Jobs in 2005: How do they compare with their March 2001 counterparts?

Nonfarm jobs are more plentiful, average hourly earnings continue to rise, but average weekly hours have not recovered to their prerecession level

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The 2001 recession lasted 8 months, but nonfarm payroll employment did not recover to its prerecession level until early 2005.[1] In addition, the average workweek remains shorter than it was at the start of the recession, and earnings have not outpaced inflation. Based on these observations, one may ask, "How does the average job, 4 years after the recession ended compare, in terms of hours and earnings, to the average job at the start of the recession?" What aggregate effect do these jobs have on the economy? The indexes of aggregate hours and payrolls provide insight on the differences between pre- and post-recessionary jobs.

This article highlights employment changes in each industry sector during the 2001 recession and subsequent recovery period and compares the changes with previous recessions and recoveries. It begins with an examination of employment, because shifts in employment can impact hours and earnings. Employers tend to respond quickly in times of economic downturns by reducing the average workweek. Each private-sector industry's average weekly hours are reviewed to gain insight into the health of that sector and to explain movements in the average workweek for all private-sector workers. Next, the article examines aggregate hours—the product of average weekly hours and employment. Average hourly earnings typically grow over time, but the rate of growth fluctuates with changes in the business cycle. Lastly, the article looks at the combined product of employment, hours, and earnings—what is known as aggregate payrolls.

Employment: the long road to recovery

At the start of the 2001 recession, employment behaved in a typical manner, peaking 1 month prior to the March 2001 business cycle peak. The recession ended in November 2001. It was not the longest, nor was it the harshest in terms of overall economic weakness. From 1969 to 1981, the length of employment downturns averaged 9 months from peak to trough. (See table 1.) It then took, on average, 16 months from the previous peak for employment to recover to its prerecession level. In contrast, employment declined for 30 months after the start of the 2001 recession, and it took 48 months from the February 2001 peak to fully recover. (See chart 1.) Even during the so-called "jobless recovery" of the 1990s, employment recovered in less time.

The employment picture weakens when Government jobs are excluded.[2] (See table 2 and chart 2.) Total private employment peaked in December 2000 and then declined until July 2003. During this period of contraction, 3.4 million jobs disappeared from private payrolls. Private employment finally recovered in July 2005, four and a half years after the previous peak.

Manufacturing employment has been trending downward since 1979, and it has failed to recover fully after each economic downturn. In addition, manufacturing employment tends to be more cyclical than other industries. The Asian financial crisis erupted in mid-1997 and brought with it widespread global uncertainty. Asian stock markets,

Table 1. Duration of economic contractions and recoveries, 1969–2001

Duration	1969	1973	1980	1981	Average, 1969–81 (4 cycles)	1990	2001
Duration of contraction (length of recession, in months):							
NBER-designated business cycle[1]	11	16	6	16	12	8	8
Total nonfarm employment (peak to trough)	8	9	0	17	9	11	30
Total private nonfarm employment (peak to trough)	8	10	0	16	9	23	31
Duration of recovery (length of expansion, in months):							
Total nonfarm employment (trough to peak)	18	19	0	28	16	32	48
Total private nonfarm employment (trough to peak)	21	24	0	26	18	38	55

[1] As determined by the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER).

currencies, and other assets depreciated quickly.[3] Against this backdrop, manufacturers began to lay off people in 1998.[4] By mid-2000, employment losses had plateaued, but since July 2000, over 3 million jobs have disappeared from payrolls. During the 2001–03 period, displaced manufacturing workers were 60 percent less likely than other workers to find a new job in any industry, which further slowed the employment recovery.[5]

The manufacturing slowdown adversely affected wholesale trade and transportation and warehousing employment. These industries rely heavily on the distribution or trans-portation of U.S. manufactured goods. Both of these industries lost more jobs, both in relative and absolute terms, during the 2001 recession than their average loss for prior recessions. In addition, transportation employment fell by almost 125,000 jobs following the terrorist attacks on September 11, 2001.[6] Job losses did not abate until mid-2003, and employment still has not fully recovered. Wholesale trade employment reached its low point at approximately the same time and was 187,300 jobs short of a full recovery as of December 2005.

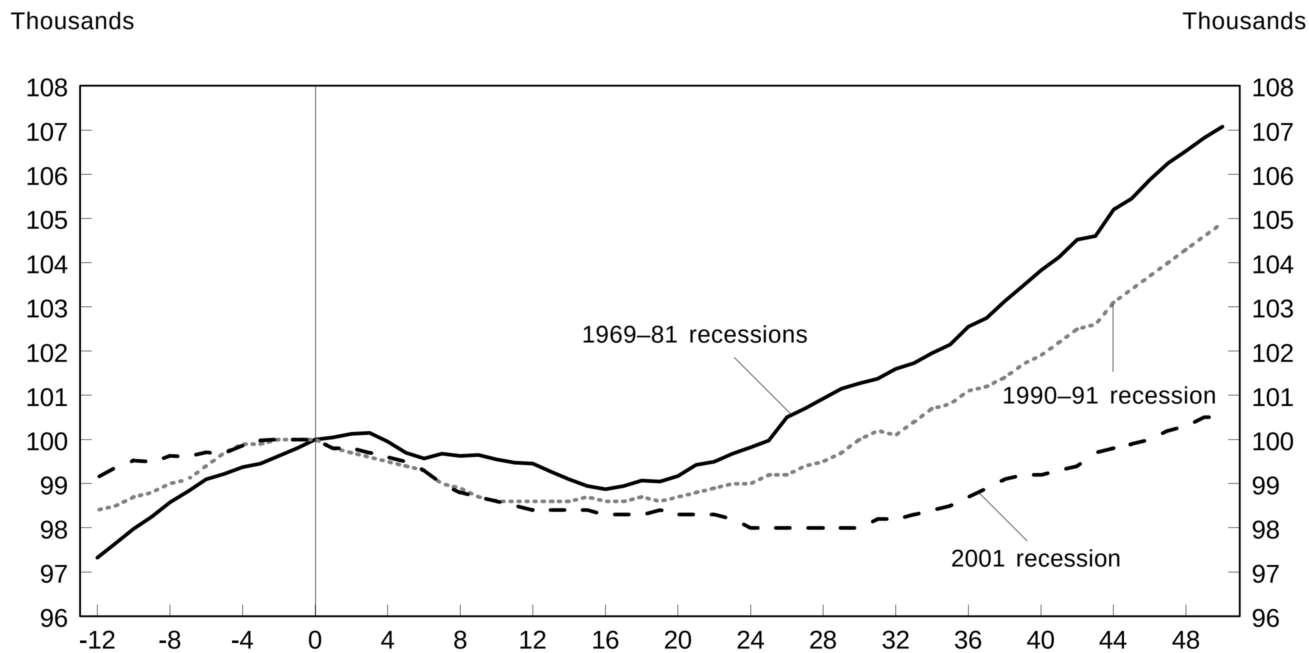
Transportation was not the only industry adversely affected by the terrorist attacks. Leisure and hospitality experienced employment growth during the first half of 2001, but after September 11, sharp reductions in business travel and leisure travel adversely affected this industry's employment. In June 2002, employment reached a low point: Leisure quickly recovered in 6 months. Almost a million jobs were added between June 2002 and December 2005.

