. Most PCE in this industry comes from the final consumption expenditures of nonprofit institutions serving households. PCE-related employment grew 13.0 percent between 2007 and 2010 for this industry, putting it among the fastest growing industries for both consumer-related and total employment during this time frame. Employment and spending growth in this industry dissipated as the weak recovery of the recession took place through 2011 and 2012.

Long-run trends. The recent recession had a notable impact on two long-run trends relating to employment and consumer spending: first, the percentage of PCE-related jobs devoted to health care and social assistance increased; and second, the percentage of PCE-related manufacturing jobs declined.

The percentage of PCE-related jobs in the health care and social assistance industry increased relative to other sectors during the 2007–2009 recession, rising from 17.4 percent in 2007 to 19.3 percent in 2010, as other sectors were affected by the recession and baby boomers continued to age (see figure 11 and table 4). On the other hand, the percentage of PCE-related jobs in the retail industry hovered around 16.5 percent. In 2011 and 2012, as employment began to recover in other sectors, the percentage of PCE-related jobs in the health care and social assistance sector held steady. With aging baby boomers, however, upward employment pressure will likely continue for this industry (see projections section).



The recession also had an impact on the decline of PCE-related manufacturing jobs. Consumers—who support over 40 percent of all U.S. manufacturing jobs—have increased spending on items from U.S. manufacturing industries over the past several decades.[41] Yet the number of jobs required to satisfy that demand has fallen because of productivity gains. The same pattern exists for all manufacturing jobs in the United States. As seen in table 4, the latest recession intensified the decline of consumer-supported employment in manufacturing industries between 2007 and 2010. Yet in 2011 and 2012, manufacturing jobs tied to consumption (and the overall economy) did not decline for the first time since 1998. Higher domestic demand for the products of U.S. manufacturing industries appears to have reversed the decline in those years (see table 1).[42]

Consumer spending: an engine of U.S. economic growth through 2022?

With the impact of the Great Recession on consumers and with the aging of the U.S. population, will consumers drive economic growth through 2022? Will they continue to support the majority of U.S. jobs? To determine the impact of consumer spending on future economic growth, we take into consideration both the projected output of the U.S. economy and employment estimated for a full-employment economy.

Output. BLS projects that the 2007–2009 recession and other factors will have an adverse effect on the U.S. economic outlook through 2022.[43] The aging of the population, lack of business investment during the recession, and high long-term unemployment are expected to place constraints on potential GDP growth. As such, U.S. GDP is not expected to attain the higher growth rates that are typically seen following recessions as the economy settles into a “new normal.” BLS projects that GDP will increase to $17.6 trillion by 2022 at a 2.6-percent compound annual growth rate, which is slower than prerecession growth rates (see figure 4 and table 2).

Consumer spending, like the total economy, is projected to experience slower growth than its prerecession rates as demographics shift and consumer behavior changes. As the baby boomers leave the labor force, their consumption is expected to decline and shift more towards services. In fact, BLS projects that 58.6 million people

—17.3 percent of the population—will be over age 65 by 2022, compared with 41.9 million, or 13.3 percent, in 2012.[44] In addition, the latest recession is expected to alter consumer behavior in the long run with an expected personal savings rate of 3.7 percent in 2022; this is higher than the prerecession rates, which were based on higher household net worth and reliance on credit.[45] Per-capita real disposable income is also projected to grow more slowly than it did prior to the 2007–2009 recession. A projected expansion of 1.8 percent annually is faster than the 0.9-percent growth for 2002–2012 but short of the 2.3-percent growth for 1992–2002.[46]

In light of these factors, BLS projects that PCE, growing at the same rate as the overall economy, will expand 2.6 percent annually between 2012 and 2022 (see figure 4 and table 2). This differs from every 10-year time span since 1942, during which consumer spending grew faster than did the overall economy. The projected growth of PCE is more rapid than the 1.8-percent annual compound growth rate for 2002–2012 but slower than the swift 3.8-percent annual rate for 1992–2002 and the 2.9-percent annual rate for 2002–2007. Consumers are projected to be responsible for 67.4 percent of all GDP growth; this percentage is lower than in previous decades, when PCE accounted for 75.3 and 80.8 percent of growth for 1992–2002 and 2002–2012, respectively.[47] The distributional change is typical for postrecessionary periods, because investment revives to make other GDP components appear less important. With the resurgence in investment, strong growth in exports, and the changing demographics of consumers, the decades-long rise of consumer spending as a percentage of nominal GDP is expected to stabilize (see figure 1).

Employment: Total employment, by expanding at an annual growth rate of 1.1 percent and adding 15.3 million more jobs, is projected to reach 149.8 million by 2022 (see figure 2 and table 3).[48] This growth rate is faster than the 2002–2012 annual 0.3-percent rate that was dampened by the recession, but is slower than the 1.8 percent achieved for 1992–2002 and equivalent to the 1.1 percent for 2002–2007. Over 90 percent of the new jobs are anticipated to be in services, with the remaining growth coming from the recovering construction industry. Nearly a third of job growth is projected to be in the health care and social assistance sector.

Because the majority of jobs in services—which are expected to account for over 90 percent of new job growth—relate to PCE,[49] consumers are projected to remain a stable and important force in the economy through 2022. The health care and social assistance sector alone, which is projected to supply nearly a third of new jobs, is overwhelmingly dependent on consumers by definition.[50] By 2022 consumers are projected to support an additional 9.1 million jobs, or 59.7 percent of all job growth, with PCE-related jobs increasing to 94.7 million (see figure 2 and table 3). This represents 63.2 percent of 2022 projected U.S. employment and is at the higher end of the stable historic range (see figure 3). The percentage of all jobs related to consumers tends to decline during times of economic expansion as investment-related employment increases in share (see figure 3); through 2022, however, upward pressure exists for PCE-related employment with the growth of labor-intensive, consumer-dependent industries such as health care.

Like PCE, employment related to PCE is projected to grow slower than it did prior to the latest recession. Between 2012 and 2022, PCE-related employment is projected to grow 1.0 percent annually, slower than the 1.5 percent for 1993–2007 and the 1.1 percent for 2002–2007. The PCE-related employment projected growth rate is slightly slower than, though similar to, the projected 1.1-percent annual growth rate for all employment through 2022.

In comparison with PCE-related employment, employment related to investment is projected to grow 2.5 percent annually, reaching 17.4 million in 2022, as the investment sector continues to recover from the recession. Growing faster than any other GDP component, export-related jobs are projected to increase 2.7 percent annually to reach

12.3 million in 2022. For the public sector, employment related to the federal government is projected to decline, while employment related to state and local government is projected to grow 0.3 percent annually to reach 21.2 million.

Seven of the top ten industries projected to have the largest growth through 2022—most notably health care–related industries—are largely dependent upon consumer spending, as seen in table 7. Consumer spending also plays a prominent role in 4 of the top 10 industries projected to experience the fastest growth through 2022, as seen in table 8. The other fastest growing industries in the overall economy are involved with construction as investment spending rebounds. Several of the top industries with expected large and rapid declines also depend largely on PCE, but not to the extent of those with large and rapid projected job gains do.

Table 7. Industries with the largest wage-and-salary employment growth and declines

Industry description	Thousands of jobs		Change	Compound annual rate of change	Percent of employment related to personal consumption expenditures
	2012	2022	2012–2022	2012 –2022	2012
Largest growth					
Construction	5,641	7,263	1,622	2.6	8.1
Offices of health practitioners	3,968	5,194	1,226	2.7	96.4
Retail trade	14,875	15,966	1,091	.7	94.7
Food services and drinking places	9,963	10,852	888	.9	94.1
Hospitals, private	4,791	5,606	815	1.6	95.5
Employment services	3,148	3,930	782	2.2	67.7
Nursing and residential care facilities	3,194	3,954	761	2.2	93.0
Home health care services	1,199	1,914	716	4.8	99.9
Individual and family services	1,311	2,023	712	4.4	99.4
Computer systems design and related services	1,620	2,229	609	3.2	20.3
Outpatient, laboratory, and other ambulatory care services	1,151	1,674	522	3.8	98.1
Wholesale trade	5,673	6,143	470	.8	56.4
Management, scientific, and technical consulting services	1,121	1,577	456	3.5	60.0
General local government educational services compensation	7,779	8,234	454	.6	.0
Junior colleges, colleges, universities, and professional schools	1,763	2,197	433	2.2	98.2
Services to buildings and dwellings	1,830	2,109	279	1.4	74.3
Architectural, engineering, and related services	1,323	1,596	272	1.9	23.2
Child day care services	856	1,052	197	2.1	98.7
Securities, commodity contracts, and other financial investments and related activities	814	1,001	187	2.1	76.7
Accommodation	1,817	1,999	182	1.0	88.2
Largest declines					
General federal nondefense government compensation	1,557	1,376	-180	-1.2	.0

See footnotes at end of table.

Table 7. Industries with the largest wage-and-salary employment growth and declines

Industry description	Thousands of jobs		Change	Compound annual rate of change	Percent of employment related to personal consumption expenditures
	2012	2022	2012–2022	2012 –2022	2012
Postal service	611	442	-169	-3.2	76.5
Newspaper, periodical, book, and directory publishers	452	347	-105	-2.6	76.9
Apparel manufacturing	148	62	-86	-8.3	73.9
State government enterprises	500	442	-58	-1.2	88.6
Other miscellaneous manufacturing	268	211	-57	-2.4	54.2
Air transportation	458	406	-52	-1.2	75.0
Textile mills and textile product mills	235	183	-52	-2.4	63.9
Telecommunications	858	807	-51	-.6	78.8
Electric power generation, transmission and distribution	397	351	-46	-1.2	83.2
General federal defense government compensation	550	505	-45	-.9	.0
Couriers and messengers	533	489	-44	-.9	57.4
Computer and peripheral equipment manufacturing	159	119	-40	-2.9	24.9
Plastics product manufacturing	516	477	-39	-.8	50.4
Navigational, measuring, electromedical, and control instruments manufacturing	400	367	-33	-.9	5.3
Semiconductor and other electronic component manufacturing	384	353	-31	-.8	19.9
Aerospace product and parts manufacturing	497	467	-31	-.6	4.7
Communications equipment manufacturing	110	79	-31	-3.3	12.3
Printing and related support activities	462	434	-28	-.6	65.8
Metalworking machinery manufacturing	177	154	-23	-1.4	11.0

Source: U.S. Bureau of Labor Statistics.

Table 8. Industries with the fastest growing and most rapidly declining wage-and-salary employment

Industry description	Thousands of jobs		Change	Compound annual rate of change	Percent of employment related to personal consumption expenditures
	2012	2022	2012–2022	2012–2022	2012
Fastest growing					
Home health care services	1,198.6	1,914.3	715.7	4.8	99.9
Individual and family services	1,311.4	2,022.9	711.5	4.4	99.4
Outpatient, laboratory, and other ambulatory care services	1,151.4	1,673.7	522.3	3.8	98.1
Management, scientific, and technical consulting services	1,121.1	1,577.1	456.0	3.5	60.0

See footnotes at end of table.

Table 8. Industries with the fastest growing and most rapidly declining wage-and-salary employment

Industry description	Thousands of jobs		Change	Compound annual rate of change	Percent of employment related to personal consumption expenditures
	2012	2022	2012–2022	2012–2022	2012
Computer systems design and related services	1,620.3	2,229.0	608.7	3.2	20.3
Cement and concrete product manufacturing	161.6	218.9	57.3	3.1	31.5
Office administrative services	426.4	571.3	144.9	3.0	63.2
Offices of health practitioners	3,968.0	5,193.8	1,225.8	2.7	96.4
Veneer, plywood, and engineered wood product manufacturing	63.8	83.5	19.7	2.7	38.0
Facilities support services	125.8	164.4	38.6	2.7	37.9
Construction	5,640.9	7,263.0	1,622.1	2.6	8.1
Commercial and industrial machinery and equipment rental and leasing	132.2	167.1	34.9	2.4	44.5
Software publishers	286.0	359.1	73.1	2.3	30.5
Other professional, scientific, and technical services	609.5	761.0	151.5	2.2	70.1
Employment services	3,147.9	3,929.6	781.7	2.2	67.7
Junior colleges, colleges, universities, and professional schools	1,763.2	2,196.6	433.4	2.2	98.2
Nursing and residential care facilities	3,193.5	3,954.2	760.7	2.2	93.0
Other educational services	671.5	830.3	158.8	2.1	97.1
Funds, trusts, and other financial vehicles	86.8	107.3	20.5	2.1	98.6
Child day care services	855.5	1,052.0	196.5	2.1	98.7
Securities, commodity contracts, and other financial investments and related activities	814.4	1,001.0	186.6	2.1	76.7
Most rapidly declining					
Apparel manufacturing	148.1	62.3	-85.8	-8.3	73.9
Leather and allied product manufacturing	29.4	18.5	-10.9	-4.5	64.7
Communications equipment manufacturing	109.5	78.6	-30.9	-3.3	12.3
Postal service	611.2	442.1	-169.1	-3.2	76.5
Computer and peripheral equipment manufacturing	158.6	118.7	-39.9	-2.9	24.9
Spring and wire product manufacturing	41.6	31.3	-10.3	-2.8	29.0
Newspaper, periodical, book, and directory publishers	451.8	346.8	-105.0	-2.6	76.9
Hardware manufacturing	25.0	19.4	-5.6	-2.5	32.3
Textile mills and textile product mills	234.6	183.1	-51.5	-2.4	63.9
Other miscellaneous manufacturing	268.4	211.1	-57.3	-2.4	54.2
Glass and glass product manufacturing	80.0	64.0	-16.0	-2.2	50.3
Sugar and confectionery product manufacturing	66.8	53.5	-13.3	-2.2	88.9
Pulp, paper, and paperboard mills	108.2	86.8	-21.4	-2.2	59.4

See footnotes at end of table.

Table 8. Industries with the fastest growing and most rapidly declining wage-and-salary employment

Industry description	Thousands of jobs		Change	Compound annual rate of change	Percent of employment related to personal consumption expenditures
	2012	2022	2012–2022	2012–2022	2012
Pesticide, fertilizer, and other agricultural chemical manufacturing	36.8	29.8	-7.0	-2.1	53.8
Manufacturing and reproducing magnetic and optical media	21.0	17.2	-3.8	-2.0	44.1
Pipeline transportation	43.9	36.1	-7.8	-1.9	59.8
Audio and video equipment manufacturing	19.9	16.4	-3.5	-1.9	41.9
Natural gas distribution	109.7	92.1	-17.6	-1.7	77.3
Other chemical product and preparation manufacturing	80.8	67.9	-12.9	-1.7	37.0

Source: U.S. Bureau of Labor Statistics.

Focusing on consumer-related employment, we see that the Bureau projects employment to decline in goods-producing industries—mostly manufacturing—even though BLS anticipates more consumer demand for U.S.-made goods. By 2022, goods-producing jobs related to PCE are expected to decline by 528,000, or 1.0 percent annually, with continuous productivity gains in accordance with long-run trends (see table 4). PCE-related employment declines in apparel manufacturing, miscellaneous manufacturing, textile mills, plastics product manufacturing, and printing and related support activities are expected to drive the decrease. However, like the decline of manufacturing jobs in the overall economy, the decline of manufacturing jobs tied to domestic PCE is expected to slow in comparison with the past decade. Meanwhile, domestic consumer purchases from these industries are expected to grow 1.8 percent annually between 2012 and 2022 (see table 1).

The services sector is expected to account for virtually all consumer-related employment gains between 2012 and 2022 (see table 4). Domestic PCE for services are projected to grow 2.7 percent annually (see table 1), while PCE-related employment in services is projected to grow 1.2 percent annually to add 9.7 million more jobs by 2022. Six service industries will be responsible for most of the expected consumer-related jobs gains: health care and social assistance (+5.1 million to 21.4 million), professional and business services (+1.5 million to 11.6 million), leisure and hospitality (+1.1 million to 14.0 million), retail trade (+805,400 to 14.9 million), education (+653,500 to 3.9 million), and other services (+570,600 to 6.4 million). In total, consumer-supported jobs in services are projected to reach 89.4 million in 2022 and account for 94.5 percent of all PCE-related jobs.

Health care and social assistance jobs alone are anticipated to account for more than half of the total PCE-related employment gains between 2012 and 2022. This sector is projected to account for 22.6 percent of total consumer-supported jobs by 2022, a notable rise from the 14.7 percent that the sector claimed back in 1993 (see figure 11 and table 4). Because of the aging of baby boomers and rising demand for health care, consumer-related employment in health care and social assistance is expected to increase both the most and the fastest of all sectors through 2022. The rise of health care and social assistance jobs among consumer-supported employment reflects the economy as a whole; this industry is projected to surpass the state and local government sector as the

largest U.S. employer. As for spending, domestic consumption of health care and social assistance is projected to experience strong growth, increasing 3.2 percent annually to reach $2.3 trillion (see table 1).

Other highlights of projected PCE-related employment in service sectors include continued long-run employment declines in information services and federal government (mostly Postal Service) jobs tied to PCE and declines in utilities and wholesale trade jobs. Two industries that are projected to add PCE-related jobs are still not expected to completely recover from the latest recession by 2022: transportation and warehousing, and financial activities.

