The decline in teen labor force participation

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Introduction and summary

By the middle of 2005, the U.S. civilian unemployment rate had fallen to 5 percent, a level many analysts consider consistent with essentially full employment. However, individuals who have become discouraged over their prospects of finding suitable employment and, as a result, have given up looking are not counted among the unemployed. Thus, analysts often look to the labor force participation (LFP) rate, the fraction of the population that is either employed or unemployed as an additional indicator of labor market conditions. In fact, the participation rate declined significantly during and after the 2001 recession and remains well below its 2000 level. This could imply more labor market slack than the unemployment rate suggests.

The decline in LFP has been especially great for teenagers. As figure 1 shows, teens' participation rates had been trending down since the late 1970s. However, from 2000 to 2003, teen LFP fell a stunning 7.5 percentage points, compared with a decline in the overall rate of only 0.6 percentage points. Currently, the LFP for teenage boys is the lowest since at least 1948 and for teenage girls is the lowest since the early 1970s.

Figure 1 also shows that the decline since 2000 in the LFP rate for those 20 and older is considerably less dramatic than the fall in the overall rate, which includes those aged 16 to 19. Although those between the ages of 16 and 19 represent only 4.2 percent of employment (and 8.2 percent of population aged 16 to 69), they account for over half of the fall in aggregate LFP since 2000. Strikingly, 16 year olds to 17 year olds, who account for only 1.6 percent of workers and 4.3 percent of the population aged 16 to 69, explain over one-third of the fall in aggregate participation since 2000. Thus, a better understanding of the forces shaping the labor force participation of teens may shed significant light on recent trends in overall participation.

Another reason to look more closely at teen labor force participation is to understand what this major shift in the allocation of young people's time may mean for future productivity. The answer to this question likely depends on what teens are doing instead of working and whether those activities contribute to human capital development. On the one hand, if the reduction in time spent working in the market has been accompanied by a concomitant increase in the time spent in school or doing homework, one might reasonably expect an eventual increase in productivity consistent with the well-documented returns to education.[1] The impact of the increase in schooling investments on the overall economy might also include the positive externalities associated with education, including spillover productivity effects on peers and other workers, lower crime, and greater civil involvement in the public policy process.[2]

On the other hand, a shift in teens' time allocation from market work to leisure or other activities that do not increase their human capital may negatively affect their future productivity. In general, labor market experience tends to raise subsequent earnings. Moreover, it is easy to imagine that moderate amounts of time devoted to a part-time job during the summer or while in school might inculcate good work habits and allow young people to make more informed educational and career choices.[3]

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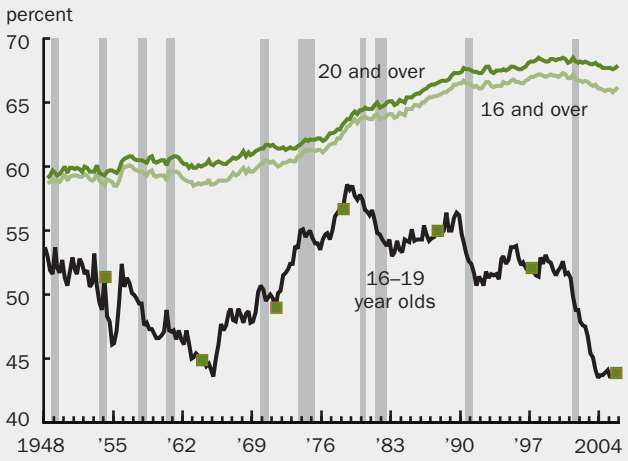
FIGURE 1

Labor force participation, by age



Note: The shaded areas are recessions as identified by the National Bureau of Economic Research.

Source: Authors' calculations based on data from Haver Analytics.

In this article, we examine the facts about teen labor force participation in more detail. We show that, although there is some variation in the magnitude, the decline in teens' labor force participation is extremely widespread. Virtually all groups of teens have seen a decline in LFP. We then discuss a number of possible explanations for this decline in teen labor force participation over the past quarter century as well as the sharper drop of the early 2000s. The possible explanations that we consider can be grouped into two categories: demand and supply. Those that would tend to lower the wage associated with current work can be thought of as reducing teen labor demand. Those that increase the value of human capital investments or tilt teens' choices toward more leisure can be thought of as reducing the per capita supply of teen labor.

In the end, it seems likely that the most important factor behind the long-term decline in teen LFP over the past 25 years is a supply-side development. The significant increase in the rewards from formal education (in the form of higher future earnings) began to take hold shortly before teen participation peaked. The fact that the average hourly wage rate of teens relative to adult workers has changed relatively little as teen labor supply has shifted in over the last quarter century suggests either that the relative demand for teen labor is relatively elastic or that it also has been shifting in over time. The former possibility is consistent with evidence we present on the impact of increases in the number of competing workers on teen participation. The latter possibility would be consistent with the existence of skill-biased technical change, the tendency for recent technological innovations to raise the productivity of highly educated workers relative to those who are less educated, including teens.[4] Both possibilities may be true.