Recovery took longer in professional and business services, where employment was reduced by 4 percent or 669,000 jobs during the 2001 recession; the industry typically did not lose jobs during earlier economic downturns. However, several component industries within professional and business services experienced job losses due to a variety of market forces.[7] Overall, the industry stopped shedding jobs at the end of 2002 and employment recovered by July 2005. The largest employment decline occurred in temporary help services; employment in this industry is considered a leading indicator of labor market robustness. Temporary help allows firms to respond to their changing employment demands quickly and at a lower cost than permanent hires. Firms decided to forgo temps in an unstable business climate, and employment in temporary help services declined by more than half a million jobs by April 2003.[8]

Like professional and business services, the information industry sustained heavier job losses during the most recent recession. After manufacturing, the information industry lost the highest percentage of jobs—5 percent of its workforce—during the most recent recession. Since the March 2001 peak, telecommunications employment has contracted by 25 percent. This weakness, when combined with job declines elsewhere in the information industry, led to the loss of 652,000 jobs as of December 2005.

Retail trade employment peaked in December 2000 and continued to decline for 20 months after the recession officially ended. Although most retail trade industries shed jobs, employment rose in building material and garden supply stores, which benefited from a strong housing market. Retail started to recover by mid-2003, and the half million jobs that were lost were almost fully recovered by the end of 2005.

Chart 1. Nonfarm payroll employment, 12 months prior to and 50 months after the business cycle peak, seasonally adjusted, indexed to the start of the recession



During the 2001 business contraction, low interest rates helped shore up employment in both the construction and financial services industries. Financial activities continued to add jobs during the recession, which is not unusual for this industry. On average, construction lost 7.5 percent of its employment during the recessions since 1969, but in the most recent recession, it only lost 1.1 percent.[9] Construction employment reached a trough in March 2003 after 2 years of declines, but it recovered in 12 months.

In contrast, sectors that typically have problems hiring workers in a tight labor market benefited from the easing of labor demand in other industries. Education and health services and "other services"—repair and maintenance, personal and laundry services, and membership associations and organizations—added jobs during the 2001 recession. These industries offer lower paying jobs, on average; perhaps these jobs became more appealing when the quantity of jobs available elsewhere diminished.

Although not all industries lost jobs during the 2001 economic downturn, most industries shed jobs quickly in light of weakening demand for their products and services. A quick turnaround in employment did not occur as employers were reluctant to hire workers. Total nonfarm and total-private employment began to recover in mid-2003, and by 2005, the current expansion was underway.

Worker hours: diminishing manufacturing dominance

While employment losses have been recovered, average weekly hours have trended downward and have remained near 33.7 hours.[10] Average weekly hours tend to lead the business cycle because businesses usually adjust worker hours before increasing or decreasing their workforce. Compared with average changes during the four previous recessions, the decline in average weekly hours during the most recent two recessions was not dramatic—shrinking by 0.3 hour.[11] (See table 3.) After bottoming out at the end of the 1991 recession, average weekly hours recovered in a year's time. In contrast, the average workweek still has not recovered to its pre-recession peak more than 4 years after the end of the 2001 recession.

Changes in total-private hours are dependent upon changes in employment by industry and changes in average weekly hours by industry. When workers who are employed in industries with higher-than-average workweeks are laid off disproportionately, all else equal, the loss of their hours applies downward pressure on the total-private workweek. Conversely, when workers are laid off in industries with lower-than-average workweeks, upward pressure is applied to the total-private average. Finally, if all production workers, on

Table 2. Jobs lost during recessions, 1969–2001

Industry	Changes in employment during recessions					
	1969–91 recessions (average)		1990–91 recession		2001 recession	
	Level	Percent	Level	Percent	Level	Percent
Total nonfarm	–1,471	–1.8	–1,231	–1.1	–1,621	–1.2
Total private	–1,744	–2.6	–1,159	–1.3	–2,002	–1.8
Goods-producing	–1,950	–8.2	–966	–4.1	–1,194	–4.9
Natural resources and mining	–14	–.1	–10	–1.3	–9	–1.5
Construction	–324	–7.5	–393	–7.5	–78	–1.1
Manufacturing	–1,613	–8.6	–563	–3.2	–1,107	–6.5
Private service-providing	206	.6	–193	–.3	–808	–.9
Wholesale trade	–19	–.3	–72	–1.4	–112	–1.9
Retail trade	–8	.0	–229	–1.7	–197	–1.3
Transportation and warehousing	–124	–4.2	–9	–.3	–187	–4.2
Utilities	11	1.8	–4	–.6	0	.0
Information	–79	–3.5	–8	–.3	–186	–5.0
Financial activities	70	1.7	–26	–.4	50	.6
Professional and business services	62	1.0	–194	–1.8	–669	–4.0
Education and health services	167	2.9	381	3.5	395	2.6
Leisure and hospitality	32	.7	–27	–.3	–15	–.1
Other services	63	2.8	–4	–.1	113	2.2
Government	273	2.0	–72	–.4	381	1.8

average, are getting paid for fewer work hours, downward pressure on total-private hours is applied.

Most industries experienced a decline in their average workweek during the 2001 recession. Manufacturing's contribution to total-private average weekly hours has been steadily declining for decades. In 1969, almost 1 out of every 3 private-sector workers were employed in a manufacturing industry. During previous recessions, when the factory workweek declined, the decline greatly affected the topside average workweek. In contrast, manufacturing represented 15.2 percent of private employment in March 2001. The manufacturing workweek declined by 0.4 hour during the recession, but it had fallen by an hour prior to the start of the recession beginning in July 2000. The factory workweek partially recovered in 2004, but declined again and has been hovering around 40.7 hours, about the same as at the start of the recession. The lack of recovery in manufacturing employment and hours continues to exert negative pressure on total-private average weekly hours.