THERE WERE 85.1 MILLION JOBS SUPPORTED BY CONSUMERS IN 2007, or 61.5 percent of all U.S. employment. By 2010, in the aftermath of the recession, consumer-related employment had declined by 3.2 million to levels last seen in 2005. These declines accounted for over a third of total job losses between the 2007 employment peak and the 2010 trough of the Great Recession. In 2010, consumer-related job reductions accounted for the majority of job losses in the economy. Through 2011 and 2012, consumer-related employment grew at rates similar to those of the late 1990s, though growth slowed slightly in 2012. Consumer-related employment recovered in 2012, 5 years after the recession began—this was 2 years longer than the 2001 recession required.

Despite the historic decline in output and jobs, consumers displayed relative resilience during the 2007–2009 recession and recovery. This resilience is consistent with other economic contractions, as PCE and its related employment tend to be less volatile than other GDP components; not surprisingly, the percentage of jobs tied to PCE climbed as investment-related employment fell to historically low levels. In comparison with the overall economy, consumer spending and its related employment declined less severely and recovered sooner. The recovery and relative resilience of PCE was fueled in large part by industries that were not affected negatively by the latest recession: educational services and the health care and social assistance industry.

With changing demographics, the impact of the 2007–2009 recession, and increasing global exchange and growth, some wonder if U.S. consumers will be an “engine” for economic growth in the future. Through 2022, BLS projects that the rise of consumer spending as a percent of nominal U.S. GDP will stabilize, and that consumer spending will grow at the same pace as the overall economy with slower growth than seen in the past. The percentage of employment related to PCE is projected to not deviate much from its historical range as expenditures on traditionally labor-intensive services, like health care and social assistance, continue to rise. By 2022 BLS projects that consumers will be responsible for 70.5 percent of nominal U.S. GDP and 63.2 percent of total U.S. employment as consumers spend $12.4 trillion to support more than 94.7 million jobs. Nearly 95 percent of all PCE-related jobs are projected to be in services, and over half of PCE-related job growth is expected to occur in the health care and social assistance sector. Though PCE and its related employment are projected to grow slower than in the past and at rates similar to the overall economy, consumers are still expected to play a stable and important role in economic output and growth.

SUGGESTED CITATION

Stephanie Hugie Barello, "Consumer spending and U.S. employment from the 2007–2009 recession through 2022," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, October 2014, https://doi.org/10.21916/mlr.2014.34.

NOTES

[1] For example, see Mitra Toossi, “Consumer spending: an engine for U.S. job growth,” *Monthly Labor Review,* November 2002.

[2] Bureau of Economic Analysis (BEA) data from March 2013 does not include the National Income and Product Account (NIPA) comprehensive revision from July 2013. With the revision, consumer spending as a percentage of GDP is now slightly lower. To be consistent with data used for the 2012–2022 employment projections, BEA's March 2013 data are used for the rest of this paper.

[3] World Bank data, March 2013.

[4] The terms "consumer-supported" or "consumer-related" employment are preferred to "consumer-generated" employment in this paper, in contrast to past BLS publications. See methodology section for more details.

[5] Employment throughout the rest of this article will be nonagricultural wage and salary employment only.

[6] The National Bureau of Economic Research (NBER) is the official arbiter of recessions. See www.nber.org/cycles for historical recession dates. See endnote 16 for employment details.

[7] See Mariacristina De Nardi, Eric French, and David Benson, "Consumption and the Great Recession," NBER working paper 17688 (Washington, DC: National Bureau of Economic Research, December 2011) and endnote 2.

[8] Federal Reserve Economic Data (FRED) downloaded March 2013 and "The financial crisis at the kitchen table: trends in household debt and credit," Federal Reserve Bank of New York,*Current Issues in Economics and Finance*, vol. 13, no. 2, 2013.

[9] For example, see speech by Janet L. Yellen as vice chair of the Federal Reserve Board, "A painfully slow recovery for America's workers: causes, implications, and the Federal Reserve's response," February 11, 2013.

[10] For example, see Carmen M. Reinhart and Kenneth S. Rogoff, "The aftermath of financial crises," NBER working paper no. 14656 (Washington, DC: National Bureau of Economic Research, January 2009); Martha L. Olney and Aaron Pacitti, "Goods, services, and the pace of economic recovery," Berkeley Economic History Lab working paper 2013-04, March 2013; Scott R. Baker, Nicholas Bloom, and Steven J. Davis, "Has economic policy uncertainty hampered the recovery?" Chicago Booth paper no. 12-06, February 7, 2012; and Mary Daly, Bart Hobijn, Aysegul Sahin, and Rob Valletta, "A rising natural rate of unemployment: transitory or permanent?" Federal Reserve Bank of San Francisco working paper 2011-05, September 2011.

[11] See statement by Ben Bernanke before the Joint Economic Committee (October 4, 2011).

[12] See Williams R. Emmons, "Don't expect consumer spending to be the engine of economic growth it once was," Federal Reserve Bank of St. Louis, *The Regional Economist*, January 2012, and Kathleen Madigan, "Sorry, world, U.S. consumers can't save you," *Wall Street Journal*, May 13, 2013.

[13] For example, see the following: De Nardi, French, and Benson, "Consumption and the Great Recession;" Emmons, "Don't expect consumer spending;" and Ivaylo D. Petev and Luigi Pistaferri, "Consumption in the Great Recession," The Russell Sage Foundation and The Stanford Center on Poverty and Inequality, *Recession Trends*, October 2012.

[14] For a review of industry employment in the latest recession for the whole economy, see Christopher J. Goodman and Steven M. Mance, "Employment loss and the 2007-09 recession: an overview," *Monthly Labor Review*, April 2011.

[15] BLS projections cover a 10-year period. BLS projections are based on structural economic trends as BLS assumes a full-employment economy for the target year of the projections and does not attempt to predict fluctuations in the business cycle. In a full-employment economy, any unemployment is frictional—meaning it is attributable to workers transitioning between jobs.

[16] The 8.7-million job decrease between 2007 and 2010 is calculated on an annual basis and does not include federal government-related employment increases. The annual figure was selected because consumer-related employment is only available on an annual basis. This differs from the net 8.8-million job decline on a monthly basis between the monthly employment peak and trough of December 2007 and February 2010, respectively, calculated from the Current Employment Statistics (CES) and the Current Population Survey (CPS). The monthly figure is calculated using total nonfarm payroll employment plus private household employment less logging. Monthly figures are seasonally adjusted except for private household employment, which is only available on a nonseasonally adjusted basis.

[17] Medical care paid on behalf of households by third parties, like employers and the government, is included in health care consumer spending. Health insurance paid by third parties is not included in health care consumer spending, but is included in consumer spending on financial activities. The social assistance component of the aggregate health care and social assistance sector includes individual and family services, community and vocational rehabilitation services, and child day care services.

[18] Consumer spending includes both public and private tuition and fees. See chapter 5 of *Concepts and methods of the U.S. National Income and Product Accounts* (Bureau of Economic Analysis, 2014).

[19] Calculated using the method described in endnote 16 to estimate monthly employment, April 2014 total nonagricultural wage and salary employment was 139.1 million, approximately equal to December 2007. Calculated using preliminary data retrieved on June 2, 2014.

[20] See Chapter 5 of *Concepts and methods* and Nicole Mayerhauser of the Bureau of Economic Analysis, "Inside look at U.S. consumers," *Washington Journal* (CSPAN, December 27, 2013).

[21] Eliminating imports from the calculation of PCE does not, however, remove the positive employment impact that imports have on the transportation and trade (retail and wholesale) sectors in the data set.

[22] BLS assumes that the employment requirements table for the whole economy holds for individual GDP components.

[23] Direct employment is employment in industries that produce final goods or services. Indirect employment is employment in industries that supply inputs to industries which produce the final product. People employed both directly and indirectly will spend a majority of their earned income on consumption, which further supports employment. The latter type of employment, called "induced employment," is not measured by BLS.

[24] See endnote 2.

[25] See Mayerhauser, "Inside look at U.S. consumers." Also see endnote 20.

[26] Author's estimation with methodology used in Mayerhauser, "Inside look at U.S. Consumers." Use of older BEA data to be consistent with BLS employment projections leads to slightly different 2012 estimates than in Mayerhauser. All data are from March 2013, with the exception of 2012 estimates for in-kind social benefits and employer contributions for health insurance and workers' compensation, which are from July 2013.

[27] In the year 2000, baby boomers—born between 1946 and 1964—were ages 36 to 54 years.

[28] See Michael L. Walden, "Where did we indulge? Consumer spending during the asset boom," *Monthly Labor Review*, March 2013.

[29] See Toossi, "Consumer spending," and Janet Pfleeger, "U.S. consumers: which jobs are they creating?" *Monthly Labor Review*, June 1996. Note that both Toossi and Pfleeger also counted agricultural wage and salary employment. In addition, Pfleeger included self-employment plus unpaid family employment in her definition of employment.

[30] Recall that employment tied to each GDP component equals direct plus indirect employment. Investment-related employment is associated with private fixed investment, which is spending on fixed assets like structures, equipment, and software (see chapter 6 of *Concepts and methods*). All trade-related employment is essentially tied to exports, with import-related employment accounting for less than 1 percent of total employment. As such, all trade-related employment in this paper can be assumed to be export-related employment only.

[31] Contact author for PCE-related employment data dating back to 1993.

[32] Note that investment peaked in 2006, so 2007 levels don't represent the series' prerecession peak.

[33] De Nardi, French, and Benson, "Consumption and the Great Recession," and Petev and Pistaferri, "Consumption in the Great Recession."

[34] Willem Van Zandweghe and John Carter Braxton, "Has durable goods spending become less sensitive to interest rates?" Federal Reserve Bank of Kansas City, *Economic Review*, fourth quarter 2013.

[35] See endnote 16.

[36] Note that investment, exports, and government-related employment experienced peaks and troughs at different times than PCE—hence why job declines by component for 2007–2010 differ from their respective individual peak-to-trough declines.

[37] De Nardi, French, and Benson, "Consumption and the Great Recession."

[38] De Nardi, French, and Benson, "Consumption and the Great Recession."

[39] "National postsecondary enrollment trends: before, during, and after the Great Recession," National Student Clearinghouse Research Center and Project on Academic Success, Indiana University *Signature Report 1*, July 2011.

[40] Figures differ from table 4 because of rounding.

[41] BLS estimates that domestic consumer demand for U.S. manufactured goods increased from $852.8 billion in 1993 to $1.1 trillion in 2012. Contact author for complete historical time series.

[42] Contact author for complete 1993–2012 time series for domestic PCE on U.S. manufacturing and the related employment to observe the long-term spending and employment interaction.

[43] See Maggie C. Woodward, "The U.S. economy to 2022: settling into a new normal," *Monthly Labor Review*, December 2013. Also see endnote 15.

44 See Mitra Toossi, "Labor force projections to 2022: the labor force participation rate continues to fall," *Monthly Labor Review*, December 2013.

[45] Woodward, "The U.S. economy to 2022."

[46] Woodward, "The U.S. economy to 2022."

[47] Woodward, "The U.S. economy to 2022." Estimates differ from table 2 because of rounding.

[48] See Richard L. Henderson, "Industry employment and output projections to 2022," *Monthly Labor Review*, December 2013.

[49] In 2012, 68.7 percent of services jobs were consumer-related.

[50] See endnote 17. In 2012, 96.3 percent of all jobs in the health care and social assistance sector were consumer-related.

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October 2014

Trends in employment-based health insurance coverage: evidence from the National Compensation Survey

Data from the BLS National Compensation Survey show that access to employer-provided health insurance declined from 1991 to 2002, chiefly because of narrower access among part-time workers. Then, from 2003 to 2012, access exhibited a significant further drop and participation also fell significantly. Over the latter period, nonunion workers, part-time employees, and lower wage workers, as well as those employed at small establishments, had a lower incidence of employer-provided health insurance.

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In this article, we use the Bureau of Labor Statistics (BLS, the Bureau) National Compensation Survey (NCS) to examine trends in employment-based health insurance (EBHI) coverage, also called employer-provided health insurance coverage. In contrast to the situation in most other developed countries, employers are the most important source of health insurance coverage in the United States, particularly for the nonelderly population. According to calculations by Elise Gould[1] using the Current Population Survey, 58.3 percent of those under age 65 were covered by EBHI in 2011, with 22.7 percent having some form of public insurance and 17.9 percent not having insurance at all. (Nongroup, or direct-purchase, coverage accounted for the remaining 1.1 percent.) When attention is restricted to workers between ages 18 and 64, the importance of EBHI, not surprisingly, increases. In 2011, 68.2 percent of these individuals were covered by EBHI.

Although the reasons employers have historically been so central in providing health insurance in the United States are complex,[2] the fact that they do play such a role means that health insurance has important effects on the labor market. Health insurance makes up the biggest share of noncash benefits received by private industry workers,

and that share has grown from 32 percent in 1991 to 39 percent in 2012.[3] Not only has it grown in importance among all noncash benefits, but the increase in costs employers pay for health insurance has outstripped the affected workers' wage growth: health insurance paid by employers tripled from 1991 to 2012, while wages paid increased by 83 percent.[4] From an individual's standpoint, health insurance considerations may influence the decision to work, to stay with a particular employer, and to retire. In light of these and related factors, the importance of tracking trends in EBHI coverage is evident.

Another consideration making an examination of EBHI timely is the ongoing implementation of the Affordable Care Act of 2010,[5] which will have major impacts on employer-based health care plans as provisions in the Act which mandate that firms provide health care coverage for most employees take effect. That mandate will certainly have an impact on the incidence of EBHI and, likely, the premiums paid for coverage. To have a baseline with which to assess the law's effects on EBHI, we examine trends and patterns in the health insurance data collected by the Bureau before Congress enacted the law.

The Bureau has collected information on EBHI since 1979, first as part of the Employee Benefits Survey and later as part of the NCS. Although the exact nature of what has been collected has evolved over time, our focus in this article will be on access, participation, and takeup rates[6] for health insurance, as well as on the employer and employee premiums paid for that insurance. The many provisions of the Affordable Care Act have the potential to affect the levels and trends of all three rates, because those provisions will influence the decisions by employers to offer health insurance, the decision by workers to accept such insurance, and the terms on which such insurance is offered.[7] Along with the uncertainty ahead, much remains to be understood about what occurred in recent decades. Accordingly, we turn to an examination of BLS data to fill in some of the gaps. An appendix provides details on the underlying data.

Table 1 shows the access rates in employer-provided health benefits for private industry since 1991,[8] for all workers and for full- and part-time workers separately. Later, we examine takeup and participation rates as well, over the more recent period from 2003 to 2012.

Table 1. Percentage of workers with access to employer-provided health insurance, private industry, 1991! 2012

Year	All workers	Part-time workers	Full-time workers
1991	77.3	28.8	87.8
1992	76.7	26.8	88.3
1993	76.4	24.4	88.6
1994	74.6	21.1	88.5
1995	72.9	20.0	88.1
1996	71.8	19.9	87.4
1997	71.6	19.5	86.5
1998	71.2	18.8	86.5
1999	71.3	18.6	86.7
2000	71.4	19.3	87.4
2003	71.8	22.7	86.9
2004	70.8	20.6	86.6
2005	71.1	21.6	87.0
2006	71.2	21.8	86.7

See footnotes at end of table.

Table 1. Percentage of workers with access to employer-provided health insurance, private industry, 1991! 2012

Year	All workers	Part-time workers	Full-time workers
2007	71.1	24.1	85.6
2008	71.4	24.4	85.9
2009	71.4	23.8	86.5
2010	71.2	24.3	86.9
2011	69.8	23.4	85.9
2012	70.2	23.7	86.4

Note: Because the Employment Cost Index (ECI) sampling methodology changed in 2001 and 2002, those years are excluded from the analysis.

Source: Authors– calculations based on data from the Employment Cost Index and the National Compensation Survey.

In the more than two decades from 1991 until 2012, the access rate for all workers declined from 77.3 percent to 70.2 percent. There was little change among full-time workers, whose access rates fell from 87.8 percent to 86.4 percent (although they were higher at some points during the period examined). The drop among part-time workers was much steeper, however, from 28.8 percent to 23.7 percent.

The trends look somewhat different if the entire span is divided into two parts: 1991’2000 and 2003–2012. Over the earlier period, a 5.9-percentage-point drop in access was attributable in large part to reduced access among part-time workers; there was little change among full-time workers. During the second period, there was again a decline in access among all workers, but smaller than the previous period–s falloff. Most of the 2003’2012 downturn was due to an increase in the share of part-time workers in the NCS sample that occurred toward the end of the period.[9]

In the academic literature, the decade of the 1990s is considered a period of declining EBHI coverage, though not necessarily because of a drop in access rates. Using the 1987 National Medical Expenditure Survey and the 1996 panel of the Medical Expenditure Panel Survey, Philip Cooper and Barbara Schone found that any shrinking of coverage was the result of a drop in the takeup rate of coverage offered, rather than a reduction in the rate at which firms offered health insurance to their workers.[10] Using the Current Population Survey, David Cutler[11] also found that declining takeup rates were responsible for the reduction in EBHI coverage and concluded that the drop was attributable to an increase in employee premium contributions.

