Challenge

ISSN: 0577-5132 (Print) 1558-1489 (Online) Journal homepage: http://www.tandfonline.com/loi/mcha20

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To cite this article: Andrew Sum , Ishwar Khatiwada & Sheila Palma (2005) The Age Twist in Employment Rates, 2000-2004, Challenge, 48:4, 51-68

To link to this article: https://doi.org/10.1080/05775132.2005.11034303

The Age Twist in Employment Rates, 2000–2004

Andrew Sum and Ishwar Khatiwada, with Sheila Palma

Most of us now know that this economic expansion has been alarmingly short of jobs. We may not have known that teenagers are paying the biggest price. The authors explain what has happened and offer some possible explanations.

Over the past year, the nation's private and public employers steadily and strongly expanded the number of wage and salary workers on their formal payrolls. The January 7 release by the U.S. Bureau of Labor Statistics on the employment situation for December 2004 revealed that the number of nonfarm wage and salary jobs had increased by 2.231 million between December 2003 and the same month in 2004.[1] For the year as a whole, the annual average number of employed civilians (sixteen and over) increased by slightly more than 1.5 million.[2] Yet the annual average number of teens (sixteen to nineteen) who were employed during the past year fell slightly below the 2003 level, representing the fourth consecutive year of job losses among the nation's teens. Over the past four years

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Challenge, vol. 48, no. 4, July/August 2005, pp. 51–68.

ISSN 0577–5132 / 2005 $9.50 + 0.00.

(2000–2004), the number of employed teens has declined by nearly 1.3 million, pushing the teen employment rate in 2004 down to 36.4 percent, a record low.[3]

No other age subgroup in the United States has been as adversely affected by changing national labor market conditions over the past four years as teens have.[4] In fact, all older age groups of workers (those 55 and older) have become employed at higher rates over the past four years, while the teen employment rate hit a new historical low.[5] A substantial "age twist" in the structure of employment rates has taken place over the past four years in the nation. This paper is designed to describe the changing age patterns of employment rates in the United States over the 2000–2004 period and to assess the historical uniqueness and causes of this substantial "age twist" in employment rates.

We begin by briefly reviewing the primary data sources and key employment concepts and measures underlying the analyses appearing in this paper. We then track employment rate changes for teens over the entire 1979–2004 period, compare employment rate changes by age subgroups over the 2000–2004 period, and compare differences in the employment-rate changes of teens and older workers (55–64 and 65+) over the past seven national recessions and early job-recovery periods.[6]

Data Sources and Employment Concepts and Measures

The estimates of the employment levels and rates of the nation's teenagers and other age subgroups appearing in this paper are based on the findings of the Current Population Survey (CPS). The CPS survey is a monthly national household survey conducted by the U.S. Census Bureau for the U.S. Bureau of Labor Statistics.[7] Currently, approximately 60,000 households are interviewed each month. Data are collected on the labor force activities of each household member age sixteen and older. Each working-age individual is classified into one of the three following mutually exclusive labor force categories:

employed, unemployed, or out of the labor force. The number of employed in a given demographic subgroup (e.g., teens sixteen to nineteen) can be divided by the number of persons in the civilian noninstitutional population in that same group to generate the employment/population ratio (E/P).[8] The E/P ratio represents the percent of the members of the civilian noninstitutional population who are employed at a given point in time.[9] If there were 1,000 members in a given population group and 600 were employed, the E/P ratio would be 60 percent. The E/P ratio is influenced by both a group's labor force participation rate and its unemployment rate.[10] If members of a group stop looking for work due to poor job prospects, their behavior would actually lower the unemployment rate but would also lower their E/P ratio. During times of depressed labor market conditions, many teens will stop looking for work, keeping their unemployment rate artificially low. Between 2000 and 2004, the annual average civilian labor force participation rate of teens fell from 52 percent to only 44 percent, a decline of slightly more than eight percentage points. In comparison, the unemployment rate of teens is estimated to have increased from only 13 percent to 17 percent over the same four-year period. The official unemployment rate for teens, thus, substantially underestimates the deterioration in the teen job market over the past four years.[11]

Changes in Teen Employment Rates Between 1979 and 2004

Teen employment rates tend to be quite cyclically sensitive. During the national labor market boom of the mid-1990s through the end of the decade, employment opportunities for the nation's teens improved sharply. The teen E/P ratio rose from 41 percent in 1992 to a peak of 45.2 percent in 2000 at a time when the number of teens in the civilian population also was increasing markedly, due to the mini-baby boom generation (GenY), born from 1977 to 1993, coming into their teenage years (Table 1 and Figure 1).[12] Total employment of teens increased from 5.67 million in 1992 to 7.19 million in 2000, a gain of 1.52 million or 27 percent.[13] Despite this substantial rise in the num-

