

The 2016 Summer Job Outlook for American Teens

Neeta Fogg, Paul Harrington,
and Ishwar Khatiwada
Center for Labor Markets and Policy
Drexel University
May 2016



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Introduction

The recovery from the Great Recession has occurred at a relatively modest pace compared to other rebounds in the post-World War II period. Nonetheless since reaching the job market trough in early 2010, the nation's labor market has improved markedly. During the current recovery more than 14 million payroll jobs have been created, the unemployment rate has fallen below 5 percent from its 2009 peak level of 10 percent and real GDP has grown by \$2.15 trillion since the second quarter of 2009. However, teens in the nation seemed to have been largely excluded from these gains in employment and unemployment.

An overwhelming body of evidence indicates that U.S. teens are still facing serious difficulty in finding employment – any type of employment: full-time and part-time, and year-round and during summer months when 16- to 19-year-olds across the nation enter the labor market in droves. Exposure to work experience in teen years has long-term benefits. Labor market work experience helps teens accumulate human capital by exposing them to the world of work where they learn essential job and career skills. Work experience provides young people with social skills like learning to work with other staff and supervisors in an adult context, meet and deal with adult customers, and develop accompanying skills to negotiate these relationships at work. Work experiences also afford teens a context to understand the behavioral traits that employers seek in entry-level workers that are also important across all occupations and careers in the labor market—including dependability and integrity. Work provides teens with important proficiencies and behavioral traits that are the building blocks of their adult careers. Proficiencies and behavioral traits are often acquired through working and osmosis-like learning on the job.

Early work experience allows young workers to develop these basic behaviors in a work context—that is different than a home or school. Indeed, working in a job is most often the first time that youngsters engage with adults around adult duties and responsibilities. The work context makes them accountable to other adults around basic responsibilities associated with being a productive employee—who is not a burden to their employer or co-workers and where there are a variety of not-so-pleasant consequences when the teen does act in a way to become a burden—like not showing up for work or doing a lousy job that a co-worker has to fix.

Early work experience also helps develop labor market savvy, it creates a record of accomplishment - the work history - and it helps make connections with employers and networks

with other professionals at work that could help in future job search efforts. Early work experience can help young workers to go beyond entry-level jobs and gain experience in different workplace settings and gain knowledge of specific occupational skills. With this more specific work experience, which comes quicker among those with early work experience, young workers can gain exposure to different occupations which can be helpful in making career choices.

In addition to the beneficial work experience acquired from employment, employment during summer when most teens are not in school keeps them from engaging in risky behaviors, particularly teens from low-income families from inner cities.

This research report assesses the summer labor market experiences of teens in the current decade and forecasts the 2016 summer employment rate for teenagers nationwide.¹ The report begins with an examination of the trends in annual labor force participation and employment to population ratios of teens in the recent decade. Teen employment to population ratios over the 1999-2000 and 2014-2015 time period are compared with other adults in various age groups. Following this section is a detailed examination of summer labor market experiences of teens in various demographic and socio-economic groups in recent years and in 1999-2000 when the US labor market was operating at its peak. Variations in summer 2014-2015 teen employment rates across states are also examined. This section of the report is followed by predicted employment rates of teens in the summer of 2016.

Steeply Declining Teen Labor Force Participation and Employment Rates, 1999-2015

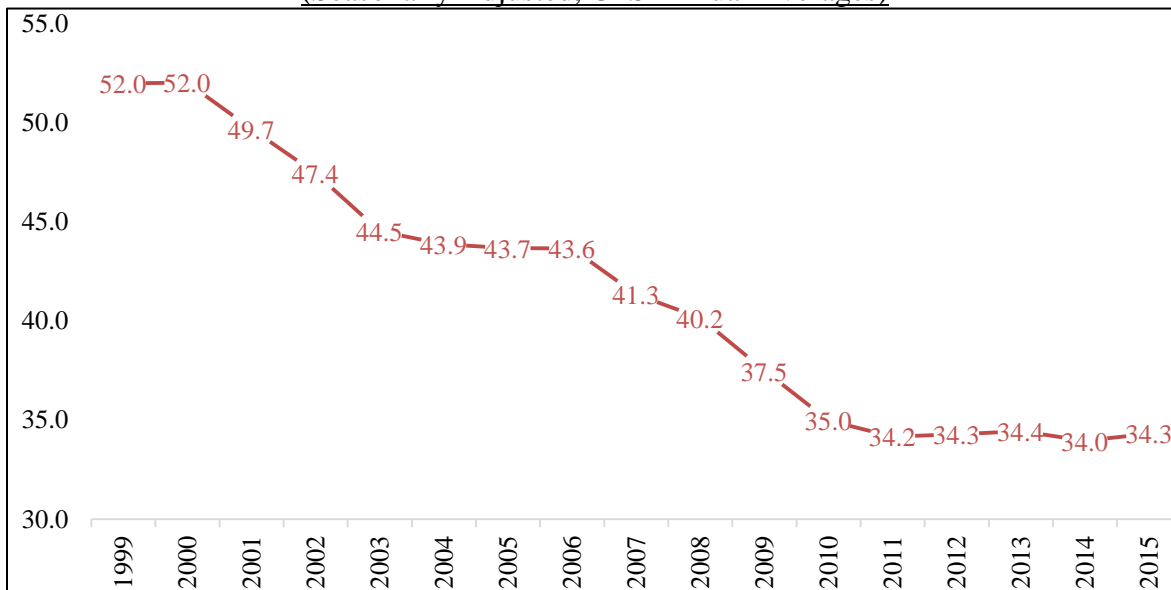
The labor force participation rates of U.S. teens have been declining steadily since 2000 after remaining around 50 percent or higher in the 1970s, 1980s, and 1990s. Academics, researchers, policy makers, and youth advocates have put forward many different arguments, trying to pin point the causes of such a precipitous decline in teen labor force participation behavior in the U.S. Some of the causes (of declining labor market participation of teens) include structural change in the economy, demographic change, displacement of teens in jobs by older