Like Cooper and Schone, Jessica Vistnes, Alice Zawacki, Kosali Simon, and Amy Taylor used the Medical Expenditure Panel Survey for their research.[12] They estimated that EBHI coverage declined from 57 percent in 2000 to 54 percent in 2008, but because of different proximate causes than in the 1990s. These authors found that declining coverage rates in small firms were due to both falling offer rates[13] and falling takeup rates. In the largest firms, offer rates were fairly unchanged but takeup rates still fell. In its 2013 Survey of Employer-Sponsored Health Benefits, the Kaiser Family Foundation and Health Research and Educational Trust found that coverage declined from 62 percent to 56 percent between 1999 and 2013. Takeup rates fell for both small and large employers.

NCS microdata enable us to consider more detailed aspects of the incidence of employer-provided health insurance during the decade from 2003 to 2012. Several notable dimensions of the longstanding levels of benefits are identified, as are several noteworthy trends over the decade.

Table 2 shows various breakouts of the 2003–2012 trends for health plans, and table 3 shows the same for medical plans.[14] In particular, the two tables show the applicable rates of access, participation, and takeup (defined here as participation divided by access) for different establishment size categories, union!nonunion and full-time–part-time workers, and workers whose job-based wage rates were in one or another of the four quartiles of the wage distribution, as computed from the job-based wages recorded in the NCS microdata.[15] The tables also break out health plan access, participation, and takeup by various establishment-level wage groupings.[16] The group differences in both levels and trends are qualitatively similar for the two tables, so we focus our commentary on table 3.

Table 2. Access, takeup, and participation of employer-provided health plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
All workers	71.9	70.2	-1.7	-2.3	80.0	78.5	-1.5	-1.9	57.5	55.1	-2.4	-4.2
By size:												
Fewer than 50	55.5	53.6	-1.9	-3.4	74.0	74.0	.0	.0	41.1	39.7	-1.4	-3.4
50–99	71.2	69.0	-2.3	-3.2	78.6	75.4	-3.2	-4.1	56.0	52.0	-4.0	-7.1
100–499	83.1	82.3	-.8	-1.0	81.4	78.8	-2.6	-3.3	67.7	64.8	-2.8	-4.2
500–999	88.9	87.3	-1.5	-1.7	88.7	84.6	-4.1	-4.6	78.8	73.9	-4.9	-6.3
1,000–2,499	90.0	87.7	-2.3	-2.6	80.6	85.3	4.7	5.9	72.5	74.8	2.3	3.1
2,500 or more	96.7	94.8	-2.0	-2.0	92.1	87.3	-4.8	-5.2	89.1	82.7	-6.4	-7.1
Unionization:												
Nonunion	69.5	67.6	-1.9	-2.7	78.3	77.2	-1.1	-1.4	54.4	52.2	-2.2	-4.0
Union	96.1	95.4	-.8	-.8	92.8	87.4	-5.4	-5.8	89.2	83.3	-5.8	-6.6
Status:												
Full time	86.9	86.4	-.5	-.6	82.3	80.4	-1.9	-2.3	71.5	69.4	-2.1	-2.9
Part time	22.7	23.7	.9	4.2	52.1	59.2	7.1	13.5	11.8	14.0	2.2	18.3
Job-based wage quartile:												
First	33.3	30.8	-2.5	-7.4	57.6	57.8	.2	.3	19.2	17.8	-1.4	-7.2
Second	75.2	71.2	-4.0	-5.4	75.2	72.6	-2.6	-3.4	56.6	51.7	-4.9	-8.6
Third	88.3	85.9	-2.5	-2.8	85.1	82.4	-2.7	-3.2	75.2	70.7	-4.4	-5.9
Fourth	91.7	92.9	1.2	1.3	87.3	86.3	-1.0	-1.2	80.1	80.2	.1	.2
Establishment-based wage quartile:												
First	35.2	31.5	-3.7	-10.5	61.1	59.4	-1.7	-2.8	21.5	18.7	-2.8	-13.1
Second	74.3	70.1	-4.2	-5.7	75.4	71.2	-4.2	-5.6	56.0	49.9	-6.1	-11.0
Third	84.0	85.2	1.2	1.5	83.8	82.5	-1.3	-1.6	70.4	70.3	-.1	-.1
Fourth	88.2	94.0	5.8	6.6	85.8	86.8	1.0	1.1	75.7	81.6	5.9	7.8

Source: Authors– calculations based on data from the National Compensation Survey.

The top row of table 3 presents the overall trends in the incidence of employer-provided medical insurance over the decade. A 5.5-percent decline in medical plan participation was composed of a 1.4-percent decline in access

and a 4.1-percent decline in takeup. The overall decline and the decline in takeup are statistically significant, but the precision of the data does not allow us to verify whether the decline in access is statistically significant.[17]

Table 3. Access, takeup, and participation of employer-provided medical plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
All workers	71.0	70.0	-1.0	-1.4	74.5	71.4	-3.1	-4.1	52.9	50.0	-2.9	-5.5
By size:												
Fewer than 50	54.7	53.5	-1.2	-2.2	71.3	69.3	-2.0	-2.8	39.0	37.1	-1.9	-5.0
50’99	70.9	68.7	-2.2	-3.2	74.6	69.3	-5.3	-7.2	53.0	47.6	-5.4	-10.1
100–499	81.9	82.1	.1	.2	76.0	71.1	-5.0	-6.5	62.3	58.3	-4.0	-6.4
500–999	88.2	86.8	-1.4	-1.6	79.0	75.5	-3.5	-4.4	69.7	65.6	-4.1	-5.9
1,000–2,499	89.1	87.6	-1.5	-1.7	73.2	73.9	.7	1.0	65.2	64.7	-.5	-.7
2,500 or more	95.7	94.6	-1.1	-1.2	78.4	77.8	-.6	-.8	75.0	73.6	-1.5	-1.9
Unionization:												
Nonunion	68.7	67.4	-1.3	-1.9	72.4	70.0	-2.4	-3.4	49.8	47.2	-2.6	-5.2
Union	94.4	95.2	.8	.8	90.3	81.5	-8.7	-9.7	85.2	77.6	-7.6	-8.9
Status:												
Full time	85.8	86.2	.3	.4	76.7	73.2	-3.5	-4.6	65.8	63.1	-2.8	-4.2
Part time	22.7	23.5	.8	3.5	47.3	52.7	5.3	11.3	10.8	12.4	1.6	15.2
Job-based wage quartile:												
First	32.9	30.7	-2.2	-6.7	51.8	51.8	.0	.0	17.0	15.9	-1.1	-6.7
Second	74.0	70.9	-3.1	-4.2	70.1	66.2	-3.9	-5.6	51.9	46.9	-5.0	-9.6
Third	87.8	85.7	-2.0	-2.3	79.9	75.6	-4.3	-5.4	70.1	64.8	-5.3	-7.6
Fourth	90.5	92.7	2.2	2.4	81.2	78.0	-3.2	-3.9	73.5	72.3	-1.2	-1.6
Establishment-based wage quartile:												
First	34.8	31.4	-3.4	-9.8	56.2	53.0	-3.2	-5.8	19.6	16.6	-2.9	-15.0
Second	73.3	69.8	-3.5	-4.8	70.0	61.3	-8.7	-12.4	51.3	42.8	-8.5	-16.6
Third	83.0	84.9	1.9	2.3	78.9	71.1	-7.8	-9.8	65.5	60.4	-5.1	-7.8
Fourth	87.1	93.8	6.7	7.6	79.7	76.9	-2.8	-3.5	69.4	72.1	2.7	3.9

Source: Authors– calculations based on data from the National Compensation Survey.

Next, the table breaks out medical plan data by establishment size. Looking at the incidence levels in either year reveals a strong positive relationship between establishment size and access to a medical plan.[18] By contrast, establishment size is weakly and nonmonotonically related to plan takeup, if at all. Hence, the pattern among participation rates mirrors that among access rates. Vistnes and colleagues find a similar pattern when concentrating on firm size rather than establishment size.[19] Those authors also indicate that participation declined the least among the largest employers; they attribute the difference to lower declines in access rates among those firms. Though not statistically significant, our results are consistent with those of Vistnes and colleagues in

showing smaller declines in participation among large establishments, but they do not indicate any particular pattern in the extent to which the decrease in participation was attributable to a decline in plan access or takeup.

Union–nonunion differences in medical plan incidence are also quite stark: for a given year, union workers are much more likely to have access to a plan and are more likely to take up a plan if they have access. These disparities persisted between 2003 and 2012, although the difference in takeup narrowed, so union'nonunion differences in participation decreased over the decade. A similar story unfolded over the decade in the differences between full-time and part-time workers: a stark contrast in participation rates persisted, but narrowed, driven primarily by a narrowing in differences in takeup rates.

But perhaps the most dramatic results shown in tables 2 and 3 are in the breakouts by wage quartile. Very large differences are seen between the top and bottom quartiles of the job-based wage distribution among all three incidence variables; for example, in 2003, there was a 56.5-percentage-point difference in medical plan participation rates between those quartiles (see table 3), a disparity that persisted over the decade. The table suggests that this difference in participation rates was sustained as a balance between a widening in access rate differences and a narrowing in takeup rate differences; however, we cannot verify this observation with statistical significance. A consideration of breakouts by establishment-based wage quartiles similarly reveals large inherent differences in the cross section between the highest wage quartile and the lowest wage quartile among all three incidence measures, but this time the participation and access differences grew significantly over the decade.

Tables 4, 5 and 6 show the results of a similar analysis performed on other elements of employer-provided health insurance: those plans covering dental care, vision-related services, and prescription drugs, respectively. At the overall level, these components of health insurance showed very different trends over the decade. Dental care evolved somewhat analogously to medical care, exhibiting a modest (and, in this case, statistically insignificant) decline in participation, with similar movements in access and takeup. Vision coverage, however, underwent a significant decline in participation, all of it through a decline in access; and prescription drug participation *increased* dramatically during this period, with all of the increase (and more) attributable to increases in access.

Table 4. Access, takeup, and participation of employer-provided dental plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
All workers	46.4	45.4	-1.0	-2.2	79.0	77.4	-1.5	-1.9	36.6	35.1	-1.5	-4.1
By size:												
Fewer than 50	26.9	26.5	-.4	-1.4	77.1	76.6	-.4	-.5	20.7	20.3	-.4	-1.9
50–99	41.8	41.5	-.3	-.7	78.8	74.4	-4.4	-5.6	32.9	30.9	-2.1	-6.2
100!499	58.3	55.7	-2.6	-4.4	78.9	75.8	-3.1	-3.9	46.0	42.2	-3.7	-8.1
500–999	67.0	66.5	-.5	-.8	83.0	79.4	-3.6	-4.3	55.6	52.8	-2.8	-5.1
1,000–2,499	71.7	75.4	3.7	5.1	77.9	79.8	1.9	2.5	55.8	60.2	4.3	7.7
2,500 or more	86.3	81.6	-4.6	-5.4	81.3	83.5	2.2	2.8	70.1	68.2	-1.9	-2.8
Unionization:												
Nonunion	43.4	42.4	-1.0	-2.3	77.0	76.9	.0	-.1	33.4	32.6	-.8	-2.3
Union	77.0	74.3	-2.7	-3.5	90.5	80.2	-10.3	-11.3	69.7	59.6	-10.1	-14.4

See footnotes at end of table.

Table 4. Access, takeup, and participation of employer-provided dental plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
Status:												
Full time	57.0	56.8	-.3	-.5	80.7	78.8	-1.9	-2.4	46.0	44.7	-1.3	-2.8
Part time	11.6	12.6	.9	8.1	50.5	59.5	9.0	17.9	5.9	7.5	1.6	27.5
Job-based wage quartile:												
First	16.8	13.8	-3.0	-17.7	54.0	61.2	7.2	13.4	9.1	8.5	-.6	-6.7
Second	43.5	41.5	-2.0	-4.6	76.3	71.2	-5.2	-6.8	33.2	29.6	-3.7	-11.1
Third	56.2	55.5	-.7	-1.3	80.0	79.4	-.6	-.8	45.0	44.1	-.9	-2.0
Fourth	69.6	70.5	.9	1.3	85.9	82.7	-3.2	-3.7	59.8	58.3	-1.5	-2.5
Establishment-based wage quartile:												
First	19.6	15.0	-4.6	-23.5	60.7	60.4	-.3	-.5	11.9	9.0	-2.8	-23.8
Second	39.8	36.6	-3.2	-8.0	72.0	70.3	-1.6	-2.3	28.6	25.8	-2.9	-10.0
Third	52.1	56.8	4.7	9.0	80.2	79.3	-1.0	-1.2	41.8	45.0	3.2	7.6
Fourth	66.7	73.0	6.2	9.4	85.3	83.1	-2.2	-2.6	56.9	60.6	3.7	6.5

Source: Authors– calculations based on data from the National Compensation Survey.

Table 5. Access, takeup, and participation of employer-provided vision plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
All workers	28.9	24.6	-4.3	-14.8	75.3	75.9	0.6	0.8	21.8	18.7	-3.1	-14.1
By size:												
Fewer than 50	16.2	13.6	-2.6	-15.9	75.3	74.9	-.4	-.5	12.2	10.2	-2.0	-16.3
50–99	23.8	24.2	.3	1.5	70.1	73.4	3.3	4.7	16.7	17.7	1.0	6.2
100’499	36.2	27.4	-8.8	-24.3	76.1	76.2	.1	.1	27.5	20.9	-6.7	-24.2
500–999	43.1	41.5	-1.6	-3.7	80.8	77.9	-2.9	-3.6	34.9	32.4	-2.5	-7.2
1,000–2,499	47.6	43.6	-4.0	-8.4	75.4	77.4	2.0	2.7	35.9	33.8	-2.1	-5.9
2,500 or more	57.5	49.2	-8.4	-14.5	72.9	76.5	3.6	5.0	41.9	37.6	-4.3	-10.3
Unionization:												
Nonunion	26.0	21.3	-4.7	-18.0	73.0	75.0	2.0	2.7	19.0	16.0	-3.0	-15.8
Union	58.5	56.6	-1.8	-3.1	85.7	79.3	-6.4	-7.5	50.1	44.9	-5.2	-10.4
Status:												
Full time	35.1	30.5	-4.5	-12.9	76.6	77.2	.6	.8	26.9	23.6	-3.3	-12.3
Part time	8.8	7.6	-1.2	-13.5	57.8	60.7	2.9	5.1	5.1	4.6	-.5	-9.0
Job-based wage quartile:												
First	10.1	7.3	-2.8	-27.7	50.7	57.0	6.3	12.4	5.1	4.2	-1.0	-18.7

See footnotes at end of table.

Table 5. Access, takeup, and participation of employer-provided vision plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
Second	24.7	20.3	-4.4	-17.7	70.6	73.0	2.4	3.4	17.4	14.8	-2.6	-14.9
Third	34.1	30.0	-4.1	-12.1	76.3	78.4	2.1	2.8	26.1	23.5	-2.5	-9.7
Fourth	47.1	40.8	-6.3	-13.3	82.4	78.9	-3.5	-4.2	38.8	32.2	-6.6	-17.0
Establishment-based wage quartile:												
First	9.9	7.2	-2.7	-27.1	57.0	60.9	3.9	6.9	5.7	4.4	-1.2	-22.0
Second	24.6	18.8	-5.8	-23.6	63.4	71.8	8.4	13.2	15.6	13.5	-2.1	-13.5
Third	30.4	30.3	-.1	-.5	79.1	77.9	-1.2	-1.5	24.0	23.6	-.5	-1.9
Fourth	44.9	42.2	-2.8	-6.2	81.2	78.9	-2.3	-2.9	36.5	33.2	-3.2	-8.9

Source: Authors– calculations based on data from the National Compensation Survey.