Table 1

Trends in the Employment/Population Ratios of Teens (sixteen to nineteen) in the United States, Selected Years 1979 to 2004

	E/P ratio
1979	48.5
1982	41.5
1989	47.5
1991	42.0
1992	41.0
2000	45.2
2001	42.3
2002	39.6
2003	36.8
2004	36.4

Source: U.S. Bureau of Labor Statistics Web site (www.bls.gov).

ber of employed teens, the teen E/P ratio in 2000 only reached 45.2 percent, more than two percentage points below the 1989 cyclical peak of 47.5 percent and more than three percentage points below the 1979 peak of 48.5 percent. The large demographic surge in the teen population complicated the task of boosting the E/P ratio of teens over the labor market boom.

Following the onset of the recession of 2001 and the jobless recovery of 2002, the number of employed teens declined sharply, falling from 7.189 million in 2000 to only 6.332 million in 2002. During this two-year period, the E/P ratio of teens fell from 45.2 percent to 39.6 percent, a decline far exceeding that of any other age group. Since 2002, teen employment has continued to decline, despite a rise in overall civilian employment of nearly 2.8 million persons (16+) over the past two years and a gain of 2.4 million wage and salary jobs (seasonally adjusted) between September 2003 and December 2004. The number of employed teens fell from 6.332 million in 2002 to only 5.907 million in 2004, marking four consecutive years of job losses.[14] The teen E/P ratio fell to 36.4 percent in 2004, the lowest in the 57-year period for which national teen employment data exist.

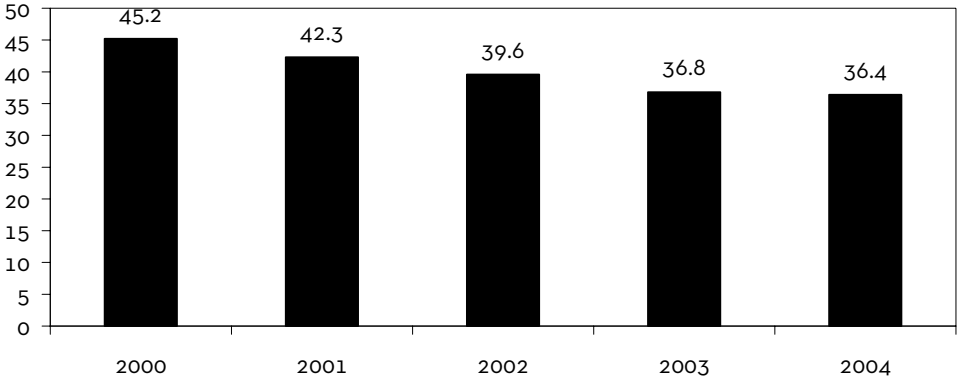

Figure 1. Trends in the E/P Ratios of the Nation's Teens (sixteen to nineteen) from 2000 to 2004 (annual averages in percent)

The failure of the teen E/P ratio to show any improvement in the first three years after the end of the recession of 2001 is a historically unique one. In the early 1980s, the U.S. economy experienced back-to-back recessions, one in 1980 and one in 1981–82. Yet the E/P ratio of teens began to rise strongly in 1984, less than two years after the trough of the severe economic recession in November 1982. In 1993, the E/P ratio of the nation's teens began to rise only two years after the end of the 1990–91 recession in March 1991. Yet, in the third year after the end of the relatively moderate recession of 2001, the E/P ratio of teens has failed to increase despite the fact that the nation's overall unemployment rate in 2004 (5.5 percent) was below that in the early years of recovery from the 1981–1982 and 1990–1991 recessions.[15] There appear to be new structural forces at work in U.S. labor markets (a sharply diminished number of jobs in manufacturing, high levels of immigration, little net job growth in retail trade industries, rising competition from older adults) that are increasing the difficulties of teens' obtaining jobs during the first few years of recovery from the recession of 2001. Civilian employment growth over the 2002–2004 period and new wage and salary job growth since the early fall of 2003 have completely bypassed the nation's teenaged population. Only in the last few months of calendar year 2004 did teenage employment begin to exceed prior-year levels.[16]

Comparisons of Changes in Teen Employment Rates with Those of All Other Age Subgroups, 2000–2004

How have the nation's teens fared in comparison to their older counterparts in the nation's labor markets over the past four years? To answer this question, we divided the members of the nation's civilian labor force into ten age subgroups ranging from sixteen- to nineteen-year-olds to those seventy and older. For each age group, we estimated their E/P ratios in calendar years 2000 and 2004 and calculated the percentage point changes in their E/P ratios over this four-year period.