¹ The projection is based on a method developed by Andrew Sum and Ishwar Khatiwada, et. al at the Northeastern University Center for Labor Market Studies.

workers and new immigrants with low levels of education, a weak labor market, and a steady rise in school enrollment both year around and during summer when most teens work.²

At the peak of the Clinton jobs boom in 1999 and 2000, more than half of all U.S. teens (52%) participated in the labor force in any given month. After a brief technology-led economic recession of 2001, the labor force participation rate of teens started to decline steadily and sharply, falling from 52 percent at the end of the Clinton expansion of the 1990s to just 41 percent before the onset of the Great Recession of 2007-2009. During and after the Great Recession of 2007-2009, the labor force participation rates of U.S. teens continued their fall declining to new historical lows despite the economic and jobs recovery of the last six years. The labor force participation of teens has remained around 34 percent level over the 2011 to 2015 period (Chart 1).

Chart 1:
Trends in Civilian Labor Force Participation Rates of Teens (16-19) in the U.S., 1999-2015
(Seasonally Adjusted, CPS Annual Averages)



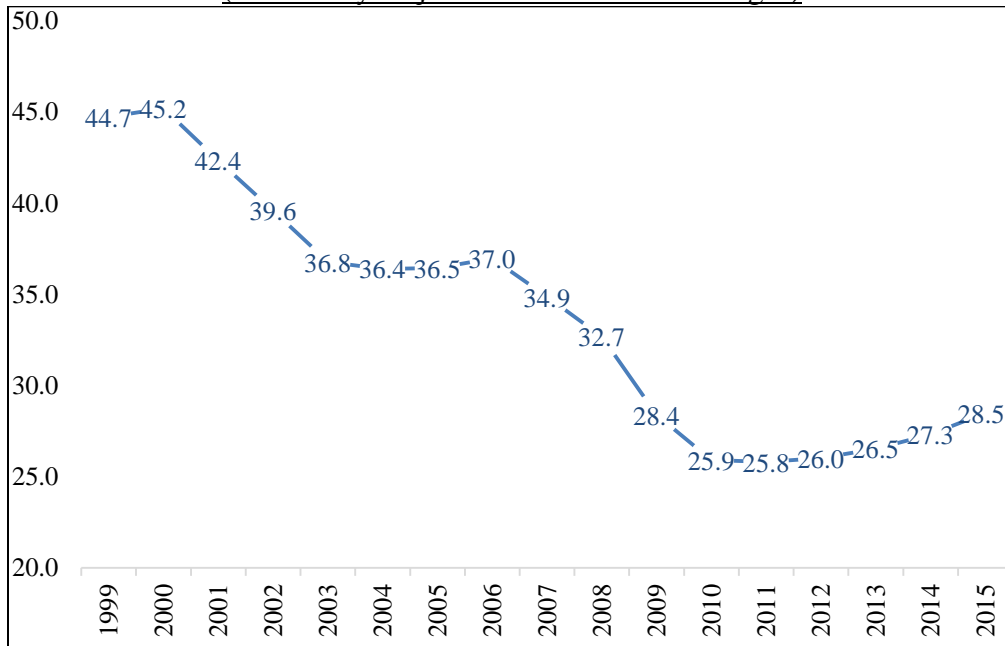
Source: Current Population Surveys (CPS), U.S. Bureau of Labor Statistics, 1999 through 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

² See: (i). Daniel Aaronson, Kyung-Hong Park, and Daniel Sullivan, “The Decline in Teen Labor Force Participation”, Federal Reserve Bank of Chicago, Economic Perspectives, 2006. First Quarter, pp. 2-18; (ii). “What Is Happening to Youth Employment Rates?” CBO Background Paper, Congressional Budget Office, November 2004. (iii). Christopher L. Smith, "Polarization, Immigration, Education: What's Behind the Dramatic Decline in Youth Employment?" Federal Reserve, October 2011. (iv). Andrew Sum, Paul Harrington, and Ishwar Khatiwada , “The Impact of New Immigrants on Young Native-Born Workers, 2000-2005”, Center for Immigration Studies, 2006, www.cis.org/sites/cis.org/files/articles/2006/back806.html.

