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Economic Policy Review

Labor Market Developments in the United States and Canada since 2000

Proceedings of a Conference Cosponsored
by the Canadian Consulate General in New York,
the Centre for the Study of Living Standards,
the Federal Reserve Bank of New York,
and the New York Association for Business Economics

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December 2, 2004

Erica L. Groshen, Zahir Lalani, and David Murchison

Conference Overview and Summary of Papers

1. Introduction

Over the past three years, observers of North American economies have confronted two interesting phenomena. The first, which has received wide media attention, centers on the lack of job growth in the current U.S. recovery. The second involves the disparity in job growth between the United States and Canada—namely, while the United States was struggling to create jobs, Canada was producing them at a fast clip.

To shed light on this disparity, in December 2004 the Canadian Consulate General in New York, the Centre for the Study of Living Standards, the Federal Reserve Bank of New York, and the New York Association for Business Economics cosponsored the conference "Labor Market Developments in the United States and Canada since 2000." The goal of the sessions was to engage key Canadian and U.S. economists to explore the reasons for the lack of job growth in the United States, to contrast the U.S. experience with that of Canada, and to offer potential lessons from these experiences.

2. The Weak U.S. Jobs Recovery

Richard B. Freeman and William M. Rodgers III examine the operation of the U.S. labor market in the current recovery. They find that this recovery has been the worst in recent history in terms of job creation. Moreover, the slow employment growth is not attributable to the poor performance of a particular sector, such as the dot-com sector after its boom-bust cycle. Freeman and Rodgers also find a decline in job growth among groups especially sensitive to business cycle swings, such as African Americans, new labor market entrants, out-of-school youth, and less educated workers. Finally, the current recovery is shown to have no particular geographic dimension, which is unusual for recent recessions. The weak jobs recovery, conclude the authors, represents a major shift in the link between the labor market and the economy over the business cycle, rather than an idiosyncratic break in historic patterns.

Lars Osberg, in his remarks on the Freeman-Rodgers study, observes that he is less convinced than the authors by the structural change explanation for the jobless recovery. He argues that structural changes should be common across industrial countries, but only the United States has experienced a jobless recovery. Instead, Osberg contends that the lack of social supports for the unemployed in the United States, by constraining consumption by jobless workers, may help explain the nation's relative lack of job creation.

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3. Is Canada Losing Well-Paid Jobs?

René Morissette and Anick Johnson assess whether the relative importance of low-paid (less than $10 an hour) and well-paid ($25 an hour or more) jobs in Canada has changed over the past two decades. They also consider whether well-paid jobs are disappearing in the country by analyzing changes in the share of jobs falling in certain real wage categories over 1997-2004. Morissette and Johnson find little evidence that the relative importance of well-paid jobs has declined or that the relative importance of low-paid jobs has risen over the period examined. Their results suggest that well-paid jobs are not disappearing in Canada. However, when the authors compare the wages of newly hired employees with those of their more experienced counterparts, they find a widening gap that is mostly not compositional. Canadian firms, conclude Morissette and Johnson, are responding to growing competition within industries and from abroad by reducing wage offers for new employees, making temporary jobs available to a growing proportion of these workers, and providing on a less frequent basis pension plans that guarantee defined benefits at retirement.

Erica L. Groshen's discussion of the Morissette-Johnson paper notes that Canada and the United States were subject to similar shocks in trade technology and consumer tastes over the past two decades. Thus, differences in employment performance between the countries likely reflect business cycle disparities or variations in how labor market institutions mediate shocks or cycles. This contrast suggests that recent employment growth in Canada may be seen as reducing a legacy of unemployment from the 1990s that persisted after the early 1990s recession. From this standpoint, recent strategies pursued by Canadian employers to relax wage rigidity in the country can be viewed as allowing a period of catch-up job growth. If this interpretation is correct, recent innovations by Canadian employers—such as the reduction of starting wages, the use of temporary workers, and the provision of less pension coverage—may be a short-lived catch-up phenomenon rather than an indication of a looming loss of good jobs in Canada.

4. The Recession's Effects on State Unemployment Insurance Funding

In terms of the change in real GDP, the 2001 downturn in the United States was one of the mildest in fifty years, according to Wayne Vroman. Yet during 2002-04, several large states had trouble financing their unemployment insurance (UI) programs. Accordingly, Vroman discusses the recession's effects on states experiencing UI funding problems and the borrowing options available when state trust fund reserves are inadequate. Not only has the size of drawdowns from UI trust funds varied by state, the author finds, but so have the types of loans used to address funding problems. He also concludes that all of the states that had to borrow had low trust fund balances at the end of December 2000—just before the recession began—and that funding problems have been concentrated among the large states.

Timothy C. Sargent considers Vroman's study in light of the automatic stabilizer role of unemployment insurance programs. That is, because UI programs accumulate reserves during expansions and run deficits that support consumption during recessions, they work to smooth business cycle fluctuations. Sargent emphasizes that Vroman's findings imply that changes in the UI funding practices of states undermine the automatic stabilizer role, potentially leaving the United States more vulnerable to economic fluctuations.

5. Conclusion

The papers and commentaries presented consider a variety of explanations for the disparate job creation performance in the sister economies of the United States and Canada. While this issue is far from being resolved, the common theme arising from the sessions is the key role played by labor market policy and by institutions—including unemployment insurance, practices that constrain wage flexibility, and social supports for the jobless—in channeling into different outcomes the common shocks faced by the U.S. and Canadian economies. As the recovery continues to unfold and more data become available, further analysis of the contrasting job creation performance of the United States and Canada will help us understand more fully the experiences of the two countries.

Richard B. Freeman and William M. Rodgers III

The Weak Jobs Recovery: Whatever Happened to "the Great American Jobs Machine"?

1. Introduction

During the 1990s, the U.S. labor market drew plaudits around the world for the large number of jobs it created. The rate of unemployment fell to levels below those of most other advanced economies and the percentage of the population in employment rose to its highest level in history, as even the less-skilled and former "welfare mothers" found jobs. At the same time, productivity grew smartly, real wages rose after decades of stagnation or decline, the seemingly inexorable rise of inequality ended, and poverty fell. Europe marveled at "the great American jobs machine" and sought solutions to its problems by looking at U.S. policies and practices.

What a difference a few years make.

More than three years have passed since the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) declared that the U.S. economy had begun its recovery. Yet compared with the past five recoveries, 3.1 million fewer people are working today than at the outset of the recovery.[1] Although by historical standards, the percentage of the employed population is high, it remains 2 percentage points lower than it did in spring 2000—the boom's peak. The weak jobs recovery since 2001 has created greater economic problems for Americans than Europe's sluggish job performance in the 1990s created for Europeans. The United States has only a limited safety net for workers. Those who lose their jobs risk losing health care or seeing their family drop from the middle class into poverty.

This paper examines the operation of the U.S. labor market in the 2001 recovery. Because the United States is in the middle of the recovery, ours is a real-time analysis; thus, some conclusions could change if the recovery stalls or employment grows suddenly. For instance, since August 2003, nonfarm payroll employment increased by 2.5 million, for a monthly average of 146,000, while the household survey showed a comparable increase of 2.6 million.[2] However, seventeen months of job growth that barely kept pace with civilian population growth does not gainsay the surprising U.S. inability to generate jobs for so long in this recovery. It would take employment growth of some 300,00 per month over the next year and a half to bring the employment-population rate to the 64.4 level it held during 2000.

2. The Challenge of the Jobless Recovery

"How come we see recovery every place but in the labor market?" (adapted from Robert Solow).

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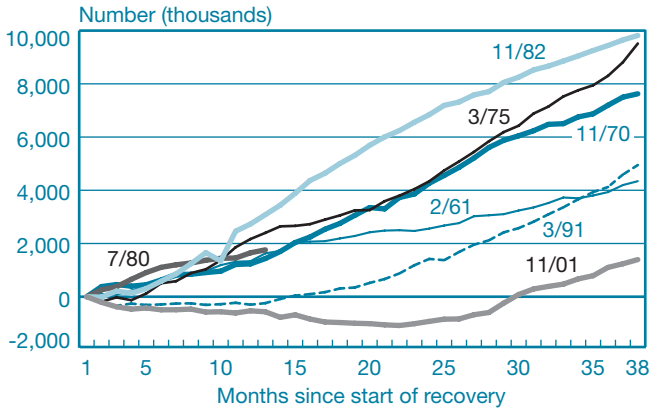
Our first and most important finding is that the current recovery has been the worst in recent U.S. economic history in terms of job creation. Employment growth has been much slower than it has been in all post–World War II recoveries—including the 1990s recovery, when employment also took an extraordinarily long time to rebound (Chart 1).[3] Typically, employment growth lags business cycle recoveries by three to four months. In the 1990s recovery, the lag was a little more than two years. In the current recovery, the lag is three to four years and, at the time of our writing, the labor market has not yet clearly recovered.

During the 2004 presidential campaign, it was natural that the Democrats stressed the lack of job growth while the incumbent Republicans downplayed the issue, directing attention at the relatively moderate rate of unemployment. However, as stated by Kevin Hassett, Director of Economic Policy Studies at the American Enterprise Institute for Public Policy Research: "It's not a partisan issue, it is a fact. The labor market is worse than in the typical recovery."[4] The poor recovery in the labor market goes beyond sluggish job growth. While the rate of unemployment has been moderate, the duration of joblessness has been high three years into the recovery, and an exceptional proportion of persons not participating in the labor market want to work (Schreft, Singh, and Hodgson 2004). In addition, as these authors emphasize, a large share of jobs created in the recovery were temporary. Almost 30 percent of new jobs created from November 2001 to December 2004 were in the temporary-help services sector. During the 1990s recovery, only 10 percent of new jobs were in temporary-help services.[5]

Chart 1

Cumulative Employment Growth during the Seven Most Recent Recoveries



Source: U.S. Department of Labor, Bureau of Labor Statistics, nonfarm payroll establishment data (<http://www.bls.gov>).

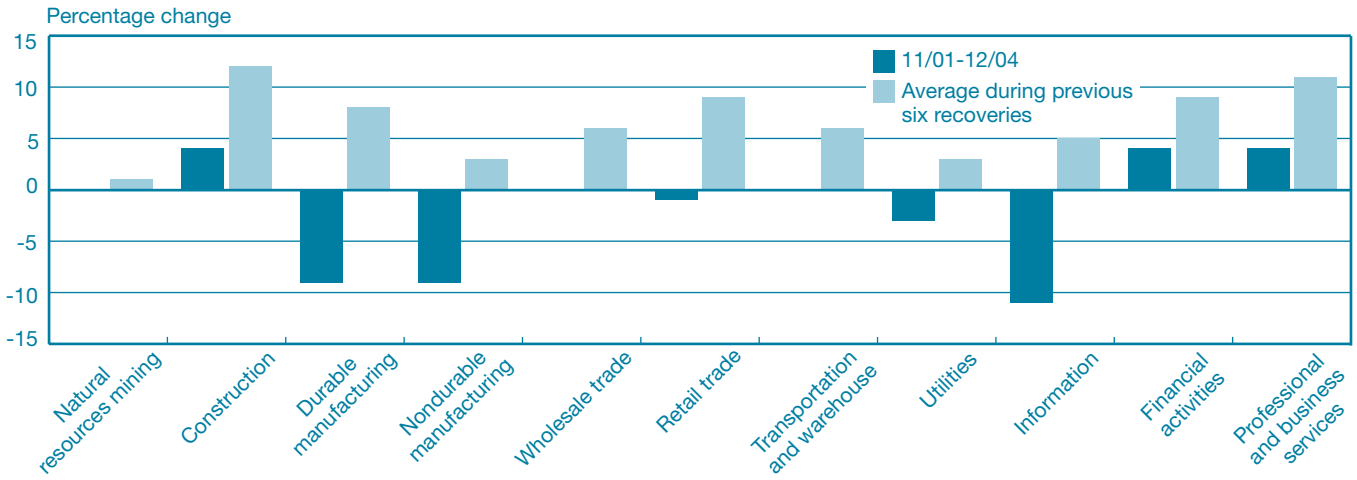
Note: Each series is benchmarked to the start of its recovery as defined by the National Bureau of Economic Research's Business Cycle Dating Committee.

Our second finding is that the slow growth of employment is not due to the strikingly weak job performance of a particular sector, such as the dot-com sector in the aftermath of its boom-bust cycle. To be sure, there was an asset-price-bubble component to the 1990s boom that can help explain job problems in some of the "new economy" sectors.[6] However, we find that employment at the end of 2004 was markedly below employment at the start of the recovery in many private sector industries, not simply in those affected by the dot-com boom. In December 2004, employment was 9 percent lower in durable manufacturing and 9 percent lower in nondurable manufacturing than it was when the recovery began (Chart 2). Employment showed no growth in the retail, wholesale, and transportation sectors. It grew modestly in education and health services, government, financial activities, and some other services. However, employment fell in many other service sectors, including the broad "information" industries (such as telecoms, newspapers, movies, and cable TV)—a major part of the new economy that is supposed to be producing good jobs to replace declining employment in traditional manufacturing.

Offering further evidence of the breadth of the weak labor market in the boom, our third finding is that employment growth was down among groups especially sensitive to business cycle swings, but unlikely to be affected by the dot-com bubble narrowly defined: African-Americans, new labor market entrants, out-of-school youth, and less-educated workers.[7] Historically, recessions take their toll first on these groups, but in recoveries they benefit from larger increases in employment than more advantaged groups. Table 1 shows that in the 2001 recovery, African-Americans, out-of-school youth, and new labor market entrants had worse employment experiences relative to those of other workers than they did in the two previous recoveries, with the 2001 recovery showing greater employment declines.[8] New entrants with no more than a high-school degree have borne the largest brunt of the weak recovery: the employment-population ratios of black and white men fell 5.1 and 3.0 percentage points, respectively, while the estimated drops for black and white women were 4.3 and 2.3 percentage points, respectively.

Over the same period, the labor market for highly educated and skilled workers did not tighten, as it did in typical recoveries. Table 1 illustrates this pattern for new-entrant male and female black college graduates: although not measured with a high level of precision, their respective employment-population ratios fell 1.5 and 2.0 percentage points. It is safe to conclude that their prospects have not improved during the recovery. At the same time, some white-collar workers who

Chart 2
Employment Growth at Similar Points in Recovery



Source: U.S. Department of Labor, Bureau of Labor Statistics, nonfarm payroll establishment data (<http://www.bls.gov>).
Note: Each series is benchmarked to the start of its recovery as defined by the National Bureau of Economic Research's Business Cycle Dating Committee.

normally have low unemployment even in recessions have had more trouble finding jobs than they did in virtually any other recovery. The rate of unemployment among electrical engineers, for example, has exceeded the national unemployment rate, while joblessness is also found among various workers in computer programming. Here, possibly, are the footprints of the dot-com experience, though it is more likely that the problems in these job markets will be more long term because of outsourcing of computer-related work to India and other developing countries.

Our fourth finding is that the jobless recovery has no particular geographic dimension. Analyzing employment growth by state, we find that compared with the current recovery, the typical state's employment grew 2.6 to 4.8 percent faster in the 1990s recovery and 4.5 to 6.3 percent faster in the 1980s recovery. Current employment growth is substantially weaker across the board, with two distinct patterns emerging (see appendix). Employment growth in states that have experienced any increase in jobs during the current recovery has been slower than it has been in past recoveries. Arizona and Florida exemplify this pattern: employment growth in these states was slightly more than 1 percent between 2001 and 2003. During comparable periods in earlier recoveries, growth was two to four times higher. Elsewhere, in contrast with the 1980s and 1990s recoveries, there has been a contraction in employment. Michigan and Ohio fit this pattern: during the current recovery, employment in these states fell 1 to 4 percent, compared with modest increases in earlier recoveries.

3. Wages, Inequality, and Poverty

In the 1980s recovery and in the early part of the 1990s recovery, slow productivity growth and loose labor markets led to slow growth of earnings relative to inflation. This trend ended after 1995, when productivity growth began to accelerate and labor markets tightened. For the first time in two or more decades, real wages rose even for those at the bottom of the earnings or skill distribution. In the 2001 recovery, productivity has performed well while wages have shown a disparate pattern of change. Table 2 shows that from 2001 to 2004, men's earnings stagnated while women's earnings grew modestly. Looking across a variety of earnings series, we note that some series show modest gains while others do not, making it hard to pin down what has happened to wages and inequality in the weak jobs recovery. Published earnings data from the Current Population Survey suggest that the median weekly earnings of full-time employees barely kept pace with inflation in 2004 while the real earnings of the groups most vulnerable to a weak labor market fell in the recovery. The median earnings of all workers fell 0.5 percent while the real

Table 1

Changes in Employment-Population Ratios for Vulnerable Groups, from End of Recession through Third Year of Recovery

Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
All												
Black	0.039	-0.007	-0.034	0.028	-0.019	-0.013	0.035	0.008	-0.022	0.028	0.001	-0.003
	(0.005)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
White	0.017	-0.002	-0.017	0.009	-0.003	0.006	0.026	0.012	-0.005	0.022	0.010	0.015
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Black-white	0.022	-0.006	-0.018	0.019	-0.016	-0.019	0.009	-0.004	-0.017	0.006	-0.009	-0.018
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Out-of-school youth												
Black	0.066	-0.054	-0.039	0.050	-0.065	-0.020	0.023	0.001	-0.025	0.014	-0.003	0.008
	(0.014)	(0.017)	(0.020)	(0.013)	(0.017)	(0.020)	(0.014)	(0.018)	(0.021)	(0.014)	(0.017)	(0.021)
White	0.039	-0.014	-0.032	0.013	-0.022	-0.013	-0.008	-0.016	-0.021	-0.018	-0.023	0.017
	(0.005)	(0.007)	(0.007)	(0.005)	(0.007)	(0.008)	(0.006)	(0.008)	(0.009)	(0.005)	(0.008)	(0.010)
Black-white	0.027	-0.040	-0.007	0.037	-0.043	-0.007	0.031	0.017	-0.004	0.032	0.020	-0.009
	(0.015)	(0.019)	(0.021)	(0.014)	(0.018)	(0.020)	(0.015)	(0.019)	(0.023)	(0.015)	(0.019)	(0.022)
New entrants												
Black	0.077	-0.002	-0.051	0.066	-0.017	-0.027	0.053	0.019	-0.043	0.040	0.007	-0.017
	(0.009)	(0.010)	(0.010)	(0.008)	(0.009)	(0.007)	(0.008)	(0.009)	(0.010)	(0.008)	(0.009)	(0.007)
White	0.039	0.001	-0.030	0.035	-0.007	-0.004	0.042	0.009	-0.023	0.033	0.000	0.007
	(0.003)	(0.003)	(0.004)	(0.009)	(0.016)	(0.016)	(0.003)	(0.004)	(0.004)	(0.009)	(0.016)	(0.016)
Black-white	0.038	-0.003	-0.021	0.032	-0.010	-0.023	0.011	0.010	-0.020	0.007	0.007	-0.024
	(0.009)	(0.010)	(0.011)	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)	(0.011)	(0.008)	(0.009)	(0.010)
New-entrant high-school dropouts												
Black	0.055	0.001	-0.055	0.058	0.003	-0.019	0.023	0.044	-0.033	0.014	0.035	0.006
	(0.016)	(0.019)	(0.020)	(0.015)	(0.019)	(0.015)	(0.015)	(0.018)	(0.020)	(0.015)	(0.019)	(0.015)
White	0.027	-0.019	-0.054	0.030	-0.012	-0.013	0.026	0.002	-0.049	0.024	-0.005	0.012
	(0.007)	(0.008)	(0.008)	(0.017)	(0.032)	(0.032)	(0.007)	(0.008)	(0.008)	(0.017)	(0.032)	(0.032)
Black-white	0.028	0.019	-0.001	0.029	0.015	-0.006	-0.003	0.042	0.017	-0.010	0.040	-0.007
	(0.017)	(0.020)	(0.021)	(0.016)	(0.019)	(0.020)	(0.016)	(0.019)	(0.021)	(0.016)	(0.019)	(0.021)

Table 1 (Continued)

Changes in Employment-Population Ratios for Vulnerable Groups, from End of Recession through Third Year of Recovery

Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
New-entrant high-school graduates												
Black	0.058	-0.064	-0.039	0.055	-0.061	-0.004	0.055	-0.040	-0.018	0.051	-0.036	0.015
	(0.014)	(0.015)	(0.017)	(0.013)	(0.016)	(0.013)	(0.014)	(0.015)	(0.017)	(0.013)	(0.017)	(0.014)
White	0.056	-0.006	-0.036	0.048	0.000	0.002	0.036	-0.021	-0.024	0.035	-0.019	0.013
	(0.005)	(0.006)	(0.006)	(0.015)	(0.027)	(0.027)	(0.005)	(0.007)	(0.007)	(0.015)	(0.029)	(0.029)
Black-white	0.002	-0.059	-0.002	0.006	-0.061	-0.006	0.019	-0.019	0.006	0.016	-0.018	0.002
	(0.014)	(0.017)	(0.018)	(0.014)	(0.016)	(0.017)	(0.014)	(0.017)	(0.019)	(0.014)	(0.017)	(0.019)
New-entrant college graduates												
Black	0.070	-0.027	-0.015	0.070	-0.037	0.003	0.042	0.026	-0.020	0.046	0.021	-0.002
	(0.020)	(0.022)	(0.020)	(0.020)	(0.020)	(0.014)	(0.021)	(0.022)	(0.020)	(0.021)	(0.021)	(0.015)
White	0.006	0.003	-0.011	0.008	-0.007	0.005	0.035	0.015	0.000	0.036	0.011	0.018
	(0.004)	(0.005)	(0.005)	(0.021)	(0.036)	(0.031)	(0.006)	(0.006)	(0.006)	(0.022)	(0.038)	(0.032)
Black-white	0.064	-0.030	-0.003	0.063	-0.031	-0.002	0.006	0.011	-0.020	0.010	0.009	-0.019
	(0.021)	(0.022)	(0.020)	(0.020)	(0.021)	(0.020)	(0.022)	(0.022)	(0.020)	(0.022)	(0.022)	(0.020)

Source: Authors' calculations, from assorted years of Current Population Survey's ORG files.

Notes: "All" denotes individuals sixteen and over. "Out-of-school youth" denotes individuals with no more than a high-school degree, sixteen to twenty-four years of age, and not enrolled in school. The columns labeled "Unadjusted" are constructed from regressions that pool the years 1982, 1985, 1991, 1994, 2001, and 2004, where the variables are white dummy variable, year dummy variables, and the interactions between the white dummy variable and the year dummy variables. The columns labeled "Adjusted" are constructed from the same specification, but controls for years of school, potential experience, and census division of residence are included.

Table 2

Changes in Log Hourly Earnings for Vulnerable Groups, from End of Recession through Third Year of Recovery

Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
All												
Black	-0.064	0.004	-0.010	-0.067	-0.025	-0.129	0.004	0.018	0.016	-0.016	-0.008	-0.135
	(0.011)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.007)	(0.008)
White	-0.028	-0.003	-0.009	-0.048	-0.036	-0.116	0.001	0.023	0.021	-0.019	0.005	-0.127
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Black-white	-0.037	0.007	-0.001	-0.020	0.011	-0.013	0.003	-0.005	-0.005	0.003	-0.013	-0.008
	(0.011)	(0.011)	(0.011)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)
Out-of-school youth												
Black	-0.084	-0.030	0.015	-0.104	-0.035	-0.082	-0.034	-0.038	-0.048	-0.068	-0.023	-0.191
	(0.019)	(0.023)	(0.024)	(0.017)	(0.020)	(0.022)	(0.019)	(0.022)	(0.022)	(0.018)	(0.021)	(0.021)
White	0.000	-0.032	-0.015	-0.061	-0.031	-0.093	0.004	-0.029	-0.024	-0.048	-0.030	-0.139
	(0.006)	(0.007)	(0.007)	(0.005)	(0.007)	(0.008)	(0.006)	(0.008)	(0.008)	(0.006)	(0.007)	(0.009)
Black-white	-0.084	0.002	0.030	-0.042	-0.004	0.011	-0.038	-0.009	-0.024	-0.020	0.007	-0.052
	(0.020)	(0.024)	(0.026)	(0.018)	(0.021)	(0.023)	(0.020)	(0.024)	(0.024)	(0.019)	(0.022)	(0.022)
New entrants												
Black	-0.108	-0.022	0.002	-0.103	-0.026	-0.127	-0.040	-0.023	-0.037	-0.043	-0.012	-0.186
	(0.016)	(0.016)	(0.017)	(0.013)	(0.013)	(0.011)	(0.015)	(0.015)	(0.015)	(0.012)	(0.012)	(0.010)
White	-0.054	-0.022	-0.025	-0.066	-0.029	-0.128	-0.024	-0.008	-0.009	-0.040	-0.010	-0.152
	(0.005)	(0.005)	(0.005)	(0.014)	(0.023)	(0.023)	(0.005)	(0.005)	(0.005)	(0.013)	(0.021)	(0.020)
Black-white	-0.054	0.000	0.027	-0.037	0.003	0.001	-0.017	-0.015	-0.028	-0.004	-0.002	-0.034
	(0.016)	(0.017)	(0.018)	(0.013)	(0.014)	(0.015)	(0.016)	(0.016)	(0.016)	(0.013)	(0.013)	(0.013)
New-entrant high-school dropouts												
Black	-0.135	-0.070	0.005	-0.104	-0.037	-0.072	-0.096	-0.068	-0.022	-0.103	-0.050	-0.173
	(0.024)	(0.028)	(0.029)	(0.020)	(0.023)	(0.019)	(0.027)	(0.028)	(0.028)	(0.025)	(0.026)	(0.021)
White	-0.070	-0.050	-0.015	-0.074	-0.026	-0.083	-0.052	-0.042	-0.043	-0.054	-0.021	-0.160
	(0.007)	(0.008)	(0.008)	(0.022)	(0.040)	(0.041)	(0.008)	(0.009)	(0.009)	(0.027)	(0.046)	(0.044)
Black-white	-0.065	-0.019	0.021	-0.029	-0.011	0.011	-0.044	-0.026	0.020	-0.049	-0.029	-0.013
	(0.025)	(0.029)	(0.030)	(0.021)	(0.024)	(0.025)	(0.028)	(0.030)	(0.029)	(0.026)	(0.028)	(0.028)

Table 2 (Continued)

Changes in Log Hourly Earnings for Vulnerable Groups, from End of Recession through Third Year of Recovery

Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
New-entrant high-school graduates												
Black	-0.114	-0.030	-0.002	-0.119	-0.023	-0.133	-0.063	-0.020	-0.044	-0.056	-0.013	-0.183
	(0.020)	(0.022)	(0.023)	(0.018)	(0.020)	(0.016)	(0.018)	(0.019)	(0.019)	(0.017)	(0.018)	(0.014)
White	-0.062	-0.037	-0.027	-0.078	-0.031	-0.119	-0.045	-0.021	-0.024	-0.053	-0.020	-0.149
	(0.006)	(0.007)	(0.008)	(0.019)	(0.034)	(0.034)	(0.006)	(0.007)	(0.008)	(0.017)	(0.032)	(0.030)
Black-white	-0.052	0.007	0.025	-0.041	0.009	-0.015	-0.018	0.001	-0.019	-0.003	0.007	-0.034
	(0.021)	(0.023)	(0.024)	(0.019)	(0.021)	(0.022)	(0.019)	(0.020)	(0.021)	(0.018)	(0.019)	(0.019)
New-entrant college graduates												
Black	-0.054	-0.048	-0.058	-0.051	-0.037	-0.151	0.128	-0.014	-0.074	0.107	0.023	-0.184
	(0.071)	(0.067)	(0.059)	(0.066)	(0.056)	(0.042)	(0.056)	(0.050)	(0.044)	(0.052)	(0.043)	(0.032)
White	0.019	0.021	-0.061	0.003	0.021	-0.168	0.028	0.001	-0.002	0.019	0.012	-0.117
	(0.018)	(0.018)	(0.017)	(0.068)	(0.103)	(0.089)	(0.016)	(0.015)	(0.014)	(0.052)	(0.078)	(0.067)
Black-white	-0.073	-0.068	0.003	-0.054	-0.058	0.016	0.099	-0.015	-0.072	0.087	0.011	-0.067
	(0.073)	(0.070)	(0.061)	(0.068)	(0.065)	(0.057)	(0.058)	(0.052)	(0.046)	(0.054)	(0.049)	(0.043)

Source: Authors' calculations, from assorted years of Current Population Survey's ORG files.

Notes: "All" denotes individuals sixteen and over. "Out-of-school youth" denotes individuals with no more than a high-school degree, sixteen to twenty-four years of age, and not enrolled in school. The columns labeled "Unadjusted" are constructed from regressions that pool the years 1982, 1985, 1991, 1994, 2001, and 2004, where the variables are white dummy variable, year dummy variables, and the interactions between the white dummy variable and the year dummy variables. The columns labeled "Adjusted" are constructed from the same specification, but controls for years of school, potential experience, and census division of residence are included.

earnings of high-school dropouts and graduates declined 2.2 and 0.8 percent, respectively. Earnings of workers at the bottom of the distribution also dropped through 2004:3. Between 2003:3 and 2004:3, real earnings for the bottom 10 percent of the wage distribution declined 1.7 percent.

Slow pay rises, however, are not the fundamental problem of the weak jobs recovery. The problem is sluggish employment growth. The combination of stagnant employment and sluggish real wage growth has meant that poverty rose through 2003, albeit modestly. This pattern contrasts with the usual pattern of poverty falling as GDP grows. Moreover, several key labor market statistics correlated with poverty show no improvement at the time of our writing. The employment of Americans who are high-school dropouts or African-Americans has not improved since the U.S. Census Bureau collected the poverty data. Specifically, from December 2003 to December 2004, the percentage of high-school dropouts and African-Americans in employment remained at 36 and 56 percent, respectively.[9] If the recovery does eventually reduce poverty, it is unlikely to be by much.

4. Explaining the Weak Jobs Recovery

Why did the great American jobs machine run out of steam in the 2001 recovery?

One possibility is that the NBER incorrectly dated the end of the recession. While there is a range of uncertainty around the dating of a recovery, the current recovery looks reasonably normal outside of the labor market. Corporate profits have risen. The cumulative growth in profits during the eighth and eleventh quarters of the current recovery exceeds the average during the previous five recoveries. Real GDP has grown at a more rapid pace than it did during the 1990s, particularly since the eighth quarter of the recovery. But this cumulative growth is well below the average during the previous five recoveries. Industrial production has also grown, albeit at much slower rates than during past recoveries, yet growth is still a healthy 5 percent-plus. The slower growth of industrial production partially reflects the continuing shift toward a service economy.

Is it possible that the weak jobs recovery reflects increased rigidity in the U.S. labor market, consistent with the orthodox explanation of weak employment growth in Europe in the 1990s? Clearly not. Neither the current administration nor the Clinton administration enacted new regulations on unemployment insurance or welfare benefits that might adversely affect the level of employment.

Could the weak jobs recovery reflect conservative central bank policy of the type that the European Central Bank adopted during the 1990s? Again, clearly not. Although the Federal Reserve has been raising interest rates over the past few months (and in our view, will likely continue to do so), it has kept rates quite low during the recovery.

So why has the jobs machine stalled?

4.1 Productivity Growth?

At the outset, we reject the seemingly attractive idea that increased productivity explains the weak jobs recovery. This is a circular argument. Increases in productivity due to technological and other innovations shift out the country's aggregate supply curve, which increases the growth of potential GDP and permits greater employment growth without inflation than would otherwise be the case. The puzzle is why increased productivity, coupled with record growth in fiscal stimulus and record low interest rates, has not generated sufficient GDP growth to crank up the great American jobs machine as quickly as it did in other recoveries.

Unlike productivity growth, some factors that may have contributed to the weak recovery are U.S. performance in the international economy and domestic and foreign investment in the United States, rising health care costs, the nature of the fiscal stimulus, and structural economic change. We now consider these factors.

4.2 U.S. Performance in the International Economy

In the current recovery, the trade deficit has risen to levels unprecedented in recent U.S. experience. The ratio of exports minus imports relative to GDP increased from -4.2 percent to -5.4 percent between 2001:4 and 2004:3 (Table 3). As a share of GDP, this is the largest trade deficit in U.S. economic history and it represents a larger than normal increase in trade deficits in a recovery, but it is not the largest increase on record. In the 1980s recovery, the trade deficit rose from -0.5 percent to -2.4 percent.