It is less clear what caused the more recent acceleration in the decline of teen LFP. Wage trends suggest that a softening in teen labor demand may have played some role. Other evidence, however, suggests that the recent drop is unlikely to represent a significant margin of additional labor market slack.

Trends in teen labor force activity

We begin our analysis by reviewing the history of LFP among 16 year olds to 19 year olds since 1948, the earliest year for which we have data derived from the *Current Population Survey* (CPS). The CPS interviews a nationally representative sample, which is currently approximately 60,000 households per month. It collects information about the labor market activities of all those at least 16 years of age. The LFP rate shown in figure 1 is the share of civilian noninstitutionalized 16 year olds to 19 year olds who are either working or unemployed (available to work and actively looking for work) in a given month.[5]

As the figure shows, there have been long periods of expansions and contractions in teen participation rates. Coming out of World War II, just over half of teenagers were in the labor force. But, soon thereafter, LFP began to fall, reaching a low of just under 45 percent in the early 1960s. Over the next two decades, teenagers slowly rejoined the labor market, with their LFP rates peaking at 59 percent in the late 1970s. Since then, teen participation has pulled back again, with LFP rates falling steadily, punctuated by a particularly large decline starting around 2000. Currently (as of December 2005), teen LFP stands at 43.3 percent, over 15 percentage points below its peak 25 years earlier, and at the lowest rate in our 50-plus-year sample.[6]

The broad swings in teen LFP may be partially obscured by shorter-run fluctuations associated with the business cycle. As one way to more clearly isolate the longer-term movements from the business cycle, figure 1 identifies periods, like the third quarter of 2005, in which the aggregate unemployment rate was approximately equal to the Congressional Budget Office's (CBO) estimate of the non-accelerating inflation rate

of unemployment (NAIRU) after having been above it for some time. Changes in teen LFP between such quarters should be little affected by changes in business cycle conditions.

As the figure displays, the rate of decline in teen LFP over the latest full business cycle was much more rapid than over the previous two cycles. The average drop of about 1 percentage point per year between the first quarter of 1997 and the third quarter of 2005 was about three times faster than the pace of decline going back to the third quarter of 1987. If the slower rate of decline in place between 1987 and 1997 had been maintained, the current teen LFP rate would be about 5.5 percentage points higher than it is currently.

Teen LFP patterns differ by gender. Historically, male teens were more likely to work than females. However, teenage female LFP grew dramatically during the late 1960s and 1970s, likely reflecting the same economic and cultural forces underlying the increase in adult female LFP. As a result, by the early 1980s, there was virtually no gender difference among 16 year olds to 17 year olds. For 18 year olds to 19 year olds, the gender gap, while narrowing, did not disappear entirely until the mid-1990s. This likely reflects the especially significant increase in female college attendance that took place over this period.

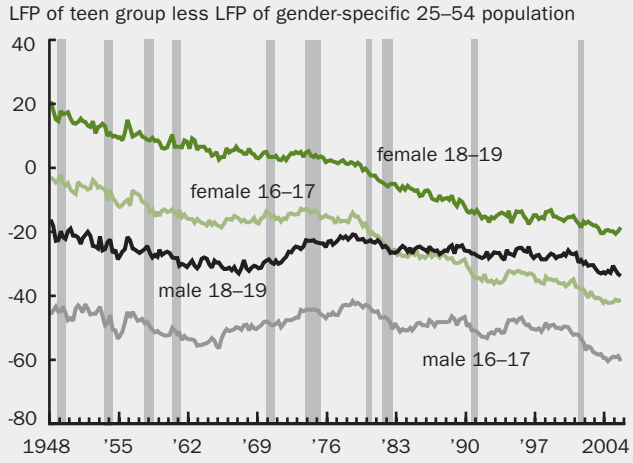
As one way to isolate the trend in teen LFP separately from developments related to gender, figure 2 shows the labor market activity of teenagers relative to the gender-specific LFP rates of prime age adults (25 years to 54 years of age). Specifically, we display the percentage difference between the teen LFP rate and the same gender's adult rate.[7] The relative LFP of female 18 year olds to 19 year olds has fallen the most steadily. In the late 1940s, 18-year-old to 19-year-old females were as much as 60 percent more likely to work than adult women, but now are about 25 percent less likely to work than adult females. The steady drop in the relative LFP of 18-year-old to 19-year-old females likely reflects their equally impressive increases in college attendance.[8] For the other three age–gender groups, the relative teen LFP rate fell from the late 1940s until the mid-1960s, when it began to rise. Between 1979 and 2000, these rates have fallen steadily, accelerating again beginning around 2000. For all four age–gender groups, the ratio of teen LFP to the LFP of adults of the same gender reached an all-time low during the current cycle.