Accompanying the decline in the labor force attachment of teens has been a decline in the fraction of teens who work—the employment to population ratio. The employment prospects for teens have also deteriorated sharply since 2000; more so during and in the aftermath of the Great Recession of 2007-2009. No group of U.S. workers other than teens experienced such a sharp decline in their employment to population ratio since 2000. In a given month in 2000, on average, 45 percent of teens were employed (Chart 2). The teen employment rate declined during the 2001 recession and continued its decline during the jobless recovery of 2002-2004. By 2007, the employment rates of teens had dropped to 37 percent, and reached historical lows after the Great Recession of 2007-2009; by 2010 and 2011 when only one in four teens had a job in a given month (Chart 2).

Despite the labor market recovery that has added more than 14 million jobs since 2010, the employment to population ratio of U.S. teens has failed to rebound, remaining stagnant at around 26 to 27 percent. In 2015, the teen employment to population ratio increased a bit (28.5 percent versus 27.3 percent in 2014); however, the share of teens with a job in 2015 remained well below the level of teen employment in 2007 (34.9 percent) and 2000 (45 percent).

Chart 2:
Trends in Employment to Population Ratio of Teens (16-19) in the U.S., 1999-2015
(Seasonally Adjusted CPS Annual Averages)



Source: Current Population Surveys (CPS), U.S. Bureau of Labor Statistics, 1999 through 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

Teens Experienced the Greatest Loss in Access to Jobs

The decline in the teen employment to population ratio over the 2007-2010 period was the sharpest (a decline of 25.7 percentage points) compared to the entire working age population and different age groups. In 2015, the overall employment to population ratio of U.S. workers (16+) had fallen by 5.1 percentage points since 2000 (down from 64.4 percent in 2000 to 59.3 percent in 2015) (Table 1). The employment to population ratio fell among all age groups under age 55 with the largest drop among teens among whom the employment rate declined by more than one-third over the 15 year period. Young adults aged 20 to 24 also saw a sharp decline in their employment rate; falling by more than 11 percent between 2000 and 2015. Prime age workers, those between the ages of 25 and 54 also were less likely to have a job in 2015 than in 2000; the employment rate of this group fell more modestly—by 3 to 5 percentage points representing a relative decline of 5 percent to 6.6 percent. In contrast, older workers (55 and older) experienced a substantial increase in their employment to population ratio (Table 1). The rise was especially sharp among persons aged 65 and older—persons in what had been thought of as the traditional retirement years.

This age twist in employment rates was unique by historical standards and has likely contributed to the displacement of both teens and young adults in jobs in sectors of the economy such as retail and low end services that historically were intensive employers of young people.

Table 1:
Trends in Employment to Population Ratios of 16 and Older by Age Group, U.S.,
Selected Years, 2000 and 2015
(Annual Averages, Seasonally Adjusted Except as Noted*)

Age Group	2000	2015	Absolute Change	Relative Change
16-19	45.2	28.5	-16.7	-37.0
20-24	72.3	63.8	-8.4	-11.7
25-29*	81.1	75.7	-5.4	-6.6
30-34*	82.0	77.4	-4.5	-5.5
35-44	82.2	78.7	-3.5	-4.3
45-54	80.5	76.6	-3.9	-4.9
55-64*	57.8	61.5	3.7	6.5
65+*	12.5	18.2	5.7	45.6
All, 16+	64.4	59.3	-5.1	-7.9

Note:* Employment to population ratio data for 25-to-29, 30-to-34, 55-to-64, and 65 and older persons are not published in seasonally adjusted format by the U.S. Bureau of Labor Statistics

Source: Current Population Surveys (CPS), U.S. Bureau of Labor Statistics, 2000 and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

Declining Teen Employment Opportunities in Summer Months over the 1999-2000 to 2014-2015 Period

Not only have the year-round employment prospects of U.S. teens deteriorated over the past 15 years, but their summer employment prospects have also diminished. During the summer months, teens aspire to work and gain both earnings and work experience as they have many more potential weeks and hours to work compared to other months when they are enrolled in high school and college. Summer jobs provide teens with exposure to the world of work and help them develop occupational and soft skills needed at work. Evidence shows that urban youth who did not work during summer were more likely than their employed peers to commit violent crimes, to be in risk of social isolation, and to get involved in risky, deviant, delinquent, and violent behaviors.³ Evidence also reveals that summer job programs reduce violent crimes by African-American teens.⁴ In addition, summer employment is also found to contribute to better academic outcomes.⁵ Given such positive impacts of summer employment among teens, it is sad to see the steady deterioration of the summer job prospects of American teens since the summer of 1999-2000 when the nation's labor market was operating at a near full employment level and nearly 52 percent of teens were employed. By the summer of 2006-2007, the employment to population ratio of teens had plummeted to 42 percent. During and after the Great Recession, the summer employment rate of teens reached its historical low. In the summer months of 2010-2011, only 30.6 percent of teens were employed; the lowest teen summer employment rate ever recorded. Since then teen summer employment has risen, but the gains have been very modest. In the summer months of 2014-2015, just 1 in three U.S. teens were able to find some type of paid employment. The employment to population ratio of U.S. teens in 2015 was only 3-percentage points above the historically lowest level in 2011. Despite much improved conditions in the labor market in recent years, few of the gains have trickled down to teens.