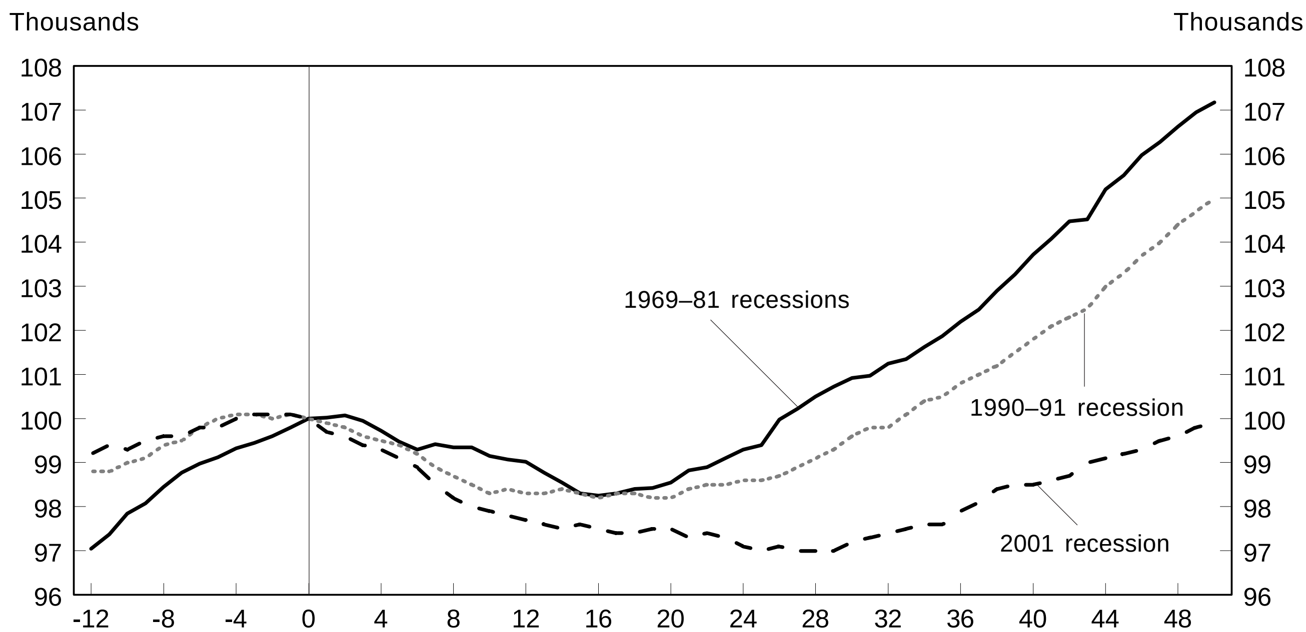
Employment in professional and business services was roughly the same size as employment in manufacturing at the start of the 2001 recession, but the average workweek was 6 hours shorter in the former industry. Average weekly hours in professional and business services declined by 0.4 hour during the recession and have been averaging around 34.2 hours since 2001. Employment in this industry recovered in mid-2005. As employers in the industry began to add jobs, it exerted modest upward pressure on the overall workweek (because its hours are slightly higher than the total-private average).

Average weekly hours in transportation and warehousing and in wholesale trade declined by almost half an hour during the recession and have yet to recover. Transportation and warehousing average hours peaked in mid-1997 and thereafter fell by more than 3 hours through the end of the recession. Wholesale trade's average weekly hours hovered around 38.5 hours since the early 1980s, before peaking in early 2000, coincident with an employment peak. The declines and lack of recovery in employment and hours in both industries negatively affected total-private average weekly hours.

Average weekly hours in utilities declined by almost 1 hour during the 2001 recession, the largest drop that occurred in any sector. However, this industry accounts for one-half of 1 percent of all production workers. Therefore, its impact on the aggregate number would be minimal.

Not all industries saw a decline in their average workweek during the 2001 recession. Traditionally, construction hours move in line with the general economy during periods of economic contractions, when individuals, governments, and firms generally have less money to spend on construction projects. However, while volatile month to month, the industry's workweek remained essentially unchanged from March to November 2001. Low interest rates provided

Chart 2. Total private payroll employment, 12 months prior to and 50 months after the business cycle peak, seasonally adjusted, indexed to the start of the recession



stimulus to the residential housing market. Since its average hours are higher than the average for all industries, construction had a positive impact on the total-private workweek.

Employment in education and health services—the largest private industry—grew the most during the 2001 recession. In addition, the industry's average weekly hours held constant during the recession and, in fact, have increased slightly since the end of the recession. This industry's average weekly hours are slightly shorter than the total average, so although jobs were added, they tended to have shorter hours than the jobs that were lost elsewhere. For every education and health services job gain that offset a manufacturing job loss, 8 hours fell from aggregate hours, on average.[12]

Average weekly hours in retail trade ticked up during the most recent recession, slightly out of the norm for this industry. Declines ranging from two-tenths of an hour to a half-hour were much more common during earlier recessions. In fact, average weekly hours have stayed between 30.6 and 31.0 hours with few exceptions for the past 10 years. Retail hours continue to be lower than the total-private level. Retail trade lost jobs from December 2000 until July 2003, about the same rate as the rest of the private sector. Therefore, changing retail hours had a negligible effect on the total-private workweek during that time. As retail trade employment recovered, a downward pressure was applied to total-private average weekly hours.

In sum, average weekly hours did not fall more than normal during the 2001 recession compared with earlier recessions; however, more than 4 years later, the average workweek has not recovered to its prerecession level. Average hours fell for all industries during previous recessions, with the manufacturing workweek always shrinking the most. The 2001 recession represents a departure from trend. In the past, a swift recovery in manufacturing employment signaled a swift recovery in total-private average weekly hours. As manufacturing employment contracts, its relative impact on hours decreases. Manufacturing employment is still more than 3 million below its July 2000 peak level. As such, although manufacturing hours have recovered to March 2001 levels, the increase has not been enough to help the total-private workweek recover, because manufacturing carries a much smaller weight than it did previously, due to the large job losses in the industry. When industries with shorter-than-average workweeks represent a growing share of workers, then mathematically the total-private average weekly hours series cannot increase.