The findings in Table 2 and Figure 2 reveal an extraordinary degree of diversity in the age pattern of changes in these E/P ratios over the 2000–2004 period. All age subgroups of the population under age fifty-five had E/P ratios in 2004 that were below those of 2000, with the size of these declines being largest for the nation's youngest workers, that is, those under thirty (Table 2). The decline in the teen E/P ratio was nearly nine percentage points, while twenty- to twenty-four-year-olds and twenty-five- to twenty-nine-year-olds experienced E/P declines of four percentage points. In contrast, the nation's older workers (i.e., those fifty-five and older) were more likely to be working in 2004 than they were in 2000, with the gains in E/P ratios for fifty-five- to sixty-four-year-olds and sixty-five- to sixty-nine-year-olds being in the two- to three-percentage-point range. The magnitude of this "age twist" in employment rates over the past four years is quite large, but is it historically unique (Figure 2)?

Teen Employment Rate Changes from Prior Cyclical Peaks to the Early Stages of Recovery from National Economic Recessions Since 1960

To place the recent findings on changes in teen employment rates in proper historical perspective, we have compared the findings for 2000–2004 with those for earlier recession/recovery periods in post–World War II history. Since 1960, the U.S. economy has experienced seven national economic recessions. The beginning and ending months of each of these recessions is displayed in Table 3. The timing of the

Table 2

Changes in the Employment/Population Ratios of Age Subgroups of the Working-Age Population of the United States, 2000–2004 (annual averages in %)

Age Group	2000	2004	Percentage point change
All 16+	64.4	62.3	–2.1
16–19	45.2	36.4	–8.8
20–24	72.2	67.9	–4.3
25–29	81.0	77.0	–4.0
30–34	82.0	79.2	–2.8
35–44	82.2	80.0	–2.2
45–54	80.5	78.7	–1.8
55–64	57.8	59.9	+2.1
65–69	23.7	26.7	+3.0
70–74	13.1	14.7	+1.6
75–79	5.2	5.9	+.7

Source: U.S. Bureau of Labor Statistics Web site, national CPS employment data, historical time series (www.bls.gov).

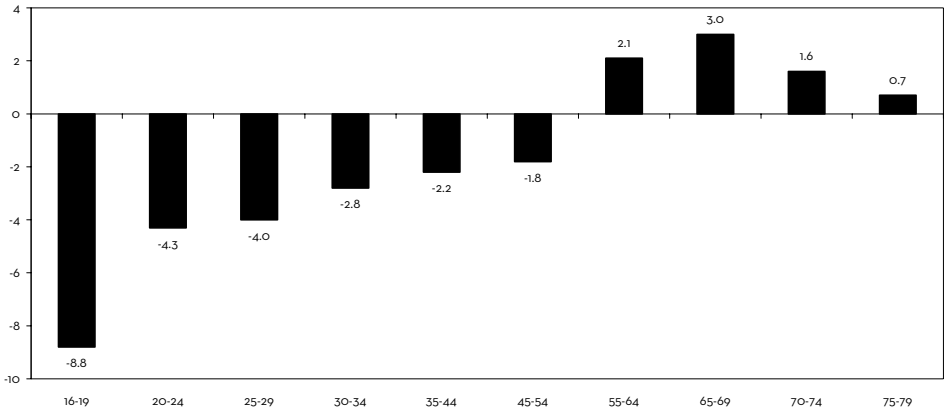

Figure 2. Changes in the E/P Ratios of Age Subgroups of the Working-Age Population in the United States, 2000–2004 (percent)

Table 3

The Timing of Economic Recessions in the United States from 1960 to 2001

Recession	Beginning month	Ending month	Calendar year before start of recession	Three years after start of recession
1960–61	April 1960	February 1961	1959	1963
1969–70	December 1969	November 1970	1969[1]	1973
1973–75	November 1973	March 1975	1973[1]	1977
1980	January 1980	July 1980	1979	1983
1981–82	July 1981	November 1982	July 1980–June 1981[2]	July 1984–June 1995
1990–91	July 1990	March 1991	1989	1993
2001	March 2001	November 2001	2000	2004