Generally, LFP is procyclical, rising during expansions and falling during recessions. Figure 3 presents teenage LFP rates since 1979 adjusted for normal business cycle fluctuations in two alternative ways.[9] The first version (the black dashed line), which we label the "time-series adjustment," takes advantage of the time-series relationships between LFP and aggregate labor market conditions. In particular, we run the regression $L_t = \alpha + \beta_1(U_t - \bar{U}_t) + \beta_2 t + \beta_3 t^2 + \beta_4 t^3 + \varepsilon_t$, where L_t is the LFP rate of group i at time t, U_t is the overall unemployment rate at time t, $\bar{U}_t$ is the CBO's estimate of NAIRU, t is a time trend (1979 = 1, 1980 = 2, and so on), and ε_t is a white noise term.[10] We define the cyclically adjusted LFP at time t as $\tilde{L}_t = L_t - \hat{\beta}_1(U_t - \bar{U}_t)$. This assumes the business cycle effect is proportional to the gap between the actual unemployment rate and CBO's NAIRU.[11]

The second version (the green dashed line), which we label the "cross-sectional adjustment," also subtracts a constant multiple of the unemployment gap, but uses differences in state experiences to estimate the parameter relating LFP to unemployment. Specifically, we regress state-level teen LFP on state-level aggregate unemployment. To control for long-term differences in LFP across states, we also add state fixed effects. Thus, the identification of $\hat{\beta}$ is based on within-state changes in teen LFP and unemployment.[12] As figure 3 shows, there are

FIGURE 2

Labor force participation of teens relative to 25–54 year olds of the same gender

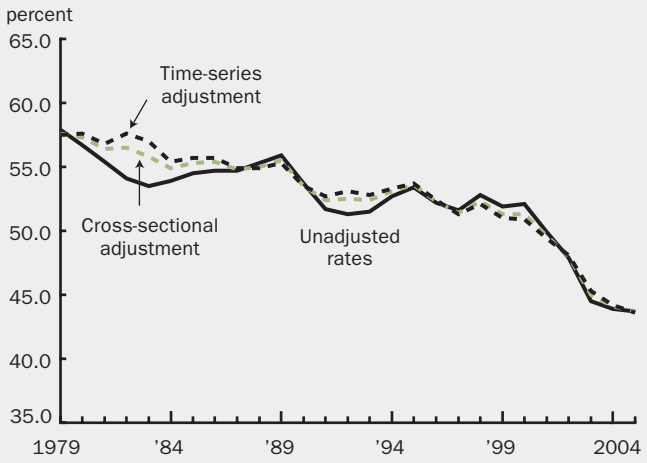


Note: The shaded areas are recessions as identified by the National Bureau of Economic Research.

Source: Authors' calculations based on data from Haver Analytics.

FIGURE 3

Cyclically adjusted teenage labor force participation rates



Source: Authors' calculations based on data from the *Current Population Survey.*

three periods since 1979 when the cyclical adjustment is important, although the degree depends somewhat on which technique is used. In the early 1980s and early 1990s, the economy slowed, unemployment rates rose, and the teen labor market activity declined. Had the unemployment rate remained at the natural rate, the teenager labor market activity would have risen by roughly 1 percentage point to 3.5 percentage points in the early 1980s and 1 percentage point to 2 percentage points in the early 1990s. Given the former adjustment, it might be the case that the underlying trend in teen labor market activity peaked in the early 1980s rather than the late 1970s. Likewise, the booming economy of the late 1990s pushed up teenage labor force participation by roughly 0.5 percentage points to 1.2 percentage points, thus exaggerating the decline since then.

TABLE 1

Percentage point change in teen LFP, 2000–05

	Time-series adjustment	Cross-section adjustment
Actual	–8.4	–8.4
Long-term trend	–1.8	–1.8
Cycle	–1.1	–0.8
Unexplained	–5.5	–5.8

Source: Authors' calculations based on data from the *Current Population Survey.*

Table 1 shows that the unadjusted series falls by 8.4 percentage points between 2000 and 2005. In rows 2 and 3, we report how much of this decline is due to previous secular trends and the cycle, as computed using our two techniques. We compute trend as the slope of the line between 1987:Q3 and 1997:Q1, two quarters when the unemployment rate and the CBO's natural rate were roughly the same. Between those two periods, teen LFP fell 0.3 percentage points per year. This trend suggests that teen LFP would have fallen by about 1.8 percentage points between 2000 and 2005. The cycle adds another 1 percentage point to the decline. So just over 5.5 percentage points of the 8.4 percentage point fall over this period remains unexplained.

These cyclically adjusted figures are derived from micro (that is, individual-level) data from the CPS.[13] This has the advantage of allowing us to explore heterogeneity in labor market activity across the teenage population. For example, we can ask whether the labor market activity of teens from high-income families looks different than that of teens from low-income families. For the rest of this section, all figures and tables use cyclically adjusted (with the time-series adjustment) rates in order to get a cleaner picture of secular trends.