There has been much discussion about jobs being "off-shored" in the weak recovery. Government statistics do not provide even crude measures of the number of jobs off-shored in the service industries. For example, although Indian exporters report several billion dollars of exports in computer-related and telecoms services and many major U.S. companies proclaim off-shoring of service sector jobs as way to improve profits, government statistics record less than a billion dollars of service sector imports from India and show them declining

Table 3

Components of GDP in the 2001 Recovery and Earlier Recoveries, Seasonally Adjusted at Annual Rates

Percent

	Start of Recovery					
	November 2001	March 1991	November 1982	March 1975	November 1970	February 1961
(X-M)/GDP						
First quarter of recovery	-4.2	-0.3	-0.5	0.0	-1.4	-0.2
Twelfth quarter of recovery	-5.4	-0.8	-2.4	-1.4	-1.1	-0.4
Change	-1.2	-0.6	-1.9	-1.4	0.3	-0.2
Exports/GDP						
First quarter of recovery	9.9	8.0	5.5	5.4	4.4	3.7
Twelfth quarter of recovery	10.4	8.7	5.3	4.9	4.8	3.7
Change	0.5	0.7	-0.2	-0.5	0.5	0.0
Imports/GDP						
First quarter of recovery	14.1	8.3	6.0	5.4	5.8	3.9
Twelfth quarter of recovery	15.7	9.6	7.7	6.3	5.9	4.1
Change	1.7	1.3	1.7	0.9	0.1	0.2
Government consumption expenditures and gross investment/GDP						
First quarter of recovery	18.3	22.0	22.5	24.1	26.9	29.6
Twelfth quarter of recovery	17.9	20.2	21.9	21.7	22.4	28.7
Change	-0.4	-1.8	-0.6	-2.4	-4.5	-0.9
Federal/GDP						
First quarter of recovery	6.2	9.5				
Twelfth quarter of recovery	6.7	8.0				
Change	0.5	-1.4				
National defense/GDP						
First quarter of recovery	4.0	6.9				
Twelfth quarter of recovery	4.5	5.5				
Change	0.5	-1.4				
Nondefense/GDP						
First quarter of recovery	2.2	2.5				
Twelfth quarter of recovery	2.2	2.5				
Change	-0.1	0.0				
State and local/GDP						
First quarter of recovery	12.1	12.5				
Twelfth quarter of recovery	11.2	12.1				
Change	-0.9	-0.4				

Source: Authors' calculations, from Bureau of Economic Analysis, Table 1.1.6.

over time. Estimates from business groups of the magnitude of off-shoring suggest that upwards of 300,000 to 400,000 jobs are off-shored per year,[10] which would make off-shoring a substantial contributor to the jobless recovery. By contrast, Bureau of Labor Statistics surveys on job displacement record only a minuscule number of losses attributable to off-shoring, in part because the questions posed to displaced workers are not asked in such a way as to obtain the appropriate statistic. The U.S. Government Accounting Office, which recently examined the quality of official statistics, found the data to be virtually useless for measuring job losses.[11]

What is well measured and unprecedented is the huge drop in foreign direct investment (FDI) in the United States as a share of GDP during the current recovery. In 2001, FDI was 1.6 percent of U.S. GDP; in 2003, it was 0.3 percent. In the two previous recoveries, foreign direct investment rose as a share of GDP, presumably directly creating jobs in the United States. But in this recovery, FDI fell, largely reflecting a decrease in Europe's direct investment in the United States.

However, simply ascribing some of the weak job growth to such international factors as trade, domestic and foreign direct investment, and off-shoring does not give a complete explanation. That the value of the dollar fell relative to the euro and the pound despite rapid increases in productivity demands some deeper explanation as to why the United States did not fare better in the international markets.

4.3 The Impact of Health Care Costs

Another factor behind the weak jobs recovery may be the U.S. mode of funding medical insurance. Health insurance spending per employee has risen sharply in the United States, albeit over a longer period than the current recovery. It adds a substantial marginal cost to employing workers, and many firms have sought ways to operate without committing to permanent workers who obtain such benefits.

The Kaiser Family Foundation finds that between 2000 and 2003, employment of people with employer-sponsored health care coverage fell 2.8 percent, a considerably greater drop than the overall fall in employment in that period. This finding is consistent with the notion that some of the stagnant employment growth may be associated with rising health care costs, and ultimately with the country's distinct mode of financing health insurance. Reber and Tyson (2004) also find support for rising health insurance costs as a deterrent to employment growth. Furthermore, Gould (2004) and others continue to document the decline in employer-provided health coverage. The high cost of medical care may contribute to the tendency of firms to employ more temporary workers than full-time workers in the recovery.

4.4 Less Bang for the Fiscal Stimulus Buck?

A third possible factor is the nature of the fiscal stimulus, which gave the vast bulk of the tax cuts to wealthy people whose propensity to spend quickly is likely to be less than that of people in middle- and lower income groups. Between 2001 and 2004, the U.S. fiscal deficit rose 3.5 percentage points relative to potential GDP, from a surplus of 1.1 percent to a deficit of 2.4 percent (Table 4). This rise exceeds the increase in the deficit and the size of the stimulus in the 1990s, 1980s, and 1970s recoveries. Yet actual GDP grew just 8 percent between 2001 and 2003, despite the huge stimulus. This is a lower growth rate than the rate in the two previous recoveries, when the fiscal stimulus was weaker. We suspect that the larger stimulus had a smaller effect on GDP growth because the tax cuts were slanted to the extremely wealthy. Table 4 also shows that if current policies continue, the stimulus will rival the growth that occurred from 1982 to 1986. In addition, the table reports that the Congressional Budget Office's forecasted budget deficit as a share of potential GDP for 2005 is predicted to fall slightly, to 2.6 percent.

Furthermore, several forms of government spending that might be expected to have a more direct effect on employment fell relative to GDP: federal government consumption expenditures and gross investment, and state and local spending. Table 3 shows that as a share of GDP, expenditures and investment have fallen 0.4 percent from the first quarter of the recovery to 2004:3. The cumulative change in the fiscal stimulus tells the same story. State and local expenditures also decreased as a share of GDP, from 12.1 to 11.2 percent. This 0.9 percent drop exceeds the 0.4 percent decline during the 1990s recovery.

The increase in government spending that added to the fiscal deficit came by way of greater federal expenditures on national defense, which may have less of an impact on the labor market than do other forms of spending. As a share of GDP, expenditures on national defense increased from 4.0 to 4.5 percent during the current recovery, compared with a decline from 6.9 to 5.5 percent during the 1990s recovery. The combination of spending to finance the war on terror, which probably has a smaller job multiplier than other forms of public investment, and the drop in state and local expenditures arguably weakened fiscal policy's effect on job creation.

Table 4

Fiscal Stimulus as a Percentage of Potential GDP Was Larger in the Weak Jobs Recovery Than in the Two Preceding Recoveries

Standardized Budget Deficit or Surplus as a Share of Potential GDP

Recovery	Surplus or Deficit (-)
2001	1.1
2002	-1.1
2003	-2.7
2004	-2.4
2005	-2.6
2003-01	-3.8
2004-01	-3.5
2005-01	-3.7
1991	-2.5
1992	-2.9
1993	-2.9
1994	-2.1
1995	-2.0
1993-91	-0.4
1994-91	0.4
1995-91	0.5
1982	-1.1
1983	-3.0
1984	-3.6
1985	-4.3
1986	-4.8
1984-82	-2.5
1985-82	-3.2
1986-82	-3.7
1975	0.2
1976	-2.0
1977	-1.1
1978	-1.5
1979	-0.7
1977-75	-1.3
1978-75	-1.7
1979-75	-0.9
1970	0.2
1971	-0.9
1972	-1.7
1973	-1.6
1974	0.1
1972-70	-1.9
1973-70	-1.8
1974-70	-0.1

Note: The forecast for 2005 is from Congressional Budget Office, "Table 1: Measures of the Federal Budget Surplus or Deficit, 2000 to 2005, the Cyclically Adjusted and Standardized Budget Measures: Updated Estimates, September 2004, Section 2 of 3."

Analysts have proposed two other reasons for the weak jobs recovery. Although the data supporting the reasons seem ambiguous, we briefly discuss them.

4.5 Structural Change?

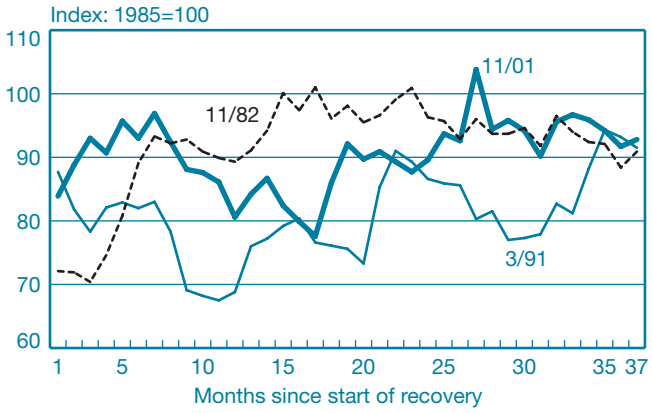
Groshen and Potter (2003) argue that the permanent relocation of workers from declining industries to growing ones has contributed to the jobless recovery. Their measure of structural change is the proportion of workers in industries that experience similar changes in recessions and booms. They find that by this definition, the share of total employment in industries undergoing structural change was 51 percent during the mid-1970s and 1980s recoveries and 57 percent during the 1990s recovery; it is 79 percent during the current recovery, arguably a reaction to the booming 1990s. Groshen, Potter, and Sela (2004) note further, though, that this division depends on the dating of the recovery. When employment turning points are used, the recession is deeper, longer, and more balanced between structural and cyclical flows. However, using a different measure—a cyclically adjusted variant of the Lillien measure of structural change (the variance of net employment growth by industry weighted by each industry's average share of employment)—Aaronson, Rissman, and Sullivan (2004a, 2004b) find no evidence that structural change has contributed to the jobless recovery.

4.6 Greater Uncertainty?

The growth of temporary employment in the 2001 recovery could reflect increased uncertainty about the post–9/11 economic future. To evaluate this hypothesis, we compare the path of the University of Michigan's consumer sentiment index in the current recovery with its path in the two previous recoveries (Chart 3). The chart shows that the level of consumer sentiment remains in the range of the two earlier recoveries. The current path does not look very different from that of the past, suggesting that greater uncertainty cannot explain employers' growing use of temporary workers.

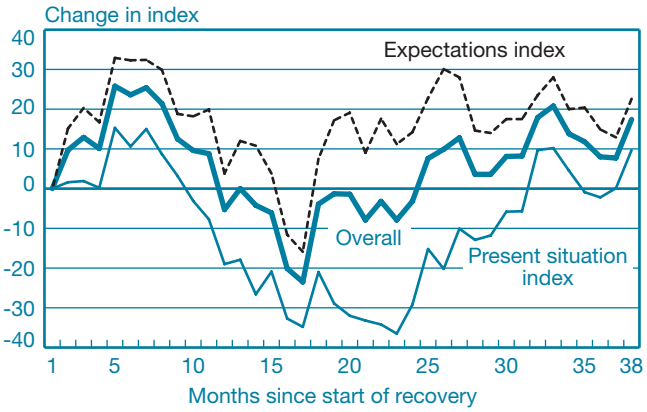
To explore the possibility that the consumer sentiment index is not accurately capturing the uncertainty, we compare the Michigan index with the Conference Board's consumer confidence index, another widely watched measure. The consumer confidence index does show more variability, but

Chart 3
Consumer Sentiment by Recovery



Source: Authors' calculations, from University of Michigan's consumer sentiment index.

Chart 4
Cumulative Change in Consumer Confidence by Components during the 2001 Recovery



Source: Authors' calculations, from Conference Board's consumer confidence index.

both indexes tell a similar story about views of the economy. We attribute the greater variation to each survey's sampling framework. The consumer sentiment index retains a portion of its sample from month to month, while the consumer confidence index is based on a new random sample each month, making month-to-month comparisons problematic.[12]

We also plot the components of the consumer confidence index: the present situation index and the expectations index (Chart 4). Throughout the recovery, the two indexes have moved together, with both indicating cumulative gains. The expectations index, which is probably a better measure of economic and geopolitical uncertainty, has shown cumulative gains since the nineteenth month. If firms are unwilling to expand employment because of greater consumer uncertainty, these data do not confirm the expected patterns.

5. The Challenge to Analysts and Policymakers

The U.S. jobless recovery challenges analysts to determine whether the weak jobs recovery represents a major shift in the link between the labor market and the economy over the business cycle—a new business cycle reality—or whether it merely represents an idiosyncratic break in historic patterns, possibly due to the peculiarities of the 1990s boom. Our analysis favors the first theory, that something fundamental underlies the jobless recovery. However, only a more complete accounting of the factors causing the recovery can resolve this issue.

The jobless recovery also poses a challenge to economic policy. As long as the United States makes full employment its main "welfare state" protection for workers, the country has to attain something akin to the late 1990s tightness in the labor market for economic growth to be shared among the entire population. Nothing short of that high rate of employment and low level of unemployment seems powerful enough to improve the employment and earnings opportunities for vulnerable groups. This challenge makes the jobless recovery particularly important to the nation's economic well-being and brand of capitalism.

Appendix

Comparison of Growth in State Total Nonfarm Employment by Recovery

Percent

	End Year: First Six Months of 2004					
	Benchmark: Start of Recovery			Benchmark: End of Recession		
State	2002-04	1992-94	1983-85	2001-04	1991-94	1982-85
AL	-0.3	5.0	7.4	-1.7	7.1	8.7
AK	1.8	4.9	7.6	3.8	6.8	15.1
CA	0.0	0.0	8.6	-1.0	-1.6	9.8
CO	-1.7	9.9	6.9	-3.6	13.6	7.8
CT	-1.6	1.1	7.9	-2.6	-0.7	9.1
DE	0.3	4.3	10.2	-0.9	4.1	13.1
DC	0.6	-2.2	5.4	2.2	-2.7	5.2
GA	0.2	9.3	12.7	-1.7	11.2	16.7
HI	3.5	-1.2	4.8	3.8	-0.6	6.6
ID	1.8	10.7	5.7	1.9	15.8	7.6
IL	-1.7	4.4	5.0	-3.5	4.4	3.5
IN	0.1	6.2	6.9	-1.0	8.2	6.9
KS	-1.5	4.6	5.0	-2.4	6.4	5.0
KY	-0.1	5.9	8.5	-1.0	8.3	7.7
MD	1.0	3.1	9.5	1.3	2.2	12.7
MA	-2.9	3.9	8.7	-5.2	2.9	10.9
MN	0.2	5.7	8.6	-0.8	8.1	9.3
MS	-0.2	9.9	5.8	-0.8	12.6	6.1
MT	1.5	7.5	1.1	2.6	12.0	1.9
NE	-0.4	6.1	6.5	-1.2	7.7	6.7
NJ	0.7	2.7	7.9	0.3	1.5	10.4
NY	-0.5	1.3	6.0	-2.0	-0.7	6.8
NC	-0.4	7.5	9.6	-1.9	9.3	13.0
ND	0.9	6.4	0.5	0.9	8.9	0.9
OK	-2.2	4.7	-0.5	-3.5	5.7	-4.2
PR	1.9	4.7	7.3	1.0	7.2	7.9
RI	1.3	2.2	8.3	1.5	3.0	9.9
SC	1.3	5.2	9.0	0.3	6.2	11.5
SD	0.7	7.6	6.0	0.3	12.0	8.4
TX	-0.1	6.6	7.6	-1.1	8.0	6.4
UT	0.9	11.8	10.1	0.2	15.4	11.3
VT	0.2	5.1	8.9	-0.7	6.0	10.7
VA	2.0	5.4	11.2	1.3	6.2	14.4
VI	-3.6	-1.0	1.4	-6.3	1.4	1.1
WY	1.4	5.4	2.2	2.4	6.8	-4.9
AZ	2.9	11.5	18.6	2.9	13.5	24.2
AR	0.0	7.4	7.5	-0.7	10.4	10.7
FL	3.1	8.2	12.9	3.2	9.5	17.2
IA	0.2	5.4	3.2	-1.1	6.6	3.1
LA	0.6	5.8	1.7	-0.4	6.8	-1.0
ME	-0.3	3.8	7.8	-0.6	3.5	10.3
MI	-2.4	5.6	10.5	-4.1	6.6	11.5
MO	0.2	5.9	8.1	-1.0	7.0	9.0
NV	6.5	15.6	10.8	6.6	17.4	11.3
NH	0.1	7.4	13.8	-1.3	8.5	18.2
NM	2.4	9.3	8.5	3.6	12.3	9.9
HI	-1.5	4.7	6.8	-3.2	5.3	6.0
OR	0.2	7.5	6.6	-1.1	9.5	7.2
PA	-0.8	2.3	4.6	-1.5	2.1	3.3
TN	0.6	7.9	8.7	-0.3	11.0	9.7
WA	1.2	3.7	7.8	-0.4	5.8	9.0
WV	-1.4	5.4	2.6	-1.8	7.2	-1.7
WI	0.6	5.6	6.2	-0.5	8.2	6.2

Endnotes

1. Authors' tabulations, based on the Current Population Survey's household survey (<http://www.bls.gov>). From November 2001 to December 2004, the number employed increased by 3.9 million individuals. The average increase after thirty-eight months during the previous five recoveries was 7.0 million. In percentage terms, employment in the household survey grew 2.9 percent and 8.0 percent during the previous recoveries.

2. For a discussion of differences in changes in employment between the establishment and household surveys, see <http://www.bls.gov/cps/ces_cps_trends.pdf>.

3. The published monthly employment figures are from the establishment-level Current Employment Statistics (<http://www.bls.gov>). The monthly time series used in the analysis spans February 1961 to December 2004, covering five boom, bust, and recovery episodes. We use the NBER Business Cycle Dating Committee's designations to identify the episodes. The periods of expansion, recession, and recovery that are the length of the current recovery are as follows: March 1991-March 2001, March 2001-November 2001, and November 2001-November 2004; November 1982-July 1990, July 1990-March 1991, and March 1991-March 1994; March 1975-January 1980, January 1980-July 1980, and July 1980-July 1984; November 1970-November 1973, November 1973-March 1975, and March 1975-March 1978; and February 1961-December 1969 and December 1969-November 1970 (the thirty-sixth month after November 1970 is in the middle of the November 1973-March 1975 recession).

4. John Leland, "For Unemployed, Wait for New Work Grows Longer," *New York Times*, January 9, 2005.

5. Authors' tabulations, based on Current Employment Statistics. Figures for temporary-help services are only available starting with the 1990s recovery.

6. Examining the hypothesis that an excessive boom in the new economy underlies the recession, Federal Reserve Vice Chairman Roger Ferguson concludes, "detecting asset-price overvaluations and undervaluations is controversial in hindsight and arguably impossible in real time" (Ferguson 2005). He further concludes that asset-price-bust recessions, such as the March 2001-November 2001 period, are not necessarily any longer, deeper, and associated with a larger drop in output and investment than previous recessions.

7. Rodgers and Freeman (2005) go into greater depth documenting the fragility of the gains that these groups made during the 1990s.

8. The micro data used in this analysis are from the annual Merged Outgoing Rotation Group Files of the Current Population Survey (1979-2003). We use the data files and extraction software produced by Unicon Research Corporation. These files allow us to describe the experiences of specific demographic groups, such as new entrants. However, this gain in heterogeneity comes with costs. The files start in 1979. Furthermore, because of the annual nature of the data, we must approximate the recoveries, which are 1982-84, 1991-93, and 2001-03.

Our samples are made up of all men and women at least sixteen years of age, new entrants (zero to ten years of potential experience), and nonenrolled individuals ages sixteen to twenty-four. Potential experience is defined as: age – years of schooling – 5. In years where educational attainment is measured by degree, years of schooling is approximated by using Jaeger's (2003) imputation approach. Our nonenrolled youth sample is based on individuals who respond "no" to being enrolled in school (school enrollment question). The employment-population ratio is the ratio of the number of employed to the sum of the number looking for work, the number working, the number with a job but not working, and all those who are out of the labor force. The ratio is constructed from the MLR (Monthly Labor Force Recode) variable in the Unicon Research Corporation CPS Utilities files. In these files, the variable has been made consistent across time to reflect changes in the question. The natural logarithm of real hourly earnings is constructed from the respondent's pay status. If the respondent reported that he or she is paid on an hourly basis, we took the logarithm of their hourly wage. If the respondent reported that he or she is paid on a weekly basis, we took the logarithm of the ratio of their usual weekly earnings and usual hours worked per week. We deflated nominal hourly wages using the CPI-UX-1 deflator. It is important to note that these two labor market outcomes correspond to the respondent's labor market activity during the last week and hourly wages at his or her current job.

9. Authors' weighted tabulations, based on the U.S. Census Bureau's Data FERRET.

10. John C. McCarthy, "3.3 Million U.S. Services Jobs to Go Offshore," Forester Research Brief, November 11, 2002 (<http://www.forrester.com/ER/Research/Excerpt/0,1317,15900,00.html>) and "Offshoring: Where Have All the Jobs Gone?" Goldman Sachs Global Economic Research Report no. 03/38, September 2003.

11. "Current Government Data Provide Limited Insight into Offshoring of Services," U.S. Government Accounting Office, September 2004 (<http://www.gao.gov/new.items/d04932.pdf>).

12. The consumer confidence index is developed from a monthly survey of 5,000 households (<http://biz.yahoo.com/c/terms/conf.html>). The consumer sentiment index is constructed from the monthly Survey of Consumers. This survey is an ongoing, nationally representative survey based on approximately 500 telephone interviews with adult men and women living in households in the coterminous United States (forty-eight states plus the District of Columbia). Each month, an independent cross-section sample of households is drawn. The respondents chosen in this drawing are reinterviewed six months later, creating a rotating panel. The total monthly sample is typically 60 percent new respondents and 40 percent reinterviewees (<http://www.sca.isr.umich.edu/>).

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Lars Osberg

Commentary

Why have so few jobs been created in the United States in the past four years? As Richard B. Freeman and William M. Rodgers III document, this has been the weakest recovery from a U.S. recession in the past forty years—employment creation in the 2001-04 period has fallen short of job growth in the recovery phase of all of the last six U.S. recessions—by a substantial margin. The basic question the authors ask is: *why*?

For Americans, the answer is important because, as Freeman and Rodgers state: "As long as the United States makes full employment its main 'welfare state' protection for workers, the country has to attain something akin to the late 1990s tightness in the labor market for economic growth to be shared among the entire population." With a system of unemployment insurance that offers very low benefits compared with those of European nations and very limited access to social assistance, unemployed Americans face financial hardship much faster than the unemployed elsewhere—with the added burden that insurance for health care costs is often lost as a by-product of job loss. There is also the added wrinkle that the lifetime limit on social assistance benefits written into the Temporary Assistance for Needy Families reforms of 1996 was not generally a binding constraint until 2001—but it is now increasingly relevant to more people.

For the rest of the world, the answer is important because the United States seems to have already fired most of its available macroeconomic ammunition—in monetary, fiscal, and exchange rate policy—to disappointingly limited effect in terms of jobs. Starting in December 2000, the Federal Reserve cut the federal funds target rate from 6 percent to a forty-year low of 1 percent by mid-2003. Tax cuts, temporary investment incentives, and a rapid increase in government outlays shifted the structural fiscal balance by some 5 percentage points of GDP after 2001. Between 2001 and 2004, the U.S. dollar's real effective exchange rate depreciated approximately 25 percent. It is hard to imagine how macroeconomic stimulus could have been more stimulative—but job creation has lagged badly while the current account deficit has surged to just under 6 percent of GDP. Hence, when even the International Monetary Fund has gone public with its concerns about the mounting dangers to global financial stability if present trends are not reversed,[1] non-Americans have reason to be concerned about the types of pressures for policy changes that might emerge if job creation does not become much more robust relatively quickly.

For the United States in 2004, the question "Why has job creation in this recovery been so weak?" can therefore be decomposed into the twin questions "With this much policy stimulus, why hasn't there been more GDP growth?" and "Why has *some* recovery in GDP growth produced so *little* growth in employment?" Freeman and Rodgers focus mostly on the second question, although they do note that a budget deficit inflated by tax cuts tilted toward the very rich, with their relatively low marginal propensity to consume, will tend to provide an ineffective stimulus to aggregate demand. (One

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could add the fact that hi-tech foreign wars may be very expensive financially, but they provide little domestic U.S. job creation.) Freeman and Rodgers rightly reject the argument that rapid productivity growth should take the blame for slow job creation, emphasizing that productivity improvements increase the noninflationary growth rate of potential GDP. Their examination of measures of consumer confidence does not suggest that greater uncertainty has produced a change in consumer sentiment that has depressed consumer demand. Hence, because the authors do not argue for additional fiscal or monetary stimulus to aggregate demand, and they do not suggest any tendency to reduced labour supply, they must look primarily for "structural" explanations.

Much of the paper is therefore devoted to charting the distribution of employment and wage changes, by demographic group and education category, as a possible source of clues to an explanation for the current weakness of the GDP-jobs link. No "smoking gun" emerges. "Off-shoring" of jobs has been highly visible in the media, but this is really a long-run trend. In recent years, the impact may have shifted collar color somewhat, from blue to white; but to explain the *difference* in total job creation between 2001-04 and the recovery from previous recessions, one needs a very large acceleration from trend, for which there is little evidence.

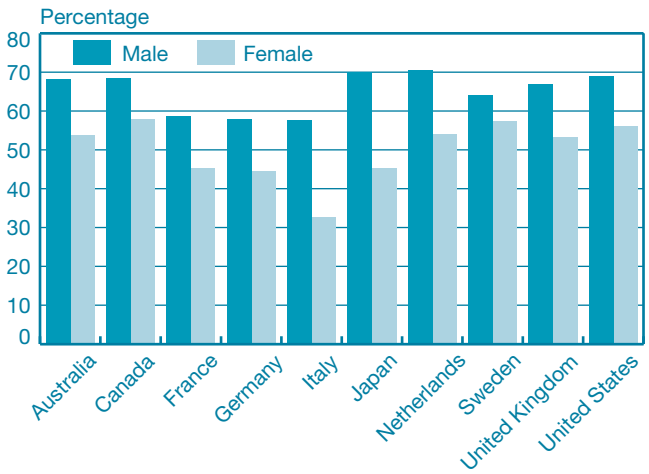
Similarly, by financing most medical costs through health insurance premiums as a fringe benefit of employment, the United States has chosen a system that creates a substantial fixed cost to firms in terms of new hires and thereby provides an incentive to employers to ask for longer weekly work hours, instead of hiring new workers, when product demand recovers. This has always been a U.S. problem—but there is no recent institutional change to explain why this recovery is different. Freeman and Rodgers suggest that rising health costs may have recently tipped the balance, and if so, this will imply greater labour market inflexibility—that is, of firms—in future years in the United States than in other Organisation for Economic Co-Operation and Development (OECD) nations. But this remains a conjecture.

A final possible explanation is offered by accelerating structural change. Some structural trends should have produced a faster rebound in jobs in this recession than in previous times—such as the much greater use of the Internet in job searches in recent years[2]—because faster job finding should have resulted in greater employment at any given time. However, the crucial characteristic distinguishing unemployment due to structural change from "cyclical" or "demand deficient" unemployment is the fact that "structural unemployment" occurs when workers are unable to fill *available* jobs because they lack the required skills or do not live where jobs are available. This implies that the number of vacancies is an upper bound to the extent of structural unemployment. Since there is little evidence for a recent increase in the number of unfilled vacancies in the United States, the case for a recent increase in structural unemployment *mismatch* seems somewhat dubious.

In addition, appealing to structural change to explain recent job-creation trends leads naturally to the question "What's *different* about U.S. structural change?" Other countries also have the Internet, advanced computer technologies, and other innovations, and a defining characteristic of "globalisation" is an acceleration of the rate of international diffusion of innovations. If structural change is causing anaemic job growth in the United States, one should see signs of similarly slow job creation elsewhere—but one does not. Between December 2000 and December 2004, total nonfarm employment in the United States barely moved—indeed, it fell by 0.08 percent, from 133,308,000 to 133,200,000.[3] By comparison, Canada, arguably the country most institutionally similar to the United States, saw a 7.3 percent increase in employment over the same period.[4]

Job creation in the United States now lags job creation in several other countries (see chart). By 2003, the employment-population ratio in the United States—particularly for men—was not much different than the ratio in many other OECD nations. There is more variation across countries in female than in male employment, and the combination of earlier retirement and higher unemployment has depressed the employment rates of French, German, and Italian men. However, Japan and the Netherlands had higher—and Canada and Australia had only marginally lower—male employment rates than the United States did in 2003.

2003 Civilian Employment-Population Ratios by Country



These other nations also have more social supports available for the jobless—in the form of income transfers, health care provision, and public services—than the United States does. The problem therefore is that a nation with an above-average dependency on healthy job growth is now generating only an average level of employment. One suspects that this is not going to be perceived as "good enough," and that it will not be long before a cruel choice will be made between better job creation and macroeconomic stability in government debt and inflation.

Endnotes

1. See International Monetary Fund (2004).

2. See Kuhn and Skuterud (2004).

3. See <ftp://ftp.bls.gov/pub/suppl/empsit.compaeu.txt>.

4. Employment rose from 14,974,500 in December 2000 to 16,098,800 in December 2004 (see Canism II Series V2064890).

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René Morissette and Anick Johnson

Are Good Jobs Disappearing in Canada?

1. Introduction

Concerns that international competition is driving jobs offshore are not new. In the early 1980s, it was argued that many manufacturing jobs in advanced economies were being lost to developing countries, leaving behind a service sector polarized among a set of high-wage "knowledge" jobs on the one hand and low-wage personal service jobs on the other (Bluestone and Harrison 1982). This phenomenon was referred to as deindustrialization.

Recently, a new version of the deindustrialization hypothesis has emerged. Some observers are suggesting that employers now use outsourcing abroad not only for manufacturing, but also for jobs in the service sector that have high-skill requirements (*BusinessWeek* 2003, 2004). The rise of information and communication technologies combined with the availability of relatively skilled workers in fast-growing countries would now allow firms to contract out "intelligent" jobs in sectors such as engineering and informatics. Countries such as China, India, and some in Eastern Europe would provide the skilled workforce required for these jobs, which generally pay high wages in countries in the Organisation for Economic Co-operation and Development.

These changes in the behaviour of firms have potentially important implications for the types of jobs available to Canadian workers. One may argue that unless jobs affected by the new (and old) forms of outsourcing are replaced elsewhere in the Canadian economy by others providing similar wages, the fraction of well-paid jobs in Canada should decline over time.

An alternative view is that the new forms of outsourcing outlined above are fairly recent and thus are unlikely to affect a substantial fraction of Canadian jobs. If so, one would expect to see little change in the fraction of well-paid jobs during the past few years.

Other factors may have altered the proportion of well-paid jobs in Canada. Growing competition may have induced some firms to cut their labour costs by reducing wages. The decline in union density observed over the past two decades (Akyeampong 2004) and the drop in the proportion of jobs coming from large firms (Statistics Canada forthcoming) may also have affected pay rates.[1] Each of the three factors above may have tended to reduce the proportion of well-paid jobs. In contrast, skill-biased technological changes may have tended to increase the proportion of well-paid jobs.

This study assesses what actually happened—that is, whether well-paid jobs have been disappearing in Canada in recent years.

Apart from the obvious implications it has for Canadians' living standards and for the ability of governments to collect personal income taxes and to finance social transfers, the analysis of trends in the relative importance of well-paid jobs is important for several reasons. Lack of well-paid jobs may restrict upward earnings mobility, increase families' difficulty

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moving out of poverty, alter young individuals' decisions regarding schooling, and restrict households' ability to accumulate savings for precautionary motives.

Until recently, lack of comparable data on hourly wages precluded such analysis in Canada. As is well known, the Canadian census and the Survey of Consumer Finances (SCF) asked individuals how many hours per week they had worked during the month of the survey (usually in April or May) while collecting information about the total earnings they had received in the previous year *from one or several jobs*. As a result, the census and SCF could not be used to measure the hourly wage rates received by individuals *in a given job*. With the redesign of the Labour Force Survey (LFS), consistent data on hourly wages at the job level are now available going back to 1997.

In this paper, we take advantage of this fact and examine how the fraction of jobs falling into certain wage categories has evolved during the 1997-2004 period. Furthermore, we assemble data from several household surveys that contain hourly wage data at the job level and that have been conducted since 1981. While these surveys do not necessarily provide a consistent time series of hourly wages—changes in wages that are obtained using these surveys may reflect real changes in pay rates as well as spurious changes resulting from the use of intrinsically distinct surveys—they allow us to analyze how *relative* wages of specific subgroups have evolved over the past two decades. For instance, they allow us to assess whether wages of newly hired employees have fallen relative to those of their counterparts who have greater seniority, a pattern that could signal important changes in the employer-employee relationship.