Table 3. Changes in average weekly hours during recessions, 1969–2001

Industry	1969–91 recessions (average)		1990–91 recession		2001 recession	
	Level	Percent	Level	Percent	Level	Percent
Total private	–.8	–2.1	–.3	–.9	–.3	–.9
Goods-producing	–1.1	–2.8	–.4	–1.0	–.3	–.7
Natural resources and mining	–1.1	–2.5	.1	.2	–.6	–1.3
Construction	–.9	–2.2	.1	.3	–.1	–.3
Manufacturing	–1.2	–2.9	–.6	–1.5	–.4	–1.0
Private service-providing	–.4	–1.2	–.1	–.3	–.2	–.6
Wholesale trade	–.5	–1.4	.2	.5	–.4	–1.0
Retail trade	–.5	–1.5	–.2	–.7	.1	.3
Transportation and warehousing	–.8	–2.0	–.3	–.8	–.5	–1.4
Utilities	–.1	–.2	–.1	–.2	–.9	–2.2
Information	–.6	–1.6	.1	.3	–.1	–.3
Financial activities	–.1	–.3	.1	.3	.0	.0
Professional and business services	–.3	–.8	.0	.0	–.4	–1.2
Education and health services	–.2	–.5	–.1	–.3	.0	.0
Leisure and hospitality	–.4	–1.2	–.3	–1.2	–.4	–1.6
Other services	–.2	–.7	–.1	–.3	–.2	–.6

Fixed-weight hours: changes in industry mix adversely affect hours

In order to understand how the change in industry composition impacts average weekly hours, a fixed-weight series was calculated holding production workers constant while allowing average weekly hours to change.[13] In the early months of 2000, there was no difference between the published and fixed-weight hours series, as the industry composition did not change rapidly. (See chart 3.) By August 2000, however, the published average weekly hours series had fallen below the fixed-weight hours series. By mid-2003, the published hours series was three-tenths of an hour lower than the fixed-weight series. The spread over time between these series is explained by the changes in the industry mix; employment in shorter workweek industries grew relatively faster than longer workweek industries.

Aggregates hours: the product of its environment

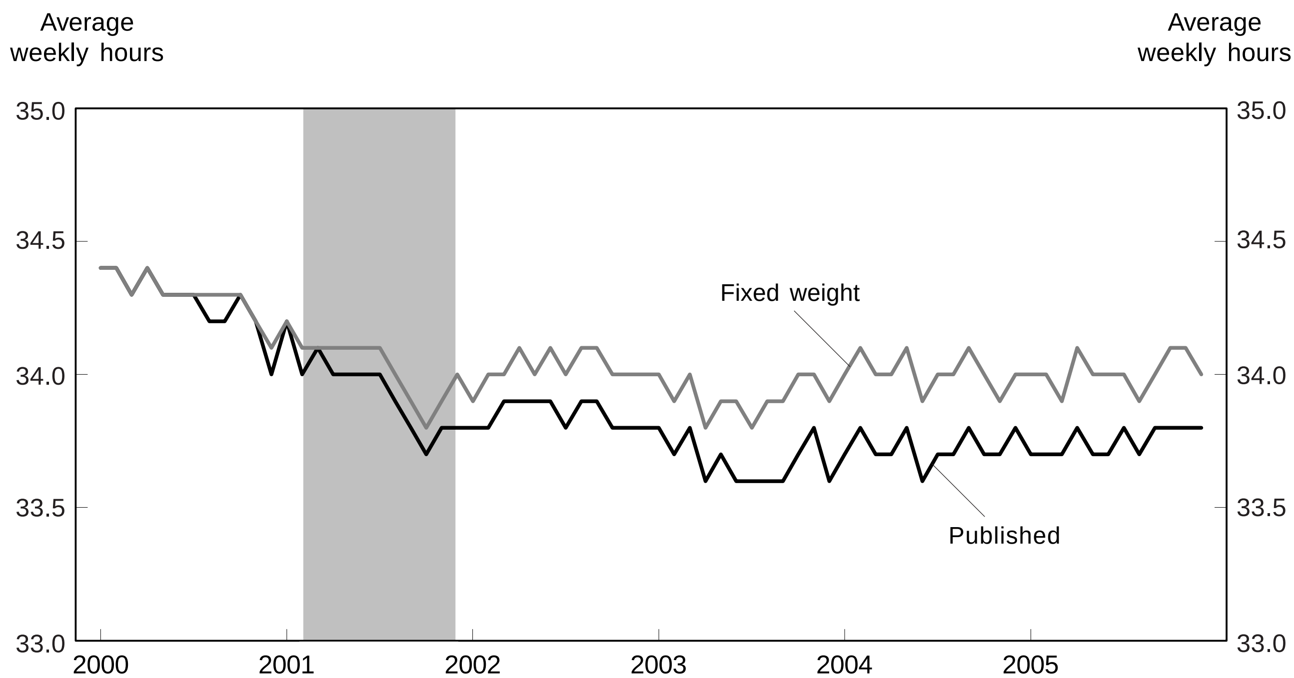
Aggregate hours peaked in October 2000 and continued to decline until August 2003, shrinking by 5.5 percent.[14] (See chart 4.) During the recession, the decline resulted from contractions in average weekly hours and in employment; however, the workweek has held fairly steady since the end of the recession, while the index has continued to decline—mainly because employment continued to fall until July 2003. Once net job gains started, a turnaround in aggregate hours became evident.

As 2005 came to a close, the index of aggregate hours was still just short of its pre-recession peak, but it finally recovered in early 2006. Employment in leisure and hospitality, the sector with the shortest workweek, expanded relative to other industries. (See table 4.) In addition, manufacturing employment continued to contract. Other industry sectors helped offset these weaknesses. Professional and business services gained the most jobs after July 2003, while construction and financial activities also had notable gains in employment. All three industries have longer average workweeks than all private industries and, therefore, had a positive impact on aggregate hours. If manufacturing employment continues on its long-term negative trend, other industries will have to compensate for aggregate hours to expand. Some combination of three factors must occur to offset lost manufacturing hours—employment in industries with higher average weekly hours must increase, industries with lower hours must add workers more rapidly; or average weekly hours must rise among industries.