³ See: (i). Andrew Sum, Mykhaylo Trubskyy, and Walter McHugh, "The Summer Employment Experiences and the Personal/Social Behaviors of Youth Violence Prevention Employment Program Participants and Those of a Comparison Group", Center for Labor Market Studies, Northeastern University, Prepared for Youth Violence Prevention Funder Learning Collaborative, Boston, July 2013.

⁴ See: Sara B. Heller, "Summer jobs reduce violence among disadvantaged youth", *Science*, Vol 346, 5 December 2014; Gelber Alexander, Adam Isen, Judd B. Kessler, *The Effects of Youth Employment: Evidence From New York City Summer Youth Employment Program Lotteries*, NBER Working Paper 20810, December 2014.

⁵ Jacob Leos-Urbel, "What is a Summer Job Worth? The Causal Impact of Summer Youth Employment on Academic Outcomes: Evidence from a Large-Scale Lottery," *Journal of Policy Analysis and Management*, Volume 33, Issue 4, pages 891-991, Fall 2014.

Summer job prospects for teens across every gender, race-ethnic, and age group deteriorated considerably over the 1999-2000 and 2014-2015 period. (Table 2). Male teens had a somewhat greater employment to population ratio decline than their female counterparts (teenage boys saw their employment to population ratio fall by 20.8 percentage points versus a 17.5 percentage point decline for teenage girls). Among teens in major race-ethnicity groups, summer employment to population ratio decline during this time period ranged from 12-13 percentage points among Asian, Black, and Hispanic teens to nearly 22 percentage points among White teens; considerably narrowing what had been a very wide difference in access to summer employment between white, non-Hispanic teens and other race-ethnicity groups (Table 2).

During the same time period, younger teens experienced a sharper decline in their summer employment to population ratios than older teens. For 16- and 17-year-old teens, the employment to population ratio decline over this time period was 19-21 percentage points; higher than the 16-17 percentage point decline among older teens (18 and 17 years of age).

Table 2:
Trends in Summer Months Employment to Population Ratios of 16-to-19 Years Old by Gender, Race-Ethnic Group, and Age, U.S., Selected Years, 1999-2000 to 2014-2015
(CPS 2-Year Averages, Not Seasonally Adjusted)

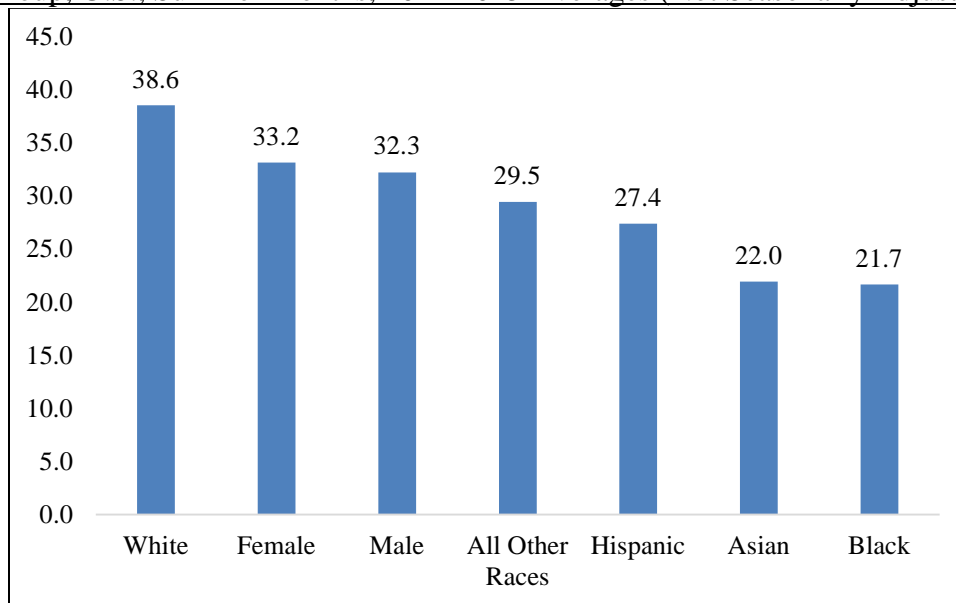
Group	1999-2000	2006-2007	2010-2011	2014-2015	Absolute Change
Gender					
Male	53.1	42.1	29.9	32.3	-20.8
Female	50.7	42.0	31.2	33.2	-17.5
Race					
White	60.1	49.6	37.7	38.6	-21.6
Black	33.7	25.5	17.7	21.7	-12.0
Asian	34.6	26.8	19.2	22.0	-12.6
Hispanic	40.0	33.1	22.1	27.4	-12.5
All Other Races	41.1	38.8	24.0	29.5	-11.6
Age					
16	35.6	25.6	13.7	15.8	-19.8
17	48.2	37.7	25.2	27.4	-20.7
18	57.0	49.0	36.1	40.0	-17.0
19	67.0	59.5	48.3	50.3	-16.7

Source: Current Population Surveys (CPS) public use data files, 1999 through 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

Who Worked in the Summer Months of 2014-2015?