Table 2 shows the change in teenage LFP from 1979 to 2005, as well as between 1987 and 1997 and since 1997, by gender, race, and region. We also compute changes by family income and school enrollment but begin these calculations in 1984, when the variables become consistently available.[14] Note that each group's series is cyclically adjusted separately, resulting in some groups, such as enrolled students, having much of the LFP decline explained by the business cycle.

The most striking aspect of table 2 is how widespread the decline is. Although it is clearly not uniform, the rate for every subgroup reported in the table has fallen since the early 1980s, typically 2 percentage points to 20 percentage points for 16 year olds to 17 year olds and 1 percentage point to 17 percentage points for 18 year olds to 19 year olds. For nearly all groups, the majority of the cyclically adjusted decline in LFP has occurred just in the past five years; LFP has fallen 5 percentage points to 9 percentage points among younger teen groups and 2 percentage points to 7 percentage points among older teens. While there is substantial variation by age and school enrollment

TABLE 2

Labor force participation of teenagers, by demographic characteristics

	By race				By gender		By parents' income				By school enrollment	
	Total	White	Black	Hispanic	Female	Male	Bottom quartile	2nd quartile	3rd quartile	Top quartile	No	Yes
16–17 year olds												
2005 rate	32.2	38.1	22.3	23.0	33.9	30.5	26.3	29.8	38.7	38.4	50.6	28.7
Percentage point change:												
1979–2005	−15.8	−14.6	−6.0	−14.8	−11.1	−20.5						
1984–2005							−13.9	−14.5	−9.6	−14.1	−9.7	−11.1
1987–97	−4.8	−3.7	−3.6	−2.1	−4.5	−5.1	−6.2	−5.1	−3.9	−3.4	−3.8	−4.2
1997–2005	−8.6	−9.1	−5.7	−6.9	−6.7	−10.4	−8.4	−11.9	−7.8	−8.2	−5.6	−8.1
2000–05	−7.3	−7.9	−5.1	−4.5	−5.6	−9.1	−8.7	−9.0	−4.2	−5.3	−3.4	−6.8
18–19 year olds												
2005 rate	56.8	61.6	45.9	55.6	55.7	57.9	51.2	59.7	53.7	55.1	73.4	45.9
Percentage point change:												
1979–2005	−10.1	−8.9	−5.2	−6.6	−6.7	−13.6						
1984–2005							−11.0	−8.1	−17.1	−9.4	−6.9	−3.7
1987–97	−2.6	−1.4	−3.8	−0.8	−1.3	−3.9	−3.9	−3.4	−1.5	−1.6	−2.0	0.8
1997–2005	−5.5	−5.7	−4.2	−1.9	−5.2	−5.7	−6.1	−4.0	−14.4	−6.3	−3.0	−4.6
2000–05	−5.5	−5.9	−1.4	−4.1	−4.8	−6.3	−4.4	−3.6	−13.7	−5.5	−3.5	−4.4

Note: All numbers are cyclically adjusted.
Source: Authors' calculations based on data from the *Current Population Survey*.

status, the patterns are fairly similar within race and family income groups.

Of course, many of these measures are correlated. To isolate which of these groups experienced economically and statistically significant drops, conditional on other characteristics, we ran multivariate regressions of a teen's decision to be in the labor force (a dichotomous 0–1 variable for whether they are in the labor force) on their background characteristics, two linear time trends—one that begins in 1984 and the other in 1997—and each of their characteristics interacted with the time trends.[15] Level shifts across background characteristics are picked up by the covariates themselves (for example, the female indicator measures the average gender gap for a person of the same race, age, family income, and region). The interaction terms measure differences in average growth rates across groups, after conditioning on other characteristics of the teen and her family. The results are reported in table 3 separately by age (16 year olds to 17 year olds versus 18 year olds to 19 year olds). For exposition purposes, we only report the coefficients of the time trends and their interactions with the background characteristics. However, all regressions include level shifters for income, race, gender, and region. The regression model is parameterized so that the time trend coefficients show the average time trend over all individuals in the sample and the interaction term coefficients show how the time trend for a given group differs from the average trend.

On average, between 1984 and 1997, LFP fell by 0.22 percentage points and 0.28 percentage points per year among 16

TABLE 3

Teenage labor force participation time trends
Time trend 1 = 1984 to 1997
Time trend 2 = 1997 to 2005