Assessing whether well-paid jobs are disappearing in Canada also implies studying the evolution of nonwage benefits over time. To do so, we use data from the Longitudinal Administrative Databank and the Pension Plans in Canada Database of Statistics Canada to examine how workers' pension coverage—the most important of all nonwage benefits—has evolved over the past two decades.

In response to the growing competition they face within industries and from abroad, Canadian employers may seek greater flexibility in various ways. First, they may alter their wage offers for newly hired employees, a scenario we can investigate using the aforementioned surveys. Second, they may rely heavily on temporary jobs when hiring these new employees. To quantify the extent to which they have done so since the late 1980s, we combine the General Social Surveys (GSS) of 1989 and 1994 with the redesigned LFS. This allows us to document the evolution of the relative importance of temporary jobs among new employees during the 1989-2004 period.

It is important to emphasize that our main interest in this paper is to study the evolution of the relative importance of jobs that pay fairly well and of those that pay little *in real terms*, *not in relative terms*. Hence, our goal is *not* to analyze the evolution of hourly wage inequality.

Our main findings can be summarized as follows. First, we find little evidence that the relative importance of well-paid jobs—however defined—has fallen over the past two decades or since the second half of the 1990s. Second, we find little evidence that the relative importance of low-paid jobs—those paying less than $10.00 per hour—has risen during these two periods. Third, we show, along with numerous other studies, that the wage gap between workers under age thirty-five and their older counterparts has risen substantially over the past two decades, but the wage gap between university graduates and other workers has shown little change. Fourth—and more important—we demonstrate that, *within* age groups, wages of newly hired male and female employees—those with *two years* of seniority or less—have fallen considerably relative to those of others. Fifth, in the private sector, the fraction of new workers employed in temporary jobs has risen substantially, increasing from 11 percent in 1989 to 21 percent in 2004. Among employees with *one year* of seniority or less, the incidence of temporary work rose from 14 percent in 1989 to 25 percent in 2004. Sixth, pension coverage has fallen among males of all ages and among females under age forty-five. Taken together, these last three findings suggest that Canadian firms (existing or newly born) have responded to growing competition within industries and from abroad in at least three ways: by reducing their wage offers for new employees, by offering temporary jobs to a growing fraction of these employees, and by reducing their propensity to offer defined-benefit pension plans.

2. Data

To study the evolution of the relative importance of low-paid jobs and well-paid jobs, we assemble data from a wide variety of household surveys: the Survey of Work History of 1981 (SWH), the Survey of Union Membership of 1984 (SUM), the Labour Market Activity Surveys of 1986-1990 (LMAS), and the Labour Force Surveys of 1997-2004. All of these surveys cover the same population, are based on the Labour Force Survey sample design, and contain information on hourly wages received in the main job held by paid workers.[2]

In all of these surveys, the information on hourly wages is obtained by dividing the job-specific earnings reported by respondents for a given time interval (for example, one week,

one month, one year) by the number of hours worked during this time interval. The question asked to obtain information about respondents' earnings refers to the "usual wage or salary before taxes and other deductions." However, as Appendix A shows, some surveys use different earnings concepts or different hours concepts. For instance, the Labour Force Survey explicitly includes tips and commissions in the calculation of earnings and explicitly excludes overtime in the calculation of work-hours. In contrast, all surveys prior to 1987 make no explicit reference to tips and commissions when calculating earnings and make no explicit reference to overtime in the calculation of work-hours.

Combined with the fact that these surveys differ in terms of the length of their questionnaires, their structures (LFS is a cross-sectional survey, LMAS is a longitudinal survey that yields, among other things, cross-sectional data), and the procedures used to impute wages and detect outliers, these differences probably explain why Canadian labour economists have refrained so far from combining them to produce a time series of hourly wages in Canada.[3] While a few studies have combined SWH and LMAS to analyze trends in wage inequality (Doiron and Barrett 1996, Dinardo and Lemieux 1997, and Morissette, Myles, and Picot 1994), none has combined them to assess trends in wage levels.[4]

Since it is unclear whether trends in wage levels obtained from all of the aforementioned surveys are unbiased, we refrain from making definitive statements regarding the evolution of low-paid, middle-paid, and well-paid jobs over the 1981-2004 period. When assessing whether well-paid jobs are disappearing in Canada, we focus our attention on recent trends, that is, on changes in the fraction of jobs falling in certain (real) wage categories during the 1997-2004 period. We do so using the Labour Force Survey, which provides consistent hourly wage data at the job level since 1997.

We select two samples. The first consists of all individuals ages seventeen to sixty-four who are employed as paid workers in the main job they hold in May.[5] In order to be as inclusive as possible and provide measures of job quality for all Canadians involved in the labour market, this sample includes full-time students as well as other individuals. The second sample consists of individuals ages twenty-five to sixty-four and is aimed at measuring the evolution of wages for individuals who have completed their school-to-work transition. Since the Survey of Work History of 1981 contains no indicator for student status, this sample excludes individuals under age twenty-five in order to omit (most) full-time students. Depending on the year considered, the first sample includes between 34,000 and 52,000 observations while the second sample consists of 26,000 to 43,000 observations.

To examine the evolution of the relative importance of low-paid jobs and well-paid jobs, we classify jobs into eight categories: those paying less than $8.00 per hour (2001 dollars), $8.00 to $9.99, $10.00 to $14.99, $15.00 to $19.99, $20.00 to $24.99, $25.00 to $29.99, $30.00 to $34.99, and those paying $35.00 or more. If we assume 2,000 hours of work per year, the lower bound is associated with a job paying annual wages of (almost) $16,000, which is close to the low-income cutoff (before tax) for a single person living in an urban area consisting of either 30,000 to 99,999 residents ($16,048) or 100,000 to 499,999 residents ($16,160).[6] The upper bound implies a job paying at least $70,000 per year.

To assess the extent to which temporary jobs have become more frequent among newly hired employees, we combine the General Social Surveys of 1989 and 1994 with the redesigned Labour Force Survey. The target population for the 1989 GSS and the 1994 GSS consists of all persons ages fifteen and over living in the ten provinces, except persons residing full time in institutions. When combined with the LFS from 1997 to 2004, these two surveys allow us to study the evolution of the incidence of temporary jobs during the 1989-2004 period.

3. Hourly Wages, 1981-2004

We assemble all aforementioned surveys and show the evolution of median wages over the 1981-2004 period (Table 1). Even though they display some year-to-year variation, median wages have, in the aggregate, trended neither upward nor downward over the past two decades or in recent years. They have been stagnating for both samples. This constancy in overall median wages masks a small decline in men's wages and a sizable increase in women's wages, a pattern that is consistent with the narrowing of the male-female earnings gap documented by Baker et al. (1995).

How has the relative importance of low-paid and high-paid jobs evolved over the past two decades? For both samples, the various surveys suggest that very moderate changes took place between 1981 and 2004. In fact, a visual inspection of each of the wage categories allows us to detect only *two trends* over the past two decades. First, for both samples, the fraction of jobs paying $30.00 or more appears to have risen by 2 to 3 percentage points since the early or mid-1980s (Table 2). Second, during this period, the proportion of jobs paying less than $8.00 per hour seems to have dropped by 2 percentage points among individuals ages twenty-five to sixty-four.[7] These two patterns are confirmed by the kernel density estimates of (log) hourly wages for 1981 and 2004 (Charts 1 and 2).[8,9]

However, the kernel density functions for employees ages seventeen to sixty-four add some nuance to the numbers in Table 2: they suggest that the fraction of jobs paying between $6.00 (log wages = 1.79) and $10.00 (log wages = 2.30) per hour rose between 1981 and 2004 while the fraction of jobs paying less than $6.00 per hour fell. As a result, the fraction of jobs paying less than $10.00 per hour rose slightly during this period: it increased by about 1 percentage point.

When we restrict our attention to data from the Labour Force Survey, three trends emerge. For both samples, the fraction of jobs paying $20.00 to $24.99 fell by about 2 percentage points between 1997 and 2004. Meanwhile, the

Table 1
Median Hourly Wages

	Men and Women		Men		Women	
	Sample Size	Median Wage	Sample Size	Median Wage	Sample Size	Median Wage
Employees ages seventeen to sixty-four						
1981	34,392	15.16	19,881	17.29	14,511	12.85
1984	32,952	15.61	17,713	18.24	15,239	12.92
1986	36,237	14.90	19,840	17.85	16,397	12.77
1987	42,944	15.14	23,284	17.85	19,660	12.85
1988	35,796	15.44	19,426	17.98	16,370	13.25
1989	35,763	15.33	19,105	17.75	16,658	13.08
1990	35,300	15.25	18,770	17.77	16,530	13.10
1997	46,891	15.26	24,108	17.17	22,783	13.52
1998	47,592	15.39	24,499	17.15	23,093	13.55
1999	47,952	15.27	24,604	17.22	23,348	13.55
2000	48,318	15.38	24,887	17.43	23,431	13.67
2001	50,263	15.38	25,488	17.43	24,775	13.91
2002	51,045	15.52	25,764	17.39	25,281	13.69
2003	51,827	15.23	25,980	17.13	25,847	13.90
2004	51,162	15.33	25,448	16.92	25,714	13.93
1981 versus 2004	—	1.1%	—	-2.2%	—	8.5%
1997 versus 2004	—	0.4%	—	-1.5%	—	3.0%
Employees ages twenty-five to sixty-four						
1981	26,437	16.60	15,649	18.95	10,788	13.83
1984	25,597	17.06	14,065	20.05	11,532	14.13
1986	29,269	16.77	16,358	19.38	12,911	14.10
1987	34,811	17.04	19,135	19.64	15,676	14.28
1988	29,019	17.16	15,878	19.74	13,141	14.22
1989	29,300	16.79	15,752	19.51	13,548	14.18
1990	29,215	16.71	15,526	19.23	13,689	14.07
1997	39,705	16.71	20,430	18.83	19,275	14.87
1998	40,247	16.77	20,687	18.84	19,560	14.94
1999	40,519	16.85	20,761	18.96	19,758	14.79
2000	40,616	17.10	20,920	19.20	19,696	14.93
2001	41,950	17.00	21,279	19.23	20,671	15.00
2002	42,808	17.06	21,516	19.03	21,292	15.04
2003	43,297	17.08	21,656	18.94	21,641	15.18
2004	42,754	16.92	21,216	18.58	21,538	15.31
1981 versus 2004	—	1.9%	—	-2.0%	—	10.7%
1997 versus 2004	—	1.2%	—	-1.4%	—	2.9%

Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Note: Wages are in 2001 Canadian dollars.

Table 2

Percentage Distribution of Hourly Wages

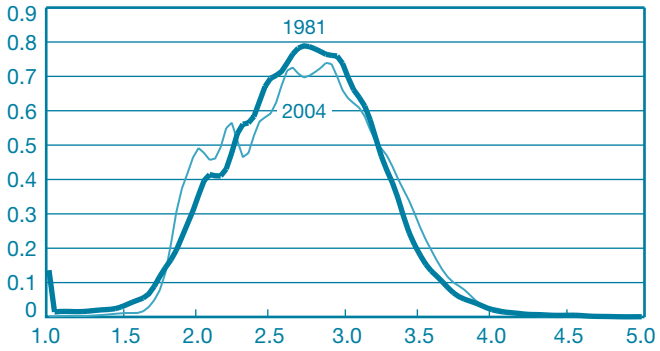
	Less Than $8.00	$8.00-$9.99	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00-$29.99	$30.00-$34.99	$35.00 or More
Employees ages seventeen to sixty-four								
1981	12.1	10.3	26.7	22.9	13.6	7.5	3.2	3.8
1984	12.0	11.0	24.2	21.8	15.9	8.1	3.9	3.2
1986	15.0	8.7	26.9	19.4	14.5	8.3	3.3	4.0
1987	14.0	10.4	25.0	21.1	14.6	7.9	3.3	3.7
1988	12.2	9.5	25.3	21.8	14.9	8.1	3.8	4.4
1989	13.7	9.4	25.4	21.8	14.0	7.9	3.7	4.1
1990	13.2	10.6	25.5	21.1	14.4	7.7	3.8	3.9
1997	12.4	11.2	24.3	21.7	15.1	7.5	4.2	3.7
1998	12.0	11.5	24.1	22.1	14.4	7.9	4.2	3.9
1999	12.7	10.0	25.7	20.3	14.7	8.6	4.0	4.1
2000	11.7	10.5	25.4	21.6	14.4	8.6	3.8	4.0
2001	10.6	9.6	26.1	21.4	14.1	9.0	4.5	4.7
2002	12.3	11.5	24.3	20.7	13.3	8.3	4.6	4.9
2003	11.9	11.9	24.5	21.3	12.9	8.6	4.5	4.5
2004	12.6	11.0	25.2	19.7	13.4	8.6	4.6	5.0
Change								
1986-2004	-2.4	2.3	-1.7	0.3	-1.2	0.3	1.3	1.0
1981-2004	0.5	0.7	-1.6	-3.1	-0.2	1.1	1.4	1.2
1997-98 versus 2003-04	0.0	0.1	0.6	-1.3	-1.6	0.9	0.4	0.9
Standard error	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2
Employees ages twenty-five to sixty-four								
1981	8.8	8.4	24.8	24.7	15.6	9.1	3.9	4.6
1984	6.9	8.0	23.4	24.0	18.9	10.0	4.9	4.0
1986	9.0	6.9	26.0	21.8	17.3	10.1	4.0	4.8
1987	8.4	8.2	24.2	23.8	17.3	9.6	4.1	4.5
1988	7.5	7.2	23.8	24.1	17.4	9.8	4.7	5.5
1989	8.2	7.3	24.9	24.1	16.4	9.6	4.6	5.0
1990	8.4	8.3	24.8	23.4	16.6	9.2	4.5	4.7
1997	7.0	8.7	24.3	24.3	17.5	8.9	5.0	4.4
1998	6.6	9.2	23.9	24.7	16.7	9.3	5.0	4.6
1999	7.0	8.0	25.3	22.6	17.1	10.2	4.8	4.8
2000	6.4	8.3	25.0	24.1	16.8	10.2	4.5	4.8
2001	5.7	7.3	25.2	23.7	16.4	10.7	5.4	5.6
2002	6.8	9.4	24.1	23.1	15.5	9.8	5.5	5.8
2003	6.5	9.4	24.4	23.9	15.1	10.1	5.4	5.3
2004	6.9	8.8	25.1	22.2	15.6	10.2	5.5	5.9
Change								
1986-2004	-2.2	1.9	-1.0	0.4	-1.7	0.1	1.5	1.1
1981-2004	-2.0	0.4	0.2	-2.6	0.0	1.0	1.6	1.3
1997-98 versus 2003-04	-0.1	0.1	0.6	-1.5	-1.8	1.0	0.5	1.1
Standard error	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2

Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Note: Wages are in 2001 Canadian dollars.

Chart 1

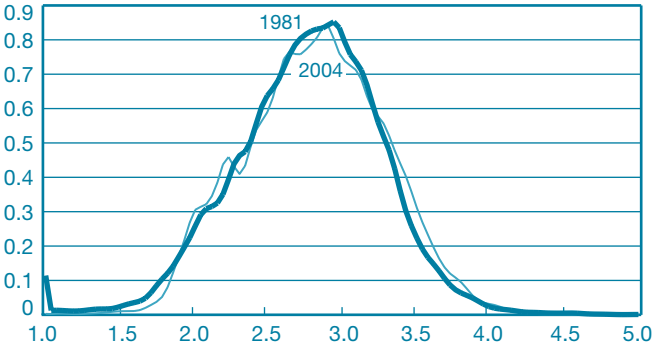
Density of Log Hourly Wages of Employees Ages Seventeen to Sixty-Four, 1981 and 2004



Source: Statistics Canada, Survey of Work History of 1981, Labour Force Survey of 2004.

Chart 2

Density of Log Hourly Wages of Employees Ages Twenty-Five to Sixty-Four, 1981 and 2004



Source: Statistics Canada, Survey of Work History of 1981, Labour Force Survey of 2004.

proportion of jobs paying $25.00 to $29.99 rose by about 1 percentage point while the percentage of jobs offering $35.00 or more grew by about 1.5 percentage points.[10,11]

Given the recent interest in low-paid employment (for example, Maxwell [2002]), it is worth checking whether a growing fraction of employees hold jobs with relatively low pay rates. There is no evidence that the relative importance of low-paid jobs—those paying less than $10 per hour—has increased in recent years. Sixteen percent of individuals ages twenty-five to sixty-four held these jobs in 1997 as well as in 2004. The corresponding number for individuals ages seventeen to sixty-four is 24 percent.[12]

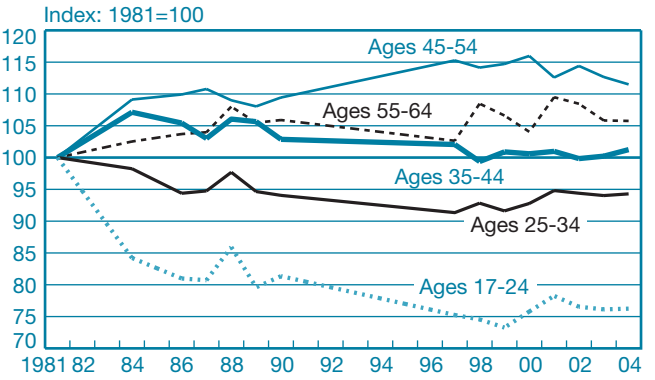
In sum, consistent hourly wage data from the Labour Force Survey do not support the contention that well-paid jobs have been disappearing in Canada since the late 1990s. At the aggregate level, most of the changes observed in recent years have taken place in the top third of the wage distribution. Specifically, jobs paying $20.00 to $24.99 per hour have become less important while those paying $25.00 or more have seen their relative importance rise.[13]

Of course, the fact that the relative importance of low-paid and well-paid jobs did not vary much over the past two decades does not imply that the earnings structure has remained unchanged. As numerous studies have shown (such as Morissette, Myles, and Picot [1994] and Beach and Slotsve [1996]), earnings of young workers have dropped substantially relative to those of older workers during the 1980s, a pattern clearly reproduced in the hourly wage data shown in Chart 3. As a result, the percentage of men and women under age thirty-five who are employed in low-paid jobs—those paying less than $10.00 per hour—has grown while the percentage of men and women ages thirty-five and over who are employed in jobs paying $25.00 per hour or more has also increased (Chart 4).

Given that the percentage of young males employed in jobs paying less than $10.00 per hour has risen, the fact that the incidence of low-paid jobs has changed little over the past two decades may appear puzzling. This apparent paradox can be resolved simply. The percentage of low-paid jobs has changed little over the past two decades because groups that have experienced growing risks of being in low-paid jobs have seen their relative importance in the workforce drop while those who have seen their chances of being in low-paid jobs decrease have become relatively more important. For instance, while the

Chart 3

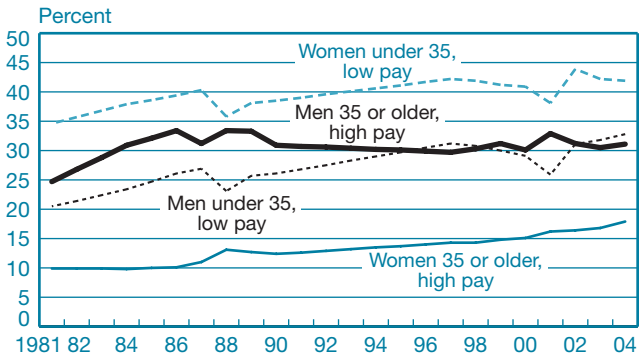
Median Hourly Wages by Age, 1981-2004



Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Chart 4

Employees in Low-Paying and High-Paying Jobs, 1981-2004



Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

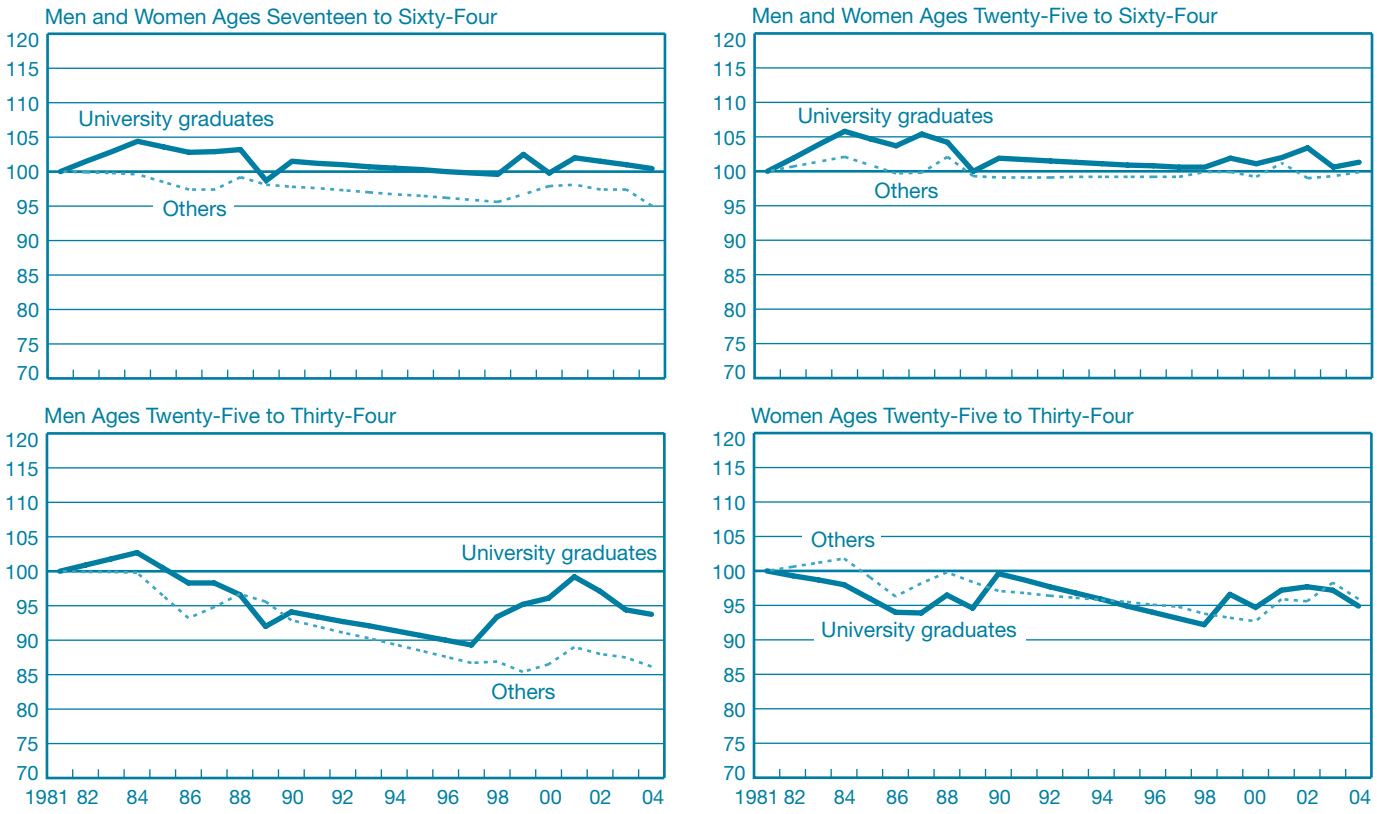
incidence of low pay among males ages seventeen to twenty-four has increased from 48 percent in 1986 to 60 percent in 2004, this group accounted for only 8 percent of all employees in 2004, down from 10 percent in 1986 (Appendix C). Conversely, while the incidence of low pay among women ages thirty-five and over has decreased between 1986 and 2004, this group accounted for a larger share of the employed population in 2004 than it did in 1986. As a result, the percentage of jobs paying less than $10.00 per hour has remained virtually constant at 24 percent between 1986 and 2004.

While median hourly wages of various age groups have changed substantially over the past two decades, median hourly wages of university graduates and of nonuniversity graduates have evolved in a similar fashion between 1981 and 1997.[14] This pattern is observed both in the aggregate (Chart 5, top panels) and for men and women of various ages (Chart 5, bottom panels; Chart 6).[15] During the 1981-2004 period, the

Chart 5

Median Hourly Wages of University Graduates and Other Employees, 1981-2004

Index: 1981=100

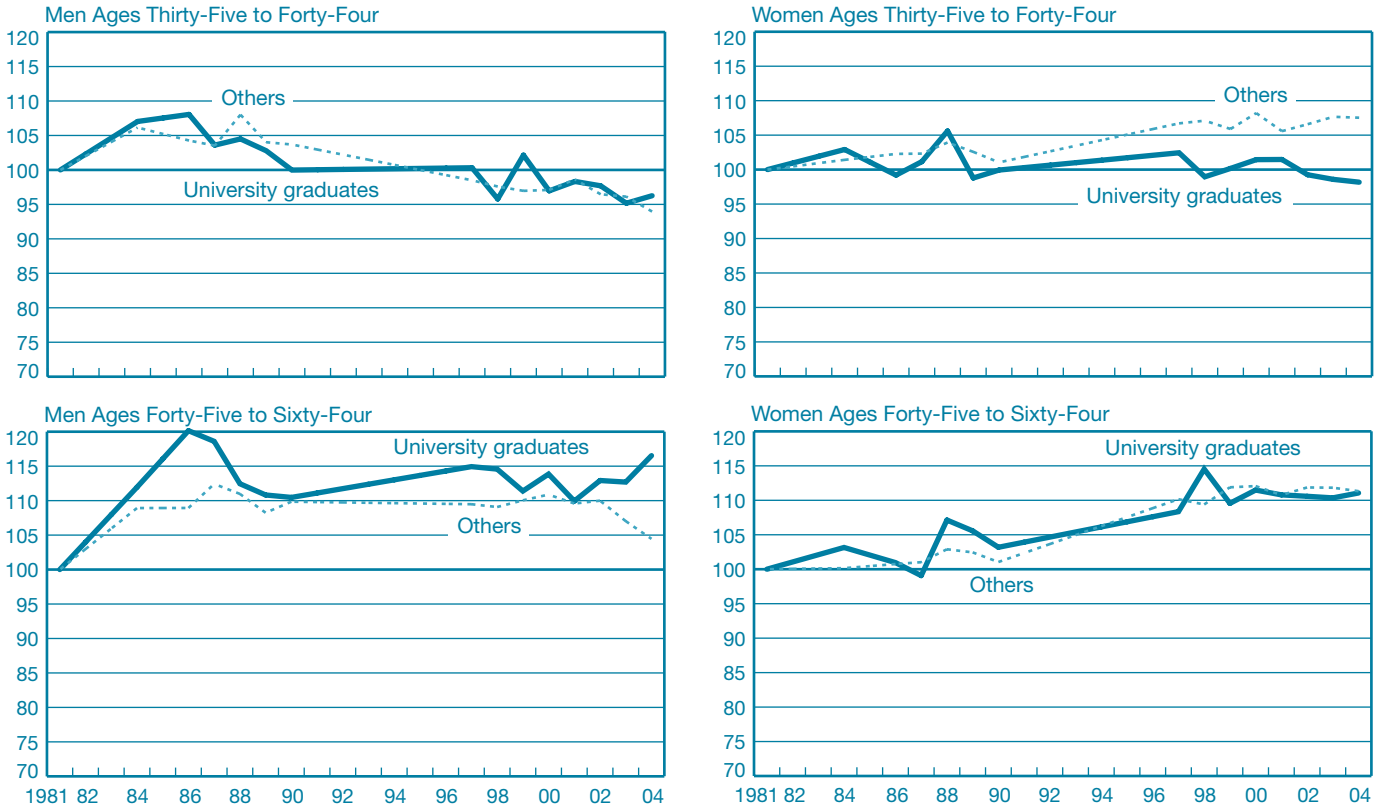


Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Chart 6

Median Hourly Wages of University Graduates and Other Employees, 1981-2004

Index: 1981=100



Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

wage gap between university graduates and nonuniversity graduates appears to have widened only for males ages twenty-five to thirty-four and for males ages forty-five to sixty-four (lower left panels of Charts 5 and 6). Furthermore, it did so only after 1997.[16]

4. Trends by Industry, 1997-2004

While there is no evidence that well-paid jobs have, in the aggregate, disappeared since 1997, they may well have been disappearing in some industries. For instance, growing competition within industries and from abroad may have led some manufacturing firms to reduce wages. Other businesses operating in highly skilled services such as engineering and informatics may have done the same. We assess whether this is the case in Tables 3-6. First, we show indexed median hourly wages—that is, median wages set to 100 in 1997—in six major industrial groups.[17] We then examine potential changes in the wage distribution within these industries.

For both samples, median hourly wages remained virtually unchanged in manufacturing between 1997 and 2003. They varied by less than 1 percentage point on a year-to-year basis but displayed no specific trend during this period (Table 3). They dropped slightly between 2003 and 2004. In contrast, median hourly wages in highly skilled services *rose* by 3 to 4 percentage points between 1997 and 2004. Hence, trends in median wages provide little evidence that the relative importance of well-paid jobs has shrunk in these two sectors since the late 1990s.

Table 4 confirms this view. Between 1997-98 and 2003-04, the fraction of manufacturing jobs paying $20.00 to $24.99 per hour fell by 4 percentage points but the fraction paying $25.00

Table 3

Indexed Median Hourly Wages by Industry

Index: 1997=100

	1997	1998	1999	2000	2001	2002	2003	2004
Employees ages seventeen to sixty-four								
Industry								
Primary industries and construction	100.0	99.1	102.9	103.7	104.0	106.0	103.8	102.0
Manufacturing	100.0	99.1	99.8	101.1	100.4	99.6	99.7	98.7
Highly skilled services	100.0	100.1	100.9	103.8	104.8	102.5	101.0	102.9
Low-skilled services	100.0	101.1	98.2	101.2	100.3	101.9	99.9	98.1
Wholesale trade and other services	100.0	98.6	100.6	101.6	105.6	103.3	104.6	103.7
Public services	100.0	97.8	99.9	97.8	97.7	101.0	98.2	99.7
Employees ages twenty-five to sixty-four								
Industry								
Primary industries and construction	100.0	97.4	100.8	100.1	100.6	100.5	97.8	96.4
Manufacturing	100.0	99.6	99.6	101.1	99.2	99.3	99.4	97.0
Highly skilled services	100.0	102.1	103.8	104.9	106.4	104.1	103.8	104.3
Low-skilled services	100.0	100.6	97.4	100.5	101.7	101.0	101.2	100.5
Wholesale trade and other services	100.0	96.5	98.0	101.8	104.4	105.0	105.4	104.3
Public services	100.0	98.2	98.4	96.9	97.8	100.7	98.0	98.6

Source: Statistics Canada, Labour Force Survey.

Table 4

Percentage Distribution of Hourly Wages in Manufacturing and Highly Skilled Services

	Hourly Wages of Employees Ages Seventeen to Sixty-Four					Hourly Wages of Employees Ages Twenty-Five to Sixty-Four				
	Less Than $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00 or More	Less Than $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00 or More
Manufacturing										
1997	16.1	25.9	24.6	19.4	13.9	12.7	24.5	26.2	21.1	15.6
1998	17.4	24.5	23.8	18.3	16.0	14.0	23.1	25.1	20.0	17.9
1999	16.3	27.2	22.5	18.1	16.0	13.4	25.1	23.5	19.9	18.1
2000	14.3	27.3	24.2	18.2	15.9	11.5	25.0	25.3	20.1	18.1
2001	12.6	28.8	24.2	16.0	18.6	10.4	26.2	25.3	17.2	20.8
2002	16.6	26.9	23.8	15.6	17.1	13.6	25.2	25.1	17.0	19.1
2003	14.9	28.7	24.5	14.8	17.1	12.0	27.6	25.5	16.1	18.9
2004	15.9	29.0	21.7	15.2	18.2	12.7	27.9	22.7	16.5	20.3
1997-98 versus 2003-04	-1.4	3.7	-1.1	-3.9	2.7	-1.1	3.9	-1.5	-4.3	2.8
Standard error	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6
Highly skilled services										
1997	17.3	27.4	24.0	15.2	16.2	12.8	26.0	25.8	16.9	18.6
1998	17.1	26.3	24.6	15.0	17.0	12.5	25.0	26.4	16.8	19.4
1999	15.2	27.6	23.1	15.3	18.8	10.7	26.1	24.9	16.9	21.4
2000	15.1	26.6	24.4	15.0	18.9	10.8	24.8	25.9	16.9	21.6
2001	12.8	28.3	23.0	15.6	20.2	9.0	26.2	24.5	17.4	22.9
2002	16.8	26.6	23.1	13.6	19.9	12.0	25.3	24.8	15.3	22.7
2003	17.0	26.1	24.2	13.7	19.0	12.3	24.6	26.1	15.3	21.7
2004	16.6	27.0	22.1	15.0	19.3	11.8	25.7	24.0	16.8	21.8
1997-98 versus 2003-04	-0.4	-0.3	-1.1	-0.7	2.5	-0.6	-0.3	-1.1	-0.8	2.8
Standard error	0.5	0.6	0.6	0.5	0.6	0.5	0.6	0.6	0.6	0.6

Source: Statistics Canada, Labour Force Survey.