Table 6. Access, takeup, and participation of employer-provided presciption drug plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
All workers	49.5	69.0	19.4	39.2	74.2	71.4	-2.8	-3.8	36.8	49.3	12.5	33.9
By size:												
Fewer than 50	34.7	52.6	18.0	51.8	70.7	69.4	-1.4	-1.9	24.5	36.5	12.0	48.9
50–99	47.3	67.1	19.8	41.9	75.1	69.3	-5.8	-7.7	35.5	46.5	11.0	31.0
100’499	60.1	80.9	20.8	34.6	74.8	71.0	-3.8	-5.1	45.0	57.5	12.5	27.8
500–999	67.8	86.3	18.5	27.4	77.3	75.9	-1.5	-1.9	52.4	65.5	13.1	24.9
1,000–2,499	63.6	86.8	23.3	36.6	76.6	73.3	-3.3	-4.3	48.7	63.7	15.0	30.8
2,500 or more	74.3	93.5	19.2	25.8	77.0	78.0	1.0	1.2	57.2	72.9	15.7	27.4
Unionization:												
Nonunion	47.1	66.5	19.3	41.0	71.9	69.9	-1.9	-2.7	33.9	46.5	12.6	37.2
Union	74.2	93.5	19.3	26.0	89.7	81.8	-7.9	-8.9	66.6	76.5	9.9	14.8
Status:												
Full time	59.7	85.0	25.3	42.3	76.8	73.2	-3.6	-4.7	45.9	62.3	16.4	35.7
Part time	16.3	23.0	6.6	40.5	43.3	52.0	8.8	20.3	7.1	11.9	4.9	69.0
Job-based wage quartile:												
First	21.2	30.2	8.9	42.0	50.0	51.8	1.8	3.5	10.6	15.6	5.0	47.0
Second	50.4	69.7	19.3	38.3	70.0	66.0	-4.0	-5.7	35.3	46.0	10.7	30.4
Third	62.3	84.2	21.9	35.1	79.2	75.7	-3.5	-4.4	49.4	63.7	14.4	29.2
Fourth	65.0	91.8	26.9	41.3	80.8	78.1	-2.8	-3.4	52.5	71.7	19.2	36.5
Establishment-based wage quartile:												

See footnotes at end of table.

Table 6. Access, takeup, and participation of employer-provided presciption drug plans in private industry, 2003–2012

Category	Access				Takeup				Participation			
	2003	2012	Change	Percent change	2003	2012	Change	Percent change	2003	2012	Change	Percent change
First	20.4	31.2	10.7	52.5	56.1	53.3	-2.8	-5.0	11.5	16.6	5.1	44.8
Second	51.2	68.1	16.9	33.0	67.9	65.1	-2.8	-4.2	34.8	44.3	9.6	27.5
Third	60.5	83.7	23.2	38.4	77.4	75.5	-1.9	-2.5	46.8	63.2	16.4	34.9
Fourth	61.7	92.9	31.2	50.5	80.3	78.5	-1.8	-2.2	49.6	72.9	23.4	47.2

Source: Authors– calculations based on data from the National Compensation Survey.

Dental plan incidence also roughly mirrored medical plan incidence at levels lower than the all-worker level, showing similar patterns both in absolute percentages and in changes over time. In particular, differences in participation by full-time and union status diminished over the decade, while participation and access differences by establishment-based wage quartile widened. As with the overall level, any pattern in changes in dental plan incidence by establishment size was insignificant. Between-group differences in vision plans were also similar to those of medical plans in each year, but the changes in those differences over the decade are less clear and are generally insignificant. Among prescription drug plans, the same cross-sectional relationships are again seen in the breakouts, but with the evolution of differences among the wage quartiles somewhat starker. For example, significant expansions in differences in access and participation rates between the top and bottom wage quartiles are seen.

Put together, the percentages shown in tables 2–6 tell a relatively coherent story. Various classes of workers, including nonunion, part-time, lower wage workers and those employed at small or lower wage employers, tend to have a lower incidence of employer-provided health insurance. During 2003–2012, as participation and access dropped significantly (and takeup dropped insignificantly) among the overall population, these between-group differences persisted. Some of the differences narrowed a bit over the decade, generally because of relative advances made by the lower incidence group in its takeup of available plans. At the same time, some of the differences expanded, generally through expansions in the between-group gaps in access. These between-group observations applied at various levels of detail: among health plans in general, as well as among the various subsets of health plans followed by the NCS'medical, dental, vision, and prescription drug plans–despite the fact that the overall trends among these plans varied.

The NCS also collects information on health premiums, including separate reports of employee-paid premiums and employer-paid premiums. The information is collected for each plan applicable to each job in the NCS sample, so there are often multiple premiums corresponding to a given job. The information may be summarized in a few different ways; one is to weight the different premiums by the corresponding participation rates. For example, consider a hypothetical job in which workers have access to two health plans: a high-premium plan charging $100 per month and a low-premium plan charging $0. We could compute a weighted average of the premiums by using the participation rates of workers in the two plans: if all the workers in the job use the low-cost plan, the relevant premium is $0; if all the workers in the job use the high-cost plan, the relevant premium is $100; if workers in the

job split 50–50 between the plans, we could compute a weighted average premium of $50 for the job; and so on. This is the approach used by the Bureau in producing reports containing information on premiums.[20]

Table 7 uses this participation-weighted average approach to document premiums for medical plans in 2003 and 2012. The first three columns report on premiums applicable to single-person coverage, the last 3 on premiums applicable to family coverage. Within each type of coverage are shown the percentage of participants paying a premium greater than zero, the average premium paid by a participant, and the average payment paid by the employer to the participant—s plan. Overall, the fraction of participants paying a premium grew from 77 percent to 82 percent over the decade, the average premium paid by employees for single coverage nearly doubled (from $47 to $90), and the average premium paid by employers for single coverage grew by over 70 percent (from $212 to $363). The overall trends among family coverage were qualitatively similar.

Table 7. Participant-weighted estimates of health insurance premiums, 2003—2012

Category	Single coverage									Family coverage								
	Percentage with employee premium greater than zero			Average employee premium			Average employer premium			Percentage with employee premium greater than zero			Average employee premium			Average employer premium		
	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change
All workers	77	82	7	$47	$90	92	$212	$363	71	85	92	7	$196	$394	101	$496	$885	78
By size:																		
Fewer than 50	72	72	0	51	86	69	219	358	64	83	88	6	222	444	100	502	811	62
50–99	74	78	6	45	93	104	213	362	70	83	91	10	196	463	136	462	802	74
100!499	81	87	7	47	93	99	212	348	64	88	95	8	196	388	98	500	860	72
500’999	80	91	14	44	94	113	202	373	85	89	94	6	173	348	101	491	980	100
1,000–2,499	77	90	16	43	90	110	208	394	89	85	92	8	160	306	91	494	1,071	117
2,500 or more	78	85	8	39	81	108	202	400	98	84	87	4	158	287	81	518	1,052	103
Unionization:																		
Nonunion	80	85	7	49	93	89	207	347	67	89	95	6	208	418	101	486	853	75
Union	59	63	7	32	71	123	242	465	92	64	74	14	124	251	102	555	1,072	93
Status:																		
Full time	77	82	6	46	88	89	213	367	72	85	92	7	194	391	101	500	897	80
Part time	78	86	11	51	115	123	192	311	62	89	92	3	230	448	95	428	702	64
Job-based wage quartile:																		
First	79	86	9	50	110	120	203	287	42	86	96	12	216	503	133	443	613	38
Second	77	85	9	48	92	91	205	336	64	88	95	8	202	416	106	477	799	67
Third	74	81	9	45	88	95	220	367	67	83	92	11	188	392	108	519	883	70
Fourth	77	80	4	44	85	92	218	394	81	85	88	4	182	359	97	530	1,000	89
Establishment-based wage quartile:																		
First	79	86	9	52	107	105	202	293	45	84	95	14	205	487	138	454	626	38
Second	76	81	7	48	92	93	208	330	59	88	94	7	218	435	99	473	769	63

See footnotes at end of table.

Table 7. Participant-weighted estimates of health insurance premiums, 2003—2012

Category	Single coverage									Family coverage								
	Percentage with employee premium greater than zero			Average employee premium			Average employer premium			Percentage with employee premium greater than zero			Average employee premium			Average employer premium		
	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change
Third	73	83	14	42	89	112	222	371	67	82	93	12	183	398	117	521	891	71
Fourth	79	80	1	46	85	83	214	394	84	87	88	1	184	347	88	518	1,006	94

Source: Authors– calculations based on data from the National Compensation Survey.

Below the all-worker level, we see several interesting dynamics. In 2003, single-coverage medical plan participants in smaller establishments systematically paid more in premiums than those in large establishments, but their employers also paid more. One explanation for this phenomenon is that the smaller employers had less bargaining power in negotiating premiums. By 2012, however, this employee premium pattern largely disappeared and the employer premium pattern reversed itself, evidencing differential (employer and employee) premium growth among both larger and smaller establishments. A key contributor to this trend appears to be a disproportionate decline in zero-premium plans for single coverage among the larger establishments: while the percentage of participants paying any premium stayed essentially constant among the smallest establishments, it grew significantly among the three largest establishment groups. A different trend is observed in family coverage. In 2003, employee premiums were negatively related to establishment size while employer premiums were roughly equal across establishment sizes. Over the next decade, the negative association between establishment size and employee premiums for family coverage increased and a positive association emerged between size and the employer premium.[21] These trends imply a growing generosity gap between large and small establishments for family-coverage plans.

The results by wage quartile are again quite striking. In 2003, there was a weakly negative relationship between employee premiums and job-based wages; for example, workers in the lowest job-based wage quartile paid about $6 more in monthly premiums for single coverage than those in the highest quartile. But that difference grew to about $25 by 2012. A similar evolution occurred with the positive relationship between wages and employer-paid premiums: by 2012, workers in the bottom job-based wage quartile paid about 28 percent of combined (employer and employee) premiums, while the rest of the workers paid less than 20 percent. A similar dynamic is seen with wage quartiles based on establishment-level wages.

But participant-weighted measures such as those in table 7 fail to inform us about something important: which premiums were available to workers, regardless of whether they chose to participate? Tables 8 and 9 try to get at the answer to this question by presenting a number of statistics based on workers– access to plans. These data bear on the issue of how trends in plan takeup might be related to the premiums applicable to available plans. In addition, the data enable us to obtain a fuller description of the offerings enjoyed by workers who have more than one plan option. Each table (table 8 for single-coverage plans, table 9 for family-coverage plans) presents five different measures: (1) whether workers have access to at least one plan with no employee premium; (2) the average employee premium, with the data constrained to only the highest premium faced by workers in each job; (3) the average employer premium, again with the data constrained to only the highest premium faced by workers in each job; (4) the average employee premium, with the data constrained to only the lowest premium faced by workers in each job; and (5) the average employer premium, again with the data constrained to only the lowest premium faced by workers in each job.

Table 8. Access-based estimates of health insurance premiums for single coverage , 2003–2012

Category	Percentage of workers offered zero-premium plan			Average maximum employee premium offered			Average maximum employer premium offered			Average minimum employee premium offered			Average minimum employer premium offered		
	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change
All workers	24	29	23	$57.95	$113.14	95	$222.84	$369.14	66	$44.31	$43.07	-3	$200.51	$157.10	-22
By size:															
Fewer than 50	29	36	24	58.00	101.36	75	219.61	350.94	60	49.32	54.61	11	210.85	203.81	-3
50–99	28	31	13	51.45	116.92	127	214.27	357.62	67	44.00	49.23	12	199.60	179.20	-10
100’499	18	24	33	60.80	117.86	94	226.93	356.03	57	44.48	42.80	-4	198.71	141.18	-29
500’999	19	24	28	59.58	117.75	98	227.41	388.97	71	39.38	31.16	-21	190.07	105.19	-45
1,000!2,499	23	23	0	55.93	120.59	116	221.13	421.67	91	41.67	25.76	-38	194.08	108.67	-44
2,500 or more	28	36	30	57.49	122.56	113	232.66	437.92	88	30.96	18.12	-41	184.63	101.58	-45
Unionization:															
Nonunion	21	26	24	60.69	116.27	92	217.89	353.69	62	46.60	43.73	-6	196.67	147.14	-25
Union	47	55	16	37.54	91.33	143	259.64	476.95	84	27.22	38.44	41	229.06	226.58	-1
Status:															
Full time	24	30	26	57.57	111.06	93	224.78	376.77	68	44.26	40.33	-9	202.69	157.80	-22
Part time	20	19	-9	62.62	134.98	116	199.02	289.11	45	44.82	71.80	60	173.81	149.72	-14
Job-based wage quartile:															
First	19	16	-15	62.93	126.86	102	209.22	279.12	33	49.67	76.71	54	191.68	172.46	-10
Second	24	25	3	57.28	114.33	100	214.98	340.52	58	46.22	50.19	9	198.02	168.51	-15
Third	26	32	23	54.63	110.16	102	229.70	377.85	64	41.83	40.99	-2	208.50	164.93	-21
Fourth	26	35	32	56.98	110.43	94	237.92	412.86	74	39.49	28.38	-28	204.20	136.05	-33
Establishment-based wage quartile:															
First	19	17	-10	62.19	124.91	101	209.50	289.09	38	51.84	70.77	37	193.88	172.00	-11
Second	26	27	4	55.38	113.29	105	216.10	328.35	52	45.47	56.08	23	202.02	184.29	-9
Third	27	30	13	54.91	109.66	100	233.16	380.59	63	40.93	39.16	-4	208.61	160.11	-23
Fourth	25	35	42	58.96	112.24	90	230.32	416.05	81	40.44	27.61	-32	198.66	129.10	-35

See footnotes at end of table.

Source: Authors– calculations based on data from the National Compensation Survey.

Table 9. Access-based estimates of health insurance premiums for family coverage , 2003–2012

Category	Percentage of workers offered zero-premium plan			Average maximum employee premium offered			Average maximum employer premium offered			Average minimum employee premium offered			Average minimum employer premium offered		
	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change
All workers	14	15	13	$237.04	$467.56	97	$520.03	$902.03	73	$193.23	$200.28	4	$461.68	$361.22	-22
By size:															
Fewer than 50	18	16	-11	248.91	477.06	92	493.65	796.53	61	220.12	273.14	24	470.10	442.83	-6
50–99	17	13	-25	224.63	529.02	136	462.76	816.50	76	192.41	246.80	28	431.95	398.62	-8
100–499	8	12	43	249.57	467.45	87	535.48	881.67	65	199.86	190.42	-5	459.53	338.99	-26
500–999	6	17	196	222.17	422.81	90	571.46	1018.81	78	158.22	121.50	-23	469.03	273.01	-42
1,000’2,499	11	16	49	201.32	416.36	107	532.50	1128.42	112	156.93	105.73	-33	467.74	277.47	-41
2,500 or more	21	29	40	212.08	431.52	103	600.46	1162.16	94	130.22	70.87	-46	471.15	261.80	-44
Unionization:															
Nonunion	10	12	18	249.20	489.55	96	509.88	872.09	71	205.03	209.95	2	453.85	341.51	-25
Union	41	42	0	146.79	314.00	114	595.09	1111.24	87	105.66	132.71	26	519.55	498.94	-4
Status:															
Full time	14	16	16	235.45	464.98	97	527.78	922.81	75	192.72	192.23	0	469.10	362.62	-23
Part time	12	9	-21	256.49	494.62	93	425.56	684.38	61	199.42	284.37	43	371.09	346.59	-7
Job-based wage quartile:															
First	11	5	-54	262.74	535.32	104	459.32	613.35	34	220.31	346.27	57	414.32	368.93	-11
Second	11	11	-6	236.11	478.84	103	494.77	820.23	66	202.59	237.75	17	450.15	381.41	-15
Third	16	16	0	221.58	462.44	109	545.35	915.16	68	182.10	193.40	6	488.19	374.82	-23
Fourth	16	22	37	228.02	441.41	94	581.13	1047.02	80	168.11	130.20	-23	494.39	331.18	-33
Establishment-based wage quartile:															
First	12	6	-53	253.18	522.19	106	463.72	637.57	37	219.46	315.94	44	425.28	370.02	-13

See footnotes at end of table.

Table 9. Access-based estimates of health insurance premiums for family coverage , 2003–2012

Category	Percentage of workers offered zero-premium plan			Average maximum employee premium offered			Average maximum employer premium offered			Average minimum employee premium offered			Average minimum employer premium offered		
	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change	2003	2012	Percent change
Second	12	11	-9	245.69	486.98	98	492.02	772.52	57	214.06	273.64	28	454.33	412.01	-9
Third	16	15	-5	224.31	465.83	108	548.13	924.94	69	181.10	187.31	3	488.41	362.05	-26
Fourth	14	22	54	228.44	437.15	91	560.97	1062.66	89	168.08	120.66	-28	474.22	320.67	-32

Source: Authors– calculations based on data from the National Compensation Survey.

The results shown in tables 8 and 9 expand on the story presented by table 7. Overall, we find that table 7–s near doubling of participation-weighted average employee premiums was matched by a near doubling of the average maximum employee premium, but there was very little corresponding movement in the average minimum employee premium. In other words, the range of premiums available to workers expanded greatly from 2003 to 2012, with premiums growing at the top of the range and the average premium at the bottom of the range remaining roughly constant. A similar dynamic unfolded with respect to employer-paid premiums, but in this case the minimum employer payments actually fell significantly (by about 20 percent) while the maximum employer payments increased by around 70 percent. This dynamic suggests that employers reacted to rising health care costs by allowing some plans to rise in costs as well but also by increasingly offering other, low-cost, low-benefit plans as options. Note, however, that the substantial increases seen in table 7 among the participation-weighted averages suggest that most of the workers confronting this new, expanded range of premiums tended to opt for the higher premium plans (presumably to maintain their insurance levels) instead of taking the low-cost options.