	16–17 year olds				18–19 year olds			
	Time trend 1		Time trend 2		Time trend 1		Time trend 2	
Intercept								
Time	–0.22**	(0.045)	–0.97**	(0.059)	–0.28**	(0.052)	–0.73**	(0.069)
Male	–0.02	(0.042)	–0.16**	(0.053)	–0.05	(0.046)	–0.04	(0.06)
Female	0.02	(0.045)	0.17**	(0.058)	0.06	(0.054)	0.05	(0.07)
1st quartile income	0.03	(0.057)	0.17*	(0.170)	–0.23**	(0.069)	0.34**	(0.09)
2nd quartile income	–0.06	(0.108)	–0.32*	(–0.320)	0.41**	(0.124)	–0.61**	(0.162)
3rd quartile income	0.08	(0.085)	–0.20	(0.108)	0.14	(0.097)	–0.27*	(–0.27)
4th quartile income	–0.13	(0.084)	–0.05	(0.107)	0.29**	(0.093)	–0.17	(0.121)
White	–0.05	(0.012)	–0.03*	(–0.030)	–0.01	(0.013)	–0.03	(0.015)
Black	0.13	(0.121)	–0.03	(0.159)	–0.08	(0.143)	–0.28	(0.192)
Hispanic	0.19	(0.148)	0.01	(0.159)	0.23	(0.175)	0.00	(0.193)
Other race	–0.02	(0.205)	0.55*	(0.550)	–0.05	(0.243)	0.51	(0.284)

*Significant at the 5 percent level.
**Significant at the 1 percent level.
Note: Standard errors are in parentheses.
Source: Authors' calculations based on data from the *Current Population Survey*.

year olds to 17 year olds and 18 year olds to 19 year olds, respectively. Since 1997, the decline has significantly accelerated: to almost 1 percentage point per year among 16 year olds to 17 year olds and 0.7 percentage points per year among 18 year olds to 19 year olds. The decline varies somewhat across groups, especially post-1997. Since then, teen LFP has fallen fastest among 16-years-old to 17-years-old boys and 16 year olds to 19 year olds in the middle part of the family income distribution (between the 25th and 75th percentiles). Racial gaps are negligible once income is controlled.[16]

All calculations discussed thus far have been limited to the "extensive" margin of teens' labor supply—whether they are in or out of the labor force. Similar developments have occurred on the "intensive" margin—the time spent working conditional on participation. For example, among those that work at all, the average workweek length has declined almost 3.5 hours, or 12 percent, since 1979. This is somewhat offset by an increase in the number of weeks worked per year.[17] Combining the two figures gives us an estimate of annual hours worked, conditional on working at all. Between 1979 and 2004, teens that work reduced their market work activity by 70 hours per year or 9 percent, and as with LFP, much of this decline has transpired recently. Thus, a substantial decline in teen work activity has occurred at both the extensive and intensive margins over the past two and a half decades.

Has demand for teen labor been weak recently?

As we noted earlier, a drop in LFP could, under some circumstances, be a sign of some additional labor market slack. At least in the case of teenagers, we think that such an interpretation of current developments is hard to square with several facts.

First, the CPS asks whether those out of the labor force want a job, and in recent years there has not been a notable increase in the number of such teens. As can be seen in figure 4, the fraction of the teen population that is out of the labor force but wants a job increased in the wake of the 1980–82 and 1990 recessions. But the most recent downturn saw much less of an increase. The long-term trend, moreover, is toward a lower fraction of teens being classified as wanting a job, but not employed.

A second difficulty with the weak demand explanation is apparent in the relative employment growth of the industries most likely to hire teens. If the sharp absolute and relative decline in their participation was primarily due to weak demand, we would expect to see that the industries that have traditionally hired teenagers had fallen on hard times, disproportionately impacting teenage work activity. However, we know of no evidence that traditional employers of young people have performed poorly recently. If anything, the top five industry employers of teenagers (in order:

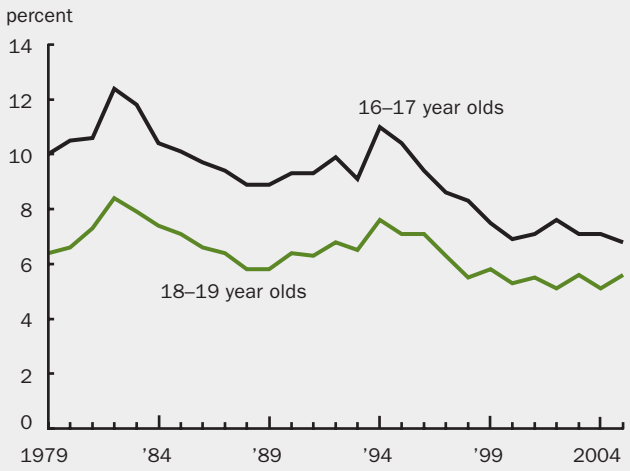
eating and drinking places, grocery stores, miscellaneous entertainment and services, construction, and department stores), accounting for almost half of all 16 year olds to 19 year olds employed in 1999, have together experienced employment growth well above the national average. Since 2000, payroll employment in these five industries combined rose 3.6 percent, while employment in the remaining industries fell by 2.0 percent.