Note: Wages are in 2001 Canadian dollars.

or more rose by 3 percentage points. In highly skilled services, the relative importance of jobs paying $25.00 or more rose by roughly 3 percentage points.

In both of these sectors, the relative importance of jobs paying less than $10.00 per hour did not increase. However, the fraction of manufacturing jobs paying between $10.00 and $14.99 rose by about 4 percentage points. Hence, the growing fraction of manufacturing jobs paying either $10.00 to $14.99 or $25.00 or more suggests that the relative importance of jobs with relatively high pay and relatively low pay may be increasing in manufacturing.

While workers employed in manufacturing and highly skilled services do not appear to have suffered widespread declines in pay rates, those employed in low-skilled services—an industry with low union density—may have done so. The evidence supporting this conjecture is mixed. One reason is that among employees ages twenty-five to sixty-four, median wages in this sector were almost identical in 1997 and 2004 (Table 3). Second, among individuals ages seventeen to sixty-four, median wages were fairly similar in 1997 and 2003 before dropping by 2 percentage points between 2003 and 2004. In fact, the evidence suggests that the relative importance of low-paid jobs has increased in this sector in recent years. Between 1997-98 and 2003-04, the proportion of jobs paying less than $10.00 per hour rose by about 3 percentage points (Table 5).

Table 5

Percentage Distribution of Hourly Wages in Low-Skilled Services, and Wholesale Trade and Other Services

	Hourly Wages of Employees Ages Seventeen to Sixty-Four					Hourly Wages of Employees Ages Twenty-Five to Sixty-Four				
	Less Than $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00 or More	Less Than $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00 or More
Low-skilled services										
1997	58.1	23.2	10.5	5.2	3.1	42.5	29.9	15.0	7.9	4.8
1998	55.8	23.7	11.9	5.2	3.4	40.4	29.4	17.3	7.8	5.1
1999	57.6	24.4	9.5	4.8	3.7	41.5	31.2	14.2	7.4	5.7
2000	57.2	24.0	10.5	5.1	3.2	41.0	30.9	15.4	7.8	5.0
2001	54.0	25.5	10.8	5.0	4.8	37.9	31.8	15.2	7.6	7.6
2002	58.9	24.0	9.6	4.1	3.4	43.6	31.2	13.8	6.3	5.3
2003	60.1	22.1	10.1	4.1	3.6	44.6	28.8	14.5	6.4	5.7
2004	59.9	22.6	9.6	4.1	3.8	43.9	29.4	14.4	6.4	5.9
1997-98 versus 2003-04	3.1	-1.1	-1.4	-1.1	0.5	2.8	-0.6	-1.7	-1.4	0.9
Standard error	0.7	0.6	0.4	0.3	0.3	0.9	0.8	0.6	0.5	0.4
Wholesale trade and other services										
1997	26.1	25.9	21.2	12.9	13.9	18.2	26.1	24.1	15.0	16.5
1998	25.6	27.2	21.1	13.2	12.9	18.2	27.2	23.8	15.5	15.4
1999	24.0	28.2	21.2	12.5	14.1	16.9	28.0	23.6	14.7	16.9
2000	23.6	27.7	21.6	12.1	15.0	16.5	27.1	24.4	14.1	17.8
2001	19.7	26.5	23.4	13.7	16.8	13.0	25.6	25.7	15.8	20.0
2002	23.7	25.7	20.8	13.7	16.2	16.8	24.4	23.5	16.1	19.2
2003	24.4	24.5	21.8	11.9	17.5	16.7	23.9	24.6	13.9	20.8
2004	24.9	24.6	19.6	12.9	18.0	17.0	24.0	22.4	15.2	21.5
1997-98 versus 2003-04	-1.2	-2.0	-0.5	-0.6	4.3	-1.4	-2.7	-0.4	-0.7	5.2
Standard error	0.8	0.7	0.8	0.6	0.7	0.7	0.8	0.8	0.7	0.8

Source: Statistics Canada, Labour Force Survey.

Note: Wages are in 2001 Canadian dollars.

Pay rates did not deteriorate in wholesale trade and other services either. In this sector, the fraction of jobs paying less than $20.00 fell by about 4 percentage points. In contrast, the fraction of jobs paying $25.00 or more rose by at least 4 percentage points.

In primary industries and construction, the relative importance of jobs paying less than $10.00 per hour did not increase (Table 6). For both samples, the fraction of jobs paying $20.00 to $24.99 appears to have fallen slightly, but the fraction of jobs paying $25.00 or more appears to have increased by 2 or 3 percentage points.

Taken together, these findings confirm that the Canadian economy has not witnessed a deterioration in the relative importance of well-paid jobs since 1997. Likewise, there has not been a *widespread* increase in the relative importance of low-paid jobs since then. Jobs paying less than $10.00 per hour have become more important only in low-skilled services.

5. Wages of Newly Hired Employees

While the analysis of the overall distribution of real wages provides useful information about the quality of the *stock* of jobs held by Canadian employees at a given point in time, it is not best suited for detecting changes in the wages firms offer

Table 6

Percentage Distribution of Hourly Wages in Primary Industries and Construction, and Public Services

	Hourly Wages of Employees Ages Seventeen to Sixty-Four					Hourly Wages of Employees Ages Twenty-Five to Sixty-Four				
	Less Than $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00 or More	Less Than $10.00	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00 or More
Primary industries and construction										
1997	15.2	22.5	23.0	20.1	19.2	9.3	20.4	24.5	23.3	22.6
1998	16.4	21.9	22.0	18.1	21.6	11.2	19.7	23.3	20.4	25.4
1999	15.1	24.4	18.8	19.1	22.8	10.3	20.7	19.9	22.2	26.9
2000	12.9	23.8	22.0	19.8	21.6	8.5	20.7	23.4	22.4	25.1
2001	11.4	24.4	21.4	18.8	24.1	7.6	20.3	22.5	21.4	28.2
2002	14.3	22.3	21.5	17.2	24.8	9.9	19.3	22.4	19.4	29.1
2003	15.0	22.4	22.7	17.7	22.2	10.1	19.8	24.3	19.7	26.0
2004	13.6	25.2	21.3	17.0	23.1	9.0	21.5	22.8	19.2	27.5
1997-98 versus 2003-04	-1.5	1.6	-0.5	-1.8	2.2	-0.7	0.6	-0.4	-2.4	2.8
Standard error	0.7	0.8	0.8	0.7	0.8	0.6	0.8	0.9	0.8	0.9
Public services										
1997	9.2	21.1	26.2	19.0	24.7	6.6	20.0	26.8	20.1	26.4
1998	9.2	21.4	27.1	17.7	24.7	6.2	20.5	27.9	18.8	26.6
1999	8.8	22.9	24.5	18.9	24.9	6.2	21.7	25.0	20.1	26.9
2000	9.4	23.5	25.9	17.5	23.7	6.8	22.3	26.6	18.6	25.6
2001	8.7	22.7	25.6	17.4	25.6	6.3	21.2	26.3	18.5	27.7
2002	9.9	20.6	25.0	17.5	26.9	7.4	19.6	25.7	18.5	28.8
2003	9.8	22.5	24.7	16.9	26.1	7.3	21.3	25.4	17.9	28.1
2004	9.3	23.0	23.8	16.9	26.9	7.1	21.8	24.2	17.9	28.9
1997-98 versus 2003-04	0.4	1.6	-2.3	-1.5	1.9	0.8	1.3	-2.6	-1.5	2.0
Standard error	0.3	0.5	0.5	0.5	0.5	0.3	0.5	0.6	0.5	0.6

Source: Statistics Canada, Labour Force Survey.

Note: Wages are in 2001 Canadian dollars.

workers when *new positions* become available (as a result of quits and/or firm expansion). Apart from the well-known changes in the age-wage structure shown above, the fact that the relative importance of low-paid jobs and well-paid jobs has changed little since the early 1980s or late 1990s could mask two offsetting trends: falling wages among newly hired employees and increasing wages among those with greater seniority.

Analyzing the evolution of wages of newly hired employees is important because changes in wage offers for new hires are an important channel through which Canadian firms may respond to growing competition within industries and from abroad. More intense competition on the product market could induce some companies to reduce their labour costs by cutting the wages offered to newly hired employees while maintaining or increasing the wages of workers with greater seniority. Such shifts may indicate fundamental changes in the employer-employee relationship that could affect the quality of Canadian jobs in the years ahead.

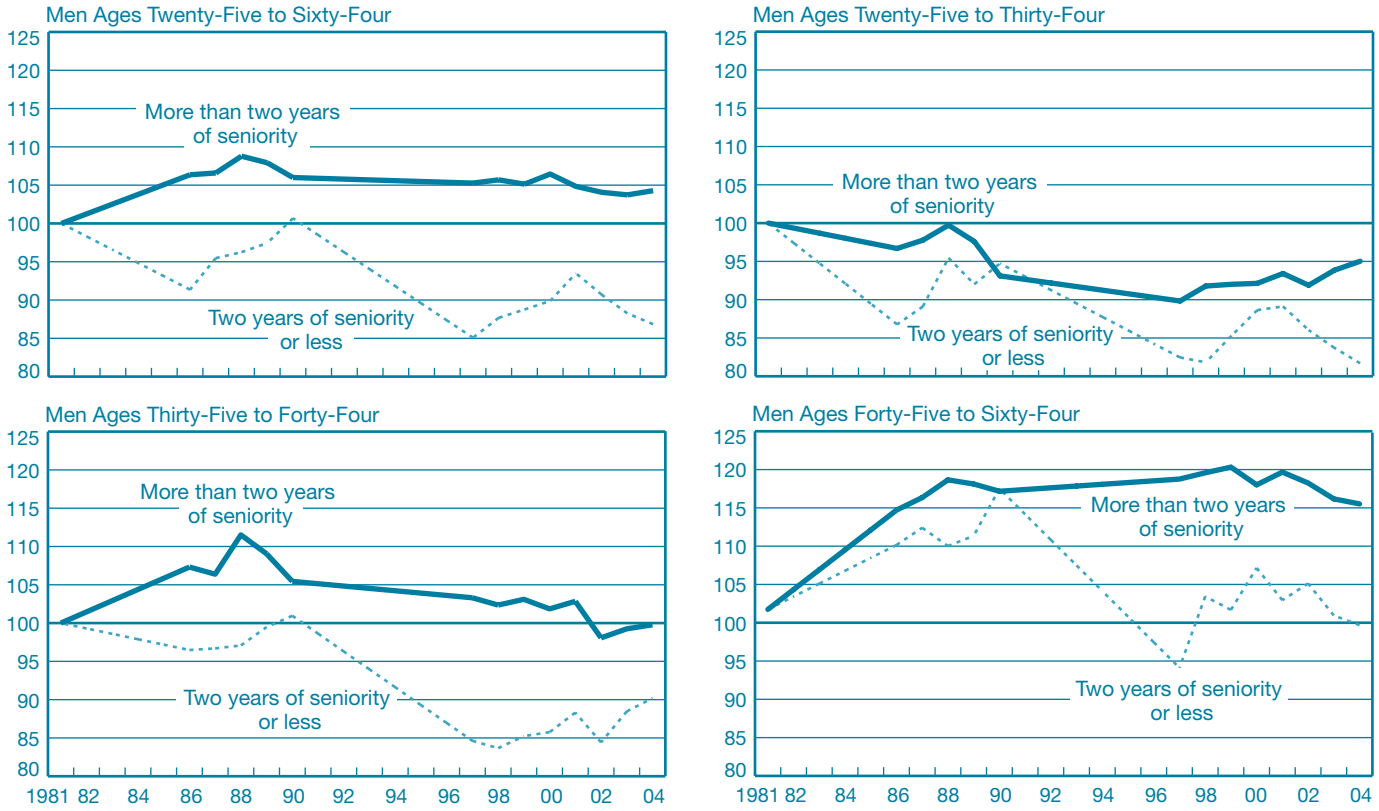
To assess whether wages of newly hired employees have evolved differently compared with those of their counterparts with greater seniority, we restrict our attention to employees ages twenty-five to sixty-four. We do so in order to exclude (most) individuals who are attending school full-time and thus have not completed their school-to-work transition.

Have wages of newly hired employees evolved differently compared with those of other workers during the 1981-2004 period? The answer is yes. When combined, all aforementioned surveys suggest that median hourly wages of male and female employees with two years of seniority or less fell substantially relative to those of other employees. Among men ages twenty-five to sixty-four, median wages of newly hired workers appear to have dropped 13 percent between 1981 and 2004. In contrast, median wages of their counterparts with more than two years of seniority were 4 percentage points higher in 2004 than their 1981 value (Chart 7, upper left panel). As a result, the wage gap between newly hired males and other males has risen substantially over the past two decades. The gap also widened

Chart 7

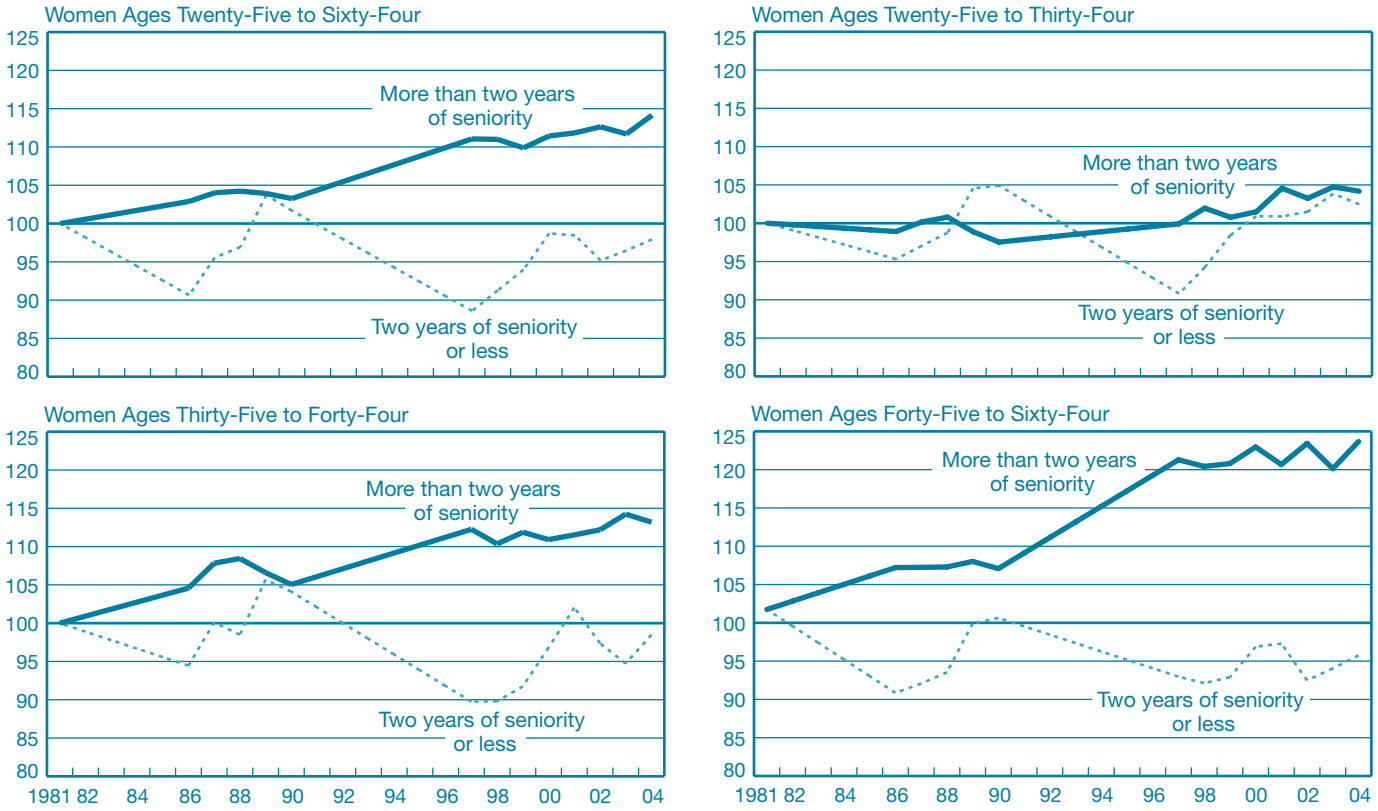
Median Hourly Wages by Seniority, 1981-2004

Index: 1981=100



Source: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Chart 8
Median Hourly Wages by Seniority, 1981-2004
Index: 1981=100



Source: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

among women, as median wages of newly hired females fell about 2 percent while those of other women rose 14 percent (Chart 8, upper left panel).

5.1 Robustness Checks

As we discussed, the surveys used to generate these trends (SWH, SUM, LMAS, and LFS) might generate spurious changes in wage levels. Yet they will produce unbiased trends in *relative* wages *if* these spurious changes—if they were to occur—affect in a similar manner newly hired employees and those with greater seniority. Admittedly, it is difficult to verify whether this condition is satisfied or not. However, we can gain greater confidence that the drop in relative wages of newly hired workers shown in the upper left panels of Charts 7 and 8 is not a statistical artifact by examining whether the widening gap between newly hired employees and other employees, observed from the aforementioned surveys, is also observed in other data sources.

To do so, we take advantage of the fact that the Survey of Consumer Finances contains, for the 1981-97 period, consistent microdata on workers' annual wages and salaries, weeks worked during the reference year, seniority with the employer, and hours worked during the month of the survey. Since SCF was conducted in April or May of each year, we can define newly hired employees as those who reported having sixteen to twenty-four months of seniority during the month they were interviewed. By requiring that workers have at least sixteen months of seniority at the time of the interview, we maximize the likelihood that the total annual wages and salaries they report for the reference year, that is, the year preceding the interview, are associated with a *single job*. For workers not involved in multiple job holding—that is, for more than 90 percent of all employees—this criterion rules out the possibility that the annual wages and salaries reported are the sum of wages received in *different jobs held one after the other*

during the reference year.[18] Requiring that these workers have at most twenty-four months of seniority allows us to measure earnings of individuals who have been hired fairly recently while ensuring a reasonable sample size. Following Johnson and Kuhn (2004), we construct hourly wages by dividing the annual wages and salaries received by workers in the previous year by the number of weeks they worked during the previous year times the number of hours they worked during the month of the survey.[19] We then compare trends in the resulting hourly wages with those derived from the special surveys used above.

Table 7 presents the results of this comparison. Both data sources indicate that median wages of newly hired men and women fell between 1981 and 1986.[20] However, the drop

TABLE 7

Median Hourly Wages of Employees, by Seniority—Various Data Sources

Index: 1981=100

	Data Source			
	Special Surveys		Survey of Consumer Finances	
	Sixteen to Twenty-Four Months of Seniority	Twenty-Five Months of Seniority or More	Sixteen to Twenty-Four Months of Seniority	Twenty-Five Months of Seniority or More
Men				
1981	100.0	100.0	100.0	100.0
1986	96.9	106.4	90.0	99.2
1987	97.7	106.6	89.8	100.2
1988	103.4	108.8	96.4	100.6
1989	98.0	107.9	95.6	98.8
1990	104.5	106.0	94.6	100.6
1997	88.2	105.3	86.0	96.5
1998	90.9	105.7	—	—
1999	91.6	105.1	—	—
2000	94.8	106.4	—	—
2001	97.0	104.8	—	—
2002	94.0	104.1	—	—
2003	93.1	103.7	—	—
2004	88.5	104.3	—	—
Minimum sample size	1,002	10,436	667	8,361
Change, 1981-97	-11.8	5.3	-14.0	-3.5
Women				
1981	100.0	100.0	100.0	100.0
1986	98.4	102.9	93.6	103.2
1987	100.1	104.0	98.7	105.4
1988	101.0	104.2	95.5	100.8
1989	103.1	103.9	104.1	103.7
1990	104.6	103.3	100.5	107.2
1997	96.8	111.0	103.0	109.2
1998	100.1	111.0	—	—
1999	98.4	109.9	—	—
2000	101.8	111.4	—	—
2001	102.0	111.8	—	—
2002	101.3	112.6	—	—
2003	98.5	111.7	—	—
2004	100.2	114.1	—	—
Minimum sample size	934	7,106	757	6,317
Change, 1981-97	-3.2	11.0	3.0	9.2

Source: For columns 1 and 2: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

observed is less pronounced using SWH-LMAS than using SCF. For instance, SWH-LMAS suggest that wages of newly hired men (women) fell by 3 (2) percentage points between these two years while SCF shows a drop of 10 (6) percentage points.

Trends for the second half of the 1980s are more similar, presumably because they involve only LMAS on the one hand and SCF on the other. Both LMAS and SCF suggest that median wages of newly hired men and women rose between 1986 and 1990. The increase amounts to 5 to 8 percentage points for men and 6 to 7 percentage points for women, and suggests that wages of new entrants are procyclical. Furthermore, both surveys show that median wages of other men stagnated during this period.

The possibility of spurious changes in wage levels is highlighted by comparing changes in median wages resulting from LMAS-LFS with those resulting from SCF. LMAS-LFS suggest that median wages of newly hired men fell by 16 percentage points between 1990 and 1997. In contrast, SCF suggests that the drop amounted to only 9 percentage points. Likewise, LMAS-LFS suggest that wages of newly hired women fell by 8 percentage points while SCF suggests that they rose slightly.

Clearly, the numbers above suggest that transitions from SWH to LMAS and those from LMAS to LFS might involve spurious changes in median wages. However, whether they are spurious or not, these changes often operate in opposite directions. When we use SCF as a benchmark, combining SWH and LMAS produces higher growth rates of wages for newly hired employees, but combining LMAS and LFS produces lower growth rates. For newly hired men, the two potential "biases" almost cancel out. As a result, whether we use SCF or combine SWH and LFS, we find that median wages of newly hired males fell between 12 and 14 percent between 1981 and 1997.

Most important, both SCF and the special surveys used in this study indicate that the earnings gap between newly hired employees and other employees widened between 1981 and 1997. The aforementioned special surveys suggest that median wages of newly hired males (females) grew 17 (14) percentage points less than those of other males (females) between these two years. The corresponding numbers from SCF are 11 and 6 percentage points for men and women, respectively. These similar qualitative patterns, observed in both data sources, provide strong evidence that the drop in relative wages of newly hired workers shown in the upper left panels of Charts 7 and 8 is *not* a statistical artifact.

5.2 Compositional Effects

As we discussed, earnings of young workers have dropped relative to those of their older counterparts during the 1980s. Since labour turnover is much higher among young workers than among older ones, the drop in relative wages of newly hired employees shown above could simply result from the widening of the age-earnings differential.

The data do not support this contention because relative wages of newly hired workers generally fell *within* age groups. For instance, whatever age group is considered, median wages of newly hired males grew at least 10 percentage points less than those of their counterparts with greater seniority during the 1981-2004 period (Chart 7, upper right panel and lower panels). Furthermore, median wages of newly hired women ages forty-five to sixty-four grew by at least 25 percentage points less than those of women with more than two years of seniority (Chart 8, lower right panel). The only exception is found among women ages twenty-five to thirty-four, where wages of new employees and those of other employees displayed very similar growth rates between 1981 and 2004 (Chart 8, upper right panel).

While newly hired workers, both young and older, generally suffered a decline in their wages relative to those of their counterparts with greater seniority, the same qualitative pattern was observed among university graduates and nonuniversity graduates (Chart 9). Furthermore, the drop in relative wages of new employees took place both in manufacturing and in other sectors (Chart 10). In fact, the data suggest that real wages of newly hired males employed in manufacturing fell 19 percent between 1981 and 2004.

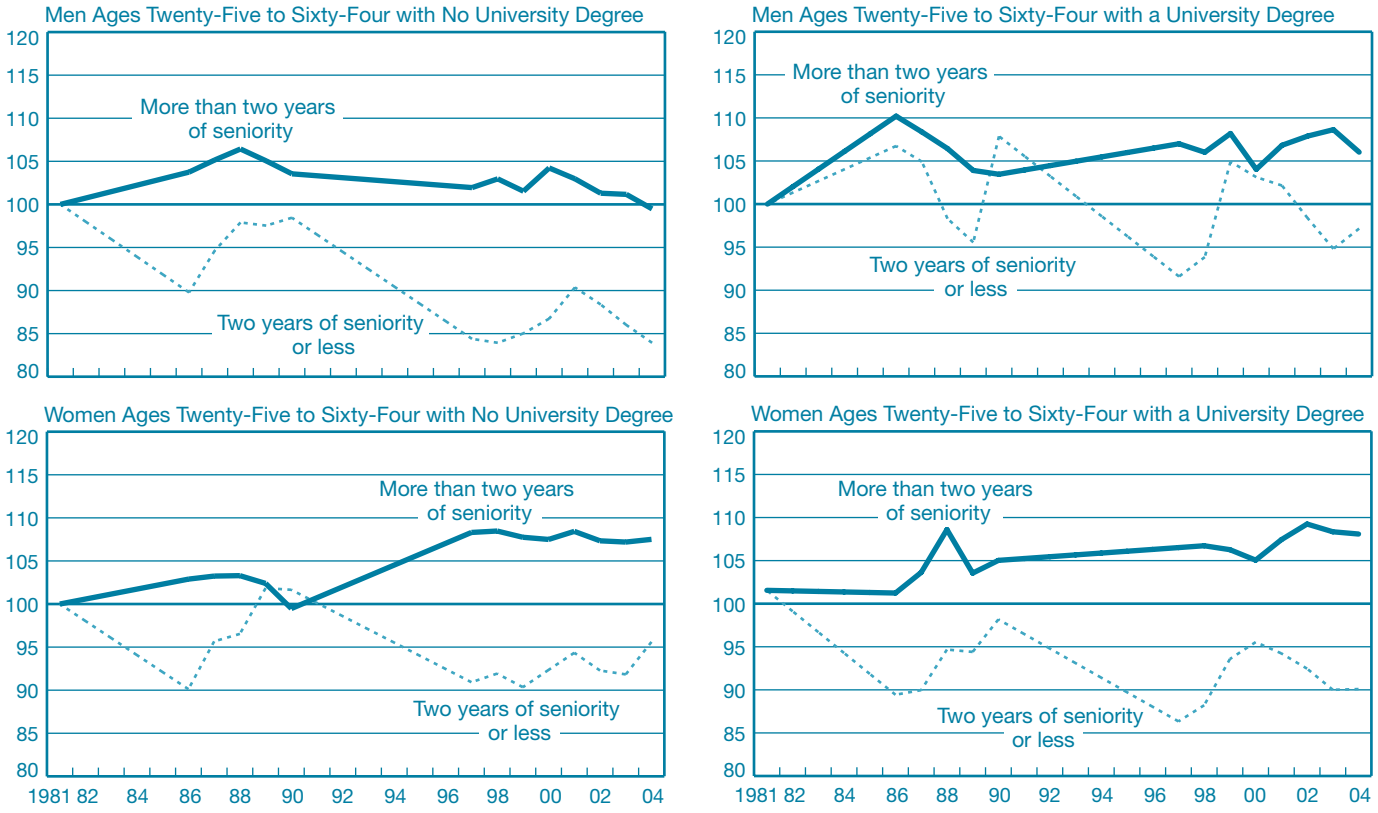
What factors underlie the drop in relative wages of newly hired employees? To answer this question, a natural avenue is to assess whether the composition of newly hired workers has changed in ways that tend to depress their wages relative to those of other workers. To examine whether or not this is the case, we present selected characteristics of newly hired employees and other employees in 1981 and 1998, the last year for which the Labour Force Survey has occupation (SOC 1980) and industry (SIC 1980) codes that are comparable to those in the Survey of Work History of 1981.

Indeed, compositional effects appear to have played a role. First, relative union coverage of newly hired employees fell drastically between 1981 and 1998. For instance, union density among newly hired men fell from 38 percent in 1981 to 18 percent in 1998 (Table 8). In contrast, union density among

Chart 9

Median Hourly Wages by Seniority, 1981-2004

Index: 1981=100



Source: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

other males dropped by only 6 percentage points (from 48 percent to 42 percent). Union coverage of newly hired women also fell substantially while that of other women rose slightly.[21]

Second, the proportion of full-time workers fell slightly among newly hired males while showing little change among others. Third, the proportion of women employed in public services fell by 9 percentage points among newly hired females but rose by 6 percentage points among other women. Meanwhile, median log wages of newly hired men and women grew 19 to 20 percentage points less than those of their counterparts with greater seniority.

To quantify the effect of these changes in the composition of newly hired workers and of other workers, we pool the data for 1981 and 1998 and estimate median log wage equations that include a new employee indicator (equal to 1 for an employee with one to twenty-four months of seniority, zero otherwise), a binary indicator for the year 1998 (1981 being the reference year), and an interaction term between the two indicators (In_81-98). This interaction term simply measures the extent to which (log) wages of newly hired employees have grown less than those of other employees between 1981 and 1998. We also include, apart from these variables, controls for age (four categories: twenty-five to thirty-four, thirty-five to forty-four, forty-five to fifty-four, and fifty-five to sixty-four), education (university graduate, nonuniversity graduate), union status, part-time status, industry (eight major industrial groups), and occupation (eight major occupational groups).[22] These variables represent the full set of controls.

We also estimate models that contain—apart from the new employee indicator, the binary indicator for the year 1998, and the variable In_81-98—a limited set of controls, X. One group of models attempts to control only for the influence of factors related to labour supply and thus includes only age and

Chart 10

Median Hourly Wages by Seniority, 1981-2004

Index: 1981=100

Source: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

education in X. The other group of models attempts to control for other influences (for example, variables related to labour demand and institutions such as unions) and includes union status, part-time status, industry, and occupation in X. We run separate regressions for men and women ages twenty-five to sixty-four, twenty-five to forty-four, and forty-five to sixty-four, thereby estimating eighteen distinct models (three specifications for each of the six age-gender groups).

Table 9 presents the results. The first row shows the value of In_81-98 with no controls, that is, the extent to which median (log) wages of newly hired workers have grown less than those of other workers between 1981 and 1998. It indicates, for instance, that median log wages of newly hired men ages forty-five to sixty-four grew 15 points less than those of their counterparts with greater seniority during this period.

Is the widening gap between new employees and others simply due to compositional effects? The answer is clearly no. Among men ages twenty-five to sixty-four, the value of In_81-98 drops from -0.187 to -0.147 when the full set of control variables is added, thereby indicating that compositional effects explain slightly more than one-fifth of the drop in relative wages of new employees in this sample (Table 9). Among subsamples of men ages twenty-five to forty-four or forty-five to sixty-four, compositional effects explain a lower portion of the widening wage gap. Whatever sample is considered, compositional effects account for no more than one-half of the drop in relative wages experienced by new female employees.