Expansions in the range of plans offered were much more pervasive among larger establishments than smaller establishments. Average minimum employee premiums grew insignificantly among small establishments but declined significantly among large establishments, and a similar association between the trend and establishment size prevailed among minimum employer premiums. These numbers illustrate a further point: the negligible change in the overall average minimum employee premium reflects significant declines in the minimum plan offered by some fraction of establishments. Meanwhile, maximum employer and employee premiums for single coverage both grew much more slowly among small establishments than they did among large establishments.

Finally, the results by wage quartile shown in tables 8 and 9 reinforce the findings from participation-weighted averages in table 7: lower wage workers saw a relative deterioration of benefits in almost every measure. Relative to workers in the top wage quartile, workers in the bottom wage quartile suffered a greater decrease in the availability of no-premium plans, saw their maximum and minimum employee premiums grow the most, and experienced the smallest growth in their maximum employer premiums. But they did benefit, at least in a relative sense, in one way: their minimum employer premium declined by less than did the average minimum employer premium among workers in the top wage quartile.

IN THIS ARTICLE, WE USED BLS DATA to examine access to employer-provided health insurance since 1991. For the period beginning in 2003, we were able to fashion a more detailed analysis, assessing access, takeup, and participation rates, as well as examining patterns in employee and employer premiums. For the longer period, we noted a decline in access rates, owing to narrowing access among part-time workers. Focusing on the more recent period, we presented evidence that various classes of workers, including nonunion, part-time, lower wage workers and those employed at small establishments, tend to have a lower incidence of employer-provided health insurance. During 2003–2012, as participation and access dropped significantly (and takeup dropped insignificantly) among the overall worker population, these between-group differences persisted. Some of them narrowed a bit over the decade, generally because of relative advances made by the lower incidence group in their takeup of available plans. At the same time, other differences expanded, generally through expansions in the between-group gaps in plan access. The average premium paid by employees and employers increased substantially over the decade, with lower wage workers especially hard hit by increased employee payments. These movements in the average premium were accompanied by a widening in the range of plans offered, as low-

cost plans became more prevalent, especially among large establishments and higher wage workers. All these trends provide an interesting backdrop as the health insurance system enters into a period of anticipated change.

Appendix: data

The data in the first half of table 1 (for the years 1991–2000), supporting estimates of health insurance access rates between 1991 and 2000, come from Employer Cost Index (ECI) samples that predated the full ECI integration into the comprehensive NCS. Many of these earlier samples were designed to collect compensation data solely for the purpose of estimating the ECI, a Principal Federal Economic Indicator measuring the trend in compensation costs. Although the ECI is designed to survey compensation costs, including employer-provided benefits, ECI data provide sufficient information to derive the incidence of access to some types of benefits, including employer-sponsored health benefits.

The data used in the second half of table 1 (for the years 2003–2012) and all of tables 2 through 9, which together show annual health insurance access rates for 2003'2012 and details of health insurance incidence and premiums in 2003 and 2012, come from NCS microdata that were used to support NCS publications on the incidence of benefits during those years.[22] These data are a continuation of the previous series, although they embody a different sampling methodology that was instituted when the NCS was integrated after 2000.[23] For 2003'2006, we exclude –legacy! records from the sample that were sampled under the previous approach.

Both the 1991–2000 ECI microdata and the 2003–2012 NCS microdata were collected at the job level, with observations having been randomly selected within each randomly selected establishment. For each job-based observation, information on the average wages of the workers in the job, as well as detailed information about the work schedule followed by these workers, were collected. Both sets of microdata also contain measures of employer costs for a wide variety of employer-provided benefits, including different categories of leave, supplemental pay, retirement-related benefits, legally required benefits, and various forms of insurance.[24]

Plan access in the tables in this article is determined at the job level: if a plan is present that is applicable to the workers in the job, then the workers are considered to have access to the plan. Note that this statement does not necessarily imply that all workers in the job are eligible for the plan at the time of the survey: certain eligibility restrictions, such as minimum tenure, may apply. Health plan access is defined as access to any type of health plan (medical, dental, vision, or prescription drug). Because the 1991–2000 data do not have the relevant information for all observations, table 1 does not include breakouts by type of plan. As seen in tables 2 and 3, however, the access rates for all health plans and the access rate for medical plans are quite similar–a relationship that stands to reason in that few workers would be offered stand-alone drug, dental, or vision plans, but not offered coverage for medical care.

The access rates in table 1 are tabulated from the March quarterly surveys for each year. The ECI (and the NCS) collects compensation data for March, June, September, and December of each year, but annual NCS publications on the incidence of benefits generally refer to the March quarter because most private industry establishments report changes in health benefit plans during the first quarter of each year, typically reflecting any changes that may come about from yearly plan renewals. Some of the underlying methods (e.g., for handling missing data) have changed over the years, but we believe that the measures shown in table 1 are broadly compatible over the entire period. Note that, although the imputation scheme used in this article is similar to the one used by the NCS in constructing the measures reported in its publications on the incidence of benefits, it is not identical. The main

differences are in (a) the way jobs for which the respondent refused to divulge whether any plan was present in 2003 were treated (we treat such observations as missing-at-random) and (b) the specification of how “nearest neighbors” were determined (we prioritize the key variables of interest in our tables: establishment size, full-time status, unionization, and job-based wage quartile, in that order). The scheme we use ensures better compatibility between the estimated values for different years, as well as more accurately capturing the between-group differences we examine in the later tables.

The measures shown in tables 2–9 were built up from the NCS microdata from 2003 and 2012 by using the job-based weights accounting for the probability of the job–s selection into the sample as well as various kinds of weight refinements, such as those accounting for establishment- or job-based nonresponse. Item nonresponse was handled by imputation using a nearest neighbor procedure. Most of the variables reported in the tables are collected directly from the data source; for example, establishment size (number of employees) is a variable that is collected directly in NCS interviews. But two variables merit special explanation. First, –job-based wage quartile— denotes the assignment of each job-based observation into one of four categories indicating which portion of the measured wage distribution the reported average wage of workers in the job fell into. To generate this variable, we first determined cutoffs for each wage quartile by taking the reported job-based wages and computing their 25th, 50th (median), and 75th quantile values (using the job-based weights so that these quantiles are estimates of the population). We then used the quantile values to assign individual observations to one of the four quartiles. As regards “establishment-based quartiles,” we first averaged the observed job-based wage rates within each establishment and then applied the same procedure that we used for generating the job-based quartiles to the establishment-based wage rates to determine the establishment-based wage quartiles.

SUGGESTED CITATION

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NOTES

[1] Elise Gould, “Employer-sponsored health insurance continues to decline in a new decade,” EPI Briefing Paper (Washington, DC: Economic Policy Institute, December 5, 2012).

[2] See the discussion in Janet Currie and Brigitte C. Madrian, “Health, health insurance and the labor market,” in Orley Ashenfelter and David Card, eds., *Handbook of labor economics*, vol. 3, EconPapers, chapter 50, pp. 3309–3416 (New York: Elsevier, 1999).

[3] Percentages are based on data derived from *Employer cost for employee compensation* (U.S. Bureau of Labor Statistics, March 1991 and March 2012).

[4] Percentages are based on data derived from the BLS Employment Cost Index.

[5] For simplicity, we refer to the Patient Protection and Affordable Care Act and the companion Health Care and Education Reconciliation Act as the Affordable Care Act.

[6] The takeup rate is the percentage of workers with access to a plan who participate in the plan.

[7] A discussion of the provisions and impacts of the act is beyond the scope of this article, but for summaries of the provisions, see “Summary of coverage provisions in the Affordable Care Act,” *Focus on Health Reform*, publication #8023-R (Menlo Park, CA: Henry J. Kaiser Family Foundation, July 17, 2012); and “Summary of the Affordable Care Act,” *Focus on Health Reform*, publication #8061-02 (Menlo Park, CA: Henry J. Kaiser Family Foundation, April 25, 2013). For examples of analyses of the expected impact of

the act on EBHI, see Kosali Simon, *Implications of health reform for employers: an analysis of the Patient Protection and Affordable Care Act* (Washington, DC: Center for American Progress, May 2010); and Linda Blumberg, Matthew Buettgens, Judy Feder, and John Holahan, "Why employers will continue to provide health insurance: the impact of the Affordable Care Act," Timely analysis of immediate health policy issues (Washington, DC: Urban Institute, October 2011).

[8] The years 2001 and 2002 are excluded here, to account for the change in the Employment Cost Index (ECI) sampling methodology that took place during this transition period. Also, starting with 2003, we have removed jobs that remained in the ECI sample after having been sampled under the old scheme, unless they were resampled in 2003 or after. This approach gives us confidence that the access rates in the table are broadly consistent over the period examined.

[9] In the NCS sample, the increase in the fraction working part time corresponds to a similar increase seen in other sources, such as the Current Population Survey.

[10] Philip F. Cooper and Barbara S. Schone, "More offers, fewer takers for employment-based health insurance: 1987 and 1996," *Health Affairs*, November 1997, pp. 142–149.

[11] David M. Cutler, "Employee costs and the decline in health insurance coverage," in David M. Cutler and Alan M. Garber, *Frontiers in Health Policy Research*, vol. 6, pp. 27–53 (Cambridge MA: The MIT Press (for the National Bureau of Economic Research), 2003).

[12] Jessica Vistnes, Alice Zawacki, Kosali Simon, and Amy Taylor, "Declines in employer-sponsored insurance between 2000 and 2008: examining the components of coverage by firm size," *Health Services Research*, June 2012, pp. 919–938.

[13] The offer rates computed by Vistnes and colleagues are conceptually similar to the access rates reported in this article and in other NCS publications, although in practice the two measures are not identical. The difference is that the former are measured at the establishment level, the latter at the job level. The two rates will differ when workers in some jobs in an establishment are offered health insurance while workers in another job are not—as, for example, when full-time employees have access but part-time employees do not. In this case, all the workers in the establishment will contribute to the offer rate but only some of the workers will contribute to the access rate.

[14] Health plans provide preventive and protective medical, dental, vision, or prescription drug coverage to employees and their families. Medical plans either provide payments for services rendered in the hospital or by a qualified medical care provider or provide the services themselves. (See *National Compensation Survey glossary of employee benefit terms* (U.S. Bureau of Labor Statistics, July 2012), https://www.bls.gov/ncs/ebs/glossary20112012.pdf.)

[15] See the appendix for a discussion of how these wage quartiles were computed.

[16] See the appendix for a discussion of how these establishment-level wages were computed.

[17] In this article, statistical significance is held to obtain at $p < .1$. In accordance with the policies of the Office of Compensation and Working Conditions, all articulated comparisons of the data have passed such a statistical test, unless otherwise noted.

[18] To provide a statistical test of this statement, a simple regression was run of access on the six establishment size categories in each year; the estimated coefficients (.092 in 2003 and .094 in 2012) were both significant at the .001 level.

[19] Vistnes, Zawacki, Simon, and Taylor, "Declines in employer-sponsored insurance between 2000 and 2008."

[20] See, for example, tables 3 and 4 in "Employee Benefits in the United States—March 2013," BLS News Release USDL-13-1344, July 17, 2013, https://www.bls.gov/ncs/ebs/sp/ebnr0019.pdf.

[21] Simple regressions of the premiums on the establishment size identifier illustrate these points. In 2003, the coefficient of the size category for employee premiums was –13.56; in 2012, it was –34.43. For the employer premiums, the corresponding figures were (an insignificant) 2.07 and 55.74, respectively.

[22] See also the associated publications for 2003 and 2012: *National Compensation Survey: employee benefits in private industry in the United States, March 2003*, Summary 04-02 (U.S. Bureau of Labor Statistics, April 2004), https://www.bls.gov/ncs/ebs/sp/

ebsm0001.pdf; and *National Compensation Survey: employee benefits in the United States, March 2012*, Bulletin 2773 (U.S. Bureau of Labor Statistics, September 2012), https://www.bls.gov/ncs/ebs/benefits/2012/ebbl0050.pdf.

[23] Prior to 2001, the ECI had its own sample design. Between 2001 and 2006, the index transitioned from having its own samples to having its samples drawn as part of the larger NCS. During this period, it contained some sample members from each design. The sample on the incidence of benefits from 2003 to 2012 used in this article, however, consisted only of members selected on the basis of the NCS design. (Older units were excluded.) For more information about the phase-in of the NCS sample, see Jason Tehonica, Lawrence R. Ernst, and Chester H. Ponikowski, "Phase-in of the redesigned National Compensation Survey area sample," *Proceedings of the American Statistical Association*, section on survey research methods (Alexandria, VA: American Statistical Association, 2005), pp. 2993–2997, https://www.amstat.org/sections/srms/proceedings/y2005/Files/JSM2005-000156.pdf.

[24] For more information about the collection of NCS data, see Chapter 8, "National compensation measures," *BLS Handbook of Methods* (U.S. Bureau of Labor Statistics), https://www.bls.gov/opub/hom/pdf/homch8.pdf.

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Monthly Labor Review

BLS

October 2014

Middle-skill jobs decline as U.S. labor market becomes more polarized

Demetrio Scopelliti

In the 1980s, the composition of the labor force shifted from low-skill labor to high-skill labor while the proportion of mid-skill jobs held steady. Beginning in the 1990s and escalating over the past decade, the distribution of jobs began to shift as more jobs became concentrated at the lower and higher levels of the skill spectrum.

In “Middle-skill jobs lost in U.S. labor market polarization,” author Anton Cheremukhin (*Economic Letter*, Federal Reserve Bank of Dallas, May 2014, http://www.dallasfed.org/assets/documents/research/eclett/2014/el1405.pdf) argues that the downward trend in the number of middle-skill jobs is not primarily due to changes in labor market institutions, such as declining unionization. The author largely attributes the decline instead to an increase in the automation of tasks, scarcity of workers with appropriate skills, and to a lesser extent, relocation of jobs to foreign countries.

The author characterizes middle-skill jobs as routine jobs that are cognitive or manual in nature and require one to follow precise procedures; examples of middle-skill jobs with declining employment include cashiers and telemarketers (cognitive) and mail carriers and cooks (manual). He characterizes high-skill jobs as nonroutine and cognitive, requiring problem-solving skills—for example, analysts and engineers—and low-skill jobs, such as food service workers, as nonroutine and manual. While middle-skill jobs have decreased from 58 percent of U.S. employment in 1981 to 44 percent in 2011, the number of low- and high-skill jobs increased over that period. The majority of middle-skill jobs that were lost were replaced by high-skill jobs, while the rest were downgraded to low-skill jobs. The largest declines in cognitive routine jobs were in administrative support and sales occupations. Losses in manual, routine jobs included mail carriers, drivers, cooks, and engravers. The loss of middle-skill jobs initially had a more negative impact on women than men. The majority of women, however, were eventually able to upgrade their skills and transition to high-skill jobs, while more than 50 percent of men who lost middle skill-jobs had to transition to low-skill occupations.

In every recession since 1970, the number of middle-skill jobs has declined. The middle-skill jobs lost during the recessions of the 1970s and 1980s were recovered during the period of economic expansion that followed each recession. However, middle-skill jobs lost during the 1990–1991, 2001, and 2007–2009 recessions were not recovered, leading many to refer to the periods of economic expansion following these recessions as “jobless recoveries.” While middle-skill jobs represent close to 45 percent of today’s jobs, a continued shift toward low- and high-skill jobs is expected.

Monthly Labor Review

BLS

October 2014

What happens when older workers experience unemployment?

Lawrence H. Leith

The 2007–2009 recession led to some of the worst labor market conditions in the United States since the Great Depression. Researchers and policymakers have long been concerned with the adverse effects that labor market difficulties have on society's overall health and well-being. What happens, for example, when a long-tenured employee unexpectedly loses his or her job during an economic downturn? A number of studies undertaken since 2000 have shown, somewhat paradoxically, that certain measures of public health actually improve when the economy is in recession. Mortality rates, for example, have been shown to decline when the economy worsens, and researchers also have found evidence for similar improvements in other public health indicators, including reduced smoking and obesity and increased physical activity. Such findings have led researchers to focus on particular segments of the population—older workers who lost their job and experienced an extended period of unemployment, for example—to see how their health is affected by recessions. In "Recessions, older workers, and longevity: how long are recessions good for your health?" (*American Economic Journal: Economic Policy,* August 2014), economists Courtney C. Coile, Phillip B. Levine, and Robin McKnight examine these issues in considerable detail.

Using data from a variety of sources, including state unemployment rates from the Current Population Survey and vital statistics (by state) from the National Center for Health Statistics, the authors develop a number of econometric models to study the effect that recessions have on subsequent mortality. They focus on older workers, those who are nearing retirement age at the onset of a recession. The authors compare state unemployment rates with state- and age-specific mortality rates for the 55-to-79-year age group for all birth cohorts from 1910 to 1929. This approach allows them to look at the impact that an increased unemployment rate has on survival rates, both contemporaneously and at later ages. In general, they find that when people experience unemployment in their late fifties or early sixties, it has a negative effect on their health in the long run, as measured by decreased longevity for the affected population. In addition, the findings affirm those of earlier studies in showing some positive health effects during recessions, but the authors argue that any such short-term benefits are far outweighed by the increase in mortality rates over the longer term.