[1]Since the recession started at the very end of these calendar years, we treated the same calendar year as the year prior to the start of the recession.
[2]Since the 1981-82 recession began in the middle of 1981, we treated the July 1980–June 1981 period as the year prior to the start of the recession.

beginning and ending dates of each national recession is determined by the National Bureau of Economic Research (NBER), a private research organization that serves as the nation's official arbiter of business cycles. We also identify the calendar year immediately preceding each recession and the calendar year following three years after the onset of each recession.[17] For example, the 2001 recession began in March of that year; thus, 2000 is the cyclical peak year and 2004 is the calendar year three years after the beginning of the recession. For each of these four-year periods, one year prior to the recession (i.e., cyclical peak periods) and three years after its beginning, we have calculated changes in the annual average employment/population ratios for teenagers, those fifty-five to sixty-four years old and persons sixty-five and older.

While teen E/P ratios always fell sharply during each of these six recessions and sometimes lagged the early stages of jobs recovery, they had surpassed their previous cyclical peak three years after the beginning of the recessions of 1969–70 and 1973–75 (see Table 4). Three years after the

start of the 1981–82 recession, the teen E/P ratio was 1.4 percentage points below its cyclical peak.[18] Three years after the start of the 1990–91 recession, the teen E/P ratio was nearly six percentage points below its cyclical peak. Three years into the recovery from the 2001 recession, however, the teen E/P ratio in 2004 was still nearly nine percentage points below its cyclical peak in 2000. This was the largest teen employment rate decline of the seven recovery periods displayed in Table 4. For the prior six recessions, the mean size of the gap between the E/P ratio of teens in the prior cyclical peak year and three years following the beginning of the recession was only 2.3 percentage points, or only one-fourth the size of the 2000–2004 teen E/P gap.

An analysis of the changes in the E/P ratios of fifty-five- to sixty-four-year-olds over the same four-year periods reveals that typically fifty-five- to sixty-four-year-olds did *not* recover their cyclical peak employment three years after the beginning of a recession (Table 4). Prior to the most recent period, only once (1959–63) had the E/P ratio of fifty-five- to sixty-four-year-olds surpassed its cyclical peak by the third year following the beginning of a recession. The increase in the E/P ratio here was only 1.2 percentage points. By 2004, however, the E/P ratio of the nation's fifty-five- to sixty-four-year-olds (influenced by the labor force behavior of the influx of the first members of the baby boom generation) had risen 2.1 percentage points above its value in 2000 at the peak of the national labor market boom.[19] The difference between the E/P changes for teens and fifty-five- to sixty-four-year-olds over the 2000–2004 period was *negative eleven percentage points* (Figure 3). On average, over the six prior recessions and early recovery periods, the average (mean) gap between the changes in the E/P ratios of the nation's teens and fifty-five- to sixty-four-year-olds was only half a percentage point. In fact, in three of these previous six periods, teens had achieved a higher E/P change than their fifty-five- to sixty-four-year-old peers, including a nearly seven-percentage-point advantage between 1969 and 1973. The dramatic "age twist" in the E/P ratios of teens and older workers over the past four years is, thus, historically unprecedented over the past fifty-six years for which national CPS employment data exist.[20]

Table 4

Comparisons of Percentage Point Changes in the Employment Rates of Teens and Older Workers (55–64 and 65+) in the United States, Selected Time Periods (annual averages)

	16–19-year-olds	55–64-year-olds	65+ year-olds	Teens versus 55–64-year-olds	Teens versus 65+ year-olds
1959–63	–2.5	+1.2	–3.0	–3.7	+.5
1969–73	+2.6	–4.0	–2.7	+6.6	+5.3
1973–77	+.2	–2.8	–1.9	+3.0	+2.1
1979–83	–7.0	–3.2	–1.3	–3.8	–5.7
1980/81–84/85	–1.4	–1.8	–1.4	–1.4	0
1989–93	–5.8	0	–.6	–5.8	–5.2
2000–2004	–8.8	+2.1	+1.4	–10.9	–10.2

Source: U.S. Bureau of Labor Statistics Web site, historical CPS employment data series (www.bls.gov).