As we noted earlier, the summer employment prospects of U.S. teens have improved only modestly over the past two years.⁶ In any given month during the summer of 2014-2015, nearly 1 in 3 U.S. teens were able to secure some type of paid employment. The employment to population ratios of both male and female teens was very similar (32 to 33 percent, respectively); however, the summer employment to population ratios varied widely between whites and non-white teens despite a considerable narrowing of that gap over time. (Chart 3). During the summer of 2014-2015, white teens were employed at the highest rate (38.6%) followed by Hispanics (27.4%) and Asian and black teens among whom only 21-22 percent were employed. The employment rate gap between white teens and black teens in the summer months of 2014-2015 was 17-percentage points; white teens were 1.77 times more likely to work than black teens in the summer of 2014-2015.

Chart 3:
Employment to Population Ratios of 16-to-19 Year Olds by Gender and Major Race-Ethnic Group, U.S., Summer Months, 2014-2015 Averages (Not Seasonally Adjusted)

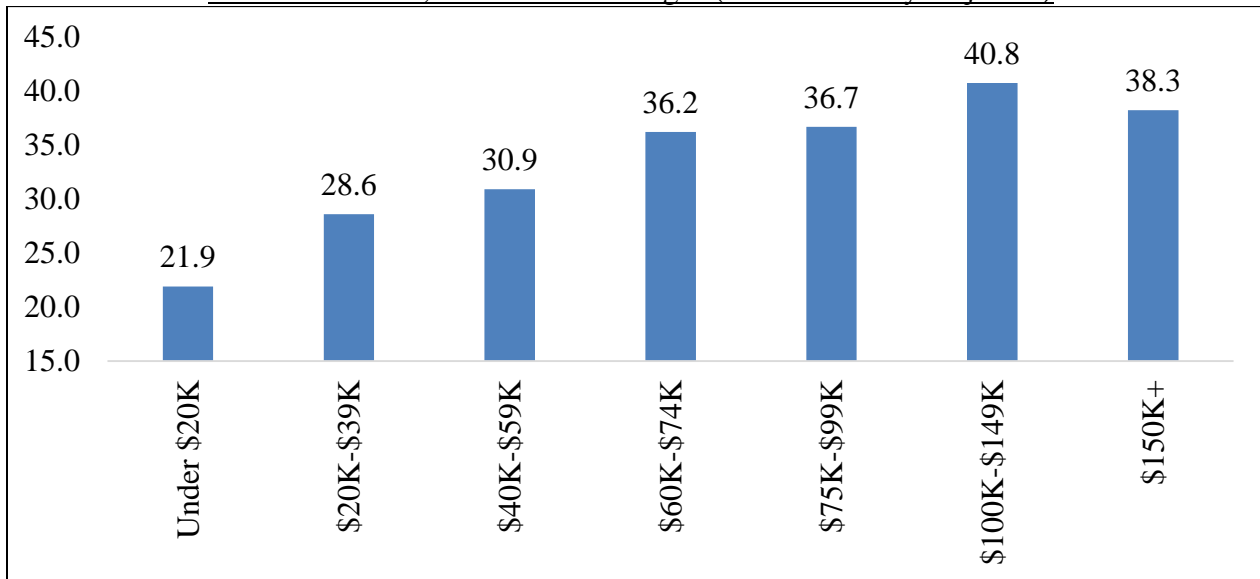


Source: Current Population Surveys (CPS) public use data files, 2014 and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

⁶ For review of 2015 summer employment reports, see: (i). Neeta Fogg, Paul Harrington and Ishwar Khatiwada, "The Summer Jobs Outlook for Teens in the US" (Working paper, Center for Labor Markets and Policy, Drexel University, May 2015), http://www.asnchicago.org/docs/SummerJobsOutlook4TeensUS_DrexelReport5-8-15.pdf; (ii). Megan Woolhouse, "Affluent Teens Twice as Likely to Find Seasonal Work: Teens Facing a Jobs Gap As Well", *The Boston Globe*, May 28, 2015, pp. C1-C7; (iii). Kaomi Goetz, "Teens Hoping For More Jobs, Higher Wages This Summer", *All Things Considered*, NPR, New York, June 2015.

The employment rate of teens is closely and positively associated with their family income. Teens from affluent families were more likely to be employed than those from low-income families. Only 22 percent of teens from low-income families (family income less than \$20,000) were employed in the summer months of 2014-2015 (Chart 4). The teen employment rate rose fairly steadily with levels of family income, rising from 28.6 percent among teens in families with annual income between \$20,000 and \$39,000, to 31 percent among teens in families with an annual income between \$40,000 and \$59,000, and nearly 41 percent among teens with an annual family income of \$100,000 to \$149,000. Teens from the very affluent families (family income of \$150,000 or more) had a somewhat lower work rate in comparison to their peers from families with income of \$100,000-\$149,000. Black teens from low-income families fared the worst in securing any type of paid summer employment. In summer months of 2014-2015, only 16 out of 100 Black teens from families with annual incomes less than \$20,000 were employed (Table 3). Among Hispanic teens in this income group, the employment rate was only 19 percent.