Trends in teens' wage rates provide another piece of evidence on the reasons for the decline in their LFP. If the decline in teen LFP was primarily due to weak demand, one would expect their relative wages to have fallen. Over the ten-year period prior to 2002, that was clearly not the case, as can be seen in figures 5 and 6. Figure 5 plots teenager real wages (in 2000 dollars), as computed in the CPS and deflated by the Personal Consumption Expenditures (PCE) Price Index, along with the real value of the federal minimum wage (green line) and the real value of the minimum wage after accounting for state laws (dashed line). Actual real wages of teens were flat during the latter half of the 1980s and early 1990s but grew by 21 percent, or roughly 2 percent per year, between 1993 and 2002, which more than kept pace with the wages of less-educated adults. The latter point can be seen in figure 6, which plots the ratio of teen wages to adult wages and teen wages to less-educated (high school diploma or less) adult wages. In the 20 years prior to 2002, the average hourly wage rate of teens rose roughly 5 percentage points relative to prime-age workers without any college education, although it fell 2 percentage points relative to all prime-age workers.

However, since 2002, the real wage rates of teen workers, though still well above their levels in the late 1980s and 1990s, have fallen modestly. This is undoubtedly partly the consequence of a declining real minimum wage.[18] Although a number of states have increased their minimum wages recently, the average real minimum wage remains roughly 8 percent below 1998 levels. Declining real wages could also be consistent with some softening in the demand for teen labor in the last few years. However, given the lack of an increase in the rates at which teens report they want a job, it is unlikely to be the major factor in the decline in teen LFP.[19]

FIGURE 4

Share of teenagers not in the labor force who want a job



Source: Authors' calculations based on data from the *Current Population Survey.*

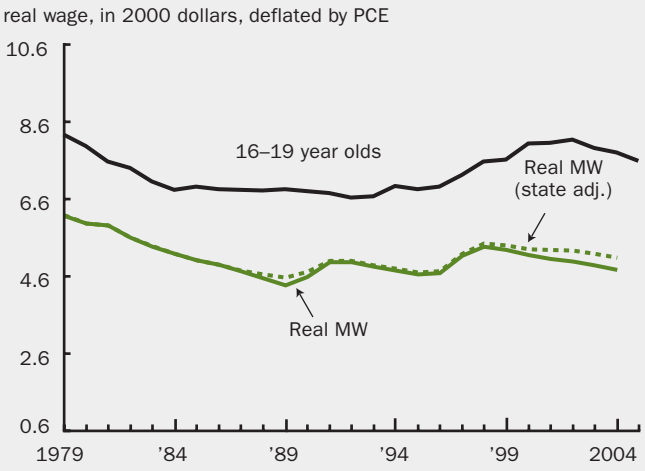
Crowding out by adult low-skilled workers

One possible demand-side explanation for lower teen work activity is that teens are facing stiffer competition for jobs from other workers. Card (1990) provided a classic analysis of a similar question—the effect of increased numbers of immigrants on native workers' labor market outcomes—by studying the case of the large and likely exogenous increase in the number of workers in the Miami labor market after the Mariel boatlift of 1980, when a mass exodus of Cuban refugees landed on Florida's (particularly Miami's) shore. He finds that this influx of roughly 7,000 low-skilled Cubans had a *positive* impact on the employment of native Miamians, particularly relative to the employment of similar workers in four comparable cities. Lewis (2004) shows that the boatlift caused industries in Miami to adapt to less skill-intensive technologies, allowing the economy to painlessly absorb new workers.

When we extend Card's analysis to teenagers, comparing how the teenage labor force participation rate in Miami looked pre- and post-Mariel and relative to Card's four comparable cities (Atlanta, Houston, Los Angeles, and Tampa–St. Petersburg),[20] our results are quite similar to his. Table 4 shows that teenage labor force participation rates rose absolutely (by 4.1 percent) and relative to the comparison cities (by 8.2 percent) in the year after Mariel. Likewise, teenage unemployment rates fell by over 6 percent in Miami and almost 8 percent in the comparison cities. Furthermore, when we extend the analysis past 1981,

FIGURE 5

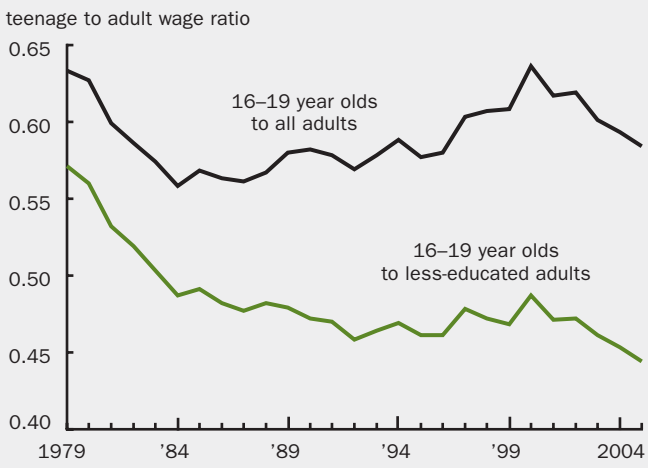
Teenage real hourly wages and the real minimum wage



Note: PCE is personal consumption expenditures.
Source: Authors' calculations based on data from the *Current Population Survey.*

FIGURE 6

The ratio of teenage to adult wages



Source: Authors' calculations based on data from the *Current Population Survey.*

it is apparent that the 1981 (non)effect remains sturdy years after the boatlift, suggesting that there is no evidence of a delayed reaction to the influx of workers.