Very similar findings apply to our comparisons of changes in the E/P ratios of teens and elderly adults (sixty-five and older) over the 2000–2004 period. During each of the six preceding recessions and recovery periods, the E/P ratios of the elderly lagged behind their cyclical peaks, partly reflecting the effects of long-term secular declines in their employment rates. In 2004, however, the E/P ratio of the nation's elderly had risen 1.4 percentage points above its 2000 value. The gap between the E/P changes of teens and the elderly over the 2000–2004 period was just under eleven percentage points (Table 4). The absolute percentage-point size of this gap was nearly twice as high as the second highest gap (the 5.8 percentage point gap over the 1989–93 period) and was twenty times as high as the average (mean) gap of only half a percentage point over the previous six recessions and their early recovery periods (Figure 4). Thus, the size of the "age twist" in employment rates between teens and the elderly over the 2000–2004 period also was historically unprecedented.

Another way of looking at the divergent labor market fortunes of

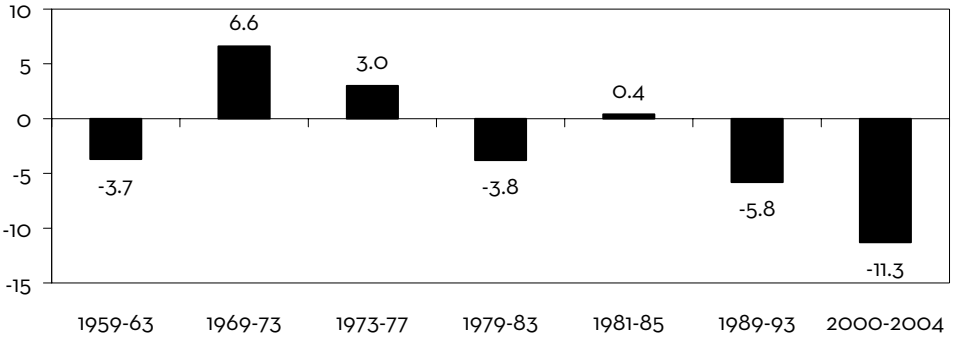

Figure 3. Comparisons of Percentage Point Differences in the Changes Between the E/P Ratios of Teens and 55–64- Year-Olds for Seven Recession/Recovery Periods Between 1959 and 2004

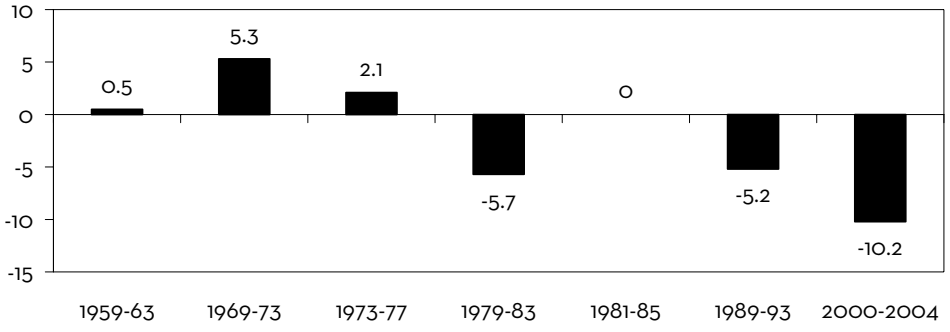

Figure 4. Comparisons of Percentage Point Differences in the Changes Between the E/P Ratios of Teens and 65+ Year-Olds for Seven Recession/Recovery Periods Between 1959 and 2004

teens in benefiting from the early stages of recovery from a national recession is to estimate the percentage shares of job growth accruing to teens in the first two years of job growth following the ending of a recession.[21] We have estimated overall gains in national civilian employment (over sixteen) and in teen employment, and the share of employment gains captured by teens during the first two years of job recovery from the past five recessions.[22] Findings are presented in Table 5.

During the first two years of jobs recovery from the 1969–70, 1973–

Table 5

Teenagers' (16-19) Shares of Growth in Civilian Employment During the First Two Years of Job Growth Recovery from Selected National Recessions (1,000s)

	Gain in employed (16+)	Gain in teens employed	Teen share of employment gain (in %)
1970–72	3,475	601	17.3
1975–77	6,171	586	9.5
1982–84	5,479	–105	–1.9
1992–94	4,568	493	10.8
2002–2004	2,765	–425	–15.3

Source: U.S. Bureau of Labor Statistics, CPS historical employment series (www.bls.gov).

75, and 1990–91 recessions, teens captured a substantial above-average share of the gain in employment. These shares ranged from 10 to 17 percent in these three periods. In the 1982–84 jobs recovery, teen employment actually declined modestly by 105,000. All this decline in the teen employment level, however, was attributable to a sharp drop in the teen population due to the entry of the post–World War II baby bust generation into their teenage years. The teen population fell by 1 million from 15.7 to 14.7 million over this two-year period. The E/P ratio of teens actually rose by 2.2 percentage points over this same period, indicating that it was relatively easier for them to find jobs.