Chart 4:
Employment to Population Ratios of 16-to-19 Year Olds by Household Income Levels, U.S., Summer Months, 2014-2015 Averages (Not Seasonally Adjusted)



Source: Current Population Surveys (CPS) public use data files, 2014 and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

The gaps in summer employment rates of teens from affluent and low-income families are very large in every major race-ethnicity group, with the exception of Asian teens (Table 3). In comparison to teens from low income families (family income under \$20,000), teens from

affluent families (family income \$100,000 and over) worked nearly twice the rate during summer months of 2014-2015. This was true for both male and female teens. With the exception of Asian teens, work rates in summer for affluent teens from Black, Hispanic, and White families exceeded the summer employment rate of their low-income counterparts by 11 to 17 percentage points.

Table 3:
Comparisons of Employment to Population Ratios of Teens (16-to-19) in Families with Annual Incomes Below \$20,000 and \$100,000 and Over, U.S., Summer Months, 2014-2015 Averages, (Not Seasonally Adjusted)

Group	(A) Family Income Below \$20,000	(B) Family come \$100,000 and Over	Difference (A-B)
Gender			
Male	21.4	38.5	-17.0
Female	22.3	40.8	-18.4
Race			
White	28.1	42.7	-14.7
Black	15.7	28.7	-13.0
Asian	18.0	21.3	-3.4
Hispanic	19.3	36.5	-17.2
All Other Races	24.8	35.4	-10.7

Source: Current Population Surveys (CPS) public use data files, 2014 and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

In the summer months of 2014-2015, the employment to population ratios of teens varied widely by their state of residence. Table 4 displays 10 states with the highest and another 10 states with the lowest teen summer employment rates in 2014-2015. In the top 10 states, summer employment rates for teens ranged from lows of 48 to 49 percent in Nebraska and Kansas to highs of 57 to 58 percent in South Dakota and Iowa. The average summer employment rate of teens in these top ten states was 52.6 percent. In the bottom 10 states, the summer teen employment rate ranged from just 18 percent in the District of Columbia and 21 percent in West Virginia and 27 percent in New York, Oklahoma, and Arizona. The unweighted average summer employment rate of teens in these bottom ten states was 23.4 percent. The average summer employment rate of teens in top 10 states was 2.2 times higher than in the bottom 10 states.

Table 4:
States with the Highest and Lowest Teen Summer Employment Rates Among 50 States and the D.C., Summer Months 2014-2015 Averages, (Not Seasonally Adjusted)

Top 10 States			Bottom 10 States		
Rank	State	E-P Ratio	Rank	State	E-P Ratio
1	Iowa	58.2	1	Oklahoma*	27.2
2	South Dakota	57.8	2	New York	27.0
3	New Hampshire	53.8	3	New Mexico	25.5
4	Maine	53.4	4	Florida	25.4
5	North Dakota	52.0	5	Alabama	23.5
6	Minnesota	51.4	6	Georgia	22.9
7	Vermont	51.0	7	California	22.4
8	Montana	50.3	8	Mississippi	21.7
9	Kansas	49.4	9	West Virginia	20.6
10	Nebraska	48.6	10	Dist. of Columbia	17.6
	Top 10 Averages	52.6		Bottom 10 Averages	23.4

Note: * tied with Arizona

Source: Current Population Surveys (CPS) public use data files, 2014 and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

Teens Show Strong Desire to Work in Summer Months

There has been some debate about whether teens want to work in summer months as well as during the school year. Some research shows that more teens are opting for school-related activities over work in summer months while others point to a reduced desire among employers to hire teens.⁷ Even though school enrollment rates of teens in the summer months have increased by more than 10 percentage points since 2000, declining teen summer employment rates did not stem from a reduced desire to work. Evidence shows that an overwhelmingly high share of U.S. teens show a desire to work in summer months.⁸ A large number of teens are either unemployed, underemployed, or hidden unemployed. In the summer of 2014-2015, there were 1.3 million teens that were actively looking for summer work at any point in time, but remained

⁷ See: (i). Jeff Clabaugh, Why Teens Don't Want Summer Jobs? *Washington Business Journal*, April 21, 2015; (ii). Paul Harrington and Nancy Snyder, *Signaling Success: Boosting Teen Employment Prospects*, Commonwealth Corporation, April, 2013. Retrieved from: http://www.commcop.org/resources/documents/BoostingTeenEmploymentProspects_042013.pdf

⁸ See: Paul Harrington and Ishwar Khatiwada, "US Teens Want to Work," *Communities & Banking*, Vol. 27, no. 2, Spring 2016, Federal Reserve Bank of Boston, <https://www.bostonfed.org/commdev/c&b/2016/spring/US-Teens-Want-to-Work.pdf>.

unemployed. Another 1 million wanted to work, but had given up looking for a job. An additional half million were working part-time, but wanted a full-time position (Table 5). The combined pool of the three groups of teens, termed as the underutilized, was 2.84 million, representing an underutilization rate of 36.7 percent, the highest among any other groups of workers and much higher than the teen underutilization rate of 26.4 percent in the summer months of 1999-2000. Clearly, teens do have a strong desire to work in summer months, but a very large share of those with a job desire are unable to find a summer job.