Payrolls: show me the money

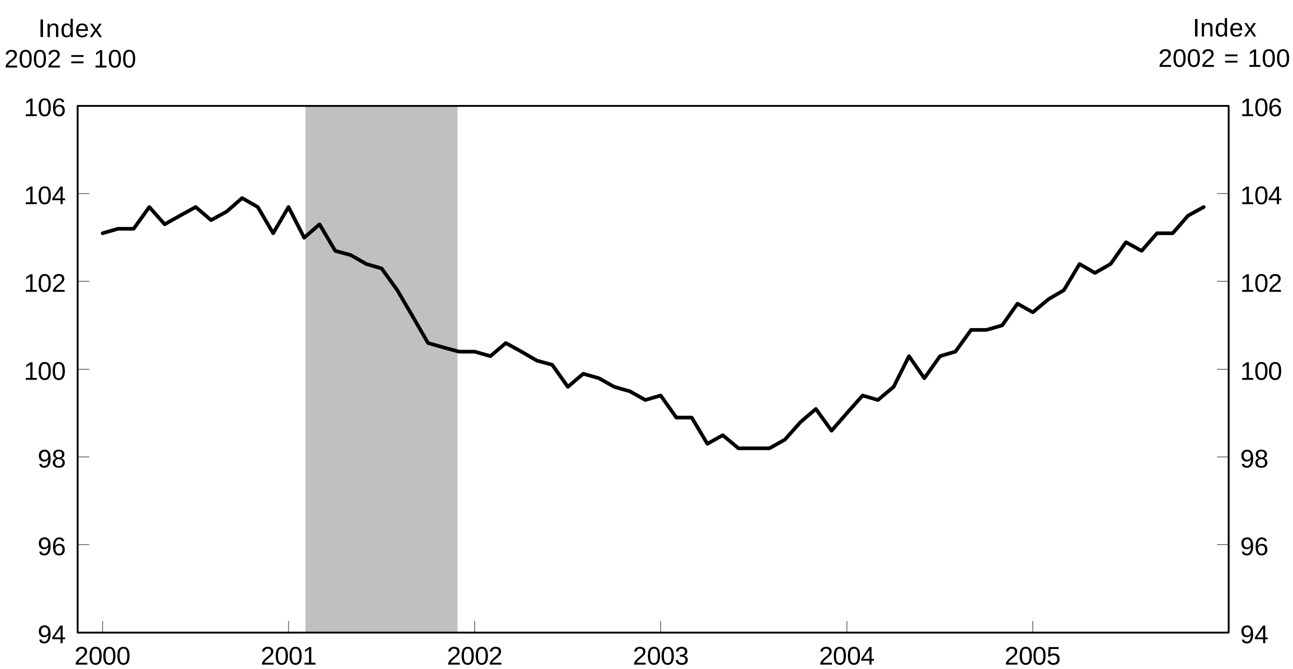
Total-private average hourly earnings reached $16.35 in December 2005. Hourly earnings have always shown an increase year to year, although the rate of growth changes over time.

Chart 3. **Average weekly hours, total private, published and fixed-weight series, 2000–05**



NOTE: Data are seasonally adjusted. Production workers fixed at January 2000 levels.

Chart 4. **Index of total private aggregate weekly hours, 2000–05**



NOTE: Data are seasonally adjusted. Aggregate weekly hours are the product of average weekly hours and production or nonsupervisory workers.

Table 4. Changes in index of aggregate hours and percentage contribution by industry, 2001 recession and current expansion

Industry	Changes, peak to trough, March 2001 to November 2001							
	Production workers		Average weekly hours			Aggregate hours		
	Level change	Percent change	March 2001 level	Level change	Percent change	Level change	Percent change	Percent distribution November 2001
Total private	–1,679	–1.9	34.1	–.3	–.9	–83,951	–2.7	100.0
Goods-producing	–1,011	–5.6	40.1	–.3	–.7	–45,614	–6.3	22.4
Natural resources and mining	–668	–.9	32.6	–.2	–.6	–36,193	–1.5	77.6
Construction	–5	–1.1	44.9	–.6	–1.3	–496	–2.4	.7
Manufacturing	–94	–1.7	38.9	–.1	–.3	–4,185	–2.0	6.8
Private service-providing	–912	–7.5	40.5	–.4	–1.0	–41,406	–8.5	14.9
Wholesale trade	–72	–1.6	38.5	–.4	–1.0	–4,593	–2.6	5.7
Retail trade	–176	–1.4	30.6	.1	.3	–4,102	–1.0	13.1
Transportation and warehousing	–171	–4.5	36.9	–.5	–1.4	–8,127	–5.8	4.4
Utilities	0	–.1	41.8	–.9	–2.2	–452	–2.2	.7
Information	–72	–2.8	36.9	–.1	–.3	–2,906	–3.1	3.1
Financial activities	36	.6	35.7	0.0	0.0	1,285	.6	6.9
Professional and business services	–626	–4.5	34.4	–.4	–1.2	–26,821	–5.6	14.9
Education and health services	354	2.6	32.3	0.0	0.0	11,434	2.6	15.1
Leisure and hospitality	–32	–.3	25.8	–.4	–1.6	–5,065	–1.8	9.0
Other services	92	2.1	32.4	–.2	–.6	2,097	1.5	4.7

Industry	Changes November 2001 (trough) to December 2005							
	Production workers		Average weekly hours			Aggregate hours		
	Level change	Percent change	December 2005 level	Level change	Percent change	Level change	Percent change	Percent distribution December 2005
Total private	2,814	3.2	33.8	0.0	0.0	95,113	3.2	[1] 100.0
Goods-producing	–621	–3.7	40.2	.4	1.0	–18,201	–2.7	21.1
Natural resources and mining	3,435	4.8	32.4	0.0	0.0	111,294	4.8	[2] 78.9
Construction	34	7.5	45.6	1.3	2.9	2,139	10.7	[2] .7
Manufacturing	396	7.5	38.7	–.1	–.3	14,797	7.2	[2] 7.1
Private service-providing	–1,051	–9.4	40.8	.7	1.7	–35,059	–7.8	13.3
Wholesale trade	107	2.4	37.9	–.2	–.5	3,141	1.8	5.6
Retail trade	175	1.4	30.5	–.2	–.7	2,758	.7	12.8
Transportation and warehousing	180	5.0	36.7	.3	.8	7,701	5.9	4.5
Utilities	–34	–7.0	41.4	.5	1.2	–1,158	–5.9	0.6
Information	–85	–3.4	36.6	–.2	–.5	–3,610	–3.9	2.8
Financial activities	323	5.5	35.9	.2	.6	12,763	6.1	7.1
Professional and business services	827	6.3	34.3	.3	.9	32,331	7.2	[2] 15.5
Education and health services	1,186	8.4	32.5	.2	.6	41,353	9.1	15.9
Leisure and hospitality	747	7.0	25.6	.2	.8	21,243	7.9	[2] 9.4
Other services	9	0.2	30.9	–1.3	–4	–5,467	–3.8	4.4

[1] Total private returned to its prerecession level in early 2006.

[2] Recovered to prerecession level.