Between 2002 and 2004, the number of employed civilians rose by nearly 2.8 million; however, the number of employed teens fell by 425,000, a loss equivalent to 15 percent of the net gain in aggregate employment (Table 5). None of this decline in teen employment could be attributable to demographic developments. The estimated number of teens in the civilian noninstitutional population rose by nearly 230,000 between 2002 and 2004. All of the decline in teen employment was attributable to a falling E/P ratio, which dropped from 39.6 percent to 36.4 percent, or a new historical low. The decline in teen employment in this job recovery period from 2002 to 2004 is, thus, historically unique.

The Causes of the Steep Decline in Teen E/P Ratios

What labor market and demographic forces appear to underlie the steep decline in the E/P ratio of the nation's teens over the past four years? A variety of labor demand and labor supply forces and some structural changes in the job market seem to be at work here. On the demand side, overall payroll employment levels at the end of 2004 still had not yet returned to their prior historical peak in early 2001.[23] Between August 2003 and December 2004, wage and salary employment (seasonally adjusted) increased strongly by 2.47 million. Still, in December 2004, the number of wage and salary workers on the payrolls of private-sector firms and government agencies was still 240,000 below its previous peak (seasonally adjusted) level in March 2001. Many firms have not had to reach far back in their hiring queues to begin hiring teenagers, who typically stand at the back of these queues. Many local employers in the Greater Boston area, including retail employers, report having a substantial pool of adult applicants. While total civilian employment in the last two months of 2004 was nearly 3.1 million above its level in the early fall of 2002, many of these additional employed were self-employed, independent contractors, and new immigrants, many of whom are undocumented workers. Teens are seldom either self-employed or hired as independent contractors, and they do not appear to compete well with undocumented immigrants, especially in "under the table" jobs in the informal labor market.

On the supply side, teens have been facing intense competition for available jobs from a variety of other demographic groups, including young adults (twenty to twenty-four), older jobless adults, and recent immigrants. A rising share of the nation's young college graduates (under twenty-five) are occupying jobs in occupations outside of the conventional college labor market (professional, managerial, technical, and high-level sales occupations). While this downward occupational mobility of college graduates does help maintain their employment rates, it also results in growing mal-employment, which reduces the real earnings of these young college graduates and bumps younger, less educated workers farther down the hiring queue, thereby

increasing their rate of joblessness.[24] All the net growth in civilian employment in the United States over the 2000–2004 period appears to be attributable to new immigrants, a near majority of whom are relatively young (under thirty) and compete directly with native-born teens and young adults, especially native-born men, for many entry-level jobs.[25] A number of employed older women (over fifty-five) without postsecondary degrees also hold jobs in many retail trade industries that also hire a substantial number of teens. With an influx of older women in the labor force and little net growth in employment in recent years, some retail employers appear to be hiring older workers rather than teens for many sales-related positions. Teens have lost out in the hiring decision to these alternative sources of labor supply in recent years. Steady, high levels of payroll job growth will be needed to boost employers' willingness to hire substantial numbers of teens in the next few years. Many teens, especially from minority and economically disadvantaged backgrounds, will likely need effective job placement assistance to become employed in the near future.

Do Jobless Teens Want to Work?

The steep drop in the teen employment rate over the past four years has been generated by a drop in job search activity among teens as well as by a rise in their unemployment rate. Some media observers of declining youth employment rates in recent years, especially during the summer months, have questioned whether teens really want to work.[26] They have cited teens simply hanging out at the beaches "working on nothing but their tans" and at shopping malls spending their parents' money. How many youth actually have sought work or expressed a desire for immediate employment even though they have not looked for work in recent months? To obtain insights into the aggregate number of teens who were either unutilized or underutilized in the labor market last year, we generated estimates of the following three groups based on our analysis of CPS monthly public-use files for the January–October period of 2004. On average over this ten-month period, there were slightly more than 1.2 million teens who

were unemployed, nearly 910,000 teens who wanted a job but had not actively looked for work in the past month, and close to 375,000 teens who were employed part-time but wished to work full-time.[27] A total of 2.52 million teens were unemployed, hidden unemployed, or underemployed in 2004.[28] This group represented nearly 31 percent of the adjusted teen labor force during 2004.[29] Among black youth, this underutilization rate comes closer to 50 percent. There is clearly a substantial reservoir of jobless teens who wish to work but are being left completely unutilized. If every teen who was unemployed or "hidden unemployed" had been able to obtain a job last year, the overall E/P ratio of teens would have risen to 50 percent. If enough jobs had been made available to teens to support this employment level, we believe that the number of teens looking for work would have increased well beyond the number of those classified as hidden unemployed.