Table 5:
Trends in Labor Market Problems of Teens (16-19) in Summer Months in the U.S., Selected
Time Periods, 1999-2000 to 2014-2015 (CPS 2-Year Averages, Not Seasonally Adjusted)
(Numbers Are in 1,000s, Except Rates and Ratios)

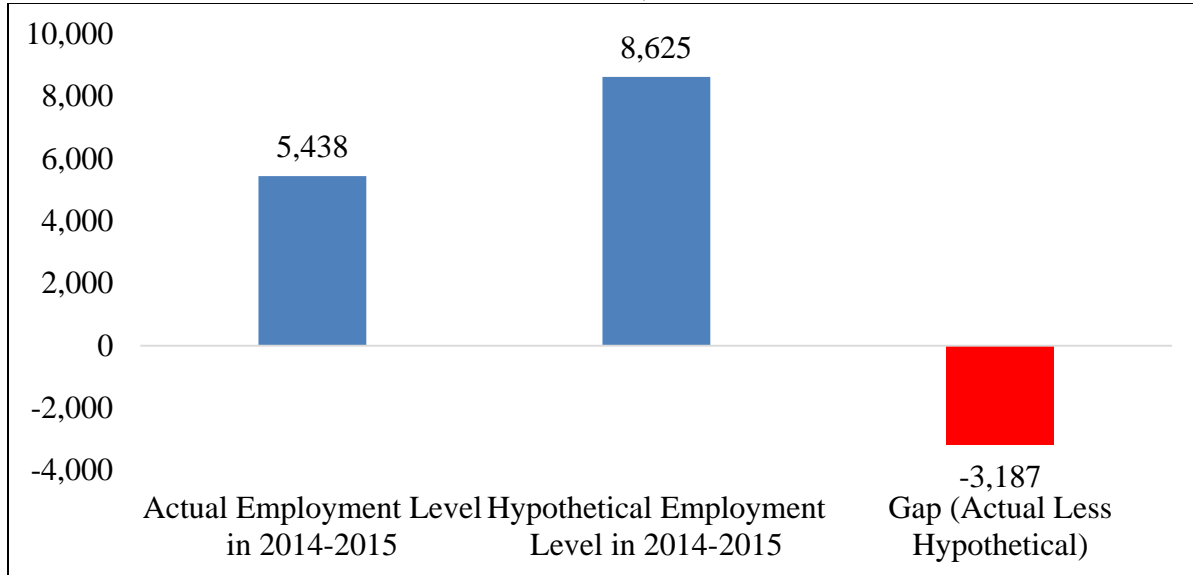
Labor Force Status	1999- 2000	2006- 2007	2010- 2011	2014- 2015	Change, 2010- 11/2014-15
Labor force	9,584	8,481	6,940	6,748	-192
Employed	8,278	7,087	5,138	5,438	300
Unemployed	1,306	1,394	1,802	1,310	-492
Working PT for ECN Reasons	524	488	671	542	-129
Labor Force Reserve	954	919	1,095	988	-107
Labor Force Underutilized Pool	2,784	2,801	3,567	2,839	-728
N (16-19)	15,951	16,845	16,821	16,620	-200
LF Participation Rate	60.1	50.3	41.3	40.6	-0.7
Employment to Population Ratio	51.9	42.1	30.5	32.7	+2.2
Unemployment Rate	13.6	16.4	26.0	19.4	-6.6
LF Underutilization Rate	26.4	29.8	44.4	36.7	-7.7

Source: Current Population Surveys (CPS) public use data files, 1999, 2000, 2006, 2007, 2010, 2011, 2014 and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

As we noted above, the summer employment rate of teens reached a historical low after the Great Recession of 2007-2009. In recent years, the teen employment rate in summer has increased only slightly. If current day teens worked at the same rate as their counterparts in 1999-2000, how many teens would have been employed in summer of 2014-2015? We have performed a simulation to generate estimates of the number of teens that would have been employed in 2014-2015 if they had matched their employment rates of 1999-2000. (Chart 5). If teens had matched their summer 1999-2000 employment rate of 51.9 percent, nearly 8.62 million teens would have been employed in the summer months of 2014-2015. However, only 5.44 million teens were employed during the summers of 2014-2015. The gap between actual and hypothetical summer employment levels in 2014-2015 was 3.19 million or 58.6 percent.

Chart 5:

Actual and Hypothetical Employment Levels of Teens (16-19) in Summer Months of 2014 and 2015 If the Employment Rates of Teens in Summer Months of 2014-2015 Had Stayed at 1999-2000 Level (51.9%), U.S., Summer Months, 2014-2015 Averages, Not Seasonally Adjusted (In 1,000s)



Source: Current Population Surveys (CPS) public use data files, 1999, 2000, 2014, and 2015, U.S. Census Bureau; tabulations by Center for Labor Markets and Policy, Drexel University.