For all age-gender groups considered except men ages forty-five to sixty-four, models that include only controls for age and education explain a smaller share of the drop in relative wages

Table 8

Descriptive Statistics for Newly Hired Employees and Other Employees

	Men Ages Twenty-Five to Sixty-Four				Women Ages Twenty-Five to Sixty-Four			
	Newly Hired Employees[a]		Other Employees		Newly Hired Employees[a]		Other Employees	
	1981	1998	1981	1998	1981	1998	1981	1998
Age								
25-34	53.1	48.7	33.7	26.3	47.9	46.0	35.5	26.2
35-44	23.0	28.8	28.0	36.0	28.0	32.5	28.7	35.8
45-54	15.4	16.5	22.0	26.9	16.6	17.7	22.0	28.6
55-64	8.5	6.1	16.4	10.9	7.5	3.8	13.8	9.4
University degree								
Yes	16.3	22.4	15.5	20.8	13.4	21.8	11.8	20.0
No	83.7	77.6	84.5	79.2	86.6	78.2	88.2	80.0
Unionized								
Yes	38.3	18.1	48.0	41.8	26.9	16.2	37.6	40.0
No	61.7	81.9	52.0	58.2	73.1	83.8	62.4	60.0
Full-time worker								
Yes	95.9	91.8	98.1	97.1	70.5	70.1	81.5	81.4
No	4.1	8.2	1.9	2.9	29.5	29.9	18.5	18.6
Industry								
Agriculture and fishing	2.1	2.5	0.7	1.0	1.7	1.7	1.0	0.7
Forestry and mining	6.9	3.7	4.0	2.9	0.8	0.7	0.7	0.5
Construction	15.8	11.3	5.2	5.1	1.7	1.2	1.2	1.0
Manufacturing	21.7	20.5	29.7	28.8	13.7	12.4	15.7	11.4
Distributive services	15.0	18.1	20.2	18.9	7.7	8.7	9.1	8.8
Business services	8.1	12.6	7.1	8.6	11.8	16.5	13.3	14.5
Consumer services	15.5	20.0	10.7	13.8	25.9	31.2	21.2	19.7
Public services	14.9	11.5	22.5	21.1	36.6	27.6	37.9	43.5
Occupation								
Professional/manager	8.4	13.2	14.2	17.8	4.5	14.2	9.2	17.9
Natural/social science	13.5	14.2	13.8	16.0	23.4	19.4	22.1	26.4
Clerical	3.9	5.5	8.4	6.4	30.8	24.4	36.3	27.9
Sales	8.4	8.5	8.5	6.4	8.8	10.2	8.5	6.5
Services	9.9	10.0	8.9	9.1	17.5	17.7	11.8	11.1
Primary/processing	26.4	24.3	25.6	25.0	10.5	8.3	8.6	6.7
Construction	15.6	10.2	7.6	6.7	0.2	0.2	0.2	0.1
Other	14.0	14.1	13.1	12.6	4.3	5.7	3.4	3.5
Average seniority (months)	11.9	10.2	146.7	150.0	11.6	10.5	107.1	131.3
Median (log) wages	2.84	2.71	2.96	3.01	2.51	2.42	2.67	2.78
Sample size	4,132	5,629	11,517	15,058	3,682	5,453	7,106	14,107

Source: Statistics Canada, Survey of Work History of 1981, Labour Force Survey of 1998.

[a]One to twenty-four months of seniority.

Table 9

Relative Wage Growth of Newly Hired Employees, 1981-98

Results of Median Regressions

	Employees Ages Twenty-Five to Sixty-Four		Employees Ages Twenty-Five to Forty-Four		Employees Ages Forty-Five to Sixty-Four	
Interaction Term (In_81-98)	Men	Women	Men	Women	Men	Women
No controls	-0.187***	-0.196***	-0.129***	-0.144***	-0.147***	-0.272***
Pseudo R^2	0.0265	0.0384	0.0300	0.0419	0.0314	0.0379
Controls for age and education	-0.181***	-0.161***	-0.169***	-0.121***	-0.109***	-0.219***
Pseudo R^2	0.0712	0.1073	0.0716	0.1093	0.0809	0.1104
Other controls[a]	-0.150***	-0.089***	-0.127***	-0.067***	-0.131***	-0.133***
Pseudo R^2	0.1436	0.2436	0.1420	0.2458	0.1591	0.2433
Full set of controls[b]	-0.147***	-0.099***	-0.121***	-0.0761***	-0.132***	-0.138***
Pseudo R^2	0.1562	0.2613	0.1552	0.2623	0.1696	0.2641
Sample size	36,336	30,348	23,597	20,303	12,739	10,045

Source: Statistics Canada, Survey of Work History of 1981, Labour Force Survey of 1998.

[a]Controls for union status, part-time status, industry, and occupation (see text for details).
[b]Controls for age, education, union status, part-time status, industry, and occupation (see text for details).
***Statistically significant at the 1 percent level.

of new employees than models that control for variables related to labour demand and institutional changes. This can be seen by noting that the value of In_81-98 generally falls less with the former type of models than with the latter. This finding implies that, in general, variables related to labour demand and institutional changes contributed more to widen the wage gap between new employees and others than did labour-supply-related variables.[23]

In sum, while changes in personal attributes and job characteristics clearly contributed to the decline in the relative wages of newly hired employees over the past two decades, a substantial portion of this decline persists even after controlling for these changes, especially for males. In other words, relative wages of newly hired employees fell within cells defined jointly in terms of age, education, union status, industry, and occupation, thereby suggesting that Canadian employers decreased their wage offers for new applicants.

6. Changes in the Age-Wage Profile of New Entrants

These declines in the wage offers for new applicants have been associated with important changes in the age-wage profile of labour market entrants.[24] Among males, successive cohorts of labour market entrants—as proxied by men ages twenty-five to thirty-four—have seen their wages at entry decline between the early 1980s and the late 1990s. Between 1981 and 1999—years during which the unemployment rate was between 7.5 percent and 7.6 percent—median wages of men ages twenty-five to thirty-four fell by about 14 percentage points (Table 10).[25] Entry wages of young males stopped falling after 1999. Consistent with the findings of Beaudry and Green (2000), entry wages of young males have been falling for university graduates as well as for nonuniversity graduates, at least until 1997.

Have the age-earnings profiles of successive cohorts become steeper over time? There is no unique answer to this question. For the 1989 cohort with no university degree, the answer is clearly no. Between 1989 and 1999, members of this cohort have seen their median wages increase by 8 percentage points, no more than the 10-percentage-point increase experienced by

the 1981 cohort between 1981 and 1988 (Table 10).[26] This suggests that, compared with the 1981 cohort, the 1989 cohort has been experiencing a lower but not steeper age-wage profile. In contrast, members of the 1997 cohort have seen their median wages increase by 13 percentage points between 1997 and 2004, slightly more than the increase registered by the 1981 cohort between 1981 and 1988. Likewise, university graduates belonging to the 1997 cohort have enjoyed a 23-percentage-point increase in their median wages between 1997 and 2004, slightly more than the 19-percentage-point increase experienced by the 1981 cohort between 1981 and 1988 (Table 10).

Some evidence of a steepening of the age-wage profile of male entrants can be found by examining the median wages of the 1989 cohort of university graduates fifteen years after entry, that is, in 2004. During the 1989-2004 period, members of this cohort have experienced a 35-percentage-point increase in median (log) wages, much more than the 27-percentage-point increase registered by the 1981 cohort between 1981 and 1997.[27] As a result, their median wages in 2004 fully converged to those of the 1981 cohort in 1997. However, this pattern of full convergence is not observed among members of the 1989 cohort who had no university degree. Contrary to their counterparts with a university degree, by 2004 these individuals still had lower wages than the 1981 cohort had in 1997.

Changes in the age-wage profile were less pronounced among young women. Even though there is some evidence that entry wages fell between 1981 and 1989 (especially for university graduates), by 2004 members of the 1989 cohort had roughly the same wages as those of the 1981 cohort in 1997 (Table 11). This was true for women with a university degree as well as for others.

Table 10
Median Log Hourly Wages of Men, by Cohort

	1981	1988	1989	1997	1999	2004
Men						
Cohort ages						
25-34 in 1981	2.91	3.03	3.02	3.06	3.05	3.02
25-34 in 1988	-	2.88	2.89	2.97	3.00	3.00
25-34 in 1989	-	-	2.85	2.96	2.98	2.98
25-34 in 1997	-	-	-	2.79	2.86	2.92
25-34 in 1999	-	-	-	-	2.77	2.92
25-34 in 2004	-	-	-	-	-	2.80
Men with no university degree						
Cohort ages						
25-34 in 1981	2.88	2.98	2.98	2.97	3.00	2.93
25-34 in 1988	-	2.84	2.85	2.92	2.94	2.92
25-34 in 1989	-	-	2.83	2.91	2.91	2.92
25-34 in 1997	-	-	-	2.74	2.79	2.87
25-34 in 1999	-	-	-	-	2.72	2.83
25-34 in 2004	-	-	-	-	-	2.73
Men with a university degree						
Cohort ages						
25-34 in 1981	3.08	3.27	3.24	3.35	3.35	3.43
25-34 in 1988	-	3.05	3.03	3.26	3.30	3.37
25-34 in 1989	-	-	3.00	3.22	3.30	3.35
25-34 in 1997	-	-	-	2.97	3.10	3.20
25-34 in 1999	-	-	-	-	3.03	3.20
25-34 in 2004	-	-	-	-	-	3.02

Source: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1988-1989, Labour Force Survey of 1997, 1999, and 2004.

Note: Wages are in 2001 Canadian dollars.

Table 11

Median Log Hourly Wages of Women, by Cohort

	1981	1988	1989	1997	1999	2004
Women						
Cohort ages						
25-34 in 1981	2.65	2.69	2.67	2.75	2.76	2.76
25-34 in 1988	-	2.64	2.66	2.74	2.73	2.75
25-34 in 1989	-	-	2.65	2.74	2.72	2.75
25-34 in 1997	-	-	-	2.63	2.69	2.75
25-34 in 1999	-	-	-	-	2.63	2.76
25-34 in 2004	-	-	-	-	-	2.69
Women with no university degree						
Cohort ages						
25-34 in 1981	2.61	2.62	2.61	2.67	2.69	2.66
25-34 in 1988	-	2.61	2.60	2.65	2.65	2.67
25-34 in 1989	-	-	2.59	2.64	2.64	2.66
25-34 in 1997	-	-	-	2.55	2.58	2.63
25-34 in 1999	-	-	-	-	2.54	2.63
25-34 in 2004	-	-	-	-	-	2.57
Women with a university degree						
Cohort ages						
25-34 in 1981	2.98	3.15	3.10	3.17	3.17	3.22
25-34 in 1988	-	2.95	2.97	3.12	3.13	3.15
25-34 in 1989	-	-	2.93	3.11	3.13	3.15
25-34 in 1997	-	-	-	2.91	3.01	3.09
25-34 in 1999	-	-	-	-	2.95	3.07
25-34 in 2004	-	-	-	-	-	2.93

Source: Statistics Canada, Survey of Work History of 1981, Labour Market Activity Survey of 1988-1989, Labour Force Survey of 1997, 1999, and 2004.

Note: Wages are in 2001 Canadian dollars.

7. Temporary Jobs

Canadian employers may have responded to their changing environment not only by reducing their wage offers for new employees, but also by offering temporary jobs to an increasing fraction of them. Among men and women ages twenty-five to sixty-four and employed in the private sector (defined here as all industries except public administration), the incidence of temporary employment rose from 5 percent in 1989 to 9 percent in 2004 (Table 12).[28] However, these numbers include permanent jobs that have been held for several years by key employees in the workplace. To avoid affecting morale and productivity, most firms will be reluctant to convert these jobs into temporary ones. As a result, focusing on aggregate statistics will understate the extent to which firms have made adjustments through the use of temporary work.

To get a sense of the extent to which firms have adjusted to their changing environment through the use of temporary work, a more meaningful exercise is to look at the evolution of the incidence of temporary jobs among newly hired employees. Doing so shows that in 1989, 11 percent of newly hired employees held temporary jobs. By 2004, 21 percent of all jobs held by recently hired employees were temporary. Hence, when measured among the subset of newly hired employees, temporary employment in the private sector rose by 10 percentage points, that is, more than twice the increase observed for all private sector employees. Among employees with one year of seniority or less, the incidence of temporary work rose from 14 percent in 1989 to 25 percent in 2004 (Appendix D).

For the economy as a whole, the incidence of temporary employment among newly hired employees rose from 12 percent in 1989 to 22 percent in 2004. The increase was widespread. It affected full-time jobs, unionized and nonunionized workers, individuals ages twenty-five to thirty-four as well as their older counterparts, men and women, and university graduates as well as other individuals.[29,30]

Hence, the fact that the fraction of low-paid jobs and well-paid jobs did not change much over the past two decades hides

Table 12

Percentage of Employees in Temporary Jobs, by Selected Characteristics

	1989	1994	1998	2004
All industries except public administration				
Men and women	5	7	8	9
New employees	11	16	21	21
Other employees	3	5	3	5
All industries				
Men and women	5	7	9	9
New employees	12	16	22	22
Other employees	3	5	4	5
Full-time jobs	4	6	7	8
New employees	9	14	19	19
Other employees	2	4	3	4
Nonunionized jobs	5	7	9	9
New employees	10	15	20	20
Other employees	2	5	3	4
Unionized jobs	5	7	8	9
New employees	19	26	31	28
Other employees	3	5	4	6
Men and women ages twenty-five to thirty-four	6	9	10	11
New employees	10	16	19	19
Other employees	2	7	4	5
Men and women ages thirty-five to sixty-four	5	6	8	9
New employees	13	17	24	23
Other employees	3	5	3	5
Men	4	7	8	8
New employees	12	19	21	20
Other employees	2	5	3	4
Women	6	7	10	10
New employees	11	14	23	23
Other employees	4	5	4	6
Nonuniversity graduates	5	7	8	9
New employees	11	17	22	21
Other employees	3	5	3	5
University graduates	7	9	9	10
New employees	15	16	22	24
Other employees	3	7	4	5

Source: Statistics Canada, General Social Surveys of 1989 and 1994, Labour Force Surveys of 1998 and 2004.

Notes: Except where noted, figures refer to men and women ages twenty-five to sixty-four who are not full-time students. "New employees" are those with two years of seniority or less.

two important patterns: falling relative wages, and sharp increases in the incidence of temporary employment among newly hired workers.[31]

8. Pension Coverage

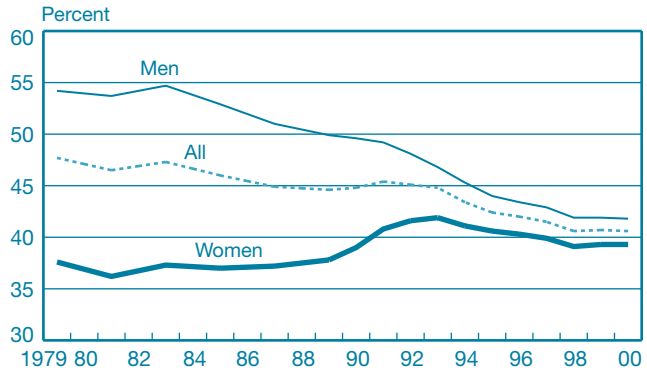
The total compensation that Canadian employees receive for their work includes, apart from wages, various benefits such as dental plans, life insurance plans, and supplemental medical insurance plans. Employer-sponsored retirement plans—which include registered pension plans (RPPs), group registered retirement savings plans (RRSPs), and deferred profit-sharing plans—are another key component of total compensation. In order to assess whether the relative importance of well-paid jobs has fallen over time, one would ideally compute the value of the various nonwage benefits associated with different jobs. Unfortunately, data limitations affect our ability to attach a monetary value to these nonwage benefits as well as to examine the evolution of employees' coverage by various nonwage benefits.

Nevertheless, existing data allow us to examine the evolution of employees' coverage by registered pension plans over the past two decades. Data from the Pension Plans in Canada Database show that the fraction of employees covered by an RPP has fallen by 6 percentage points since the early 1980s, dropping from 47 percent in 1981 to 41 percent in 2000. Men have seen their RPP coverage fall by more than 10 percentage points while women have enjoyed a moderate increase in RPP coverage (Chart 11).

How has RPP coverage evolved across age groups? Because the Pension Plans in Canada Database contains no information on age, we turn to the Longitudinal Administrative Databank to answer this question. We do so using two measures of pension coverage: the percentage of tax filers who participate in a contributory RPP and the percentage of tax filers who participate in a (contributory or noncontributory) RRP.[32]

Chart 11

Employees Covered by a Registered Pension Plan in Canada, 1979-2000



Source: Pension Plans in Canada (catalogue no. 74-401-XIB, various years).

Table 13

Percentage of Tax Filers Contributing to a Registered Pension Plan

	Age Group						
	17-24	25-34	35-44	45-54	55-64	17-64	25-64
Women							
1986	8.1	27.5	32.4	31.2	30.1	25.5	30.0
1987	8.7	27.3	32.9	31.5	29.5	25.8	30.1
1988	9.2	27.6	34.2	33.3	29.8	26.8	31.0
1989	9.0	27.2	34.4	34.2	29.7	27.1	31.2
1990	9.2	27.6	34.9	35.3	30.3	27.9	31.8
1991	8.9	27.6	35.2	36.3	30.4	28.4	32.2
1992	8.3	28.1	35.8	37.6	31.2	29.2	33.0
1993	7.3	28.0	35.7	38.5	31.6	29.4	33.3
1994	6.2	27.1	35.0	38.9	31.6	29.0	33.0
1995	5.5	26.3	34.4	39.3	31.9	28.7	32.8
1996	5.0	25.1	33.6	39.2	31.8	28.3	32.2
1997	5.3	24.0	32.2	38.6	31.1	27.5	31.3
1998	5.6	23.7	31.5	37.6	29.2	26.9	30.6
1999	6.1	23.5	30.7	36.5	28.1	26.4	30.0
2000	6.5	24.0	30.6	36.6	29.5	26.7	30.3
2001	6.9	24.3	30.5	36.5	28.7	26.8	30.3
Men							
1986	8.1	26.1	37.4	38.1	34.3	28.5	33.0
1987	8.6	25.6	36.7	37.4	33.1	28.1	32.3
1988	9.2	25.5	36.4	37.6	32.2	28.2	32.1
1989	8.8	24.7	35.5	37.3	31.2	27.7	31.4
1990	8.7	24.5	35.1	37.4	31.0	27.8	31.3
1991	7.9	24.0	34.5	37.5	30.6	27.6	31.0
1992	7.1	23.8	33.9	37.5	30.2	27.5	30.8
1993	6.3	23.2	33.3	37.8	30.1	27.3	30.7
1994	5.4	22.1	32.2	37.2	29.2	26.4	29.8
1995	5.0	21.3	31.3	36.8	28.7	25.9	29.2
1996	4.7	20.3	30.3	36.2	27.8	25.3	28.5
1997	4.8	19.7	29.4	35.5	26.9	24.7	27.8
1998	4.9	19.3	28.5	34.6	25.7	24.0	27.2
1999	5.2	18.5	26.9	32.9	24.3	23.0	25.9
2000	5.6	18.4	26.3	32.1	24.4	22.7	25.5
2001	6.0	18.5	25.7	31.5	24.0	22.5	25.2
Both sexes							
1986	8.1	26.7	35.2	35.2	32.8	27.2	31.7
1987	8.6	26.3	35.0	34.9	31.8	27.1	31.3
1988	9.2	26.5	35.4	35.7	31.3	27.6	31.6
1989	8.9	25.9	35.0	36.0	30.7	27.5	31.3
1990	8.9	25.9	35.0	36.5	30.8	27.8	31.5
1991	8.4	25.7	34.8	36.9	30.5	28.0	31.5
1992	7.7	25.8	34.8	37.6	30.6	28.3	31.8
1993	6.7	25.4	34.4	38.1	30.7	28.2	31.9
1994	5.8	24.4	33.5	38.0	30.1	27.6	31.3
1995	5.2	23.6	32.8	38.0	30.0	27.2	30.9
1996	4.8	22.6	31.8	37.6	29.4	26.6	30.2
1997	5.0	21.7	30.7	36.9	28.6	26.0	29.4
1998	5.3	21.4	29.9	36.0	27.1	25.4	28.8
1999	5.6	20.9	28.7	34.6	25.9	24.6	27.8
2000	6.0	21.1	28.3	34.2	26.5	24.6	27.8
2001	6.4	21.3	28.0	33.9	26.0	24.5	27.6

Source: Statistics Canada, Longitudinal Administrative Databank (1 percent file).

The first measure, which covers roughly three-quarters of all RPP members, is available since 1986 and is shown in Table 13. The second measure is available only since 1991 and is presented in Table 14.[33]

The percentage of male tax filers contributing to an RPP fell substantially in most age groups since 1986. It dropped by between 7 and 12 percentage points among men ages twenty-five to sixty-four (Table 13). In contrast, it rose slightly for women ages forty-five to fifty-four while falling by 3 percentage points or less for other women. As a result, the percentage of tax filers contributing to an RPP has changed little among women during the 1986-2001 period while it has fallen among men.

Most of these qualitative patterns hold when we consider the percentage of tax filers who participate in a (contributory or noncontributory) registered pension plan. For instance, using this more comprehensive measure of employees' RPP coverage and restricting our attention to the 1991-2001 period,

Table 14

Percentage of Tax Filers with a Positive Pension Adjustment

	Age Group						
	17-24	25-34	35-44	45-54	55-64	17-64	25-64
Women							
1991	11.9	34.2	41.5	41.7	34.1	33.9	38.2
1992	11.4	35.1	42.5	43.5	35.3	35.1	39.4
1993	10.5	35.0	42.7	44.6	35.9	35.4	39.9
1994	9.3	33.6	41.7	44.6	35.5	34.6	39.1
1995	8.9	33.2	41.7	45.5	36.3	34.9	39.4
1996	8.4	31.9	40.9	45.5	36.3	34.4	38.8
1997	9.0	31.7	40.6	45.6	36.2	34.4	38.8
1998	9.9	31.7	40.0	45.0	34.7	34.1	38.4
1999	10.3	31.4	39.4	44.4	34.1	33.8	38.0
2000	11.0	32.3	39.8	45.2	35.0	34.5	38.7
2001	11.4	32.9	40.0	45.5	35.5	35.0	39.1
Men							
1991	12.5	35.7	48.5	51.7	42.0	39.3	43.9
1992	11.6	35.3	48.1	52.0	41.6	39.3	43.9
1993	10.6	34.1	47.0	51.5	40.9	38.6	43.1
1994	9.5	32.2	45.2	50.4	39.4	37.1	41.6
1995	9.7	31.8	44.7	50.4	39.2	37.1	41.4
1996	9.3	30.8	43.6	49.6	38.4	36.4	40.6
1997	9.9	30.3	42.4	48.5	37.5	35.7	39.9
1998	10.5	30.3	41.8	47.8	36.6	35.4	39.5
1999	11.0	30.3	41.0	47.0	35.9	35.1	39.1
2000	11.7	30.8	41.0	46.8	36.1	35.3	39.3
2001	12.3	31.0	40.6	46.4	35.9	35.2	39.1
Both sexes							
1991	12.2	35.0	45.3	47.2	38.9	36.8	41.3
1992	11.5	35.2	45.5	48.2	39.2	37.4	41.8
1993	10.6	34.5	45.0	48.4	38.9	37.1	41.6
1994	9.4	32.8	43.6	47.8	37.8	36.0	40.5
1995	9.3	32.4	43.3	48.1	38.1	36.1	40.5
1996	8.9	31.3	42.4	47.7	37.6	35.5	39.8
1997	9.5	31.0	41.6	47.2	37.0	35.1	39.4
1998	10.2	31.0	41.0	46.5	35.8	34.8	39.0
1999	10.7	30.8	40.3	45.8	35.2	34.5	38.6
2000	11.3	31.5	40.4	46.0	35.7	34.9	39.0
2001	11.9	31.9	40.3	46.0	35.7	35.1	39.1

Source: Statistics Canada, Longitudinal Administrative Databank (1 percent file).

we still find that pension coverage fell among men ages twenty-five to sixty-four and rose among women ages forty-five to fifty-four.[34]

Some differences are worth noting, however. The two measures of pension coverage yield different conclusions regarding the evolution of pension coverage of women ages fifty-five to sixty-four and of individuals ages seventeen to twenty-four. Among these groups, the percentage of tax filers contributing to an RPP has fallen slightly between 1991 and 2001 while the percentage of tax filers participating in an RPP has been either stagnant or increasing slightly.

Taken together, the results confirm the findings of Morissette and Drolet (2001), that is, they indicate that since the mid-1980s, RPP coverage has fallen substantially for men ages twenty-five and over, has dropped slightly for women ages twenty-five to thirty-four, and has risen for women ages forty-five to fifty-four.[35]

9. Conclusion

Recent media reports in the United States and Canada have suggested that new forms of outsourcing may be driving jobs offshore and contributing to the elimination of well-paid jobs in the Canadian labour market. Our examination of consistent hourly wage data from the Labour Force Survey shows little evidence to support the notion that well-paid jobs have been disappearing in Canada between 1997 and 2004. Likewise, we find little evidence that the proportion of jobs paying less than $10.00 per hour has risen during this period. Low-paid jobs have increased their relative importance only in low-skilled services. Furthermore, median wages have shown little growth between 1997 and 2003. This is somewhat surprising in light of the fact that real GDP per capita grew about 3 percent per year on average during the 1997-2003 period.[36]

While we refrain from making definitive statements about the evolution of wage levels over the 1981-2004 period, the data examined also provide little support for the view that the relative importance of well-paid jobs, however defined, has been trending downward over the past two decades. Nor do we find support for the notion that the relative importance of jobs paying $10.00 per hour has been trending upward during this period.[37]

In contrast, the data clearly indicate that the wage gap between newly hired employees and other employees has been widening over the past two decades, *even within age groups*. The widening appears to have occurred in the first half of the 1980s as well as between the early 1990s and the late 1990s. While the reasons underlying this pattern are currently unknown, one explanation is that since the 1980s, Canadian employers may have responded to technological changes and/or more intense competition within industries and from abroad by cutting wages for newly hired workers while maintaining wages of workers with greater seniority. They might have done so in order to maintain morale and productivity among their core workers.

Whatever factors are at work here, the drop in the relative wages of newly hired employees shown in this paper is important for at least three reasons. First, it may help explain the substantial decline in quit rates observed in Canada between the late 1980s and the late 1990s.[38] Second, it may have increased the earnings losses experienced by Canadian displaced workers between the 1980s and the 1990s. Third, unless it is offset by a steepening of the wage-seniority profile, it may signal changes in firms' wage offers, which may induce a reduction in the relative importance of well-paid jobs in the years to come, with obvious implications for Canadians' living standards.

Although the relative importance of well-paid jobs does not seem to have changed much over the past two decades, other changes have affected job quality. First, the relative importance of temporary jobs has increased substantially among newly hired employees. Second, sizable changes in nonwage benefits have been observed. Compared with the early 1980s, fewer male employees are now covered by a registered pension plan. Whether or not this decline in male RPP coverage has been offset by an increase in coverage by group registered retirement savings plans is currently unknown and remains an issue that cannot be addressed because of a lack of suitable data. However, even if increases in group RRSP coverage have fully offset the decline in RPP coverage observed among men, one consequence is that the investment risk associated with employer-sponsored pension plans has been shifted, in many cases, onto male workers, rather than being borne by their employers. This is because group RRSPs, contrary to most RPPs, do not guarantee workers a defined benefit at the time of their retirement.[39] Whatever the preferences of male employees are regarding the type of employer-sponsored pension plan they are offered, this change should be kept in mind in subsequent attempts to assess the evolution of the relative importance of well-paid jobs and low-paid jobs in Canada.

Appendix A

Wage and Hours Concepts Used in Household Surveys, 1981-2004

Survey	Wage Concept	Hours Concept
Survey of Work History of 1981	*Usual* wage or salary before taxes and other deductions; no reference is made to tips, commissions, bonuses, and overtime.	Usual days per week plus usual hours per day; no reference is made to overtime.
Survey of Union Membership of 1984	Same as above.	Weeks worked in 1984 plus usual hours per day; no reference is made to overtime.
Labour Market Activity Survey of 1986	Same as above.	*Usual paid* days per week plus usual *paid* hours per day; no reference is made to overtime.
Labour Market Activity Survey of 1987-1990	*Usual* wage or salary before taxes and other deductions, including tips, commissions, bonuses, *and paid overtime, all together.*	Same as above.
Labour Force Survey of 1997-2004	Wage or salary before taxes and other deductions, including tips and commissions; whether respondents include overtime pay is unclear.	*Usual paid* hours per week; explicitly excludes overtime.

Appendix B

Table B1

Percentage Distribution of Hourly Wages of Male Workers

	Hourly Wage							
	Less Than $8.00	$8.00-$9.99	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00-$29.99	$30.00-$34.99	$35.00 or More
Employees ages seventeen to sixty-four								
1981	8.3	7.6	23.1	24.7	17.1	10.1	4.2	5.0
1984	7.5	7.7	19.1	23.5	20.5	11.3	5.7	4.7
1986	10.1	6.7	22.7	20.3	18.1	12.0	4.5	5.7
1987	9.5	7.8	20.6	22.7	18.6	10.9	4.8	5.3
1988	8.0	6.9	20.1	23.7	18.7	11.2	5.3	6.1
1989	9.4	6.9	20.4	23.8	17.6	10.8	5.2	6.0
1990	9.0	7.5	21.3	22.8	18.5	10.3	5.2	5.5
1997	9.0	9.1	21.4	22.6	17.8	9.5	5.4	5.4
1998	8.6	9.1	21.2	22.8	17.3	9.9	5.7	5.5
1999	8.8	7.9	23.3	20.6	17.3	10.7	5.2	6.2
2000	8.2	8.2	22.6	22.2	17.3	10.8	4.8	5.9
2001	6.9	7.5	23.2	22.2	16.5	11.4	5.6	6.8
2002	8.6	9.1	22.9	21.3	15.5	10.1	5.6	7.1
2003	8.1	10.0	22.4	22.5	14.7	10.5	5.3	6.6
2004	9.0	9.4	23.4	20.1	15.5	10.4	5.2	7.0
Change								
1986-2004	-1.1	2.8	0.8	-0.2	-2.6	-1.6	0.7	1.3
1981-2004	0.7	1.8	0.4	-4.5	-1.7	0.4	1.0	2.0
1997-2003	-0.8	0.9	1.0	-0.1	-3.0	1.0	-0.1	1.2
1997-2004	0.0	0.3	2.1	-2.5	-2.3	0.9	-0.2	1.6
Employees ages twenty-five to sixty-four								
1981	5.3	5.6	20.6	26.1	19.2	12.1	5.1	6.0
1984	3.3	4.3	17.2	25.2	23.8	13.5	7.1	5.7
1986	5.0	4.5	20.2	22.2	21.2	14.5	5.5	6.9
1987	4.5	5.1	18.3	25.0	21.7	13.1	5.8	6.4
1988	3.7	4.2	17.3	25.8	21.6	13.5	6.5	7.5
1989	4.4	4.5	18.4	25.7	20.5	13.0	6.3	7.2
1990	4.5	4.6	19.4	25.0	21.5	12.2	6.2	6.6
1997	3.9	6.2	20.3	25.0	20.6	11.3	6.4	6.4
1998	3.7	6.2	20.0	25.2	20.1	11.7	6.7	6.5
1999	3.9	5.2	21.9	22.7	20.1	12.6	6.2	7.4
2000	3.6	5.4	21.0	24.3	20.1	12.8	5.7	7.0
2001	3.0	4.6	20.8	24.4	19.1	13.5	6.7	8.1
2002	3.9	6.2	21.6	23.5	17.9	11.9	6.6	8.5
2003	3.5	6.7	21.3	24.9	17.1	12.3	6.3	7.8
2004	3.7	6.7	22.4	22.5	17.9	12.3	6.2	8.3
Change								
1986-2004	-1.3	2.2	2.2	0.3	-3.3	-2.2	0.7	1.4
1981-2004	-1.7	1.1	1.8	-3.7	-1.3	0.3	1.1	2.3
1997-2003	-0.4	0.5	1.0	-0.1	-3.5	1.1	-0.1	1.4
1997-2004	-0.2	0.5	2.1	-2.6	-2.7	1.1	-0.2	1.9

Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Note: Wages are in 2001 Canadian dollars.