Consequences of Rising Teen Joblessness

The high and rising levels of joblessness among the nation's teens not only reduce the nation's aggregate employment, earnings, and real output in the short run, but also have longer-term adverse economic and social consequences as well. Work experience is a form of human capital investment that has favorable future employment and earnings impacts. Youth who work more during their high school years have an easier time transitioning to the labor market upon graduation from high school, especially among those who do not go on to enroll in four-year colleges and universities, and they earn higher wages in the early post–high school years.[30] Joblessness during the high school years also has been found to increase the likelihood among economically disadvantaged men and women of dropping out of high school.[31] Higher employment rates among teen women also have been found to lower the rate of pregnancies among teenaged women.[32] Lower employment during the teen years also reduces youths' receipt of both on-the-job training and formal training from their employers and opportunities to build noncognitive employability skills (atten-

dance, punctuality, ability to work under supervision, to meet customer needs, to work in teams). Absence from the adult world of work also exposes youth more to adolescent and alternative nonwork cultures whose lifestyles and mores can at times be antithetical to the development of desired work habits, especially the "soft skills" increasingly demanded by many employers.

Over the coming decade, the U.S. labor force is projected to grow more slowly due to a variety of demographic developments, including the passage of the early large cohort of the baby boomers into their retirement years, the movement of the much smaller baby bust generation into their prime-aged working years, and the peaking of the labor force participation rates of women. Failure to more fully and comprehensively use and develop the labor resources of the nation's teens and young adults, especially those not going on to obtain bachelor degrees, will have adverse consequences for the future growth and quality of the nation's labor force.

Notes

1. U.S. Bureau of Labor Statistics, *The Employment Situation: December 2004* (Washington, DC, January 7, 2005).

2. These results are based on the findings of the monthly Current Population Surveys rather than the monthly payroll survey of employers.

3. For earlier analyses of the deteriorating labor market situation among the nation's teens and young adults, see Andrew Sum, Garth Mangum, and Robert Taggart, *The Young, the Restless, and the Jobless: The Case for a National Jobs Stimulus for America's Young Adults* (Baltimore: Sar Levitan Center for Social Policy Studies, Johns Hopkins University, 2002); Andrew Sum and Nathan Pond, with Sheila Palma, *The Impacts of the 2001 National Recession and the Ensuing Jobless Recovery on the Employment of the Nation's Teens and Young Adults,* report prepared for the National League of Cities, Institute on Youth, Education, and Young Families, Washington, D.C., August 2002.

4. For an earlier assessment of changing employment rates by age, excluding teens, see Peter Cox, Michelle Conlin, and Emily Thornton, "A Lost Generation," *Business Week,* November 4, 2002, pp. 44–46.

5. The national CPS employment series for teens begins with calendar year 1948. The 2004 annual average employment rate of teens was the lowest since 1948. For a recent review of the troubles faced by teens in the current job market, see John Kelly, "Youth Need Not Apply," *Youth Today* (December 2004/January 2005): 36.

6. For a review of changing age patterns of employment rates at the state level over the 2000–2003 period, see Andrew Sum et al., "Youth Left Behind in the Labor

Market," Commonwealth Corporation's *Research and Evaluation Brief* 2, no. 8 (January 2005).

7. For further details on the design of the CPS survey and its uses in generating monthly labor force data for the nation, see U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings, January 2004* (Washington, DC: U.S. Government Printing Office, 2004).

8. The employed include the self-employed, independent contractors, off-the-books workers, wage and salary workers, unpaid family workers employed for at least fifteen hours, and those with a job but not at work due to a temporary illness, vacation, weather conditions, or an industrial dispute at the workplace.

9. The civilian noninstitutional population excludes the homeless and those living in institutions such as juvenile homes, jails, prisons, long-stay hospitals, mental institutions, and nursing homes. Persons serving in the nation's armed forces are also excluded from the count of the civilian noninstitutional population.

10. Algebraically, the E/P ratio can be determined by the product of the labor force participation rate and the employment rate of labor force members. The employment rate is equal to one minus the unemployment rate.