Once inflation is taken into account, the earnings picture changes considerably. Real average hourly earnings at the end of 2005 were equal to November 2001 levels.[15] In order to compare post-recession jobs to the ones existing before the recession, current-dollar and inflation-adjusted earnings must be examined.

During the 2001 recession average hourly earnings increased by 2 percent—a much slower rate than during previous recessions. (See table 5.) Inflation played a major role in dampening earnings growth in the earlier recessions, when real average hourly earnings actually increased. (See chart 5.) During the early recessions, nominal earnings increased 5.7 percent, on average, but after adjusting for inflation average hourly earnings declined on average by 1.4 percent. In contrast, real average hourly earnings strength occurred in all supersectors but wholesale trade during the 2001 recession.

However, real average hourly earnings have declined since November 2001 in 6 out of the 13 industrial sectors. More striking, all of the industries with lower-than-average real hourly earnings—retail trade, leisure and hospitality, and other services—have experienced net earnings declines since the end of the recession. In contrast, real hourly earnings in utilities and information, industries with the highest real average hourly earnings, have increased by 3.1 percent and 1.7 percent, respectively, since November 2001. Although total-private real average hourly earnings are the same as they were at the end of the recession, lower paying industries have been more adversely affected than higher paying ones.

Average weekly earnings, the product of average hourly earnings and average weekly hours, typically increase over time. During the 2001 recession, weekly earnings edged up 1.2 percent. However, since the end of the recession, weekly earnings have increased by more than 11 percent. During the recession, nominal average weekly earnings actually declined in wholesale trade, utilities, and leisure and hospitality, which is unusual recessionary behavior in these industries. Declines in the average workweek in utilities and leisure and hospitality translated into lower average weekly earnings. Wholesale trade is the only industry where both average weekly hours and average hourly earnings actually declined.

Average weekly earnings, adjusted for inflation, edged up during the recession. However, in the 4 years since the recession ended, average weekly earnings are virtually unchanged. When the declines in real average hourly earnings are combined with a lack of recovery in average weekly hours, some industries' average weekly earnings have declined more than 2.5 percent since the start of the recession—"other services" contracted 5.5 percent. Real average weekly earnings did not decline in all industries since the most recent recession ended. Employment, hours, and earnings in the financial activities industry have benefited from low interest rates. Real average weekly earnings in this industry have grown by 6.0 percent since March 2001. In contrast, real average weekly earnings in manufacturing, which has seen large employment declines and a lack of recovery in hours, experienced a gain of about 3.0 percent.

The change in the industry mix also affects earnings when average hours and employment change. A fixed-weight average hourly earnings series was calculated using January 2000's aggregate hour levels.[16] This allows the study of changes in earnings without the effects of changes in production workers or in the average workweek. The fixed-weight earnings series started to outperform the published series, suggesting that employment in industries with lower average wages grew relative to other industries. By 2003, the fixed-weight series was 5 cents higher, indicating that average earnings weakened partly as a result of the changing industry mix. That is, employment grew in industries such as leisure and hospitality, which has the shortest workweek and the lowest average hourly earnings. These industries created a drag on average hourly earnings for the private sector.

Nominal average hourly earnings and average weekly earnings typically grow over time for all industries. However, once the earnings are adjusted for inflation, the gains can be wiped out. Total-private real average hourly and weekly earnings are not substantially different than they were 4 years ago. Once the contraction in average weekly hours is combined with earnings that are not outpacing inflation, some industries have seen declines of more than 2 percent in their real average weekly earnings.

Aggregates payrolls: the big picture

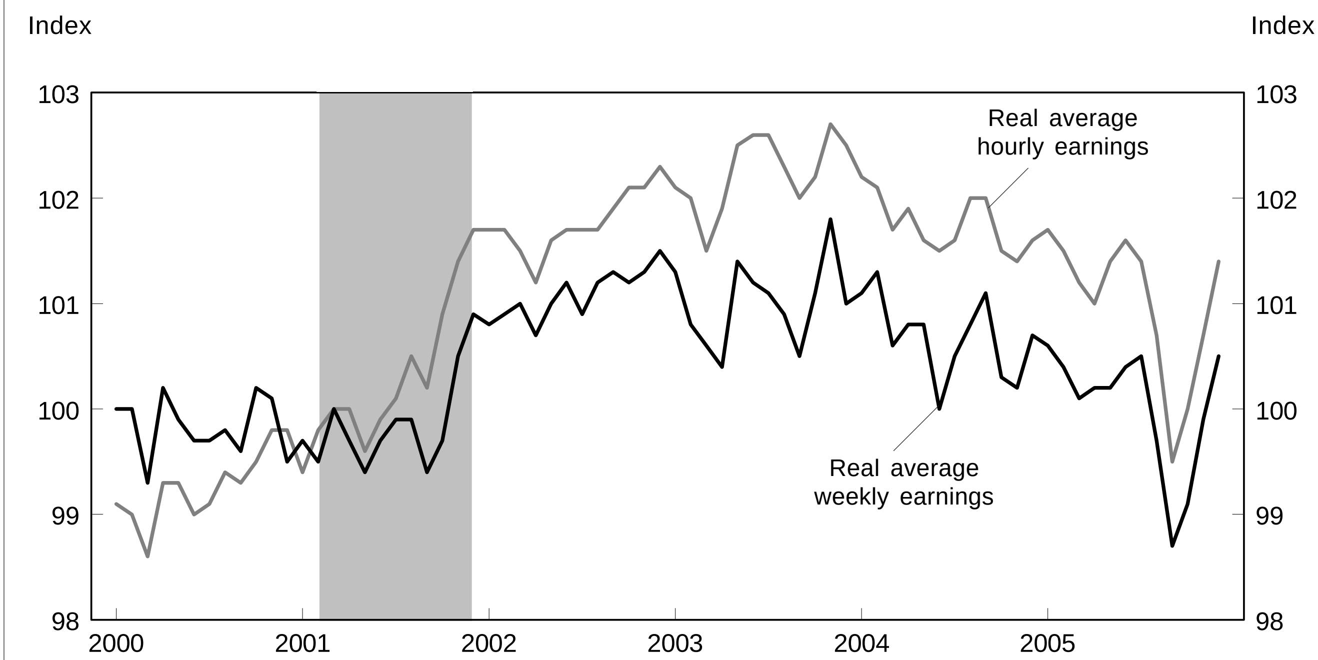
Aggregate payrolls provide a broad picture of the overall health of the economy in terms of worker pay.[17] Aggregate payrolls declined slightly during the 2001 recession. Prior to the 1990-91 recession, aggregate payrolls either grew or stabilized during tims of economic contractions. During the 2001 recession, dclines in employment and hours depressed aggregate payrolls. However, those payrolls quickly recovered due to strength in average hourly earnings. In 2004 and 2005, aggregate payroll dollars increased 5.5 percent, the strongest 1-year changes since 1999. This improvement coincided with employment growth.