As Coile, Levine, and McKnight explain, workers who are nearing retirement age are generally more likely than other workers to have health problems and thus are more likely to experience negative health effects if they lose their jobs as a result of a recession. It might be harder for them to find new jobs, especially those requiring job training, because potential employers may view these workers as a poor investment compared with their younger counterparts. This could lead to an extended period of unemployment or even involuntary retirement, depending on their particular age and circumstances. In addition to receiving reduced income, many of these workers lose their employer-provided health insurance, and the period without coverage can be quite long—for some, even

lasting until age 65, when they become eligible for Medicare. The loss of insurance frequently leads to a reduction in health care use, which presents a substantial health risk for people age 55 or older, who often have chronic health problems and are more susceptible to health “shocks” such as heart attacks and new cancer diagnoses.

Interestingly, the authors find negative long-term health effects for people experiencing unemployment at ages 55 to 61, but at age 62 and beyond these effects are markedly reduced. Coile and her colleagues suggest that the availability of Social Security at age 62 may help explain these findings, as the program provides a “buffer” for losses of income and health insurance that often occur when people lose their jobs and cannot find new ones. They also present evidence that unemployment shocks among older workers lead to lengthy periods of reduced employment and income, as well as long periods without health insurance and greater difficulty accessing health care. After age 65, when Medicare becomes available, these effects essentially “disappear.”

Further exploring some of the “plausible mechanisms” that could lead to long-term negative effects on health, the authors present a number of notable findings. They show, for example, that a 1-percentage-point increase in the state unemployment rate reduces the chance of employment for people ages 56 to 58 by 0.5 percentage point. This effect continues through ages 59 to 61, but then drops by about half from ages 62 to 64, perhaps because many people become eligible for Social Security at age 62. Similarly, they show that a 1-percentage-point rise in the unemployment rate reduces the rate of private health insurance coverage by 0.25 percentage point, indicating that about half of those with long-term unemployment lose access to their employer-provided health insurance.

The authors found that the effect of unemployment shocks on life expectancy is greatest for people ages 57 to 61. People who become unemployed at age 58 have their life expectancy reduced, on average, by 3 years (from 22 years to 19 years). In sum, the authors provide substantial empirical evidence that recessions have long-term health consequences for older workers who lose their jobs as a result of the economic downturn.

Monthly Labor Review

BLS

October 2014

Female self-employment in the United States: an update to 2012

This article uses data from the Current Population Survey to examine changes in the demographic and socioeconomic characteristics of self-employed women over the 1993–2012 period. The analysis suggests that these female workers, who represented about one-third of all self-employed individuals in 2012, have weathered recessions relatively well and made considerable strides in educational attainment and earnings. In addition, they have become more diverse in terms of race, family characteristics, and health status.

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After seeing considerable increases in the 1970s and the 1980s, the share of women in self-employment and the female self-employment rate leveled off in the 1990s and remained relatively unchanged through 2012. While this recent 20-year trend may not be remarkable, the characteristics of female business owners have changed considerably over time. The majority of empirical research on self-employed workers either analyzes self-employed men and women together, as a similar "type" of worker, or simply omits women from the study of self-employment.[1] By contrast, the present article uses the Annual Social and Economic Supplement of the Current Population Survey (CPS) to examine changes and trends in the demographic and socioeconomic characteristics of self-employed women from 1993 to 2012. It finds that these female workers continue to be a unique labor market group deserving separate treatment in analysis.

New trends in female self-employment suggest a positive shift in opportunities for women, especially for those who differ from the "typical" self-employed women of the past. For instance, the percentage of female minorities in self-employment doubled from 1993 to 2012, and more divorced women and women without young children have become self-employed. Earnings trends have also been favorable. Although female business owners still have lower mean earnings compared with other worker groups, between 1993 and 2012 the gender gap in hourly earnings among the self-employed shrank by nearly 20 percentage points for full-time workers and by 17 percentage points for part-time workers.

In addition, several characteristics distinguish self-employed women from their male self-employed counterparts as well as from their female wage and salary[2] counterparts. For example, relative to other worker groups, the female self-employed have higher mean levels of education but are in poorer health and more likely to be disabled. Their work schedules are highly variable and, in 2012, 38 percent of them worked part time for noneconomic reasons, compared with 17 percent of self-employed men and a quarter of wage and salary women.

The section below discusses the data and the sample used in the analysis. The following sections examine the trends in female self-employment over the 1993–2012 period and the characteristics that make self-employed women similar or dissimilar to other worker groups. Finally, a brief section on the top occupations and industries of self-employed women is offered and conclusions are drawn.

Data

The analysis uses 1993–2012 data from the Annual Social and Economic Supplement of the CPS, a monthly survey of about 60,000 households. This annual supplement collects data on demographics, work experience, income, and benefits, including government assistance and health insurance coverage. In 1994, a CPS redesign changed the measurement of employment characteristics such as class of worker, part-time versus full-time work, and industry and occupation distributions.[3] Thus, this analysis is limited to data collected since the survey redesign in order to make the best use of comparable data over time.

The study sample is comprised of civilian nonfarm workers age 16 or older who were employed in the job they held the longest during the year. Workers are defined as *employed* if they worked 1 or more weeks during the reference year, a work period that may include paid time off. Workers are defined as *self-employed* if they reported being self-employed in the job they held the longest during the reference year. This definition does not include workers reporting self-employment income from a second job but includes workers earning wage and salary income from a second job. Self-employed workers report themselves as unincorporated or incorporated. The sample excludes unpaid workers in nonagricultural family businesses.

Trends in female self-employment

Female representation in self-employment and the self-employment rate. In 2012, about one in three self-employed workers was female. After a consistent rising trend in female self-employment from the 1970s to the early 1990s,[4] the female-to-male ratio in self-employment remained relatively flat, at approximately 35 percent. (See table 1.) In 2012, 1 in 14 employed women was self-employed, down from about 1 in 12 women in 1993.

Table 1. Representation of women in the U.S. nonagricultural sector, by employment sector, 1993–2012 (numbers in thousands)

Year	All employed		Self-employed		Wage and salary	
	Number	Percent women	Number	Percent women	Number	Percent women
1993	125,066	46.7	13,173	35.7	111,893	48.0
1994	126,817	46.7	13,015	35.9	113,802	47.9
1995	128,125	46.8	12,676	34.9	115,450	48.1
1996	131,137	47.0	13,412	35.3	117,725	48.4

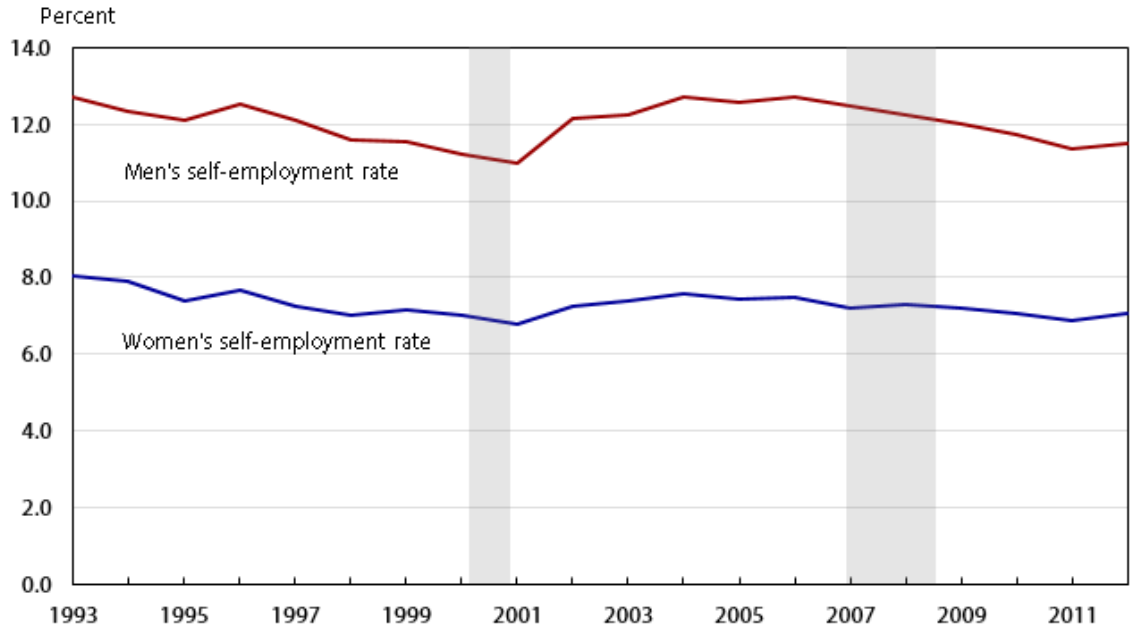
See footnotes at end of table.

Table 1. Representation of women in the U.S. nonagricultural sector, by employment sector, 1993–2012 (numbers in thousands)

Year	All employed		Self-employed		Wage and salary	
	Number	Percent women	Number	Percent women	Number	Percent women
1997	133,098	47.2	13,074	35.2	120,024	48.5
1998	134,266	47.4	12,656	35.2	121,610	48.6
1999	136,589	47.4	12,931	35.8	123,658	48.6
2000	137,946	47.4	12,720	36.1	125,226	48.6
2001	140,125	47.3	12,611	35.6	127,514	48.4
2002	142,653	47.2	14,058	34.8	128,596	48.5
2003	143,143	47.0	14,250	34.8	128,893	48.3
2004	144,471	46.9	14,884	34.5	129,587	48.3
2005	146,791	46.7	14,922	34.1	131,870	48.1
2006	149,430	46.9	15,312	34.2	134,118	48.3
2007	150,084	47.0	15,027	33.9	135,058	48.5
2008	149,964	47.2	14,846	34.8	135,118	48.6
2009	149,940	47.2	14,625	34.9	135,315	48.5
2010	149,240	47.2	14,243	35.0	134,996	48.4
2011	150,406	47.4	13,893	35.3	136,513	48.7
2012	151,091	47.4	14,204	35.7	136,887	48.6

Source: Current Population Survey, Annual Social and Economic Supplement.

Figure 1. Nonagricultural self-employment rates, by gender, annual averages, 1993–2012



Note: Shaded areas represent recessions as defined by the National Bureau of Economic Research.
Source: Current Population Survey, Annual Social and Economic Supplement.

The self-employment rate, defined as the ratio of nonagricultural self-employed workers to nonagricultural workers of both employment sectors (i.e., self-employment and wage and salary), fell from 10.5 percent in 1993 to 9.4 percent in 2012. (See table 2.) In 2012, the female self-employment rate was 7.1 percent and the male rate was

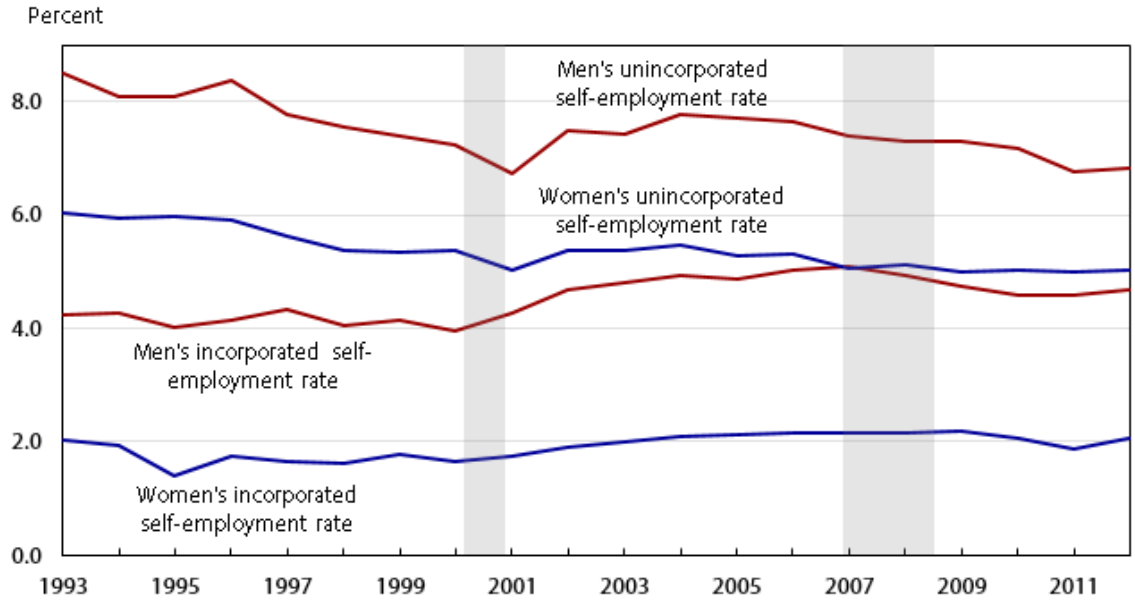
11.5 percent. Figure 1 depicts the nearly 20-year trend in self-employment rates by gender, with shaded areas representing recessions. While both male and female rates trend slightly downward, female self-employment was less affected by economic downturns than was male self-employment, a differential effect particularly evident in the most recent recession. In the 3 years before the Great Recession of 2007–2009, male self-employment averaged 12.7 percent; between 2006 and 2012, it dropped by 1.2 percentage points. The female self-employment rate fell only 0.4 percentage points in this 6-year period and made up twice as much ground in 2012 relative to the men's rate.

Table 2. Self-employment rates in the U.S. nonagricultural sector, by gender, 1993–2012 (numbers in thousands)

Year	Women			Men			Total		
	Employed	Self-employed	Self-employment rate (percent)	Employed	Self-employed	Self-employment rate (percent)	Employed	Self-employed	Self-employment rate (percent)
1993	58,438	4,706	8.1	66,629	8,467	12.7	125,066	13,173	10.5
1994	59,210	4,670	7.9	67,607	8,345	12.3	126,817	13,015	10.3
1995	59,925	4,419	7.4	68,201	8,257	12.1	128,125	12,676	9.9
1996	61,688	4,728	7.7	69,449	8,683	12.5	131,137	13,412	10.2
1997	62,777	4,554	7.3	70,321	8,521	12.1	133,098	13,074	9.8
1998	63,616	4,455	7.0	70,650	8,201	11.6	134,266	12,656	9.4
1999	64,718	4,625	7.1	71,872	8,307	11.6	136,589	12,931	9.5
2000	65,399	4,594	7.0	72,547	8,125	11.2	137,946	12,720	9.2
2001	66,210	4,486	6.8	73,915	8,125	11.0	140,125	12,611	9.0
2002	67,273	4,885	7.3	75,380	9,173	12.2	142,653	14,058	9.9
2003	67,278	4,966	7.4	75,865	9,284	12.2	143,143	14,250	10.0
2004	67,704	5,131	7.6	76,766	9,753	12.7	144,471	14,884	10.3
2005	68,520	5,091	7.4	78,271	9,831	12.6	146,791	14,922	10.2
2006	70,017	5,231	7.5	79,414	10,082	12.7	149,430	15,312	10.2
2007	70,596	5,098	7.2	79,488	9,929	12.5	150,084	15,027	10.0
2008	70,837	5,164	7.3	79,127	9,683	12.2	149,964	14,846	9.9
2009	70,795	5,101	7.2	79,146	9,525	12.0	149,940	14,625	9.8
2010	70,387	4,986	7.1	78,853	9,257	11.7	149,240	14,243	9.5
2011	71,330	4,905	6.9	79,076	8,988	11.4	150,406	13,893	9.2
2012	71,557	5,066	7.1	79,533	9,138	11.5	151,091	14,204	9.4

Source: Current Population Survey, Annual Social and Economic Supplement.

Figure 2. Nonagricultural incorporated and nonincorporated self-employment rates, by gender, annual averages, 1993–2012



Note: Shaded areas represent recessions as defined by the National Bureau of Economic Research.
Source: Current Population Survey, Annual Social and Economic Supplement.

Incorporated vs. unincorporated self-employment. Self-employed workers report themselves as either incorporated or unincorporated. Incorporation, which allows business owners to reduce their personal liability and income taxes, has risen among the self-employed since the 1960s.[5] However, in the past two decades, the progression toward incorporation was seemingly driven by self-employed men. Between 1993 and 2012, the incorporated self-employment rate rose about half a percentage point for men but remained mostly unchanged for women. (See figure 2.) In the same time, the unincorporated self-employment rate fell 1.7 percentage points for men but only 1.0 percentage point for women. In 2012, 2.1 percent of all female workers were incorporated self-employed, compared with 4.7 percent of all male workers.