Table B2

Percentage Distribution of Hourly Wages of Female Workers

	Hourly Wage							
	Less Than $8.00	$8.00-$9.99	$10.00-$14.99	$15.00-$19.99	$20.00-$24.99	$25.00-$29.99	$30.00-$34.99	$35.00 or More
Employees ages seventeen to sixty-four								
1981	17.3	14.1	31.9	20.4	8.7	3.8	1.7	2.2
1984	17.4	15.0	30.5	19.7	10.3	4.2	1.6	1.3
1986	21.0	11.3	32.1	18.2	10.1	3.7	1.7	1.8
1987	19.5	13.5	30.4	19.3	9.9	4.2	1.5	1.7
1988	17.2	12.6	31.5	19.5	10.3	4.4	2.1	2.5
1989	18.6	12.2	31.1	19.6	9.8	4.5	2.1	2.1
1990	17.8	14.1	30.2	19.2	9.6	4.8	2.1	2.1
1997	16.2	13.6	27.5	20.7	12.1	5.3	2.9	1.8
1998	15.7	14.0	27.2	21.3	11.3	5.7	2.6	2.2
1999	16.9	12.3	28.2	19.9	11.9	6.5	2.8	1.7
2000	15.5	13.0	28.5	21.0	11.2	6.1	2.7	1.9
2001	14.5	11.9	29.2	20.6	11.6	6.5	3.3	2.5
2002	16.4	14.2	25.9	20.0	11.0	6.5	3.6	2.5
2003	15.7	13.9	26.7	20.1	11.1	6.5	3.7	2.2
2004	16.3	12.6	27.0	19.4	11.2	6.7	4.0	2.9
Change								
1986-2004	-4.7	1.3	-5.1	1.1	1.1	3.0	2.3	1.1
1981-2004	-1.0	-1.5	-4.9	-1.0	2.6	2.9	2.3	0.7
1997-2003	-0.5	0.4	-0.8	-0.6	-1.1	1.3	0.8	0.5
1997-2004	0.1	-0.9	-0.5	-1.3	-0.9	1.5	1.1	1.1
Employees ages twenty-five to sixty-four								
1981	14.0	12.5	31.0	22.7	10.4	4.8	2.2	2.6
1984	11.5	12.8	31.4	22.5	12.7	5.4	2.1	1.6
1986	14.2	10.0	33.4	21.3	12.3	4.5	2.2	2.1
1987	13.2	12.0	31.5	22.4	11.8	5.2	1.9	2.1
1988	12.0	10.8	31.7	22.1	12.4	5.5	2.6	3.0
1989	12.6	10.6	32.3	22.3	11.7	5.5	2.5	2.5
1990	12.9	12.5	31.1	21.6	11.2	5.7	2.6	2.5
1997	10.4	11.6	28.6	23.5	14.1	6.2	3.5	2.1
1998	9.7	12.4	28.2	24.1	13.1	6.8	3.1	2.6
1999	10.4	11.1	29.0	22.5	14.0	7.7	3.3	2.0
2000	9.3	11.5	29.3	23.9	13.1	7.3	3.3	2.3
2001	8.6	10.2	29.9	23.1	13.6	7.7	4.0	2.9
2002	10.0	12.8	26.8	22.7	12.9	7.6	4.3	3.0
2003	9.6	12.2	27.6	22.8	12.9	7.8	4.5	2.7
2004	10.2	10.9	27.8	21.9	13.2	8.0	4.7	3.5
Change								
1986-2004	-4.0	0.9	-5.6	0.6	0.9	3.5	2.6	1.3
1981-2004	-3.8	-1.6	-3.2	-0.8	2.8	3.1	2.6	0.9
1997-2003	-0.8	0.6	-1.0	-0.7	-1.2	1.6	1.0	0.6
1997-2004	-0.3	-0.7	-0.8	-1.6	-1.0	1.7	1.3	1.3

Source: Statistics Canada, Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Survey of 1986-1990, Labour Force Survey of 1997-2004.

Note: Wages are in 2001 Canadian dollars.

Appendix C

Incidence of Low Pay and Changes in the Workforce Composition, by Age and Sex
Percent

	1986		2004	
	Incidence of Low Pay	Share of Workforce	Incidence of Low Pay	Share of Workforce
Men ages				
17-24	48.2	10.3	60.2	8.2
25-34	12.6	17.0	14.5	12.2
35-44	7.5	13.6	8.8	13.4
45-54	6.4	8.7	7.1	11.6
55-64	9.8	5.6	12.1	5.3
Women ages				
17-24	62.0	9.7	69.2	8.1
25-34	23.9	14.1	22.8	11.6
35-44	22.3	10.9	19.6	13.3
45-54	24.9	6.7	19.4	11.8
55-64	30.1	3.4	24.9	4.8
Incidence of low pay	23.7	100.0	23.6	100.0

Source: Statistics Canada, Labour Market Activity Survey of 1986, Labour Force Survey of 2004.

Note: Incidence of low pay is the share of employees earning less than $10.00 per hour (2001 Canadian dollars).

Appendix D

Percentage of Employees in Temporary Jobs, by Selected Characteristics

	1989	1994	1998	2004
All industries except public administration				
Men and women	5	7	8	9
One year of seniority or less	14	23	26	25
More than one year of seniority	3	5	5	6
All industries				
Men and women	5	7	9	9
One year of seniority or less	15	23	27	26
More than one year of seniority	3	6	5	6
Full-time jobs	4	6	7	8
One year of seniority or less	12	21	25	24
More than one year of seniority	2	5	4	5
Nonunionized jobs	5	7	9	9
One year of seniority or less	13	21	25	24
More than one year of seniority	3	6	4	6
Unionized jobs	5	7	8	9
One year of seniority or less	21	–	38	34
More than one year of seniority	4	6	5	7
Men and women ages twenty-five to thirty-four	6	9	10	11
One year of seniority or less	14	22	23	24
More than one year of seniority	3	7	5	7
Men and women ages thirty-five to sixty-four	5	6	8	9
One year of seniority or less	16	24	31	27
More than one year of seniority	3	5	4	6
Men	4	7	8	8
One year of seniority or less	16	27	26	24
More than one year of seniority	2	6	4	5
Women	6	7	10	10
One year of seniority or less	14	18	29	28
More than one year of seniority	4	6	5	7
Nonuniversity graduates	5	7	8	9
One year of seniority or less	13	24	27	25
More than one year of seniority	3	5	4	6
University graduates	7	9	9	10
One year of seniority or less	20	22	28	29
More than one year of seniority	4	8	5	7

Source: Statistics Canada, General Social Surveys of 1989 and 1994, Labour Force Surveys of 1998 and 2004.

Notes: Except where indicated, figures refer to men and women ages twenty-five to sixty-four who are not full-time students. The sample size is too small to report figures.

Endnotes

1. The proportion of jobs in firms with 500 or more employees dropped from 51 percent in 1983 to 42 percent in 2001.

2. The main job is the job that involves the greatest number of work-hours per week.

3. For instance, the Labour Market Activity Survey of 1989 imputes wages, excluding overtime pay, based on the following vector of covariates: 1) class of worker, 2) province, 3) sex, 4) age group, 5) education level, and 6) union status. In contrast, the Labour Force Survey includes the first five covariates defined above as well as these covariates: student status, a renter/houseowner indicator, and occupation. LFS does not use union status to impute wages.

4. Picot, Myles, and Wannell (1990) use the Survey of Work History of 1981 and the Labour Market Activity Survey of 1986 to examine how the proportion of jobs below or above a certain distance from the median has varied between 1981 and 1986. Thus, they do not examine how the fraction of jobs paying, say, between $10.00 and $14.99 (in constant dollars) has evolved during this period.

5. Since the Survey of Union Membership of 1984 has been conducted in December, statistics for this year refer to individuals ages seventeen to sixty-four who were employed as paid workers in the main job they held in December.

6. See "Low-Income Cutoffs from 1994-2003 and Low-Income Measures from 1992-2001" (Statistics Canada catalogue no. 75F0002MIE - No. 002).

7. Numbers are given separately for men and women in Appendix B. Consistent with the increase in women's median hourly wages shown in Table 1, the numbers reveal that during the 1981-2004 period, women have been increasingly employed in jobs paying $20.00 or more per hour.

8. The first pattern emerges clearly for both samples: the density function for 2004 lies above that for 1981 when log wages exceed roughly 3.25, that is, when hourly wages exceed $25.79 (Charts 1 and 2). The second pattern can be seen by noting that for employees ages twenty-five to sixty-four, the density function for 2004 lies below that for 1981 at log wages <= 2.0, that is, when hourly wages are below $7.39 (Chart 2).

9. The kernel densities shown in Charts 1 and 2 are based on the Gaussian functional form and on an optimal band width. See Silverman (1986) for details.

10. All of these changes are statistically significant at conventional levels.

11. Between 1997 and 2004, the proportion of jobs paying between $10.00 and $14.99 has risen by 0.9 percentage point and the proportion of jobs paying between $15.00 and $19.99 has dropped by 1.9 percentage points. However, these proportions have remained virtually unchanged between 1997 and 2003, thereby casting doubt on the presence of specific trends in these wage categories.

12. The careful reader will have noticed that the fraction of jobs paying $8.00 to $9.99 fell between 2000 and 2001 and then rose between 2001 and 2002. This pattern is due to heaping, that is, the tendency of respondents to report wages at integer values (such as $10.00). To ensure the robustness of our conclusion regarding the evolution of the fraction of low-paid jobs between 1997 and 2004, we recalculated the numbers based on two alternative wage categories: $8.00 to $10.33 and $8.00 to $10.67. Under these two alternative categories, the fraction of low-paid jobs (those paying less than $10.33 or less than $10.67) rose by at most 0.7 percentage point (from 24.9 to 25.6 percent) between 1997 and 2004, thereby confirming that there is little evidence that the fraction of low-paid jobs has risen in recent years.

13. These conclusions hold when jobs are weighted by their weekly hours.

14. Changes in the coding of the LFS education question in the early 1990s imply that we can control only broadly for educational attainment by distinguishing university graduates from other individuals.

15. The pattern is consistent with the findings of Burbidge, Magee, and Robb (2002), who examine median weekly earnings of full-time workers, using data from the Survey of Consumer Finances.

16. It is important to emphasize that these patterns do not imply that the wage gap between university graduates and *high-school graduates* has not widened. Using census data, Morissette, Ostrovsky, and Picot (2004) show that between 1980 and 2000, the university-to-high-school earnings ratio did rise for young men and women employed in the private sector.

17. The six major industrial groups are: primary industries and construction, manufacturing, highly skilled services, low-skilled services, wholesale trade and other services, and public services. Highly skilled services include the following industries (NAICS 1997): transportation and warehousing (48-49), information and cultural

Note 17 Continued
industries (51), finance and insurance (52), real estate, rental, and leasing (53), professional, scientific, and technical services (54), management of companies and enterprises (55), administrative and support, waste management, and remediation services (56). Low-skilled services include retail trade (44-45) and accommodation and food services (72). During the 1997-2004 period, the distribution of employment across major industrial groups for individuals ages seventeen to sixty-four was: primary industries and construction (8.4 percent), manufacturing (17.2 percent), highly skilled services (21.9 percent), low-skilled services (18.8 percent), wholesale trade and other services (11.0 percent), public services (22.7 percent).

18. Annual wages and salaries reported for the reference year will be associated with more than one job only if workers held several jobs at a given point in time during that year. Since multiple job holding affected at most 6 percent of employed individuals between 1981 and 1997 (Sussman 1998), this limitation is unlikely to affect our results.

19. Individuals with any self-employment income during the reference year are excluded from the construction of our SCF sample of newly hired employees.

20. Data from the 1984 Survey of Union Membership cannot be used for this comparison because the survey does not include seniority as a continuous variable. In the survey, seniority is measured using the categories 6 months or less, 7-12 months, 13-60 months, 61-120 months, 121-240 months, and more than 240 months.

21. To assess the extent to which the drop in union coverage of new employees was due to compositional effects, we pooled the 1981 and 1998 data and ran a linear probability model of union coverage. The model was estimated for new male and new female employees separately. The vector of covariates used included all variables listed in Table 8 except (log) wages. The results indicate that after we control for age, education, full-time status, industry, occupation, and seniority, the decline in union coverage among new male employees between 1981 and 1998 amounts to 16 percentage points, that is, 80 percent of the decline observed in the raw data. For women, the decline in union coverage amounts to 7 percentage points, that is, 60 percent of the drop observed in the raw data. Hence, most of the decline in union coverage observed among new employees persists after controlling for compositional effects.

22. We use discrete age categories because the Survey of Work History of 1981 does not include age as a continuous variable. As mentioned above, changes in the coding of the LFS education question in the early 1990s imply that we can control only broadly for educational attainment by distinguishing university graduates from other individuals. The indicator for union coverage equals 1 if a person is a member of a union and zero otherwise.

23. One could argue that changes in unmeasured worker quality may have contributed to the widening of the wage gap between new employees and others. This could occur if a greater fraction of low-ability workers had been drawn into the labour market in 1998 than in 1981. Simple statistics on the evolution of male employment rates do not support this view. In 1998, the employment rate of men ages twenty-five to fifty-four was, at 84.4 percent, no higher than the rate of 89.7 percent observed in 1981. Thus, it seems unlikely that the widening of the wage gap between new employees and others resulted from the entry of workers with low unmeasured quality.

24. The goal of this section is simply to provide descriptive evidence on the evolution of the age-wage profiles of successive cohorts of labour market entrants over the past two decades. Assessing the extent to which changes in the age-wage profiles of successive cohorts of labour market entrants are due to factors specific to a given birth cohort, cyclical effects, longer term trends, and declines in wage offers for newly hired employees is beyond the scope of this paper. For an econometric analysis that performs this task for the 1981-98 period, see Townsend and Green (2002).

25. As the table shows, median log wages of this group were equal to 2.77 in 1999, down from 2.91 in 1981.

26. The Canadian unemployment rate was fairly similar across all of these years. It was 7.5 percent in 1981, 7.8 percent in 1988, 7.5 percent in 1989, and 7.6 percent in 1999.

27. The unemployment rate was higher in 1997 (9.1 percent) than it has been so far in 2004 (varying between 7.0 and 7.5 percent); the stronger wage growth experienced by the 1989 cohort could partly reflect a cyclical effect, rather than a steepening of the age-wage profile.

28. The 1989 GSS, the 1994 GSS, and the 1997-2004 LFS allow us to distinguish full-time students from other individuals; thus, the sample used in Table 12 consists of employees ages twenty-five to sixty-four who are not full-time students.

29. Data not shown indicate that the increase in temporary employment among newly hired employees was even greater for individuals ages seventeen to twenty-four. In 2004, fully 32 percent of newly hired employees ages seventeen to twenty-four (who were not full-time students) held a temporary job, almost three times the rate of 11 percent observed in 1989.

30. All of these qualitative conclusions hold when we define newly hired employees as those who have one year of seniority or less. See Appendix D.

31. Because the 1989 GSS contains no data on hourly wages, it is impossible to assess the extent to which the decrease in relative wages of newly hired employees during the 1989-2004 period is due to the growing incidence of temporary employment.

32. This second measure is calculated using the fraction of tax filers who have a positive pension adjustment. The pension adjustment is the sum of credits for the year, if any, from deferred profit-sharing plans or benefit provisions of registered pension plans sponsored by the tax filer's employer. Membership in deferred profit-sharing plans is a very small proportion of membership in RPPs: in 1993, the former represented only 7 percent of the latter (Frenken 1995). As a result, changes in the percentage of tax filers with positive pension adjustments should reflect mainly changes in the percentage of tax filers who are members of RPPs.

33. The sample used for Tables 13 and 14 consists of tax filers ages seventeen to sixty-four who had annual earnings (wages and salaries plus net income from self-employment) of at least $1,000 in 1994 constant dollars.

34. Interestingly, the percentage of women ages forty-five to fifty-four contributing to an RPP in 2001 was very similar to its value in 1991.

35. Morissette and Drolet (2001) find an increase in RPP coverage among women ages thirty-five to fifty-four, but do not distinguish those who are thirty-five to forty-four from those who are forty-five to fifty-four.

36. See Statistics Canada's Cansim database (Tables 397-0017 and 051-0001).

37. One limitation of the study is that we cannot assess with current data whether unpaid work-hours rose over the past two decades. Had they increased, trends in the relative importance of low-paid jobs and well-paid jobs might have been less favourable than those presented in this study.

38. Morissette (2004) finds that while permanent layoff rates did not change much between the late 1980s and the late 1990s, permanent quit rates fell substantially for men and women of all ages.

39. On January 1, 2000, 85 percent of RPP members belonged to defined-benefit RPPs. See Pension Plans in Canada (catalogue no. 74-401-XIB, Table 11, p. 36, January 1, 2000).

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Erica L. Groshen

Commentary

1. Introduction

Motivated by concerns about the wage impact of deindustrialization and growing trade, René Morissette and Anick Johnson examine changes in the relative importance of well-paid jobs in Canada from 1981 to 2004. The authors analyze many dimensions of the issue using a mosaic of data sources, and have produced a thought-provoking paper with intriguingly mixed results. My comments use the parallel experience of the United States during the same period to find contrasts and commonalities that might clarify whether good jobs are indeed waning in Canada.

2. Why Wage Structures Change

To begin, it is helpful to review why the distribution of wages might change. Employer influences, labor force composition, and institutions that mediate supply and demand are all reasons. Four fundamental shifts can affect the need for workers: trade activity, technological change, consumer tastes, and business conditions. The authors are particularly concerned about the influence of the first two shifts. Trade adds and eliminates jobs as it boosts production of exports, reduces production of import-competing goods, and expands transport and warehousing jobs. Technology affects which goods are produced and how they are made.

However, consumer tastes—which reflect such characteristics as age, wealth, and fashion trends—and the business cycle also affect wages, as can workforce composition and institutional changes. On the worker side, wage changes can reflect differences in human capital, such as education, training, or skills, as well as the amount of competition faced from other workers, such as through demographics or immigration. Institutions that mediate supply and demand influences on wages also have an important effect. Government safety nets, such as unemployment insurance and transfer payments, can affect the willingness to work for a given wage. Retraining options can influence wages by enabling workers to upgrade their skills. Finally, union negotiations can also have an effect on wages.

How similar are trends in these influences across Canada and the United States? The strongest similarities probably relate to technology, consumer tastes, and trade. These sister economies use much the same technologies and are increasing their trade with the rest of the world and with each other. Populations in both countries are also aging and growing wealthier. The countries differ, however, in terms of the depth of the 1990 and 2001 recessions and their institutional labor market practices. With regard to the latter, unionism is higher in Canada, and the social safety net of unemployment insurance, training options, and other transfer payments is wider. These institutional differences are likely to result in more rigid wages in Canada.

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3. Canadian and U.S. Labor Market Trends

A comparison with labor markets in the United States may shed light on the causes of trends in Canada, as many influences on wages have been the same across both countries, while others have differed. Accordingly, we examine five labor market trends: unemployment rates, mean wages, wages of new workers versus those of incumbents, pension plan participation, and the share of temporary jobs.

Recent unemployment rates have been higher in Canada than in the United States. The two countries began the 1980s with almost identical unemployment rates of 7 to 8 percent. However, the 1980s recession proved to be much deeper in Canada. By 1984, the Canadian unemployment rate exceeded the U.S. rate by about 4 percentage points. A differential of 3 to 4 percentage points persisted until around 2000, when the milder recession in Canada narrowed it to about 2 percentage points.

In contrast, real wage patterns have been steadier and stronger in Canada throughout most of the past two decades. Morissette and Johnson find that median real wages in Canada have been stable for the past twenty years. By comparison, average hourly earnings of production and nonsupervisory workers in the United States have displayed a U-shaped trend: earnings declined from the mid-1980s to the mid-1990s; in the mid-1990s, they started to rise, reaching 5 percent growth in 2003.

Patterns for the countries also appear to differ for new hires and incumbents. Although I did not attempt to replicate Morissette and Johnson's careful analysis of this effect, I did examine the U.S. Census Bureau's Quarterly Workforce Indicators data. These data report average monthly earnings of new hires and incumbents by quarter for many U.S. states. Looking at states for which data are available since 1994, I found that wages of new hires in the United States, with no control for composition, grew more rapidly than those of incumbents between 1994 and 2003. This result stands in stark contrast to the pattern for Canada, whether or not one controls for composition.

For temporary jobs, the trend is similar between the two countries, while the pension experience is different. Employment in the temporary-help industry has doubled in both the United States and Canada since 1990. Although the same percentage of U.S. private industry workers, about half, were covered by pension plans in 2003 and 1990, defined contribution plans are now replacing the traditional defined benefit plans. This pattern differs from Morissette and Johnson's finding that pension coverage is declining in Canada.

Overall, these comparisons suggest that when both countries were exposed to similar aggregate shocks during the past decade, the Canadian response was weighted more toward employment levels than wage fluctuations, while the U.S. response centered on wages rather than employment. As we observed, growth in temporary jobs has been similar in the two economies. However, the decline in both pension coverage and wages for newly hired workers in Canada may be absent in the United States.

4. Reason for Concern?

These comparisons with the United States may soften concerns about a loss of good jobs in Canada. Morissette and Johnson raise the question whether the decline in wages for newly hired workers in Canada reflects technology and trade trends that are likely to continue for the foreseeable future. In the United States, the wages of newly hired workers are not declining relative to those of incumbents. Because these technological and trade-related influences are likely to be similar across the two countries—although we have observed different outcomes in the countries—Canada's current pattern of declining pay for new hires may reflect other influences, perhaps ones that may not persist.

If the slow pay increases of new hires are not caused by trade or technology, what other influences could be responsible? One possibility is the business cycle. During the 1980s and 1990s, the United States saw average wages fall, but it experienced lower unemployment than Canada did. The consequence of the preservation of wage levels in Canada, owing to the country's labor market institutions, may have been a period of slower wage and benefit growth until unemployment was restored to lower levels. That is to say, perhaps compensation growth of new hires was suppressed during the 1990s until the pool of unemployed was absorbed.

Finally, with regard to the quality of new jobs, the growth of temporary jobs has an arguably ambiguous effect on the welfare of workers. Revealed preference suggests that holders of temporary jobs would choose these positions over unemployment. To the extent that temporary assignments enable people to enter or reenter the workforce, they may offer more opportunity for transitions. Without knowing the counterfactual, however, we cannot be sure that the expansion of temporary arrangements has been problematic.

5. Conclusion

Morissette and Johnson make an ingenious, successful effort to combine information from various data sets to produce new stylized facts about recent trends in the Canadian labor market. Further research and the passage of time will establish the extent to which these trends prove worrisome. Technology and trade may underlie some of these patterns, but so may the business cycle as mediated by Canada's labor market institutions. My cursory comparison of recent Canadian and U.S. trends provides additional support for the authors' conclusion that it may be premature to mourn the demise of good jobs in Canada.

Wayne Vroman

The Recession of 2001 and Unemployment Insurance Financing

1. Introduction

By the standard macroeconomic yardstick—the change in real GDP—the economic downturn of 2001 was one of the mildest of the past fifty years. Yet during 2002-04, several large states experienced difficulties financing their unemployment insurance (UI) programs. To date, nine state UI programs have secured loans to pay UI benefits. In addition to borrowing from the U.S. Treasury, the traditional source for loans, UI programs have borrowed from the private bond market and, in the case of Pennsylvania, from another agency of state government.

Through the end of 2004, the U.S. labor market continued to exhibit softness, with unemployment in December totaling 8 million. Despite gains in employment, particularly during the second half of the year, the unemployment rate in 2004 averaged 5.5 percent and the seasonally adjusted rate did not descend below 5.4 percent in any month. Should the economic recovery stall or suffer a reverse, it is likely that some UI programs would have to borrow in 2005. From the perspectives of the labor market and UI program financing, the recession was more serious than one would infer simply from following the evolution of real GDP between 2001 and 2004.

This paper examines the recent recession, with particular attention given to developments in the labor market and in UI program financing. Its three objectives are to describe developments in the macroeconomy and in the labor market that have relevance for UI funding issues, to present the important developments in UI financing associated with the 2001 recession (because primary responsibility for ensuring UI trust fund adequacy resides with the states, the discussion highlights developments in several states), and to discuss the borrowing options available to states whose trust fund reserves are inadequate. The pros and cons of alternative borrowing arrangements are also noted. The discussion identifies options but does not recommend a "preferred" method of borrowing. In choosing its financing strategy, a state must consider factors such as constitutional constraints, federal loan requirements, the size of the funding problem, interest rates on alternative debt instruments, and the terms and conditions of debt repayment. Finally, the paper summarizes the experiences of state UI programs that borrowed and repaid loans from the private bond market during earlier recessions.

State UI programs function as a built-in or automatic stabilizer of the macroeconomy, with benefits payouts rising sharply during recessions. The pattern of recession-related benefits payments also reflects developments specific to each individual recession. Accordingly, we begin with a review of the 2001 downturn and recovery, to provide key background information for understanding recent UI funding experiences.

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2. The Recession of 2001

The economic downturn of 2001 was mild—so mild, in fact, that its dating was not finally established until more than one year after its trough. In most post–World War II recessions, the quarterly decrease in real GDP was roughly 1 to 3 percent for one or two quarters, followed by a rebound in which real GDP growth often exceeded 4 percent for one or two quarters. During earlier episodes, changes in the unemployment rate occurred at nearly the same time as the changes in real GDP. For the eight recessions between 1949 and 1982, the month of highest unemployment occurred within four months of the month deemed to have been the trough by the experts at the National Bureau of Economic Research who officially date U.S. recessions.

The recessions of the early 1990s and of 2001 differed in important respects from the earlier downturns. The decrease in real GDP has been smaller and the rebound in real GDP has been more modest. Probably most relevant for the present discussion, the time interval between the business cycle trough and the peak in unemployment has lengthened. The official cyclical trough for the recession of the early 1990s was March 1991, but the highest unemployment rate occurred in June 1992, fifteen months later. The corresponding dates for the 2001 recession were November 2001 for the official cyclical trough and June 2003 for the peak unemployment rate, an interval of nineteen months.

During the recovery from the 2001 recession, labor productivity growth has been rapid, allowing output increases to be achieved with little increase in employment. The result has been a long period of sticky unemployment rates. After averaging 4.0 percent in 2000, the monthly unemployment rate increased steadily during 2001, reaching 5.7 percent in December. The seasonally adjusted unemployment rate has equaled or exceeded 5.4 percent in every month between November 2001 and December 2004.

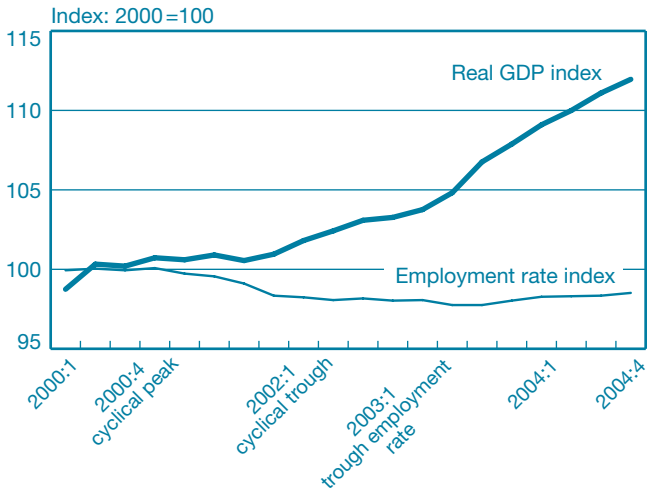
Chart 1 summarizes quarterly macroeconomic developments from 2000 through 2004:4. Real GDP and the employment rate (100 minus the unemployment rate) have both been indexed at 100 for 2000 and then traced through the recession and recovery. The real output path in 2001 is remarkably flat and then increases at a modest pace during 2002 and the first two quarters of 2003. The acceleration in real GDP growth during the last half of 2003 and continuing into 2004 is apparent from the chart.

The employment rate in Chart 1 declined during 2001 and then was remarkably flat in the twelve quarters of 2002-04. In every month between November 2001 and December 2004, the absolute level of unemployment was 8 million or higher. The 8-million threshold is evident in Chart 2.

We note that the peak unemployment rate following the recession of 2001, 6.3 percent in June 2003, was not high by historic standards. During the four preceding recessions, the peak unemployment rate exceeded 7.5 percent, and for two (May 1975 and November 1982), the peak rate was 9.0 percent

Chart 1

Quarterly Indexes of Real Output and the Employment Rate
2000:1 to 2004:4

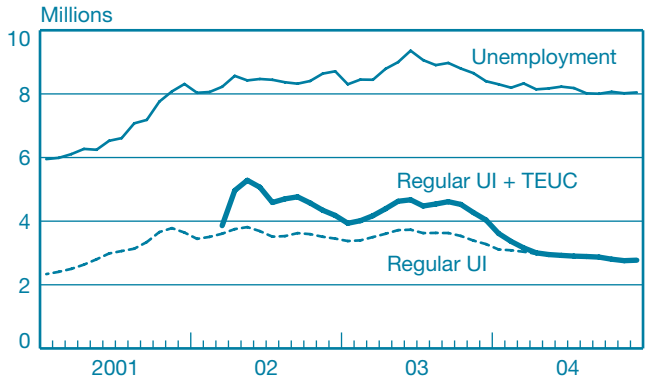


Sources: U.S. Department of Commerce (real GDP); U.S. Department of Labor, Bureau of Labor Statistics (employment rate).

Notes: The employment rate is 100 minus the unemployment rate. Real GDP growth in 2004:4 was 3.1 percent.

Chart 2

Unemployment and Unemployment Insurance (UI) Claimants
January 2001 to December 2004



Sources: U.S. Department of Labor, Bureau of Labor Statistics (unemployment); U.S. Department of Labor, Office of Workforce Security (UI claimants).

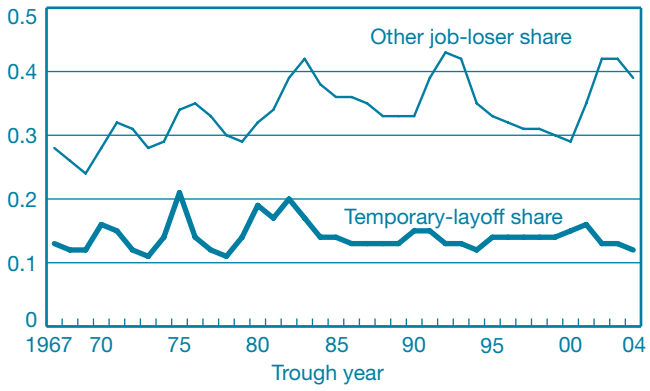
Notes: All data are seasonally adjusted. TEUC is Temporary Extended Unemployment Compensation.

or higher. What is unusual about the 2001 recession is the long duration of the spells experienced by the unemployed. Mean and median durations in 2003 and 2004 were higher than their counterparts in the early 1990s recession and were at roughly the same levels as those in the major back-to-back recessions of the early 1980s.

To illustrate the unusually long unemployment durations of the recent recession, we examine annual averages from the monthly labor force survey for all ten post–World War II recessions. Mean duration was noted from 1949 to 2004 and median duration from 1967 (the earliest available year) to 2004. The means for 2003 and 2004 (19.2 and 19.6 weeks, respectively) were exceeded only by the mean of 20.0 weeks in 1983. Similarly, the medians for 2003 and 2004 (10.1 and 9.8 weeks, respectively) were the highest ever, except for the median of 10.1 weeks of 1983. Both sets of 2003-04 two-year averages were higher than the two-year averages from any previous recession.

Contributing to this high unemployment duration has been a high rate of permanent job separations. Using annual data from 1967 to 2004, Chart 3 displays two series showing persons on temporary layoff and other job-losers as a proportion of total unemployment. Other job-losers are persons who have been terminated by their employers without a definite recall date, and, since 1994, persons whose temporary job assignments have ended. All have little or no prospect of returning to work with their former employers. In contrast, most on temporary layoff will be recalled within thirty days.

Chart 3
Temporary-Layoff and Other Job-Loser Shares of Unemployment
1967 to 2004



Source: U.S. Department of Labor, Bureau of Labor Statistics.

Notes: The chart shows the proportions of total unemployment. Other job-losers include persons who completed temporary jobs as well as permanent job-losers.

Average unemployment durations for the two groups differ sharply. In 2004, for example, only 6.2 percent of those on temporary layoff experienced an unemployment duration of twenty-seven or more weeks, compared with 28.0 percent for other job-losers. Nearly all of the latter group must find work with a different employer. Securing work with a new employer presents challenges for many, but it was especially difficult during 2002-04, when employment growth was very low.

The x-axis of Chart 3 identifies the trough years for the six recessions since 1967, years when data on reasons for unemployment are available. For the first four (1970, 1975, 1980, and 1982), note how the temporary-layoff proportion increased in the trough year and the other job-loser share increased one and two years following the trough year. During the recessions of 1990 and 2001, the pattern of increase among other job-losers closely resembles that of the earlier recessions (with perhaps a larger increase)—that is, highest one and two years after the trough year. However, note how little the temporary-layoff proportion increased in 1990 and 2001. In these two recessions, employers relied more immediately on permanent separations to make employment adjustments. This increased reliance on permanent separations helps explain the long average unemployment durations of 2003 and 2004.

This recent period of high unemployment has also seen persistently high claims for regular unemployment insurance program benefits.[1] Chart 2 shows that as unemployment increased during 2001, the number of claimants increased from about 2.2 million and reached 3.0 million by mid-year. The number then remained above 3.0 million through March 2004. For the July 2001-December 2004 period, the monthly average exceeded 3.3 million. Two features of UI claims during 2002-04 have been the long average duration of claims and the high rate of exhaustion of benefits. UI claimants have faced greater difficulties in securing new jobs than they have in several previous recessions even though average 2002-04 unemployment rates were low compared with those of earlier recessions.