The boatlift is a valuable experiment because the influx of workers into Miami likely had little to do with the area's pre-boatlift labor market conditions but more to do with its geographic proximity to Cuba and the decisions of the Cuban government. But, of course, it is possible that Miami's experience in the wake of Mariel is not representative of other cases in which the number of low-skilled workers increased. Therefore, we explore two alternative analyses.

The first is the sizable influx of low-education single mothers with children after the 1996 Welfare Reform Act. Since 1995, the LFP of such women rose 30 percent, while it increased only 5 percent for low-education single women with no children and fell for the population at large. We concentrate on single mothers with two or more children and a high school diploma or less, given Meyer and Sullivan's (2004) evidence that the law primarily impacted such women.[21] We break the data into individual states and regress state teenage LFP on year and state fixed effects, the share of low-education single moms with two or more children, and that group interacted with an indicator of whether the year is 1996 or later. This interaction tells us whether the influx of such women post-reform had an impact on teenage work activity. In fact, we find no evidence that increases in low-education single women with children crowd teens out of the work force. Consistent with the Mariel evidence, an F-test fails to reject the hypothesis that the post-1996 year dummies interacted with share of such women in the state differ from zero.[22]

Our second analysis is not tied to specific exogenous events. We created a state panel from 1979 to 2004 of teenage labor force participation rates, along with the share of the state population that 1) has less formal education (high school diploma or less) or 2) has less formal education and is unemployed or out of the labor force. We then regressed teen LFP on each of these, including state and year fixed effects in order to identify the association between within-state changes in teen work activity and within-state changes in the share of potentially substitutable workers. We also allowed each state to have its own time trend. Here, we do find results consistent with crowding out. However, the size of the effect is often economically small and statistically insignificant. More importantly, the size of the unskilled adult work force has been shrinking over time. In 1979, about 49 percent of the 25-year-old to

TABLE 4

The effect of immigration on teen LFP and unemployment rates: The case of the Mariel boatlift of 1980

	Year		
Group	**1979**	**1981**	**1981 – 1979**
A. Teenage LFP			
Miami	39.6	43.7	4.1
	(4.2)	(4.6)	(6.2)
Card (1990) comparison cities	56.8	52.7	–4.1
	(1.3)	(1.3)	(1.8)
Miami-comparison difference	–17.2	–9.0	8.2
	(4.4)	(4.7)	(6.5)
B. Teenage unemployment rates			
Miami	27.3	21.2	–6.2
	(5.5)	(5.6)	(7.8)
Card (1990) comparison cities	17.7	19.5	1.8
	(1.4)	(1.5)	(2.0)
Miami-comparison difference	9.6	1.7	–7.9
	(5.6)	(5.6)	(8.1)

Notes: The comparison cities are Atlanta, Houston, Los Angeles, and Tampa/St. Petersburg. Standard errors are in parentheses.
Source: Authors' calculations based on data from the *Current Population Survey*.

65-year-old population had a high school diploma or less. In 2004, only 35 percent did. Thus, in the aggregate, this cannot explain the large secular decline in teen participation over this period.

Crowding out by peers

The LFP of teens could also be affected by the sheer size of their peer group. Like the crowding out story described previously, increases in the size of teen cohorts could cause their wages and LFP to decline. However, the share of the working-age population accounted for by teens fell substantially from roughly 12.5 percent in the 1970s to 8.5 percent in the mid-1990s and has been relatively flat since then. Thus, if anything, the trend in teen cohort sizes should have pushed their wages and LFP up through the mid-1990s and been neutral since then.

Supply explanations

We suspect that teen LFP declines, particularly over the long run, are driven primarily by labor supply choices. This section describes three possibilities: the increased time devoted to school, the increased time spent helping out at home as mothers return to the labor force, and increases in wealth.

Increased time devoted to school

A massive literature has documented that the financial return to obtaining more education has increased significantly in recent decades.[23] This can be seen in figure 7, which is based on a standard methodology to value the effects of increasing educational levels on hourly wage rates.[24] As the figure shows, the return to having a college education began to rise substantially in the late 1970s, shortly before teen LFP began to decline.