Characteristics of self-employed women

Age. About 34 percent of self-employed women in 2012 were age 55 or older, up nearly 13 percentage points since 1993. (See table 3.) A similar trend is found for self-employed men and is likely correlated with the trend of gradual retirement through “bridge jobs” (i.e., jobs that bridge the gap between a career job and full retirement). Self-employment is one type of a bridge job that is common among older individuals. This interpretation is supported by table 4, which shows that self-employment rates increase with age, especially among men.[6]

Table 3. Percent distribution of self-employed and wage and salary workers, by gender and selected demographic characteristics, 1993 and 2012

Characteristics	Self-employed				Wage and salary			
	Women		Men		Women		Men	
	1993	2012	1993	2012	1993	2012	1993	2012
Age								
16 to 19 years	1.6	0.5	1.4	0.8	5.5	3.6	5.1	3.0
20 to 24 years	2.7	1.8	2.6	2.0	11.7	10.5	11.6	10.5
25 to 34 years	20.5	13.5	18.1	11.9	26.7	21.9	28.7	23.7
35 to 44 years	28.8	22.9	29.6	21.3	27.1	20.7	26.7	21.7
45 to 54 years	25.2	27.9	25.3	27.4	18.4	22.5	17.6	21.6
55 to 64 years	14.6	22.3	15.4	24.3	8.4	16.4	8.2	14.8
65 years and older	6.5	11.3	7.7	12.3	2.3	4.4	2.0	4.6
Race and Hispanic origin								
White	91.4	82.8	91.3	86.0	82.8	77.4	85.1	80.3
Black	4.5	6.8	4.7	6.3	13.1	14.1	10.6	11.1
Asian	3.3	7.7	2.9	5.6	2.7	5.4	2.7	5.6
Other	.8	2.8	1.1	2.1	1.3	3.0	1.5	2.9
Hispanic origin	5.2	12.3	5.2	13.2	7.9	14.2	10.4	17.3
Citizenship								
U.S. born	89.8	79.2	89.8	79.5	91.5	84.3	89.2	81.0
Foreign born, U.S. citizen	4.6	12.0	4.4	11.2	3.1	8.9	3.1	8.5
Foreign born, not a U.S. citizen	5.6	8.8	5.7	9.3	5.4	6.8	7.7	10.6
Marital status								
Married with spouse present	77.1	66.2	73.9	69.7	54.1	50.4	58.2	55.0
Previously married	13.5	20.5	12.2	13.7	19.7	18.8	10.6	11.9
Never married	9.4	13.3	13.9	16.6	26.2	30.8	31.2	33.1
Young children at home	24.1	19.5	20.5	18.2	19.8	18.4	20.5	18.2

Note: Data for "young children at home" represent the share of individuals under age 55 who have one or more children under 6 years of age in the household.

Source: Current Population Survey, Annual Social and Economic Supplement.

Table 4. Self-employment rates, by gender and selected demographic characteristics, 1993 and 2012 (percent)

Characteristics	Women		Men	
	1993	2012	1993	2012
Age				
16 to 19 years	2.5	1.0	3.8	3.3
20 to 24 years	2.0	1.3	3.1	2.4
25 to 34 years	6.3	4.5	8.4	6.1
35 to 44 years	8.5	7.8	13.9	11.3
45 to 54 years	10.7	8.6	17.3	14.1
55 to 64 years	13.3	9.4	21.5	17.6
65 years and older	19.7	16.3	35.3	25.7

See footnotes at end of table.

Table 4. Self-employment rates, by gender and selected demographic characteristics, 1993 and 2012 (percent)

Characteristics	Women		Men	
	1993	2012	1993	2012
Race and Hispanic origin				
White	8.8	7.5	13.5	12.2
Black	2.9	3.5	6.1	6.9
Asian	9.6	9.7	13.2	11.5
Other	5.2	6.6	9.1	8.4
Hispanic origin	5.4	6.2	6.9	9.0
Citizenship				
U.S. born	7.9	6.7	12.8	11.3
Foreign born, U.S. citizen	11.3	9.3	17.3	14.7
Foreign born, not a U.S. citizen	8.4	9.0	9.7	10.2
Marital status				
Married with spouse present	11.1	9.1	15.6	14.1
Previously married	5.7	7.7	14.4	13.0
Never married	3.0	3.2	6.1	6.1
Young children at home	8.6	6.3	12.2	9.1

Note: Data for "young children at home" represent the rate of self-employment of individuals under age 55 who have one or more children under 6 years of age in the household.

Source: Current Population Survey, Annual Social and Economic Supplement.

Race, Hispanic origin, and citizenship. The middle panels of table 3 present data on race and citizenship. Compared with the wage and salary sector, the self-employment sector has a higher percentage of Whites; however, this proportion fell considerably between 1993 and 2012, especially for self-employed women. Notably, the concentration of female minorities in self-employment doubled during this period.

Self-employment rates are above average for Whites and Asians, regardless of gender. (See table 4.) Between 1993 and 2012, self-employment rates increased for all female minority groups; among men, rates increased only for Blacks and those of Hispanic origin. Foreign-born U.S. citizens and noncitizens continue to have above-average self-employment rates, and foreign-born citizens are increasingly entering both the wage and salary and the self-employment sectors, but especially the latter.

Marital status and children. While the share of married female workers in 2012 was about 50 percent in the wage and salary sector, it was more than 66 percent in the self-employment sector. (See table 3.) A similar distribution is found for men. This pattern may be due to the fact that self-employment often gives married people greater work schedule flexibility and the opportunity for joint production, while still allowing them to enjoy the earnings stability and benefits coverage provided by their spouse. However, in recent decades, self-employment has become more common among unmarried women, in particular divorced women, who make up one-fifth of self-employed women and whose self-employment rates are slightly above average.

In 2012, nearly 20 percent of self-employed women under age 55 had young children (6 years and younger) at home, the highest proportion across all worker groups. The share of workers with young children decreased over

the study period for all workers, and especially for self-employed women. Table 4 indicates that the self-employment rate for women with young children was above average in 1993 but below average in 2012.

Education. Although mean levels of educational attainment rose in the 1993–2012 period for all worker groups, the increase was greater for women. (See table 5.) At the end of the period, self-employed women had the highest mean level of education—14.3 years, compared with 14.1 years for both self-employed men and wage and salary women. More than half of self-employed women in 2012 had at least an associate's degree, but less than half of the workers in other groups had at least this level of education. About 16 percent of self-employed workers of either gender held an advanced degree, compared with 12.2 percent of wage and salary women and 11.1 percent of wage and salary men. Self-employment rates fell for nearly all educational levels, consistent with the decline in the overall self-employment rate; however, the drop was considerably large for self-employed men holding professional degrees. (See table 6.) Because of this shift, in 2012, the self-employment rate for professional degree holders was about double the average rate for both genders.

Table 5. Percent distribution of self-employed and wage and salary workers, by gender, education, and health status, 1993 and 2012

Characteristics	Self-employed				Wage and salary			
	Women		Men		Women		Men	
	1993	2012	1993	2012	1993	2012	1993	2012
Number of years of schooling completed								
Mean	13.6	14.3	14.0	14.1	13.4	14.1	13.3	13.7
Standard deviation	2.6	2.7	3.1	3.0	2.5	2.5	2.8	2.8
Educational attainment								
Less than a high school diploma	8.7	7.0	11.3	10.0	11.7	7.6	15.3	10.7
High school graduate, no college	34.8	22.7	29.0	26.5	34.2	25.0	33.1	29.4
Some college, no degree	22.1	18.0	18.8	16.2	22.1	20.3	20.0	18.7
Associate's degree	8.4	12.1	5.8	8.1	9.1	12.2	7.0	9.2
Bachelor's degree	16.7	24.2	20.1	23.1	16.1	22.6	16.5	20.9
Master's degree	5.8	10.3	5.6	7.6	5.5	9.8	5.5	7.6
Professional or doctoral degree	3.4	5.7	9.4	8.5	1.3	2.4	2.6	3.5
Health status								
Excellent	–	32.9	–	30.9	–	30.7	–	32.3
Very good	–	33.8	–	34.8	–	36.6	–	36.1
Good	–	24.5	–	25.9	–	25.9	–	25.5
Fair	–	7.4	–	6.8	–	5.8	–	5.2
Poor	–	1.5	–	1.5	–	1.0	–	.9
Disability	5.0	5.1	4.7	3.0	2.8	2.0	3.0	1.9
Disability compensation								
U.S. Department of Veteran Affairs	.2	.5	.4	.3	.5	.5	.4	.3
Supplemental Security Income	.1	.1	.7	.9	.0	.1	.7	.9
Other source	.2	.2	.2	.2	.2	.2	.2	.2

Note: Data for "disability" represent the share of individuals with a health problem or disability that prevents them from working or limits the kind or amount of work they can perform.

Source: Current Population Survey, Annual Social and Economic Supplement.

Table 6. Self-employment rates, by gender, education, and health status, 1993 and 2012 (percent)

Characteristics	Women		Men	
	1993	2012	1993	2012
Educational attainment				
Less than a high school diploma	6.1	6.6	9.7	10.8
High school graduate, no college	8.2	6.5	11.3	10.5
Some college, no degree	8.1	6.3	12.0	10.1
Associate's degree	7.5	7.1	10.7	10.3
Bachelor's degree	8.3	7.5	15.1	12.6
Master's degree	8.5	7.4	13.1	11.5
Professional or doctoral degree	19.0	15.1	34.1	24.0
Health status				
Excellent	–	7.5	–	11.0
Very good	–	6.6	–	11.1
Good	–	6.7	–	11.7
Fair	–	8.8	–	14.6
Poor	–	10.4	–	18.3
Disability	13.5	16.1	18.6	17.6
Disability compensation				
U.S. Department of Veteran Affairs	3.5	6.9	11.3	6.9
Supplemental Security Income	20.6	5.2	18.3	9.8
Other source	6.9	7.7	11.1	10.1

Note: Data for "disability" represent the rate of self-employment of individuals with a health problem or disability that prevents them from working or limits the kind or amount of work they can perform.

Source: Current Population Survey, Annual Social and Economic Supplement.

Health and disability status. In 2012, self-employed women reported the poorest health of all worker groups. Among these female workers, 8.9 percent reported fair or poor health, compared with 8.3 percent for self-employed men, 6.8 percent for wage and salary women, and 6.1 percent for wage and salary men.[7] (See table 5.) In addition, self-employed women had the highest proportion of disabled workers—5.1 percent, compared with 3.0 percent for self-employed men and about 2 percent for wage and salary workers of either gender.[8] In 2012, 0.8 percent of women in both employment sectors received disability compensation through the U.S. Department of Veteran Affairs, the Supplemental Security Income program, or another source. In terms of their disability characteristics, self-employed women are more similar to wage and salary women and less similar to men in either employment sector. Table 6 shows an increasing self-employment rate among female disabled workers, a rate that was more than twice the average female rate in 2012. By contrast, this trend is not evident for self-employed men.

Job characteristics and earnings

Work schedules. In 2012, nearly half of self-employed women worked less than 35 hours a week, and the majority of them worked part time for noneconomic reasons (e.g., to take care of children and other family members, attend school or training, or contribute a secondary income to their households). As shown in table 7, self-employed women worked the lowest number of mean weekly hours and weeks per year. Interestingly, their work schedules exhibited the highest variation—a variation reflecting a heterogeneous group of workers putting forth different levels of effort depending on their nonwork responsibilities and limitations, as well as personal ambitions. In terms

of work schedules, self-employed women are more similar to women working in the wage and salary sector and less similar to self-employed men, who generally work the most mean weekly hours and weeks per year among all worker groups.

Table 7. Work schedules and percent distribution of self-employed and wage and salary workers, by gender and selected employment characteristics, 1993 and 2012

Characteristics	Self-employed				Wage and salary			
	Women		Men		Women		Men	
	1993	2012	1993	2012	1993	2012	1993	2012
Number of usual weekly hours								
Mean	33.1	32.6	44.6	40.3	34.7	34.6	40.3	38.9
Standard deviation	18.9	17.6	15.9	16.3	13.2	13.6	12.9	13.9
Number of weeks worked per year								
Mean	43.2	44.0	47.4	46.4	44.2	44.7	45.7	45.5
Standard deviation	15.8	15.6	11.2	13.3	14.8	15.2	13.6	14.5
Full time[1] (percent)	54.4	54.5	77.7	74.0	77.7	69.3	82.5	82.0
Part time for economic reasons[2] (percent)	3.7	7.2	6.3	8.9	6.3	5.8	3.8	5.1
Part time for noneconomic reasons[3] (percent)	41.9	38.3	16.0	17.1	16.0	24.8	13.8	12.8
Health insurance coverage (percent)								
Employer-provided plan	17.3	15.8	32.3	24.9	52.5	48.6	62.4	54.6
Private plan	–	18.8	–	19.7	–	5.4	–	5.2
Government plan	11.9	20.1	10.6	17.6	10.5	13.3	6.6	11.0
Plan provided by family member	41.9	33.4	19.1	21.1	23.1	23.6	11.7	15.9

Notes:

[1] Defined as working 35 hours or more during the reference week.

[2] Defined as working 1 to 34 hours during the reference week for an economic reason, such as unfavorable business conditions, inability to find full-time work, or seasonal declines in demand.

[3] Defined as working 1 to 34 hours during the reference week for a noneconomic reason, such as childcare problems, family or personal obligations, school or training, retirement or Social Security limits on earnings, or some other reason.

Note: Government-provided health insurance includes Medicare, Medicaid, and the Civilian Health and Medical Program.

Source: Current Population Survey, Annual Social and Economic Supplement.

Health insurance coverage. Not surprisingly, business owners have the lowest shares of employer-provided health insurance coverage and the highest shares of private- and government-provided health insurance coverage. In 2012, less than 16 percent of self-employed women and a quarter of self-employed men had employer-provided health insurance. (See table 7.) About 40 percent of self-employed workers had private- and government-provided insurance. The high share of government-provided insurance likely reflects the fact that self-employed people are relatively older. Further, self-employed workers, especially female ones, are more likely to have health insurance coverage through a plan of a spouse or another family member. While a third of self-employed women in 2012 were insured through a family member, this share had come down from nearly 42 percent in 1993. This change is consistent with the upward trend in self-employment among unmarried women.

Earnings. Comparing earnings across employment sectors can be problematic. Although self-employed workers exhibit greater income variation than do wage and salary workers, they benefit from nonpecuniary benefits that are not reflected in their reported earnings. In addition, self-employed workers, in particular those who are incorporated, often report low or zero earnings.[9] Thus, this article compares the earnings of wage and salary workers with those of unincorporated self-employed workers only.

Table 8 shows the annual, weekly, and hourly earnings (measured in 2013 dollars) of workers in 1993 and 2012, by employment sector and gender.[10] Among the worker groups presented in the table, self-employed women in 2012 earned the lowest mean earnings. With respect to mean hourly earnings, however, part-time self-employed women are a notable exception. While these women had mean weekly earnings similar to those of wage and salary women, they also worked fewer hours. In 2012, their mean hourly earnings were $19.52, compared with $16.87 for wage and salary women. Overall, the earnings differential between the employment sectors was the largest for full-time workers. In 2012, the mean annual earnings of self-employed women were more than $12,000 less than the mean annual earnings of women working in the wage and salary sector.

Table 8. Mean earnings, by gender and employment sector, 1993 and 2012

Variables	Unincorporated self-employed workers				Wage and salary workers			
	Women		Men		Women		Men	
	1993	2012	1993	2012	1993	2012	1993	2012
Full time[(1)]								
Annual	$24,767 (32,812)	$32,806 (49,442)	$46,319 (44,462)	$49,521 (61,666)	$36,253 (22,903)	$44,943 (38,422)	$50,317 (33,138)	$59,699 (61,226)
Weekly	499 (657)	695 (1,146)	922 (889)	984 (1,213)	733 (460)	895 (755)	1,006 (649)	1,185 (1,203)
Hourly	10.95 (14.25)	16.77 (28.99)	19.31 (19.20)	21.96 (26.58)	17.86 (10.97)	21.62 (17.41)	22.93 (14.00)	26.94 (24.70)
Part time[(1)]								
Annual	11,456 (21,421)	17,322 (24,094)	24,617 (33,961)	29,310 (43,328)	15,396 (16,484)	19,292 (24,111)	23,095 (27,564)	27,173 (42,509)
Weekly	255 (467)	418 (861)	540 (804)	649 (895)	371 (387)	442 (516)	568 (654)	645 (946)
Hourly	12.88 (23.81)	19.52 (32.49)	18.84 (31.65)	22.78 (33.57)	14.53 (16.58)	16.87 (21.41)	16.35 (18.23)	19.62 (26.20)

Notes:

[(1)] Standard deviations are shown in parentheses.

Note: All earnings are deflated to 2013 dollars with the use of the Consumer Price Index for All Urban Consumers. "Weekly earnings" is total earnings divided by weeks worked. "Hourly earnings" is weekly earnings divided by usual weekly hours. Incorporated self-employed workers are excluded because of the high proportion of them (95 percent in 1993 and 41 percent in 2012) reporting zero earnings. Also excluded are individuals earning more than $400 per hour (in 2013 dollars).

Source: Current Population Survey, Annual Social and Economic Supplement.

All worker groups experienced an increase in earnings over the 1993–2012 period, albeit to a different degree. On average, self-employed women in both full- and part-time status experienced the most dramatic increase in mean earnings. Between 1993 and 2012, self-employed women working full time increased their mean annual earnings by 32 percent, their mean weekly earnings by 39 percent, and their mean hourly earnings by 53 percent. The percent increases were even steeper for part-time self-employed women; these female workers increased their

mean annual earnings by 51 percent, their mean weekly earnings by 64 percent, and their mean hourly earnings by 52 percent. Wage and salary women also experienced considerable gains in earnings, although their percent increases were about half those of self-employed women.