The Projected Summer 2016 Job Outlook for U.S. Teens

Given the improved labor market in recent years, how well are the nation's teens likely to fare in the job market this summer? To answer this question, we have relied upon a regression model of teen employment rates that was developed in 2006.⁹ The model is designed to predict the average summer employment rate of teens based on their employment in January through April of each year. The regression model used seasonally adjusted monthly teen employment data from 1980 through 2002. The teen labor force increases sharply in the summer months as students have summer vacation or exit school permanently. Teen employment rate is highly path dependent. That is, the chances of working in the future are dependent on the amount of past work experience. Teens who worked in the previous year or during the winter/spring before the summer are much more likely to work in the summer months than those who did not work.

We have revised our previous regression model to predict summer employment rate with 1980 through 2005 data. We included seasonally-adjusted average employment to population

⁹ The projection is based on a method developed by Andrew Sum and Ishwar Khatiwada et. al at the Northeastern University's Center for Labor Market Studies.

ratio of three months (January, February, and March) for teens to predict the (seasonally adjusted) summer employment rate, based on the hypothesis that a higher employment rate over the January to March period is expected to yield a higher summer employment rate for teens. Our revised model also achieved a good fit. The R-squared for the model was .87, which was highly significant at .001 level (Table 6). The predicted summer employment rate (seasonally adjusted) for a given year will be¹⁰:

$$\text{Predicted Summer E-P Ratio, EMP } i, t = 43.0 + .97 * (\text{EMP } j, t - 43.2)$$

Where EMP i, t = Predicted seasonally adjusted summer teen employment rate in year t.

EMP j, t = Estimated teen employment rate in the first four months of year t.

Table 6:
Findings of the Regression Model Estimates of the Summer Teen Employment Rate in the U.S.
Based on Observations from 1980 to 2005
(Seasonally Adjusted Average E/P Rates, January through March)

Regression Variable	Coefficient	Standard Error	t-Statistics	Sig. of t
Constant	43.0	0.231	186.0	0.001
Jan-March E-P	.97	0.077	12.7	0.001
<u>Model Summary</u>				
R-Squared	0.87			
DF;N	1;24			
F-Stat	160.8			0.001

Table 7 displays actual and predicted summer teen employment rates based on the above model. The model very slightly under-predicted summer teen employment rates in 2012 through 2014 from 0.2 to 0.4 percentage point. In 2015, the model predicted an employment rate that was nearly 0.8 percentage points higher than the actual summer teen employment rate. In the first three months of 2016 (January to March), the seasonally adjusted employment to population ratio of teens in the U.S. was 29.6 percent. Plugging this employment rate in the regression equation above, **we predict that the teen employment rate in the summer months of 2016 will be close to 30 percent. A positive, but still modest increase in the chance of teens finding a summer job this year compared to last.**

¹⁰ The predictor variable referred to as “employment to population” ratio is the value of average employment to population ratio of January to March, seasonally adjusted less 43.2 (average January-March employment to population ratio from 1980 to 2005).

Table 7:
Comparisons of the Predicted and Actual Teen Summer Employment Rates from
2005 to 2015 and the Predicted Teen Summer Employment Rate for 2016
(June-August Averages, in %, Seasonally Adjusted)

Summer of Year	Actual Rate	Predicted Rate	Gap (Actual – Predicted)
2005	36.7	36.2	0.5
2006	36.9	37.2	-0.2
2007	34.3	36.0	-1.7
2008	32.4	33.7	-1.3
2009	28.5	30.3	-1.9
2010	25.6	26.6	-1.0
2011	25.6	26.1	-0.5
2012	26.4	26.0	0.4
2013	26.7	26.5	0.2
2014	27.0	26.7	0.3
2015	28.1	28.8	-0.8
2016	?	29.8	--

Data Sources and Methodology

Estimates of labor force statistics appearing in this report are based on the monthly Current Population Survey, a national household survey, conducted by the U.S. Census Bureau for the U.S. Department of Labor’s Bureau of Labor Statistics. Every month, the CPS survey is conducted from 19th to 25th of the month with a nationally representative sample of approximately 60,000 households.¹¹ The survey ask household members about their labor force status in the “reference week”, the week prior to the day of interviews (12th to 19th of the month).The CPS collects data on the current labor force activities of all household members 16 and older, including their employment, unemployment status, hours worked, industry and occupation of employment etc. The CPS survey is the official source of data on the labor force, income, and poverty in the U.S. The monthly CPS also add supplemental questions to household members in particular month to get detailed information on various important topics such as the annual social and economic characteristics, education and school enrollment, food security, fertility and marriage, tobacco use, computer and internet use, voting and registration,

¹¹ For detail, see: U.S. Census Bureau. Current Population Survey: Interviews Reference Manual, April 2015, retrieved, http://www2.census.gov/programs-surveys/cps/methodology/intman/CPS_Manual_April2015.pdf

volunteering, veterans etc. These CPS supplemental topics are known as CPS supplement surveys.

To assess the labor market well-being of teen aged (16-19) population in the U.S., we have relied primarily on the employment to population ratio measure in this paper. The employment to population (E/P) ratio measures the percent of a population group (in this instance 16 to19-year-olds) in the civilian, non-institutional population that were employed in an average month during the year. The denominator excludes persons serving in the nation's armed forces and inmates of institutions, such as juvenile homes, jails, and prisons. Employment to population ratio is the best available indicator to gauge labor market success of teens.