Real aggregate payrolls are calculated by multiplying real average weekly earnings by production workers and serve as a measure of inflation-adjusted payrolls. Total private real aggregate payrolls reached a high in November 2000 and then declined until mid-2003, as production worker employment shrank. (See chart 6.) Typically, real aggregate payrolls decline faster during economic downturns than they did during the 2001 recession. However, after the 2001 recession ended, real payrolls continued to decline—a stark contrast to earlier recessions when thre were quicker turnarounds. Once employment started to trend up in 2003, real aggregate payrolls followed suit. A full recovery in real aggregate payrolls occurred during the first quarter of 2005.

Table 5. Changes in current-dollar and constant-dollar average hourly and weekly earnings, 1969–2001

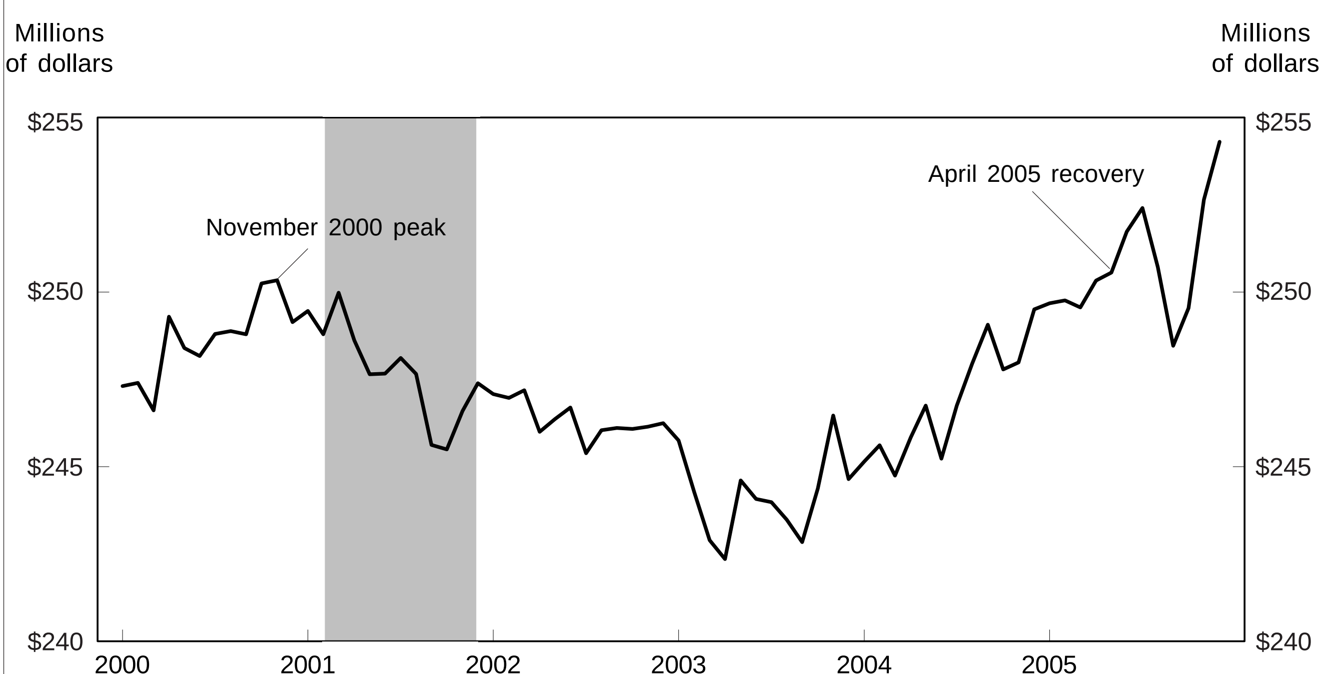
Industry	Changes in average hourly earnings				Changes in average hourly earnings, 1982 dollars			
	Average change 1969–1991 recessions		2001 recession		Average change 1969–1991 recessions		2001 recession	
	Level	Percent	Level	Percent	Level	Percent	Level	Percent
Total private	$0.32	5.7	$0.30	2.1	$–.12	–1.4	$0.11	1.4
Goods-producing	.40	6.7	.36	2.3	–.05	–.5	.14	1.6
Natural resources and mining	.52	7.7	.29	1.7	.04	.4	.09	1.0
Construction	.53	7.2	.21	1.2	.00	.0	.05	.5
Manufacturing	.35	6.3	.37	2.5	–.08	–1.0	.15	1.8
Private service-providing	.31	5.6	.30	2.1	–.12	–1.4	.11	1.4
Wholesale trade	.45	6.2	–.01	–.1.0	–.14	–1.4	–.07	–.7
Retail trade	.25	4.9	.34	3.0	–.19	–2.7	.14	2.2
Transportation and warehousing	.39	4.8	.25	1.6	–.31	–2.7	.08	.9
Utilities	.68	7.3	.44	1.9	–.06	–.4	.16	1.2
Information	.41	5.0	.35	1.8	–.25	–2.0	.12	1.1
Financial activities	.37	7.2	.31	2.0	–.01	–.1	.12	1.4
Professional and business services	.36	5.7	.39	2.4	–.14	–1.4	.16	1.8
Education and health services	.36	7.2	.44	3.0	–.01	.0	.19	2.3
Leisure and hospitality	.20	6.6	.09	1.1	–.03	–.6	.02	.4
Other services	.34	8.9	.43	3.3	.08	1.7	.19	2.6
Industry	**Changes in average weekly earnings**				**Changes in average weekly earnings, 1982 dollars**			
	Average change 1969–1991 recessions		2001 recession		Average change 1969–1991 recessions		2001 recession	
	Level	Percent	Level	Percent	Level	Percent	Level	Percent
Total private	$7.53	3.7	$5.82	1.2	–$9.79	–3.2	$1.40	.5
Goods-producing	9.85	4.0	9.64	1.5	–10.63	–3.0	3.02	.9
Natural resources and mining	15.48	5.6	2.74	.4	–7.35	–1.5	–1.32	–.3
Construction	16.32	5.3	6.35	.9	–8.08	–1.7	.93	.2
Manufacturing	7.74	3.4	9.01	1.5	–11.86	–3.5	2.81	.8
Private service-providing	8.50	4.6	6.91	1.5	–6.89	–2.4	2.14	.8
Wholesale trade	15.23	5.3	–7.08	–1.1	–8.80	–2.3	–6.37	–1.8
Retail trade	5.69	3.5	11.55	3.4	–9.07	–3.9	5.15	2.7
Transportation and warehousing	9.24	3.0	1.49	.3	–19.64	–4.4	–1.28	–.4
Utilities	27.66	7.0	–3.05	–.3	–3.79	–.6	–5.37	-1
Information	11.55	3.7	10.92	1.5	–14.88	–3.2	3.37	.8
Financial activities	13.27	6.9	11.06	2.0	–.92	–.2	4.09	1.3
Professional and business services	11.33	5.0	6.80	1.2	–6.90	–2.0	1.70	.5
Education and health services	11.14	6.7	14.21	3.0	–1.19	–.4	6.17	2.4
Leisure and hospitality	4.32	5.3	–1.05	–.5	–2.27	–1.8	–1.39	–1.2
Other services	10.70	8.3	11.23	2.7	1.63	1.0	4.67	2.0