Experiencing a long period of high claims volume means that states were faced with high UI benefits costs even though real GDP was increasing. This again illustrates the fact that during the recovery from the 2001 recession, the labor market and the product market have not behaved identically. In 2002 and 2003, regular UI programs paid about $40 billion in benefits per year, or twice the annual payments in 1999 and 2000. Even in 2004, payouts totaled about $35 billion. While the cost rates (benefits as a percentage of covered payroll) for the regular UI program during 2002-04 were not unusually high by historic standards, the long interval of high claims volume has caused major drawdowns in state UI trust funds.

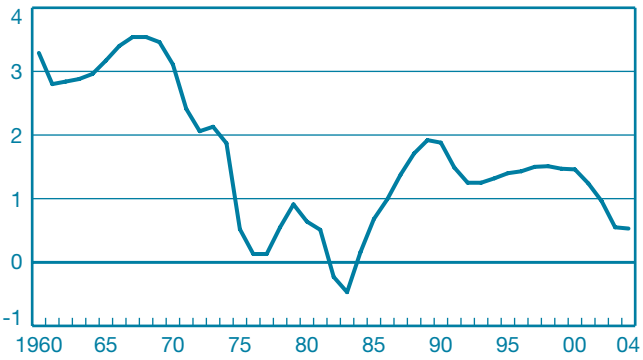
Chart 4 also presents the volume of claimants under the emergency federal benefits program known as Temporary Extended Unemployment Compensation (TEUC). Claims were highest during April-June 2002 (more than 1.3 million per month), immediately after the program began in mid-March. The high initial caseload included many who had exhausted regular UI well before the start of TEUC. Following this initial bulge, the numbers averaged nearly 0.9 million or roughly 20 percent of the combined (regular plus TEUC) UI claims load between July 2002 and December 2003. TEUC paid about $10 billion in both 2002 and 2003. Because TEUC was fully federally financed, it does not enter our discussion, which focuses on state UI financing experiences.

3. Aggregate UI Trust Fund Balances

The long period of high regular UI claims has substantially reduced state unemployment insurance trust fund balances. Total net reserves across the fifty-three programs (the fifty states plus the District of Columbia, Puerto Rico, and the Virgin Islands) decreased from $54.1 billion at the end of 2000 to $20.0 to $21.0 billion at the end of both 2003 and 2004.[2]

Chart 4 traces developments in aggregate UI trust fund balances from 1960 to 2004. Since absolute balances do not incorporate growth in the scale of the economy, reserves are more accurately tracked by measuring them relative to annual UI covered wages, termed a reserve ratio. The design of UI financing arrangements anticipates that trust funds will be drawn down during recessions and replenished during recoveries. Chart 4 identifies five recessionary periods with major trust fund reductions,[3] with the largest changes occurring during 1974-76 and 1980-83. Compared with these earlier periods, the drawdowns during 1991-92 and 2001-03 were more modest.

Chart 4
Aggregate Unemployment Insurance Reserve Ratio
1960 to 2004



Source: U.S. Department of Labor, Office of Workforce Security.

Note: The chart shows the reserve ratio minus net reserves as a percentage of payroll, as of December 31.

Using reserve ratios as an indicator of UI trust fund health, we observe how the ratios fall neatly into two broad time periods. Prior to 1975, all reserve ratios exceeded 2 percent, but after 1975 no ratio exceeded 2 percent. There has been a long-run trend toward smaller balances when reserves are measured relative to an economywide aggregate like total covered payroll.[4]

Note the very low reserve ratios during 1975-76 and during 1982-83 when the overall ratio was actually negative. These two periods were characterized by large-scale borrowing by the states to pay benefits and by substantial adjustments in UI benefits and taxes to improve program solvency. Twenty-five state UI programs borrowed during 1975-76 while thirty-two borrowed during 1980-83. Despite present difficulties in many states, the current funding situation is much better than it was during these earlier periods.

Chart 4 traces the increases in reserve ratios during four periods of economic expansion: 1961-69, 1977-79, 1983-89, and 1993-2000. Note the large increases in the reserve ratio between 1984 and 1989—years of strong economic growth. Additionally, because more than half the states had required loans from the U.S. Treasury during 1980-83, there was strong motivation to restore trust fund balances to higher levels. Sustained reserve accumulations were widespread, and the aggregate reserve ratio increased from -0.47 percent at the end of 1983 to about 1.90 percent at the end of 1989 and 1990. This was the largest sustained accumulation of reserves for the four recovery periods depicted in Chart 3.

The rapid pace of trust fund building during 1983-89 stands in sharp contrast to the experiences of the 1990s. Note that the reserve ratio only increased from 1.25 percent at the end of 1992 and 1993 to about 1.50 percent at the end of the decade. The failure of aggregate reserves to grow more rapidly during these years reflects the cumulative effects in several states of UI tax reductions and slow growth in taxable wages caused by limits on taxable wages per covered worker. Thus, entering the 2001 recession, aggregate trust fund reserves were less adequate than they were just before the 1990-91 recession. In fact, the prerecession reserve ratio of 1.46 percent in December 2000 was lower than it was in all recessions back to 1949, with the sole exception of 1979. The $54.1 billion in the state UI trust funds at the end of 2000 simply was not that large when measured relative to the overall scale of the U.S. economy.[5]

It should be noted that the fund balances underlying Chart 4 include the $8 billion distributed to the states in March 2002 under provisions of the Reed Act. Absent this distribution, reserve ratios at the end of 2002, 2003, and 2004 would have

been lower, for example, 0.31 to 0.33 percent in 2003 and 2004 rather than 0.53 to 0.55 percent, as shown in Chart 4. This $8 billion infusion prevented larger drawdowns of reserves and helped the financing situation of many states.

The Reed Act distribution of 2002 also gave states increased flexibility in the use of UI trust fund moneys. Tax receipts deposited into state UI trust funds can be used for only a single purpose: to pay UI benefits. Reed Act deposits, in contrast, can be used to finance UI administration and/or worker adjustment programs as well as to pay benefits. Several states have used their Reed Act moneys to support such activities.

4. Trust Fund Balances in Individual States

The standard measure of trust fund adequacy for an unemployment insurance program is the reserve ratio (or high-cost) multiple. This is a ratio measure that recognizes three factors: the trust fund balance at a point in time, annual covered payroll, and the highest cost rate experienced by the state in the past. The numerator of this ratio is the reserve ratio (the trust fund balance as a percentage of payroll), exactly analogous to the national reserve ratio series displayed in Chart 4. The denominator is the highest previous twelve-month cost rate (benefits as a percentage of payroll). Most who study trust fund reserve adequacy recommend that a state achieve a prerecession reserve ratio multiple of at least 1.0, or sometimes 1.5. Having a multiple of 1.0 means that the trust fund can support twelve months of payouts at the historically highest payout rate.

In practice, many individual states have fallen short of achieving this solvency standard. At the end of 2000, the national reserve ratio multiple was only 0.66,[6] and just eleven states had multiples that exceeded 1.0. By the end of 2003 and 2004, the national reserve ratio multiple had decreased to 0.24-0.25, or by about 0.41. During the recession, as in past recessions, the UI program has performed a stabilizing function for the macroeconomy by having much larger benefits payouts than tax collections. The expectation is that the drawdown will be reversed in the ensuing recovery as tax revenues will increase through experience rating, exceed benefits payouts, and replenish the state trust funds.[7]

Having a low reserve ratio multiple prior to a recession means that a state will have less time to make solvency adjustments if it wants to avoid exhausting its trust fund. Although a well-established borrowing mechanism exists, states prefer to avoid borrowing if possible. In the past, especially during 1975-77 and again during 1980-83, widespread and large-scale borrowing occurred. States with low and negative UI reserves then responded with legislation to raise UI taxes and reduce benefits. Part of the tax response occurs automatically through experience rating, but the states also made other adjustments to taxes and benefits to improve solvency.[8]

The recession of 2001 affected nearly all states by lowering employment and increasing unemployment. When we compare state unemployment rates for 2000 and 2003, we see that all states had higher unemployment in 2003 except Hawaii (no change) and Montana (lower by 0.3 percentage point). Across all fifty-three "state" UI programs, only three experienced increases in their reserve ratio multiples between December 2000 and December 2003 (Hawaii, Maine, and North Dakota) while fifty experienced reductions.

Seventeen states entered the 2001 recession with reserve ratio multiples lower than 0.60. Between the end of 2000 and the end of 2003, almost exactly half (eight) of the seventeen states experienced above-average reductions in their reserve ratio multiples. Many of the states with low prerecession reserve ratio multiples have had to borrow to make benefits payments. Thus, low initial reserves and above-average reductions in reserves contributed to the UI funding problems in individual states.

Table 1 provides descriptive details for fifteen states with low reserve ratio multiples, all below 0.25, at the end of 2003. The states are divided into two groups: nine that had undertaken some form of borrowing during 2002-04 (panel A) and six that had low reserves but no borrowing through the end of 2004 (panel B).

Note the large size of the states in Table 1 (column 1).[9] Panel A contains four of the five largest states and eight of the largest fifteen. Combined, the two panels include eleven of the fifteen largest states. In fact, just one of the fifteen states, Arkansas, is below average in size.[10] Using the prerecession reserve ratio multiple as an indicator of prudent UI trust fund management, we see that the large states, on average, have been less prudent managers than the small states. The simple (unweighted) average reserve ratio multiple for the thirteen largest states at the end of 2000, based on total payroll, was 0.54 (roughly half of the recommended standard), compared with 0.98 for the thirteen smallest states.

Columns 2-4 of Table 1 focus on losses of reserves during 2001-03. Reserves are measured on a net basis, such that outstanding loans are subtracted from the gross balances held in the state accounts at the U.S. Treasury.[11] For the same three-year period, the national multiple decreased by 0.41. Among the nine states in panel A, only New York experienced a below-average decrease in its reserve ratio multiple. Note in panel B that Colorado and Virginia experienced very large losses in reserves during 2001-03.[12]

Column 5 of Table 1 identifies the time of each state's first borrowing, while columns 6 and 7 present each state's level of indebtedness at the end of 2003 and 2004, respectively. The total for six states was $3.2 billion in both years. Borrowing is seasonal, being especially large during January-March, as payouts are high while tax receipts are low. This borrowing, termed cash-flow loans, is often followed by repayments that occur after first-quarter taxes are received. For example, total state UI indebtedness to the U.S. Treasury from all borrowing at the end of March 2004 was $5.6 billion, but it was only $3.6 billion at the end of June 2004.

California, Massachusetts, and Pennsylvania first borrowed in 2004. Pennsylvania's borrowing was from another state fund, the Motor License Fund. This was effectively a cash-flow loan to cover a potential revenue shortfall in the months just prior to the large seasonal revenue inflow of April-May. A loan of $300 million was secured in March and was fully repaid in May. Borrowing by California ($238 million) and Massachusetts ($418 million) was also fully repaid by the end of May 2004. One or more of these three states may have to borrow again during the early months of 2005.

Most states faced with declining trust fund reserves would follow one of two courses of action. A state can try to "ride it out," hoping that the economic recovery will improve revenues and reduce benefit outlays sufficiently for the trust fund to bottom out before reaching zero. The main element of a ride-it-out approach is to rely on an automatic response of UI taxes through experience rating (and, in some states, automatic benefits reductions). Experience rating causes UI taxes to increase automatically when trust fund balances fall below designated thresholds. Column 8 of Table 1 identifies states with experience rating responses to the trust fund drawdowns caused by the 2001 recession.[13]

A second possible response is to "do something" legislatively. Usually this legislation features a combination of tax increases and benefits reductions. Panel A, column 9, shows

Table 1

Summary of Trust Funds, Borrowing, and Solvency Legislation in Selected States as of December 31, 2004

	State Size Rank	Reserve Ratio Multiple (RRM), 12/00	RRM, 12/03	Change in RRM, (3)-(2)	Year of First Loan	Unemployment Insurance Debt (Millions of Dollars) 12/03	12/04	Experience Rating Response	Solvency Legislation	Bond/Note Authorization	Bond/Note Issuance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: States that have borrowed											
California	1	0.51	0.09	-0.43	2004	0	0	Yes	No	No	No
Illinois	5	0.42	-0.10	-0.52	2003	511	712	Yes	2003	Yes	Yes
Massachusetts	13	0.55	0.02	-0.54	2004	0	0	Yes	2003	No	No
Minnesota	15	0.50	-0.11	-0.61	2003	176	123	Yes	2003	No	No
Missouri	19	0.36	-0.10	-0.46	2003	143	288	Yes	2004	Yes	No
New York	2	0.16	-0.10	-0.26	2002	751	691	Yes	No	No	No
North Carolina[a]	12	0.69	-0.07	-0.76	2003	172	269	Yes	No	Yes	Yes
Pennsylvania	6	0.58	0.15	-0.43	2004	0	0	Yes	No	No	No
Texas	3	0.24	-0.19	-0.43	2002	1,400	1,167	No	2003	Yes	Yes
Panel B: States with low reserves at end of 2003											
Arkansas	33	0.42	0.09	-0.33		0	0	Yes	2003	No	
Colorado	21	0.91	0.15	-0.76		0	0	Yes	No		
Connecticut	22	0.41	0.20	-0.21		0	0	Yes	No		
Michigan	9	0.59	0.24	-0.35		0	0	Yes	No		
Ohio	7	0.50	0.19	-0.31		0	0	Yes	No		
Virginia	11	0.84	0.17	-0.67		0	0	Yes	2003	No	

Sources: U.S. Department of Labor, Office of Workforce Security; information gathered by author.

[a]Net reserves in December 2000 include $200 million in the state's reserve fund.

that five states that have borrowed enacted solvency legislation in 2003 or 2004. (Important details of these legislative responses are given in Section 5.) Arkansas and Virginia also enacted legislation that included solvency provisions.

One possible element of a legislative response is to authorize and then to issue state debt instruments. This represents an alternative to using loans from the U.S. Treasury. To date, four states have authorized this form of borrowing, and Illinois, North Carolina, and Texas have issued state debt instruments. A principal argument for this financing strategy is that it is less costly because of the low interest rates on state-issued debt. Compared with loans from the Treasury under provisions specified by Title XII of the Social Security Act, state debt instruments may carry interest rates some 200 to 300 basis points or more below the interest rates on Title XII loans.

Section 6 discusses borrowing alternatives. It covers state bond issuances of earlier recessions as well as the issuances of 2003 and 2004. The requirements on states and other details of Title XII loans are included in that discussion.

5. State Solvency Legislation of 2003-04

States have responded to their trust fund drawdowns in different ways. Column 9 of Table 1 identifies the states with low reserves where legislation was passed in 2003 or 2004 to improve solvency.[14] Five with solvency legislation are states with some type of borrowing during 2002-04.

Table 2 focuses on the details of the solvency adjustments made by seven states where borrowing occurred between December 2002 and the end of 2004. Five states enacted some type of solvency package while North Carolina implemented an administrative response. Pennsylvania is also included in the table because it has automatic provisions that respond to trust fund drawdowns.[15]

The table identifies detailed aspects of benefits reductions, tax increases, and borrowing activities for the seven states. Four states (Illinois, Massachusetts, Minnesota, and Missouri) have included in their solvency packages several traditional provisions of benefits reductions and tax increases. The other three states have followed more unusual approaches to achieve improved solvency. We begin with Illinois and Pennsylvania.

In the late 1980s, Illinois and Pennsylvania modified their unemployment insurance statutes to implement a funding strategy that has been described as flexible financing. Unlike the traditional advance funding strategy, which relies on having a large fund balance prior to a recession, flexible financing deliberately aims to have a small fund balance, but then to activate automatic tax increases and benefits reductions to counteract a recession-related trust fund drawdown.

One can question the rationale for flexible financing. Household income and business profits both decline during recessions. Imposing added economic burdens on the parties during a recession, that is, reduced benefits and higher taxes, seems an inappropriate action to many. In addition to this objection, there is a second important question: Does flexible financing actually work? During the recession of 1990-92, Illinois and Pennsylvania did not experience important financing problems, as neither state is among the seven that secure loans to pay UI benefits.[16] However, both states have experienced financing problems following the 2001 recession, hence their inclusion in Table 2.

The flexible financing provisions adopted by Illinois in the late 1980s included modifications of its tax-setting mechanism and provisions to freeze or reduce the maximum weekly benefit in response to a trust fund drawdown. Different triggers were established to activate individual solvency features. These included specific trust fund threshold amounts to trigger individual tax features along with the use of changes in tax rates and first-payment volume as well as a trust fund threshold to activate solvency-related benefits reductions. Other features of this legislation included a redefinition (reduction) in the weekly wage used to calculate maximum weekly benefits and the establishment of a floor for the state experience factor used to set the rate for the solvency tax. In reality, the latter two features were not flexibility features because they operated in all years after 1988. Nevertheless, this package was described as flexible financing by the then-director of the Illinois UI program,[17] and it helped to justify a policy of maintaining a modest UI trust fund balance.

Pennsylvania's UI law includes four flexible financing features. All four operate automatically as the level of a single solvency trigger—UI reserves on June 30 as a percentage of annualized benefits payments for the preceding thirty-six months—changes over seven designated ranges. The four features are: 1) a solvency surcharge on employers that can range from a minimum of -2.5 percent (a tax reduction) to a maximum increase of 7.2 percent of the basic UI tax liability, 2) a flat-rate (additional) surcharge on employers of up to 0.6 percent of taxable wages, 3) an employee tax of up to 0.09 percent of total covered wages, and 4) a weekly benefits reduction of 2.3 percent.

The solvency features were active during 2003 and 2004, and are slated to be in effect at least through 2005 and 2006. During 2003, a solvency surcharge of 3.6 percent was in effect along with an employee tax of 0.02 percent. In 2004, the surcharge was 7.2 percent, the flat tax was 0.4 percent, and the employee

tax was 0.09 percent. During 2005-06, all four features are projected to be operative at their respective maxima. Thus, Pennsylvania's flexible financing strategy is being seriously tested. It will be of interest to note whether or not the four features will act with enough combined strength to restore the fund balance without the need for additional borrowing or the need for new solvency legislation. The entries in Table 2 for Pennsylvania refer to the activation of its automatic features during 2003-06.

Pennsylvania's borrowing from the Motor License Fund had two motivations. First, and most obvious, the state wanted to ensure that its trust fund balance was adequate to make benefits payments during March-May without borrowing from the U.S. Treasury. Second, it wanted to ensure that some of its Reed Act moneys (included in the state's UI trust fund balance) would remain available for future uses other than paying benefits.[18]

Unlike Pennsylvania, the other six states in Table 2, including Illinois, have all implemented some form of active initiative to address their UI funding problems. Five enacted new legislation while North Carolina responded administratively. The North Carolina Council of State, a select committee of elected department heads such as the state treasurer and headed by the governor, authorized the issuance of tax-anticipation notes secured by future UI tax revenues. North Carolina issued $172 million of tax-anticipation notes in 2003 and fully repaid the notes with UI tax receipts from January to May 2004. During 2004, it again borrowed from the

Table 2
Solvency Adjustments in Selected States

	Illinois	Massachusetts	Minnesota	Missouri	North Carolina	Pennsylvania	Texas
Solvency legislation in 2003 or 2004	Yes	Yes	Yes	Yes	No	No	Yes
Benefits reductions							
Monetary eligibility	Y[a]			X			
Replacement rate	X					X	
Maximum weekly benefit	X		X	X,Y		X	
Maximum duration		X					
Waiting week				X,Y			
Other reductions		X[b]	X[c]	X[d]			
Increased taxes							
Solvency taxes	X	X	Z	X		Z	W
Maximum rated employers	X	X		X			
Tax schedule triggers			X				
Taxable wage base	X	X		X			
Borrowing activities							
Loans from U.S. Treasury	X	X	X	X	X		X
Bond/note authorization	X			X	X		X
Bond/note issuance	X				X		X
Loan from state account						X	

Source: Information gathered by author.

Key:
X = Benefits reduction, tax increase, or loan-related activity.
Y = Benefits increase.
Z = Increases in two solvency tax provisions in Minnesota and three provisions in Pennsylvania.
W = Reduction in solvency taxes.
[a]Alternative base period created, to become operative in 2008.
[b]Increased penalties for fraud and overpayments, tightened eligibility for employees of temporary-help agencies.
[c]New unemployment insurance benefit offsets against severance pay and vacation pay.
[d]Increased penalties for misconduct, new language for misconduct related to drug and alcohol abuse.

U.S. Treasury, repaid the January-September Title XII loans at the end of September, and issued new tax-anticipation notes totaling $269 million during the September-December 2004 period. These issuances will be repaid with UI tax receipts from the initial months of 2005.

Two aspects of North Carolina's strategy are noteworthy. First, it is carefully adhering to the requirements for interest-free borrowing under Title XII. Loans from the Treasury are repaid before September 30 and no new borrowing from the Treasury takes place between October 1 and December 31. Second, it is operating exclusively with short-term notes for its interest-bearing loans. Given the upward slope of the term structure of interest rates—the association between interest rates and the maturity date of debt instruments—this action ensures that the state will borrow at very low short-term rates, for example, about 1.1 percent for the notes issued in 2003 and 1.8 percent for those issued in 2004.

Texas is the third state to follow a nonstandard approach to its UI financing problem. It entered the 2001 recession with one of the lowest reserve ratio multiples of all states (0.24, as shown in column 2 of Table 1), and it started to borrow in December 2002. By September 2003, its indebtedness totaled about $280 million. Late in the month, Texas authorized $2.0 billion in state bonds and issued a total of $1.4 billion in state debt instruments. These were issued as four separate series, differing in their tax status and call features. The bonds have maturity dates of between July 2004 and January 2009, but over half are callable so that they can be retired before maturity.

Part of the bond proceeds was used to repay all outstanding Title XII advances and the rest was deposited into the Texas UI trust fund. These actions allowed the state to avoid interest charges on its Title XII loans of roughly $17 million and a large UI tax surcharge that would have been due on January 1, 2004. The surcharge (deficit tax) would have totaled about $750 million and would have been levied on top of other UI taxes for 2004. The bond issuance allowed employers to pay much lower taxes in 2004 compared with their obligations under the earlier Texas tax statute.

Thus, while UI taxes paid in 2004 were higher than they were in 2003, they are much lower than would have been the case absent the bond issuance. By issuing bonds, Texas smoothed tax obligations and will spread repayment over five years. Texas also borrowed at a lower interest rate than the rate charged on Title XII advances. State officials estimate that more than $300 million in interest has been saved as a result. Additional details of the Texas bond issuance are discussed in Section 6.

The other four states in Table 2 enacted solvency legislation that included several traditional adjustments, that is, tax increases and benefits reductions. In all four states, tax increases accounted for most of the solvency adjustments.[19] All four states increased one or more aspects of solvency taxes triggered by low trust fund balances. Three of the four also increased their taxable wage base. Note that in Illinois and Missouri, benefits liberalizations as well as benefits reductions were part of the legislation.

Of the states with solvency tax increases, in Massachusetts the changes were especially noteworthy. In setting taxes for the upcoming year, Massachusetts examines the statewide reserve balance on August 31 and sets its solvency tax, assessed as a reduction in the employer's trust fund account on the computation date, as a percentage of taxable wages. Legislation of December 2003 empowered the Department of Employment and Training to levy a solvency assessment that would cover not only traditional costs, such as noncharged benefits, but would also ensure that the state repays all outstanding Title XII loans secured before September 30 and collects enough additional revenue so as not to borrow between October 1 and December 31. In effect, this new authority ensures that Massachusetts will avoid interest charges on Title XII loans but adds uncertainty among employers liable for the solvency assessment in September. The new solvency provisions had their first test in 2004, but reserves were deemed sufficient to avoid an extra assessment of Title XII interest charges.

The solvency legislation in two of the four states, Illinois and Missouri, included authorizations to issue state notes/bonds. Illinois authorized $1.4 billion and issued bonds totaling $712 million on July 1, 2004. Missouri authorized $450 million in three-year notes, did not act in 2004, but has been examining options and could issue notes in 2005. (More details on state issuances are presented in Section 6.)

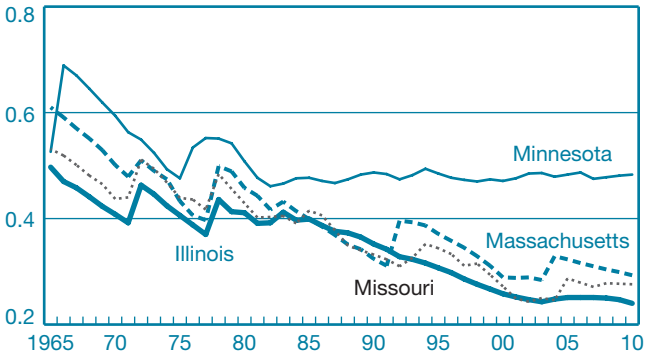
As noted in Table 2, solvency legislation in three states—Illinois, Massachusetts, and Missouri—increased the UI taxable wage base. Massachusetts raised its base from $10,800 per employee in 2003 to $14,000 in 2004, where it is slated to remain for ensuing years. Illinois and Missouri raised their tax bases in annual steps after 2004, to reach $12,300 and $12,500, respectively, in 2009, and possibly $13,000 for each state in 2010. Minnesota, which already has an indexed taxable wage base, did not alter its tax base.

Chart 5 traces the taxable wage proportions for these four states from 1965 to 2010. The proportions through 2003 are based on historic data while the estimates for 2004-10 are based on regressions. The peaks in the sawtooth patterns identify years of major increases in the taxable wage base, including the federally mandated increases in 1972, 1978, and 1983.

Three aspects of Chart 5 are noteworthy. First, the proportions for the earliest years are substantially higher than they are for the latest years. Second, the pattern for Minnesota departs substantially from the other three patterns. The state

Chart 5

Taxable Wage Proportions for Four States
Actual (1965 to 2003) and Projected (2004 to 2010)



Sources: U.S. Department of Labor, Office of Workforce Security (actual); author's calculations (projected).

adopted indexation in 1982; since then, the taxable wage proportion has varied within a narrow range of between 0.47 and 0.50, while it has declined in the other three states. Third and most important are the generally small effects of the tax base increases after 2004. In Massachusetts, the taxable wage proportion changed much more between 1991 and 1992 (increasing from 0.31 to 0.40) following the tax base increase of 1992 than it did between 2003 and 2004 (from 0.28 to an estimated 0.33). The increases in Illinois after 2004 roughly match wage growth (assumed to be 3 percent per year), so the higher tax base from the new legislation does not substantially increase the taxable wage proportion. In all three states, the taxable wage proportion in 2010 is substantially lower than it was during the mid-1990s, despite recent legislation to raise the tax base.

6. State Borrowing Options

States with inadequate unemployment insurance reserves and the need for loans to pay benefits have two broad borrowing options: from the U.S. Treasury or from the private capital market. Throughout the history of UI, the majority of states have utilized advances from the U.S. Treasury under loan provisions specified in Title XII of the Social Security Act. During 1974-79, twenty-five separate programs borrowed from the Treasury, with loans totaling $5.54 billion. Between 1980 and 1987, thirty-two different programs, including those of Puerto Rico and the Virgin Islands, borrowed a total of $24.0 billion. More recently, seven states needed loans in the recession of the early 1990s and eight borrowed from the Treasury between December 2002 and December 2004. Roughly three-quarters of the programs have borrowed from the Treasury at some point. The terms of these loans are well understood and are briefly summarized below.[20] In contrast, only six states have borrowed from the private capital market to finance trust fund deficits.

6.1 Borrowing from the U.S. Treasury

Short-term (cash-flow) borrowing from the Treasury does not carry interest charges when certain provisions are met. The most important of these are the full repayment by the end of September of all loans secured between January and September, and the absence of new borrowing during October-December. As noted above, these loans help to maintain benefits payments in the early months of the year, when monthly outlays are highest but revenues are lowest.

Loans that last longer carry interest charges levied at an interest rate equal to the rate earned on positive fund balances, that is, the rate on longer term Treasury debt. In 2003-04, this rate was close to 6 percent. Interest is charged on the average daily balance of debt. States with funding problems manage their debts with the objective of ending each day with a UI trust fund balance of zero. Thus, either borrowing or debt repayment occurs each day, a strategy that minimizes the average daily balance.

Repayment of the principal on Treasury loans may come from the trust fund or from external sources. Repayment of interest, in contrast, must come from an external source. States are obligated to use their trust funds only to pay benefits, except for unusual circumstances such as trust fund moneys received from special Reed Act distributions. The principal can be repaid from the trust fund balance because the original debt was incurred to pay benefits.

Title XII also has provisions to ensure automatic repayment of outstanding debts. When the principal on a loan has been outstanding on January 1 of two consecutive years and remains unpaid as of November 1 of the second year, an automatic flat-rate assessment on federal taxable wages is levied starting in January of the following year and continuing until the debt is fully repaid. The penalty rate starts at 0.3 percent and rises by increments of 0.3 percent or more during subsequent years.[21] Debts are repaid starting with the oldest. New York employers will pay this penalty tax in 2005.

When debt repayment takes place through increased federal taxes (reduced credit offsets), the taxes are paid at a single rate by all employers regardless of experience. The desire to avoid such flat-rate assessments was an important consideration of Illinois in using bond financing in 2004. The majority of the

state's debt repayments will be from experience rated taxes, such as solvency taxes paid into the UI trust fund, and only a minority will be from flat-rate assessments to repay fixed-term bonds issued in July 2004.[22]

A final aspect of borrowing from the Treasury that is relevant today pertains to the disposition of moneys received by the states under the Reed Act, most recently the $8 billion disbursement of March 2002. As noted earlier, states can use these moneys to finance UI-ES administration and worker adjustment activities as well as to pay for benefits. However, any Reed Act moneys not specifically obligated for one of these "alternative" uses must be fully used up in paying benefits before a state can receive a Title XII loan. Pennsylvania's borrowing from the Motor License Fund was undertaken to preserve some of its Reed Act moneys for alternative uses.

6.2 Borrowing from the Capital Market

Starting with Louisiana and West Virginia in 1987, six states have secured loans from the private capital market to cover unemployment insurance funding deficits. Table 3 gives some details of the loans. The first three states to utilize these loans have completed their repayments while the three that borrowed recently have only started theirs. In addition to the six states, Table 3 also includes Missouri, which has authorized this type of borrowing but had not yet issued debt instruments as of the end of December 2004.

Several uncertainties surround this form of borrowing, and they are reflected in the provisions of the debt issuances. Should the state economy perform worse than expected during the repayment period, there could be a need for additional borrowing. Note in columns 2 and 3 of Table 3 that Louisiana and West Virginia borrowed their full authorizations, while Connecticut, Texas, and Illinois issued less than their full legislative authorizations. The latter arrangement allows for additional borrowing without the need for new legislation. Connecticut found that it did not need additional loans, but Texas and Illinois at present retain the authority to borrow some $600 to $700 million more should the need arise.

Column 4 shows a clear pattern in the loans—size is much smaller in the present decade than it was in the 1980s and 1990s. Even if Missouri borrows its full authorization, the amount will represent only about 0.6 percent of covered wages.

Table 3
Loans to Unemployment Insurance Programs from the Private Capital Market

State	Issuance Year (1)	Loan Authorization (2)	Loan Amount (3)	Loan/ Payroll[a] (4)	Maximum Bond Maturity (5)	Fixed-Rate Bonds (6)	Variable-Rate Bonds (7)	Some Bonds Callable? (8)	Some Bonds Convertible? (9)	Year Fully Repaid (10)
Recessions before 2001										
Louisiana	1987	1,315	1,315	6.3	2002	Yes - 1,315		Yes		1994
West Virginia	1987	258	258	3.2	1993	Yes - 258		Yes		1991
Connecticut	1993	1,142	1,021	2.6	2001	Yes - 450	Yes - 571	Yes	Yes	2001
2001 recession										
Texas	2003	2,000	1,400	0.5	2009	Yes - 800	Yes - 600	Yes	Yes	
North Carolina	2003	[b]	172[b]	0.2	[b]					
	2004	[b]	269[b]	0.2	[b]					
Illinois	2004	1,400	712	0.4	2013	Yes - 340	Yes - 372	Yes	Yes	
Missouri	2004	450	[c]							

Source: Information supplied to author by individual states.

Note: Dollar amounts are in millions.

[a]Loan amount is expressed as a percentage of total state payroll of taxable covered employers in year of issuance.

[b]Borrowing authorized by administrative action. Amount determined on an "as-needed" basis. $172 million was borrowed in 2003; $269 million was borrowed in 2004. Notes were repaid in the year following their issuance, using unemployment insurance tax receipts.

[c]Nothing issued as of January 2005.

For Louisiana in particular, it seems that the loan of 1987 was unnecessarily large. Its borrowing was fully repaid in seven years, not in the fifteen years potentially contemplated at issuance. Similarly, West Virginia fully repaid its loans in four years, not in the six years originally authorized.