The female-to-male earnings ratio—that is, women's mean earnings as a percentage of men's—continues to be smaller in the self-employment sector than in the wage and salary sector. (See table 9.) In 2012, the ratio was 66.2 (59.1) percent for full-time (part-time) self-employed workers and 75.3 (71.0) percent for full-time (part-time) wage and salary workers. Nevertheless, self-employed women have made considerable strides in closing the gap; between 1993 and 2012, the gender gap in hourly earnings dropped by about 20 percentage points for full-time workers and by about 17 percentage points for part-time workers.

Table 9. Gender earnings inequality, by employment sector, 1993 and 2012

Variables	Unincorporated self-employed workers		Wage and salary workers	
	1993	2012	1993	2012
Gender earnings differential				
Full time				
Annual	$21,551	$16,715	$14,064	$14,756
Weekly	424	289	273	290
Hourly	8.36	5.19	5.07	5.32
Part time				
Annual	13,160	11,987	7,699	7,881
Weekly	285	231	198	202
Hourly	5.96	3.26	1.82	2.76
Female-to-male earnings ratio (percent)				
Full time				
Annual	53.5	66.2	72.0	75.3
Weekly	54.1	70.6	72.9	75.5
Hourly	56.7	76.4	77.9	80.2
Part time				
Annual	46.5	59.1	66.7	71.0
Weekly	47.2	64.4	65.2	68.6
Hourly	68.4	85.7	88.9	86.0

Note: All earnings are deflated to 2013 dollars with the use of the Consumer Price Index for All Urban Consumers. "Weekly earnings" is total earnings divided by weeks worked. "Hourly earnings" is weekly earnings divided by usual weekly hours. Incorporated self-employed workers are excluded because of the high proportion of them (95 percent in 1993 and 41 percent in 2012) reporting zero earnings. Also excluded are individuals earning more than $400 per hour (in 2013 dollars).

Source: Current Population Survey, Annual Social and Economic Supplement.

Occupation and industry

The top panel of table 10 lists the most common occupations of incorporated and unincorporated self-employed women. The data suggest that occupations are more disparate among incorporated business owners, with managerial and professional occupations being the most common within this group. By contrast, unincorporated business owners tend to work in a few highly concentrated occupations. Of all self-employed women in 2012,

nearly 7 percent were unincorporated childcare workers, 5 percent were unincorporated hairdressers/cosmetologists, and about 4 percent each were unincorporated housekeepers, general managers, and retail sales managers.

The bottom panel of table 10 lists the most common major industries of incorporated and unincorporated self-employed women. The pattern of industry concentration is generally the same for both types of female workers. In 2012, about a quarter of self-employed women worked in professional industries and another fifth worked in educational and health services.

Table 10. Top occupations and industries of self-employed women, 2012

Incorporated workers	Percent of self-employed women	Unincorporated workers	Percent of self-employed women
Occupations			
Manager (other)	2.9	Childcare worker	6.8
Retail sales manager	2.3	Hairdresser/cosmetologist	5.0
Chief executive	1.7	Housekeeping cleaner	4.2
Bookkeeping/accounting clerk	1.2	Manager (other)	4.1
Food service manager	1.1	Retail sales manager	3.9
Administrative assistant	1.1	Real estate agent	2.2
Lawyer	.9	Teacher/instructor	1.7
Real estate agent	.9	Janitor	1.6
Management analyst	.8	Personal services manager	1.5
Nonretail sales manager	.7	Designer	1.5
Industries			
Professional and business	8.0	Professional and business	18.4
Wholesale and retail	4.3	Education and health	16.8
Education and health	4.3	Other services	10.8
Leisure and hospitality	3.0	Wholesale and retail	8.4
Financial activities	2.9	Leisure and hospitality	6.0
Other services	2.4	Financial activities	4.9
Construction	1.8	Manufacturing	2.3
Manufacturing	1.4	Construction	1.7
Transportation and utilities	.6	Information	.8
Information	.3	Transportation and utilities	.7
Mining	.0	Mining	.1

Source: Current Population Survey, Annual Social and Economic Supplement.

ALTHOUGH THE SHARE OF WOMEN in self-employment and the female self-employment rate have remained relatively steady in recent decades, several notable within-group trends have emerged. For instance, after the Great Recession, the female self-employment rate fell only about half as much as the male self-employment rate did. Female business owners saw considerable gains in earnings, yet remained the lowest-earning workers in 2012. In addition, their sociodemographic characteristics changed over time. In 2012, self-employed women were more diverse in terms of race, marital status, presence of young children, health, and mean educational level.

In some ways, self-employed women are similar to their self-employed male counterparts. Like male business owners, and despite the observed trend toward greater diversity in female self-employment over the 1993–2012 period, they are still more likely to be older, white, married, better educated, and with less health insurance

coverage. In other ways, they are similar to their female counterparts working in the wage and salary sector. Both self-employed and wage and salary women work fewer hours and earn less than their respective male counterparts do.

Despite these similarities, some characteristics distinguish self-employed women from all other worker groups. Female self-employed workers are more likely to have a disability, diverse work schedules, and lower mean annual earnings. Those working part time have a somewhat better earnings position, which gives them both a higher value on their time and the ability to benefit from joint production.

SUGGESTED CITATION

Kristen Roche, "Female self-employment in the United States: an update to 2012," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, October 2014, https://doi.org/10.21916/mlr.2014.36.

NOTES

1 Some exceptions exist, although the research is mostly descriptive. See, for example, *Women in the labor force: a databook*, report 1049 (U.S. Bureau of Labor Statistics, May 2014), https://www.bls.gov/cps/wlf-databook-2013.pdf, and research by the Ewing Marion Kaufmann Foundation, such as Robert W. Fairlie, *Kaufmann index of entrepreneurial activity, 1996–2013* (Ewing Marion Kaufmann Foundation, April 2014), http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2014/04/kiea_2014_report.pdf. Self-employed women are also discussed in Steven F. Hipple, "Self-employment in the United States," *Monthly Labor Review*, September 2010, pp. 17–32, https://www.bls.gov/opub/mlr/2010/09/art2full.pdf, and Theresa J. Devine, "Characteristics of self-employed women in the United States," *Monthly Labor Review*, March 1994, pp. 20–34, https://www.bls.gov/mlr/1994/03/art3full.pdf.

2 Wage and salary workers are individuals who work in jobs with private or government employers.

3 For details on the survey redesign, see Anne E. Polivka and Stephen M. Miller, "The CPS after the redesign: refocusing the economic lens," in John Haltiwanger, Marilyn Manser, and Robert Topel, eds., *Labor Statistics Measurement Issues* (National Bureau of Economic Research, Studies in Income and Wealth, January 1998), pp. 249–289, http://www.nber.org/chapters/c8362.pdf.

4 The female-to-male ratio in self-employment increased from 23.7 percent in 1975 to 32.3 percent in 1994. For a thorough analysis on self-employed women in this period, see Devine, "Characteristics of self-employed women."

5 Since the mid-1960s, the unincorporated self-employment rate has decreased and the incorporated self-employment rate has increased because of two main reasons, both discussed in Hipple, "Self-employment in the United States."

6 Determinants of the transition from full-time career work to self-employment bridge jobs include both push factors (e.g., poor health) and pull factors (e.g., wealth). These determinants, as well as gender differences in the determinants, are discussed in Julie M. Zissimopoulos and Lynn A. Karoly, "Transitions to self-employment at older ages: the role of wealth, health, health insurance and other factors," *Labour Economics* 14, 2007, pp. 269–295.

7 According to Alan B. Krueger and David A. Schkade, "The reliability of subjective well-being measures," *Journal of Public Economics* 92, 2008, pp. 1833–1845, any subjective measure of well-being, such as reported health, is subject to measurement error; however, subjective measures remain useful in economic analysis. For the present sample, t-tests show that differences in health status between men and women are statistically significant at the .01 level, and differences in health status between self-employed workers and wage and salary workers are statistically significant at the .10 level.

8 For comparability over time, the variable for worker disability used in this article is the same for both 1993 and 2012. This variable is limited in its validity and its drawbacks are discussed in Thomas W. Hale, "The lack of a disability measure in today's Current Population Survey," *Monthly Labor Review*, June 2001, pp. 38–40, https://www.bls.gov/opub/mlr/2001/06/ressum1.pdf.

9 For example, in 1993, 95 percent of incorporated self-employed workers reported zero earnings. That share decreased to 41 percent in 2012.

10 Given that this article compares mean earnings and that high earners tend to skew this statistic, workers earning more than $400 per hour (measured in 2013 dollars) are excluded from the sample; these workers account for less than 1 percent of the sample.

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Life on the border of Mexico

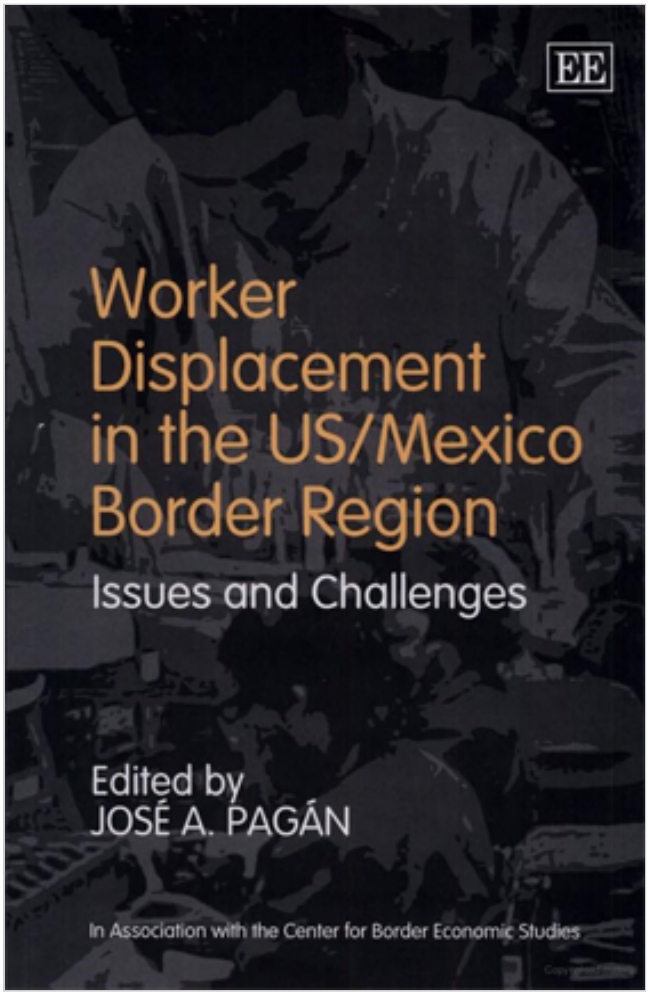
And I've got such a long way to go

To make it to the border of Mexico

So I'll ride like the wind

Ride like the wind

"Ride like the wind": Christopher Cross, 1979



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Unfortunately for singer Christopher Cross, riding to the border of Mexico may be easier than finding a good life there.

From immigration, to the implementation of the North American Free Trade Agreement (NAFTA), to the rise of drug cartels, issues involving America's border with Mexico have been controversial subjects of debate in the political arena for many years now. Something less widely discussed is how people who live along the border adjust to life there. Those affected generally remain underprivileged in comparison to the rest of the United States. Although the rise of manufacturing industries on the border 20 years ago attracted a young and growing population to the region, that trend is reversing. Elected officials are confronted with two pressing questions: how to stem the flight of manufacturing industries that provide jobs and how to reintegrate low-skilled, uneducated, largely non-English-speaking displaced laborers.

Worker Displacement in the US/Mexico Border Region: Issues and Challenges, edited by José A. Pagán, is a collection of eight essays written from various interdisciplinary perspectives on the topic. Each presents a unique

viewpoint from which to analyze the complex employment and unemployment issues in the region, and each includes a summary of existing obstacles and potential solutions.

The first essay, “Labor and demographic challenges of the US/Mexico border region,” by Cynthia J. Brown and Marie T. Mora, presents the border region as a case of “growth without prosperity.” The authors note that, even during a time of rapid expansion in the 1990s, employment opportunities and per-capita income lagged behind the rest of the United States. As the regional economy continues to shift away from manufacturing into other sectors, such as construction, health care, retail trade, and services, the need to retrain workers with low education levels and poor English-language fluency becomes ever more crucial.

“Worker displacement in the Texas/Mexico border MSAs: evidence from the Current Population Survey,” by Alberto Dávila and Andrés Rivas, highlights the characteristics of individual displaced workers in Metropolitan Statistical Areas (MSAs) along the Texas region of the border. Dávila and Rivas compare and contrast these residents with their counterparts within the state and within the country. Their data suggest that substantial heterogeneity exists across MSAs regarding the reasons for workers’ displacement, both inside and outside of the region. Additional research into why such differences exist will enable policymakers to design better reintegration strategies.

The plight of displaced workers has considerable negative economic repercussions on the U.S.–Mexico border region, beyond its effect on the immediate families of those displaced. Editor José A. Pagán’s essay, “The economic impact of worker displacement in the US/Mexico border region,” tells us that the correlation is so great that, for every three displaced workers, two additional jobs are lost as a result of what Pagán describes as indirect or induced effects. In other words, reduced spending by displaced workers in turn costs jobs in local businesses. While Pagán focuses on the specific economic impacts of displacement, he also points out myriad other impacts that displacement has on both individuals and their communities.

In “The social costs of worker dislocation in a South Texas border environment,” Chad Richardson examines negative effects, such as depression, frequently associated with worker dislocation. He notes that affected workers often find similar ways to deal with the high social costs of dislocation; for example, they tend to lean on family members for help with housing, employment, childcare, moral support, and financial assistance. Dislocated workers frequently form social circles as a source of emotional and moral support, as well as to share information about available job openings and government assistance programs. Unfortunately, unemployment benefits to date have proven insufficient, and training programs inadequate, to properly equip workers with the skills they need to compete for well-paying jobs, necessitating the aforementioned coping mechanisms.

Author Elena Bastida finds that, when workers lose their jobs, they suffer multiple losses beyond feeling the economic impact of their job loss and the change in social ties that ensues. In “Health and job displacement: the case of garment manufacturing workers on the US/Mexico border,” she surveyed workers in southern Texas who had stable employment and higher-than-average wages prior to being displaced. Bastida discovered that displacement resulted in both physical and mental health problems—more than half of those sampled reported symptoms of depression and anxiety—and that a lack of medical coverage and of funds commonly prevented displaced workers from seeking needed medical services. Worse, her research did not even factor in the compounding longer term negative effects as the worker’s duration of unemployment grows.

To better understand the impact of training on the earnings and employment prospects of displaced workers, “Human capital investments and displaced workers in South Texas,” by José R. Llanes, presents a case study of displaced garment workers in Hidalgo County, Texas. The author concludes that capital investment in these types of training programs in areas with high structural unemployment and older workers will prove unsuccessful, because such initiatives often provide nonmarketable training that fails to boost earnings. This kind of training, Llanes contends, will fail especially for older workers, who would benefit more readily from on-the-job training programs. He recommends three “remedies”: long-term wage support, shifting the focus from classroom to on-the-job training and placement, and exploring self-employment options.

The unique needs of the U.S.–Mexico border population present challenges to the development and effective management of training and retraining programs. The essay “A Workforce Development–Instructional Systems Design (WFD–ISD) Model for border displaced workers,” by Marco E. Garza, evaluates a successful workforce development model that provided 18 trainees with skills directly applicable to full-time, higher paid work. The program standard was the completion of training and subsequent job placement for each and every participant. Meeting this standard required a joint effort among workers, past employers, targeted potential future employers, a local community college, and community organizations. In this case study, both goals were achieved and the average wage increased 15 percent per hour. Garza’s conclusion is that, in order to succeed, programs must have the following elements: enough flexibility to allow for modifications; a focus on outcomes; commitment on the part of both employers and participants; a mechanism for rapid inclusion of participants; an understanding of local employment demand; and leverage from existing partnerships.

“A forecasting model for border job displacement in Texas” looks at the extent to which the border region labor market is affected by developments both in the United States and in Mexico. In the piece, Gokce Soydemir creates a forecasting model to better predict trends in the border region and prepare for events affecting worker displacement. Soydemir found these forecasts to be accurate when important economic variables from both countries are included and a number of variations of the model are tested. Ultimately, the objective of forecasting changes in this labor market is to promote economic growth and stability through improved policy response time and a more efficient allocation of resources.

W*orker Displacement in the US/Mexico Border Region* was compiled to put into words the unique challenges faced by the region and the harsh effects that displacement has on its population. In presenting various angles from which to approach these topics, this collection of essays is insightful in identifying needed policy initiatives to combat the physical, mental, and economic challenges faced by displaced workers. Although this is a technical book targeted at those individuals who are interested in what the data have to say, it casts a wide enough net to provide an overview of the many complexities and obstacles involved. It is for this reason that I recommend the book to anyone interested in labor relations and/or the U.S.–Mexico border region.