E/P = L/P * E/L

E/L = 1 – U/L

Where U/L = unemployment rate

E/L = employment rate

11. Part of the problem with estimating the official unemployment rate for teens is related to the use of proxy respondents in the CPS household survey. Information on the labor force activities of teen household members is frequently provided by their mothers, who tend to underreport their job search activities, especially in periods of high unemployment.

12. The teen population in the nation rose from 13.78 million in 1992 to 16.20 million in 2000, an increase of 2.42 million or nearly 18 percent over this eight-year period, a radical departure from demographic developments in the prior decade.

13. The 2000 CPS employment data are not strictly comparable to those for earlier years due to a shift to 2000 Census-based population data in 2000. However, the teen employment estimates for 2000 were *not* very much affected by the population benchmark adjustments. In 1999, teen employment stood at 7.172 million.

14. Only in the last six months of 2004 did teen employment began to exceed its 2003 levels. These second-half gains were not large enough to offset first-half losses.

15. In 1985, three years after the end of the recession of 1981–82, the unemployment rate was 7.2 percent, and in 1994 it was 6.1 percent.

16. In November 2004, teen employment was 36,000 above its prior-year level, and in December, teen employment was 91,000 above its prior-year level.

17. Since the recessions of 1969–70 and 1973–75 began near the very end of 1969 and 1973, we use 1969 and 1973 as the cyclical peak years.

18. We treat the period July 1980 to June 1981 as the cyclical peak year for the 1981–82 recession. The recession officially began in July 1981. The three-year period following the start of the recession is thus July 1984 to June 1985.

19. Typically, the baby boom generation is referred to as those persons born between 1946 and 1964. Persons born in 1946 would have turned fifty-five years old in 2001. See Landon Y. Jones, *Great Expectations: America and the Baby Boom Genera-*

tion (New York: Coward, McCann and Geoghegan, 1980).

20. The same conclusions about the size of the age twist in E/P ratios would apply if we had included the earlier 1948–49, 1953–54, and 1957–58 recessions in our analysis.

21. Since the jobs recovery from the 1990–91 recession and the 2001 recession did not really begin until after the first year following the end of the recession, we begin the jobs recovery periods in 1992 and 2002, respectively.

22. Teens also gained a high share of jobs in the recovery from the 1960–1961 recession. Between 1961 and 1963, total teen employment increased by nearly 860,000.

23. These payroll employment levels refer to the number of wage and salary jobs on the payrolls of private nonfarm firms and government agencies.

24. For the first eleven months of 2004, we conservatively estimate that approximately 35 percent of young (under twenty-five), employed bachelor-degree recipients were occupying jobs outside of the regular college labor market.

25. See Andrew Sum, Ishwar Khatiwada, and Paul Harrington with Sheila Palma, *The Unprecedented Impacts of New Immigrants on National Labor Force and Employment Growth Between 2000 and 2004* (Boston: Northeastern University, Center for Labor Market Studies, forthcoming 2005).

26. See Andrew Sum and Nathan Pond with Sheila Palma, *The Impacts of the 2001 National Recession and the Ensuing Jobless Recovery on the Employment of the Nation's Teens and Young Adults,* report prepared for the National League of Cities, Washington, DC, 2002.

27. The vast majority of these underemployed teens were out of school. Both underemployment and hidden unemployment rise sharply during the summer months. Lost hours of work due to underemployment are not trivial. The typical full-time teen worker was employed for slightly more than forty hours per week versus only twenty to twenty-one hours for those working part-time.

28. We use the term "hidden unemployed" to refer to those teens who reported in the CPS interviews that they wished to work at the time of the survey but had not actively looked for work in the past month and hence were not classified as unemployed.

29. The "adjusted labor force" consists of teens who were active members of the civilian labor force and those who were members of the so-called labor force reserve.

30. For a review of the short and long-run employment and earnings impacts of in-school work experience, see Andrew Sum, Neeta Fogg, and Garth Mangum, *Confronting the Youth Demographic Challenge: The Labor Market Prospects of Out-of-School Young Adults* (Baltimore: Sar Levitan Center for Social Policy Studies, Johns Hopkins University, 2000); Christopher J. Ruhm, "The Extent and Consequences of High School Employment," *Journal of Labor Research* (Summer 1995): 293–303.

31. See Marta Tienda and Avner Ahituv, "Ethnic Differences in School Departure," in *Of Heart and Mind: Social Policy Essays in Honor of Sar A. Levitan,* ed. Garth Mangum and Stephen Mangum (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 1996).

32. See Jonathan Gruber, *Risky Behavior Among Youth: An Economic Analysis* (Chicago: University of Chicago Press, 2001).