Because of uncertainty about future macroeconomic performance and future interest rates, the bonds were issued with hedging features. As noted in column 8 of Table 3, all five bond issuances have had early redemption (call) provisions. Interest rate uncertainty is addressed by having variable-rate bonds in Connecticut, Texas, and Illinois, and potential future convertibility of variable-rate bonds to fixed-rate bonds in Connecticut, Texas, and Illinois. Connecticut both called and converted some of its bonds before repayment was completed in 2001.

North Carolina's approach to uncertainty stands in sharp contrast to that of the states that have issued bonds. Rather than issue debt instruments with long maturities, the state (in 2003 and 2004 at least) has borrowed using Title XII cash-flow loans as well as short-maturity notes and done so on an as-needed basis. This strategy has the advantages of low interest rates associated with short-term notes and the absence of "overissuance" of state-supported debt instruments. A similar strategy was considered by Massachusetts in the early 1990s but was not implemented because its debt was successfully addressed by solvency legislation.

The Texas issuance of 2003 also involved considerations of the tax treatment of the bonds. Previous offerings by other states had utilized tax-free municipal bonds. However, Texas issued both tax-free and taxable bonds, $280 million and $1,120 million, respectively. The state's strategy in having this mixture was influenced by the solvency tax feature of its UI law. Texas law requires the imposition of a solvency tax whenever its trust fund balance falls below 1 percent of taxable payrolls on the computation date, October 1. Any shortfall below this threshold is to be made up by solvency tax revenues in the upcoming year. Absent bond financing, the solvency taxes due in 2004 would have totaled about $1 billion. The tax-free component of the bond issuance was used to pay off the outstanding UI trust fund debt at the end of September 2003. An additional $1,120 million from taxable bonds was deposited into the trust fund, satisfying the 1 percent minimum balance requirement.

To avoid losing interest income on its trust fund balance, Texas deposited the proceeds from taxable bonds into the trust fund. Thus, the state avoided imposing a large solvency tax. Because of the structure of bond market interest rates, Texas also realized a monetary gain from its financing package. Positive UI trust fund balances yielded about 6 percent per year in 2003 and 2004 while the interest rate on the state's taxable bonds averaged less than 4 percent.[23]

For other states, the debt instruments have been exclusively tax-free bonds (notes in North Carolina). The proceeds have been used mainly to repay existing Title XII advances. However, small amounts have been reserved for administrative costs and for repaying possible future Title XII advances.

The typical time to issue state bonds has been July to September. Bond proceeds can be deposited into the trust fund prior to September 30 to satisfy Title XII cash-flow borrowing requirements. Also, since second-quarter tax receipts arrive during July-August, the bond issuance can be made in light of up-to-date information about the trust fund balance.

Some states have considered issuing bonds, but then concluded there were constitutional impediments. In Minnesota, for example, the state discussed the possibility; however, the state's constitution is restrictive as to the activities that can be financed with general obligation bonds. The proceeds must be used to make improvements in public infrastructure or programs. Allowable activities are identified—such as building classrooms for schools and upgrading parks—but financing UI trust fund deficits is not an allowable activity. The state can also borrow for the short term, but short-term loans must be fully repaid before the end of the same biennium. In the fall of 2003, this requirement implied full repayment by the end of June 2005. Because UI taxes were already slated to increase during 2004-05 through experience rating, there was little appeal in adding to employer taxes in these two years to repay state-issued notes. In sum, issuing bonds was not allowed and issuing notes was not an attractive option.

States issuing bonds establish an administrative apparatus to collect the taxes needed to repay principal and interest on the bonds and to cover associated administrative expenses. If the administrative entity judges it appropriate, "excess" revenues are used to repay parts of the callable bonds. This administrative entity also transfers moneys into the UI trust fund to prevent the accrual of new interest-bearing Title XII advances.

7. Borrowing Costs

Except for Title XII cash-flow loans, all forms of borrowing entail costs. For a state trying to minimize unemployment insurance borrowing costs, the basic contrast between Title XII advances and other forms of borrowing is straightforward. Because borrowing and repaying under Title XII can be

executed on a daily basis, a state can minimize the average daily balance of its outstanding loans through appropriate debt management. It simply retires debt on days when revenues exceed benefits payments and borrows on days when payments exceed revenues. Thus, the cost of borrowing under Title XII is calculated as this minimum average daily balance times the Title XII interest rate. Interest costs accrue as long as there is outstanding debt and there are no other borrowing costs.

The Title XII interest rate is set annually by the U.S. Treasury and is capped at 10 percent. In the six years between 1982 and 1987, the rate consistently exceeded 9 percent and equaled 10 percent in three of these years. Column 1 of Table 4 displays Title XII interest rates from 1991 to 2004. The highest rate during these fourteen years was 8.60 percent in 1991. Rates have been below 7 percent since 1994 and below 6 percent during 2003 and 2004. With the low inflation of recent years, this and other interest rates have been trending downward.

Borrowing from the private bond market involves several considerations, two of which are the type of debt to issue and the size of the issuance. Compared with Title XII loans, this form of borrowing will almost certainly carry a lower interest rate, but the amount of borrowing will exceed the average daily balance of Title XII loans. Also, costs other than interest rate costs must be considered.

Columns 2 and 3 of Table 4 present, respectively, interest rates for taxable corporate bonds and for tax-free municipal bonds (the type of instruments issued by most state UI programs that have borrowed from the private bond market). Interest rates are lower for the latter type of instrument because the interest paid to owners of such bonds is not subject to federal and state income taxes. The low interest rates on municipal bonds vis-à-vis other bonds are highlighted in columns 8 and 9, which show spreads between municipal bonds, on the one hand, and Title XII loans and corporate bonds, respectively.

Two other points should also be noted. First, the interest rates in columns 2 and 3 of Table 4 are average yields, averaged across bonds of differing maturities. Newly issued bonds can

TABLE 4

Selected Interest Rates and Interest Rate Spreads, 1990-2004

	Interest Rates							Basis Point Spreads			
Year	Title XII Loans (1)	Moody's AAA Corporate Bonds (2)	S&P High-Grade Municipal Bonds (3)	Three-Year Treasury Securities (4)	One-Year AAA Municipal Notes (5)	Three-Month Treasury Bills (6)	One-Month Commercial Paper (7)	Title XII Less Municipal Bonds, (1)-(3) (8)	Corporate Bonds Less Municipal Bonds, (2)-(3) (9)	Municipal Bonds Less One-Year Municipals, (3)-(5) (10)	Title XII Less One-Year Municipals, (1)-(5) (11)
1990	8.70	9.32	7.25	8.26	NA	7.75	NA	145	207	NA	NA
1991	8.60	8.77	6.89	6.82	4.69	5.54	NA	171	188	220	391
1992	8.05	8.14	6.41	5.30	3.02	3.51	NA	164	173	339	503
1993	7.45	7.22	5.63	4.44	2.52	3.07	NA	182	159	311	493
1994	6.90	7.97	6.19	6.27	3.53	4.37	NA	71	178	266	337
1995	6.83	7.59	5.95	6.25	3.98	5.66	NA	88	164	197	285
1996	6.71	7.37	5.75	5.99	3.62	5.15	NA	96	162	213	309
1997	6.71	7.27	5.55	6.10	3.72	5.20	5.57	116	172	183	299
1998	6.51	6.53	5.12	5.14	3.48	4.91	5.40	139	141	164	303
1999	6.45	7.05	5.43	5.49	3.46	4.78	5.09	102	162	197	299
2000	6.45	7.62	5.77	6.22	4.30	6.00	6.27	68	185	147	215
2001	6.42	7.08	5.19	4.09	2.76	3.48	3.78	123	189	243	366
2002	6.27	6.49	5.05	3.10	1.64	1.64	1.67	122	144	341	463
2003	6.08	5.66	4.75	2.10	1.05	1.03	1.11	133	91	370	503
2004	5.98	5.63	4.68	2.78	1.42	1.40	1.38	130	95	326	456

Sources: Economic Report of the President (Table B-73, January 2004); Federal Reserve Bank of St. Louis (<http://www.stlouisfed.org/>).

Notes: Data for all years are annual averages except for Title XII loans in 1997-99, which refer to the fourth quarter. Each percentage point of an interest rate equals 100 basis points. NA: Data not available.

carry interest rates that depart substantially from these averages. State UI programs issuing municipal bonds in 2003-04 have paid interest rates in the 2.0 to 4.0 percent range. The large contrasts with Title XII interest rates make this form of borrowing attractive for a debtor state. Second, the interest rate spreads in columns 8 and 9 exhibit considerable year-to-year variability. In both columns, the widest spread is more than twice the size of the smallest spread. The municipal bond differential with Title XII, shown in column 8, has not been constant.

Columns 4-7 of Table 4 display interest rates for debt instruments of successively shorter maturities. In general, rates decrease at shorter maturities, and municipals carry lower rates than do other instruments. Interest rates at the short end of the market have been very low since the onset of the recession in 2001, with spreads vis-à-vis Title XII loans, corporate bonds, and municipal bonds typically exceeding 300 basis points (columns 10 and 11).

One purpose in showing several interest rate series in Table 4 is to suggest something of the range of debt instruments that a state might consider when borrowing from the private bond market. As indicated above, North Carolina issued notes in 2003 and 2004. During 2002-04, interest rates on obligations of one year and less (columns 5-7) have consistently fallen below 2 percent.

Besides interest costs, at least three other costs of issuing private debt instruments should be noted. First, underwriting fees are charged by the companies that issue bonds. These fees are assessed at the time of the issuance. Second, insurance and other issuance costs must be recognized. Bonds have to be insured against default risk, and other incidental costs also arise. Third, exercising the call features of municipal bonds involves a fee in that the principal must be redeemed at a price above the face value of the bond. Some examples of these costs based on past bond issuances are instructive.

For the bond sales made by Louisiana, Connecticut, and Illinois, underwriting discounts (fees) ranged from 0.22 to 0.34 percent of the loan amounts while insurance and other issuance costs ranged from 0.23 to 0.56 percent of the loan amounts. For these three states, the total of all issuance costs ranged from 0.48 to 0.89 percent of the loans. Although analogous detailed information for Texas has not been found, the sum of all issuance costs was about 0.33 percent. Expressed as an annual percentage interest rate prorated over the lives of the associated borrowings, the sum of these costs would represent less than 0.2 percent.

Early redemption premiums for callable bonds were generally between 1 and 3 percent for Louisiana, Connecticut, and Illinois. Calls exercised three years after issuance would amount to an annualized percentage of less than 1 percent in nearly all instances and less than 0.5 percent for a call exercised after six years.

The sum of all of the "additional" cost components delineated above can be combined and expressed as a number of basis points to be added to the interest rate costs of debt issuance in the private market. The preceding discussion suggests that the increment would be equivalent to between 25 and 75 basis points. In financial markets, where the spread between Title XII interest rates and municipal bonds has generally exceeded 100 basis points (Table 4, column 8), these additional costs still imply a lower overall interest rate from issuing municipal bonds. The interest rate cost advantage is, of course, even larger when the comparison involves short-term debt instruments (columns 10 and 11 of Table 4).

In summary, a generic comparison of Title XII borrowing versus borrowing in the bond market leads to three conclusions. First, the principal upon which interest is charged is always lower for Title XII loans. Second, the effective interest rate under a bond issuance (including the added costs just discussed) is lower than the Title XII interest rate. Third, the difference in costs under the two forms of borrowing is ambiguous. However, as the interest differential in favor of private debt instruments becomes larger, it is increasingly likely that this will be the less expensive of the two options.

In earlier work assessing the comparative costs of Title XII loans and municipal bonds for Louisiana and West Virginia, we conclude that the costs of municipal bond issuance are not clearly lower for either of these two states.[24] Obviously, as the spread between Title XII interest rates and other interest rates becomes larger, it is more likely that borrowing from the private bond market will lead to cost savings vis-à-vis using Title XII loans. It also seems likely that the largest savings will be realized, at least in the current financial environment, when a state borrows by issuing short-term debt instruments with their very low interest rates (Table 4).

8. UI Programs after Bond Issuances

Does issuing bonds have effects on subsequent unemployment insurance program performance? Because only three states have fully repaid the loans secured from "bonding," the range of experiences to date is very limited. This section examines two aspects of post-bonding performance: trust fund accumulations and benefits payments. The latter considers both the recipiency rate (beneficiaries as a share of statewide unemployment) and the replacement rate (weekly benefits as a proportion of weekly wages). The discussion focuses on 1979 to 2004 and places heavy emphasis on charts to make key points.

Chart 6 displays reserve ratio multiples for Louisiana, Connecticut, and West Virginia. Recall that Louisiana and West Virginia issued bonds in 1987 and Connecticut did so in 1993. Recall also that a reserve ratio multiple of 1.0 is frequently used as a measure of trust fund solvency. Reserves underlying Chart 6 are measured as the total balances held at the U.S. Treasury, and outstanding balances owed in the private bond market are not subtracted. Thus, while these debts were still outstanding, the multiples shown in Chart 6 overstate the net solvency position of the three states.[25]

In all three states, the bond issuance had a large effect on the state's trust fund balance. For both Louisiana and West Virginia, the reserve ratio multiple at the end of 1987 was higher by about 1.0 than it was one year earlier. The increase for Connecticut between 1992 and 1993 was about 0.5.[26]

As the three states were repaying their bonds, they were also increasing reserves in their U.S. Treasury balances. The reserve ratio multiple for Louisiana increased steadily throughout the decade after bonds were issued. The multiple first reached 1.0 at the end of 1995 and has remained above 1.0 through 2004. For West Virginia and Connecticut, the multiples peaked at about 0.5 and have never substantially exceeded this level.

All three states have had quite favorable trust fund experiences during and after the recession of 2001. Between December 2000 and December 2003, the national reserve ratio multiple decreased by 0.41, from 0.66 to 0.25. The analogous decreases for Connecticut, Louisiana, and West Virginia, however, were 0.21, 0.10, and 0.05, respectively. All eight states with Title XII loans in the current recession (Table 1, panel A) had larger decreases in their multiples, and all but New York had decreases that exceeded the national average of 0.41. Given their low initial reserve ratio multiples entering the recession, Connecticut and West Virginia were fortunate to have experienced small decreases in their multiples during 2001-04.

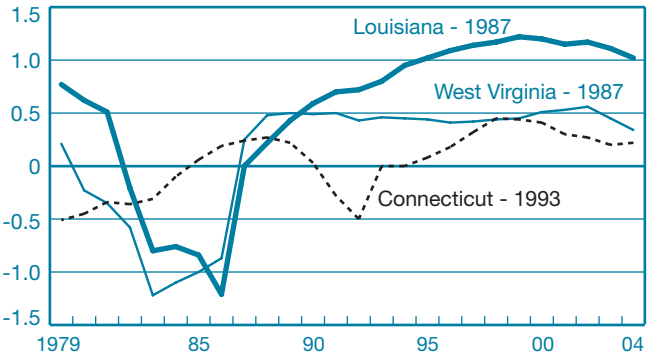
States with UI trust fund solvency problems have traditionally responded with policies that both increase taxes and reduce UI benefits. Each of these three states followed this route. Chart 7 traces four series over the 1979-2003 period showing recipiency rates and replacement rates. Recipiency in Louisiana and West Virginia decreased after 1986, by 10 and 9 percentage points, respectively.[27] Louisiana's and Connecticut's replacement rates both decreased substantially in the years following bonding. Specific policy changes that contributed to the changes in replacement rates included moving to a two-high-quarter procedure for calculating weekly benefits in Connecticut, and both reducing and freezing the weekly benefit maximum in Louisiana.

Finally, note in Chart 7 that the benefits series increased between 2000 and 2003. Although an explanation of the cause(s) of these recent changes is beyond the scope of this paper, a likely reason is a shift in the mix of claimants toward high-wage and experienced workers. When we consider Chart 6 along with Chart 7, it appears that the improvement in Louisiana's trust fund reserve position after 1987 is substantially due to benefits restrictions that have reduced both the recipiency rate and the replacement rate.

In sum, for the three states where the processes of issuing and repaying municipal bonds have been completed, only Louisiana subsequently built a large reserve that meets the

Chart 6

Reserve Ratio Multiples for States Issuing Bonds
1979 to 2004

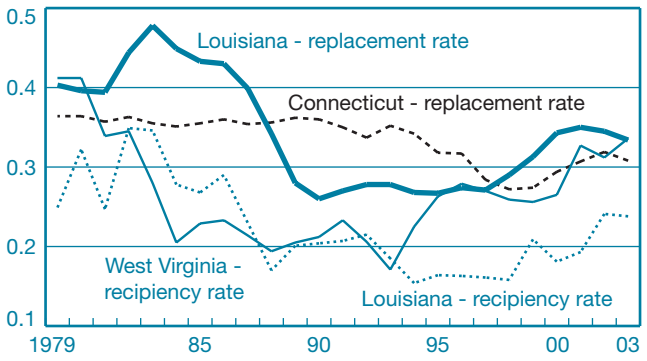


Source: U.S. Department of Labor, Office of Workforce Security.

Notes: The line captions identify the year when the state issued municipal bonds. Reserves refer only to gross amounts held at, or owed to, the U.S. Treasury.

Chart 7

Recipiency Rates and Replacement Rates for States Issuing Bonds
1979 to 2003



Source: U.S. Department of Labor, Office of Workforce Security and Bureau of Labor Statistics.

Note: Recipiency rates are calculated as the ratio of unemployment insurance beneficiaries to total unemployment.

common UI actuarial standard of a reserve ratio multiple of 1.0. The fact that the other two states have not experienced financing problems following the 2001 recession has more to do with favorable economic developments than with having large prerecession trust fund reserves. In two of these three states, issuing bonds was not followed by policies to build trust fund balances to levels widely viewed as prudent.

9. Conclusion

Our examination of state experiences with funding problems after the 2001 recession leads to six key observations.

First, the states have undergone a variety of experiences associated with the size of their trust fund drawdowns and the types of loans used to address their funding problems. As of January 2005, the full set of state experiences even includes inaction by both California and New York. Their actions remain to be determined.

Second, there are no real surprises in the identities of the nine states that have had to borrow. As shown in panel A of Table 1, all had low trust fund balances at the end of December 2000, just before the onset of the 2001 recession. Only North Carolina had a reserve ratio multiple above 0.60 on that date. Table 1 also shows that the funding problems have been concentrated among the large states.

Third, the states fully understand how Title XII cash-flow loans operate. Several state borrowing and repayment actions have been timed to avoid interest charges on Title XII loans, for example, by ensuring that full repayment occurs before September 30 and that no new borrowing takes place during October-December. Furthermore, Massachusetts and Pennsylvania have undertaken other actions linked to Title XII borrowing requirements. Under legislation of 2003, Massachusetts can avoid borrowing during October-December by levying a solvency assessment imposed in September. During March-May 2004, Pennsylvania borrowed from another state fund to preserve access to Reed Act moneys in its unemployment insurance trust fund to be used for improving UI program administration.

Fourth, when comparing the costs of borrowing under Title XII with those of borrowing from the private bond market, we see that the former consistently involves a smaller principal on outstanding debt while the latter consistently has a lower interest rate, even recognizing underwriting fees, insurance, and other issuance costs and early-redemption premiums. Thus, to compare costs, one must recognize the average amount of outstanding loans as well as the interest rates on the loans. As the interest rate spread between Title XII loans and private debt instruments becomes larger, it is increasingly likely that the latter will carry lower total borrowing costs for a state.

Fifth, if a state explores the private securities market, it is important to consider the full range of maturities within this market. For a state to minimize interest costs, it may be less expensive to borrow in the very short end of this market from late September to the end of December, to repay this debt in the early months of the following year, and to rely on Title XII loans from January to late September of the next year. This is the strategy currently followed by North Carolina.

Sixth, there are already signs that the recovery of state UI trust fund balances back toward high levels may be slow. Examples of state legislative actions that explicitly offset the normal operations of experience rating can already be found, such as Idaho's tax reductions of 2005. If widespread actions prevent higher UI tax rate schedules from becoming operative in 2006 and later years, an anemic pace of trust fund recovery can be anticipated. The slow accumulation of reserves during the 1990s (recall the reserve ratios presented in Chart 4) occurred upon a much higher initial reserve ratio than that of the current recovery (1.25 percent of payrolls in 1993, compared with 0.51 percent at the end of 2004). If reserves are not rebuilt, borrowing by state UI programs during the next recession will be much larger than the borrowing observed during the recession of 2001.

Endnotes

1. Regular UI pays up to twenty-six weeks of benefits in all states except Massachusetts and Washington, where the limit is thirty weeks, and Montana, where the limit is twenty-eight weeks. It is the main program for compensating the unemployed and is financed by employer payroll contributions.

2. The balances at the end of 2003 and 2004 are net balances that net out about $3.2 billion in U.S. Treasury and bond market loans outstanding at the end of both years.

3. The periods are 1970-72, 1974-76, 1980-83, 1991-92, and 2001-03, with the recessions of 1980 and 1982 treated as a single extended episode. The reductions in reserve ratios during these five periods were 1.05 percent, 2.00 percent, 1.38 percent, 0.63 percent, and 0.90 percent, respectively.

4. This downward trend has been present since the mid-1940s.

5. New York State offers a good illustration of the change. At the end of 1989, the state's reserve balance was $3.2 billion and the reserve ratio was 1.89 percent. The corresponding figures at the end of 2000 were $1.2 billion and 0.41 percent. Reserve adequacy in 2000 was less than one-fourth of adequacy in 1989.

6. The national reserve ratio at the end of 2000 was 1.46 percent while the national high-cost rate was 2.22 percent (costs during the twelve months of calendar year 1975), yielding a reserve ratio multiple of 0.66.

7. Of course, policies to restrict tax increases during the recovery could offset the replenishment of trust fund balances. Experiences from the 1990s show that this is a real possibility.

8. Automatic adjustments to UI trust fund drawdowns occur as states move to tax schedules with higher rates, individual employers move to higher tax rates because of worsened experience (lower reserve ratios or higher benefit ratios), and solvency taxes increase. Additionally, about ten states also have provisions to reduce benefits automatically when trust fund balances are depleted.

9. The size indicator is total payroll of taxable employers in 2002.

10. The median size rank of the fifty-three programs is twenty-seven. Arkansas ranks thirty-third.

11. Reserves for North Carolina at the end of 2000 included $200 million in the state's reserve fund.

12. Three states in Table 1—North Carolina, Colorado, and Virginia—were among the top four in the decrease in their reserve ratio multiple, as shown in column 4. Only the Virgin Islands had a larger decrease.

13. Two types of ride-it-out responses can be identified. The first is a traditional experience rating response in which the automatic response of UI taxes restores the trust fund. To follow this, a state must have a large prerecession reserve, hence our emphasis in the earlier discussion on the reserve ratio multiple of 1.0. The second is a flexible financing response, which causes taxes to be increased and/or benefits to be reduced as the fund balance decreases. In the past, Illinois and Pennsylvania have advocated flexible financing.

14. Additionally, North Carolina has undertaken administrative actions to compensate for inadequate reserves.

15. The two states with borrowing but no response to date, New York and California, are not included in Table 2 because there is no legislative or other action to describe.

16. The seven states are Connecticut, the District of Columbia, Maine, Massachusetts, Michigan, Missouri, and New York. Of these, only Connecticut and Massachusetts had loans during 1990-94 that totaled more than 1 percent of (1991) payroll. Note that the District of Columbia is referred to as a "state" because its UI program has benefit and financing features similar to those of other state UI programs.

17. One description of the Illinois legislation is found in a statement by Sally Ward, head of the unemployment insurance agency in 1987 (see U.S. House [1987]).

18. Should an unexpected drawdown have occurred during March-May that caused the fund balance to reach zero, all moneys in the trust fund would have had to be used to pay benefits.

19. In Pennsylvania, the breakdown was roughly 58 percent for employer tax increases, 33 percent for employee taxes, and 9 percent for benefits reductions over the four years from 2003 to 2006. In Illinois, the breakdown was 92 percent for employer tax increases and 8 percent for benefits reductions. In Massachusetts, nearly 100 percent of the changes were tax increases.

20. Summaries of this method of borrowing are found in Vroman (1990) and McHugh (2004).

21. Technically, this tax increase is a reduction of the credit that states are allowed to take on their federal UI taxes when their experience rating system (the method for assigning contribution rates to individual employers) is deemed acceptable by the federal partner, and other federal requirements are satisfied.

22. This statement reflects anticipated repayment patterns in Illinois, where callable bonds will be repaid several years before present maturity dates as solvency and other tax receipts replenish the UI trust fund.

23. Placing tax-free bonds into the trust fund would have meant that the associated interest income was subject to the Treasury Department's interest arbitrage rules. Essentially, the interest rate spread between UI trust fund balances and the tax-free bonds would have to be repaid to the Treasury. Since $600 million of the Texas bonds carry variable interest rates, the net interest income on the UI trust fund balance to be realized in later years is uncertain, dependent on future variation in the relevant interest rates.

24. See Vroman (1998).

25. Repayment was completed in West Virginia in 1991, in Louisiana in 1994, and in Connecticut in 2001.

26. Note, incidentally, that Connecticut also had a large deficit at the end of the 1970s. In fact, it had Title XII loans outstanding continuously between 1972 and 1984.

27. In Louisiana, the average recipiency rates during 1979-86 and 1988-95 were 0.294 and 0.187, respectively. The corresponding averages in West Virginia were 0.307 and 0.214.

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Commentary

Although interest in the details of unemployment insurance (UI) financing is a minority pastime, even among economists, the topic is nonetheless an important one. Unemployment insurance is not just a way of ameliorating the impact of a recession on the unemployed; UI also has a potential role to play in making the recession itself less severe through its traditional automatic stabilizer role. Someone who has just lost their job is likely to curtail spending severely, which reduces overall aggregate demand and helps exacerbate the economic downturn. A properly designed UI programme can help reduce the impact of higher unemployment by supporting consumption by the unemployed. UI also has the advantage of responding quickly to a downturn: unlike discretionary fiscal policy, such as tax cuts, UI injects additional money into the economy as soon as unemployment starts rising; there is no need to wait for the administration to put a bill through congress.

Thus, it is important for policymakers to ask themselves whether the UI programme is fulfilling its macroeconomic role effectively, especially after a significant economic downturn occurs. The paper by Wayne Vroman allows us to do precisely that, by providing an in-depth investigation of how state UI systems responded to the 2001 recession.

The paper argues that although the decline in GDP was mild by historical standards, the average duration of unemployment was longer than usual. Furthermore, claims for regular UI benefits remained at a persistently high level for a significant period. These factors put pressure on state UI systems, especially on those states that did not build up their trust funds during the economic boom years of the 1990s. Some states raised UI payroll taxes to cope with the deterioration of their UI trust funds, whereas others were required to borrow. Because borrowing from the U.S. Treasury can be a very expensive undertaking, a few states issued bonds in the private capital market in order to maintain the solvency of their trust funds. Interestingly, those states that issued bonds in previous recessions did not have lower reserve ratios going into the 2001 recession.

From the perspective of someone concerned with macroeconomic policy, the paper raises three important questions. First, was there really something unusual about the 2001 recession? Or could state UI programmes have predicted the magnitude of the impact on labour markets and thus on trust fund balances? Second, did the state UI programmes respond as they should have to a negative macroeconomic shock? Did these programmes perform their automatic stabilizer function? Third, is the federal UI framework in which state systems function appropriate? Is borrowing from the U.S. Treasury too onerous for states, forcing them to raise or cut benefits, thereby exacerbating the impact of the recession? Or is borrowing too easy, giving states an incentive to be fiscally imprudent?

Beginning with the issue of the severity of the 2001 recession, Vroman notes that the peak level of unemployment,

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6.3 percent, was well below the peak in previous recessions. However, from the perspective of state UI systems, it is the *change* in the unemployment rate that is most relevant for explaining the *change* in reserve ratios. Here again, though, the trough-to-peak change in the unemployment rate in the 2001 recession was only 2.5 percentage points, slightly lower than the 2.8-percentage-point change in the 1991 recession. On the surface, then, it might seem that states should have been able to predict, if not the timing, then at least the impact of the 2001 recession on trust fund balances.[1]

One possible response to this conclusion is that the unemployment rate is the product of the incidence of unemployment and its duration, and that the way in which a given change in the unemployment rate is distributed among the unemployed population can have important implications for state UI systems. Vroman notes that unemployment durations were particularly long following the 2001 recession.

However, it is not obvious that longer unemployment durations put a much greater strain on *state* UI systems. It is true that very short UI spells tend to be relatively less costly for UI programmes, because many people will simply not bother to file a claim for a spell of unemployment lasting only a few weeks. It is also true that the proportion of short spells declines during a recession: the share of unemployed who had been without work for less than five weeks fell from 45 percent in 2000 to 32 percent in 2003. However, there has also been a significant increase in the proportion of those who had been unemployed for more than twenty-six weeks, from 11 percent in 2000 to 22 percent in 2003. These people normally would have exhausted their entitlements to state UI benefits—although they might have been eligible for temporary federal benefits—and so would not have been a drain on state UI funds.

Furthermore, the decline in the proportion of short-duration unemployed and the increase in the proportion of long-duration unemployed that occurred as a result of the 2001 recession were very similar to those following the 1991-92 recession. Once again, it appears hard to argue that states could not have predicted the impact of the 2001 recession on the solvency of their UI funds.

One puzzle, then, that Vroman's paper leaves unanswered is why reserve ratios were not built up during the 1990s in the same way they were after the admittedly more severe recession in 1982. Did states simply fall prey to the idea that the "Goldilocks" economy was a permanent feature of the economic landscape? Or was it simply more difficult to gain political support for raising contribution rates? This is an important question, because states will need to begin restoring reserve ratios soon if they are to be ready for the next downturn. It is a sobering thought that the average expansion since the war has lasted less than five years.

The second key issue raised by the paper is whether state UI programmes reacted appropriately to the 2001 recession. As we argue above, UI has an important macroeconomic policy role to play as an automatic stabilizer for the economy. In general, it appears that most state UI systems did perform their stabilizer function at least as well as they did in earlier recessions: reserve ratios fell by 1 percent of payrolls, a somewhat greater decline than in the early 1990s—despite the fact that ratios were somewhat lower at the beginning of the 2001 recession than they were before the 1991-92 recession.

Some states, however, did raise UI taxes and lower benefits in order to offset some of the recession's impact on reserve ratios. This strategy clearly diminishes the countercyclical potential of UI and seems undesirable from a macroeconomic perspective. It is important to remember that experience rating already has a tendency to make UI payroll taxes procyclical, because firms that lay off workers typically will see their tax rates rise automatically.

Another way of assessing the extent to which UI counteracts the impact of recessions is to examine the so-called "BU ratio"—the ratio of UI beneficiaries to total unemployment. During the boom years of the 1990s, this ratio hovered around 35 percent, implying that only a little more than a third of the unemployed received benefits at any time. There is nothing inherently wrong with this scenario: when the labour market is strong, many of the unemployed are people who quit their jobs or are seasonal workers who fully expected to be laid off, and many unemployment spells are of short duration. However, when a recession hits, one would expect that ratio to increase, as proportionately more of the unemployed will have been permanently laid off, and unemployment durations to rise. The BU ratio did rise in 2001, but only to 45 percent, a figure that includes temporary federal benefits. Thus, less than half of the unemployed were receiving UI, even at the height of the recession.

This discussion leads to the final question raised by Vroman—the role of the federal UI framework. The interest rate charged by the U.S. Treasury on loans to state UI programmes, other than short-term loans for cash-flow management purposes, is around 6 percent—a much higher rate than market interest rates on state debt. This rate seems high, given that the default risk for the U.S. Treasury on such loans is virtually nonexistent, as the Treasury has statutory power to recoup any money by reducing federal UI tax credits.

One potential argument for charging states a high rate of interest on loans from the U.S. Treasury is that easy access to loans might encourage fiscal profligacy on the part of state UI

funds, which might never rebuild their reserve funds and simply accumulate larger and larger debts. However, this argument does not seem to be borne out by historical experience. Vroman's paper finds that those states that issued bonds in the past had succeeded in rebuilding their reserve ratios by the end of the 1990s.

In conclusion, Vroman offers a wealth of information to policymakers. One hopes that the conclusions he points to are taken seriously, so that unemployment insurance can continue to play an important role in overall macroeconomic policy.

Endnotes

1. However, because the ten-year interval between the 2001 and 1990-91 recessions was the longest on record, it gave states more than the usual amount of time to restore their balance sheets. See <http://www.nber.org/cycles/cyclesmain.html>.

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