Chart 5. **Real earnings indexed to the start of the recession, 2000–05**



NOTE: Data seasonally adjusted, March 2001 = 100.

Chart 6. **Total private real aggregate earnings, 2000–05, seasonally adjusted, in millions of 1982 dollars**



NOTE: Real aggregate earnings are the product of average weekly earnings and production or nonsupervisory workers, deflated by the Consumer Price Index for Urban Wage Earners (CPI–W). Data are seasonally adjusted.

Hours and earnings in conjunction with employment are sensitive to changes in the business cycle. Changes in one of these elements can affect trends in the other elements. While aggregate payrolls and private employment have made full recoveries since the 2001 recession, average weekly hours have not. As the economy exchanged jobs among industries with long workweeks for ones that had shorter workweeks, a full recovery in average weekly hours did not occur. Aggregate hours reached their pre-recession peak in the beginning of 2006, when more private jobs were being added to payrolls. As 2005 came to an end, the average postrecession, private-sector, production or nonsupervisory job had a shorter workweek and did not have substantially higher real average weekly earnings than the average job in March 2001. The aggregate impacts of these postrecession jobs were felt for several years after the recession ended. Real aggregate payrolls did not make a full recovery until the beginning of 2005, and aggregate hours recovered a year later. □

Notes

[1] U.S. business cycle expansions and contractions are determined by the National Bureau of Economic Research (NBER). For information, see **http://www.nber.org/cycles/main.html**. Data on employment, hours, and earnings used in this article are from the Current Employment Statistics (CES) program, which each month surveys 160,000 nonfarm businesses representing about 400,000 establishments. For more information on the CES program's concepts and methodology, see *BLS Handbook of Methods*, Bulletin 2490, (Bureau of Labor Statistics, April 1997). CES data are available on the Internet at **http://www.bls.gov/ces/**. Data used in this paper are seasonally adjusted unless otherwise noted.

[2] The rest of this article concentrates on private employment. For more information on public employment, see Julie Hatch, "Employment in the public sector: two recessions' impact on jobs," *Monthly Labor Review*, October 2004, pp. 38–47.

[3] For more information on the Asian crisis, see **http://www.imf.org/external/np/exr/facts/asia.htm**.

[4] For more information about manufacturing employment and the Asian crisis see Julie Hatch and Angela Clinton, "Job Growth in the 1990s: a retrospect," *Monthly Labor Review*, December 2000, pp. 3–18.

[5] Worker Displacement, 2001–03, USDL 04–1381 (U.S. Department of Labor), July 30, 2004; on the Internet at **www.bls.gov/news.release/disp.nr0.htm**.

[6] The time period examined was September 2001 to January 2002, when the majority of the declines occurred in transportation and warehousing.

[7] For more information about business and professional services, see Rachel Krantz, "Employment in business services: a year of unprecedented decline," *Monthly Labor Review*, April 2002, pp. 17–24.

[8] For more information, see Terence M. McMenamin, Rachel Krantz, and Thomas J. Krolik, "U.S. labor market in 2002: continued weakness," *Monthly Labor Review*, February 2003, pp. 3–25.

[9] For more information on employment trends in the construction industry, see the forthcoming article in the *Monthly Labor Review* by John Mullins.

[10] The CES program currently produces hours and earnings for production or nonsupervisory workers. CES collects data for *production workers* in manufacturing and in natural resources and mining industries. In construction, the term *construction workers* covers workers, up through the level of working supervisors, who are engaged directly in a construction project. For private service-providing industries data are collected for nonsupervisory workers. Production workers as a percent of all workers have remained fairly constant over the years. Therefore, production and nonsupervisory workers trends are assumed to mimic the overall employment trends in each supersector. For an historical discussion on the decline in average weekly hours, see Katie Kirkland, "On the decline in average weekly hours worked," *Monthly Labor Review*, July 2000, pp. 26–31. BLS has begun to collect hours and earnings data for all workers covered by the CES or establishment survey. For more information, see "Changes to the Current Employment Statistics Survey" webpage at **http://www.bls.gov/ces/cesww.htm**.

[11] Total-private hours and earnings series started in 1964, so recessions 1969 forward are studied.

[12] Aggregate hours are the product of production or nonsupervisory workers and average weekly hours, summed for all industries.

[13] Aggregate hours (production workers multiplied by average weekly hours) were calculated for each industry sector and summed to get monthly aggregates. Each month's aggregate hours were divided by the total production workers for January 2000 to get fixed-weight average weekly hours for total-private employment.

[14] Analysis of aggregate hours is based on the index of aggregate weekly hours, which uses the annual average 2002 aggregate weekly hours as a base.

[15] Current dollar earnings are deflated by the Consumer Price Index for Urban Earners and Clerical Workers (CPI-W). For the purpose of the Real Earnings series, the CPI-W is converted from the base of 1982–84 that is used in the official, published Consumer Price Index series to a base of 1982. Thus, the constant dollar average hourly and weekly earnings series are in 1982 dollars.

[16] Aggregate payrolls (the product of production workers, average hourly earnings, and average weekly hours) are calculated for each industry and summed to get monthly aggregates. Each month's aggregate payrolls were divided by the total aggregate hours for January 2000 to get fixed-weight average hourly earnings for total-private employment

[17] Analysis of aggregate payrolls is based on the index of aggregate weekly payrolls, which uses the 2002 annual average weekly payrolls as a base.