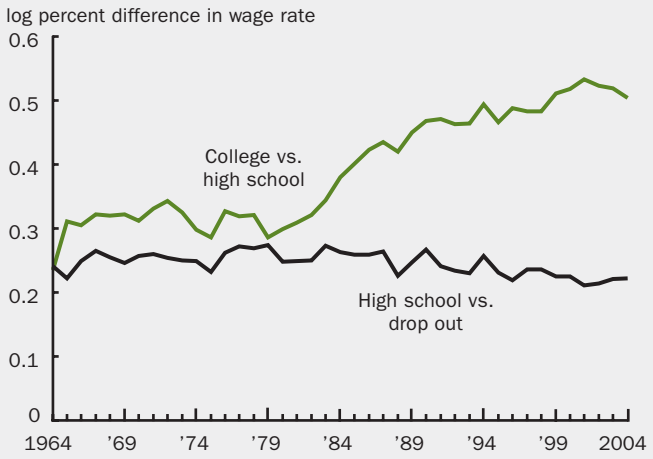
Figure 8 shows the substantial rise in the fraction of 16 year olds to 19 year olds enrolled in school, particularly in the 1980s. For each age group, it displays two measures of the fraction of the population enrolled in school. The lines labeled "October" are estimates of the enrollment rate for the month of October that are derived from a special supplement to the CPS that has been done every October since the late 1960s. The lines labeled "all months" are estimates of the average enrollment rate over the entire year. They are derived from a question on enrollment status that was added to the basic CPS in 1985. The all months lines are substantially lower than the October lines because they include the summer months of June through August when most students have traditionally been on vacation from school. Both the October lines and the all months lines show increases in enrollment over time, but the slope of the all months lines have been steeper recently. This is because enrollment increases have been especially great in the summer months. For example, summer enrollments were only 20.5 percent in 1992, when the increases began, but 44.3 percent in 2005.

Table 5 reports a simple decomposition of the change in teen LFP into components due to 1) the increase in enrollments given constant within-enrollment-status-group LFP rates, and 2) the fall in LFP within-enrollment-status group given a constant enrollment rate. The calculations are based on the more comprehensive all months measure of enrollment mentioned earlier.

Panel A of table 5 shows the decomposition for the drop in LFP between 1987 and 1997. As we noted above, aggregate labor market conditions were similar in the two years, so the changes reported should be largely free of business cycle effects. As the table shows, the enrollment rate increased by 0.65 percentage points per year over this period.

FIGURE 7

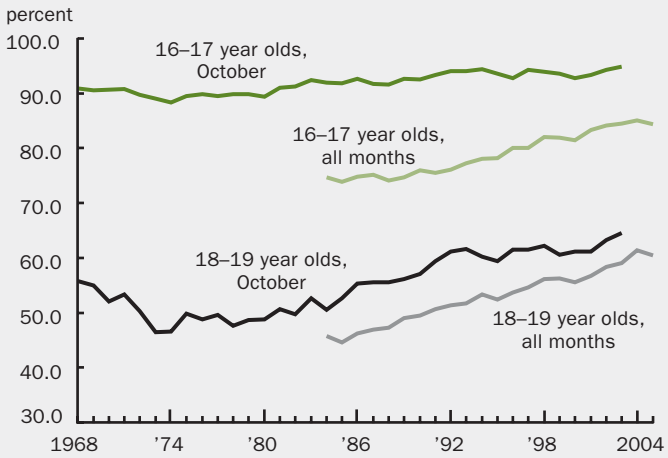
Returns to education



Source: Authors' calculations based on data from the March *Current Population Survey.*

FIGURE 8

School enrollment rates



Source: Authors' calculations based on data from the March and October *Current Population Surveys.*

The contribution of this enrollment change to the overall decline in teen LFP was 0.18 percentage points per year. This is the change in overall teen LFP that would have occurred if LFP had remained constant for both enrollees and non-enrollees. The increase in enrollments at constant within-enrollment-status-group LFP accounts for 60 percent of the decline in teen LFP over the period.

The table also shows the contributions of within-enrollment-status-group LFP to the overall decline. Among teens who were enrolled in school, LFP declined by 0.12 percentage points per year. This was a little over one third of the 0.31 points per year rate at which LFP declined overall. Given that 68 percent of teens were enrolled in school, the contribution of their LFP decline to the overall LFP decline was 0.08 percentage points per year, or 26 percent of the total. The rate of LFP decline for non-enrollees was slightly faster at 0.14 points per year. But because they are a smaller fraction of the teen population than enrollees, the non-enrollees' decline in LFP only accounted for 14 percent of the total drop in LFP.

Panel B of table 5 shows the same decomposition for the change in teen LFP between 1997 and 2005. Again, these were two years in which, by standard measures, aggregate labor market conditions were similar. As we discussed earlier, the rate of decline in teen LFP increased over this period to about 1 percentage point per year. Table 5 shows that most of this acceleration was due to faster declines in LFP within-enrollment-status groups. The rate at which enrollments rose did increase somewhat relative to the earlier period, resulting in about a 10 percent increase in the annual contribution of enrollment increase to teen LFP decline. But, the biggest factor in the acceleration was the significant increase in the rate at which LFP declined for those enrolled in school. The contribution of that factor to the decline in teen LFP increased by over 0.5 percentage points per year and its share of the entire decline increased to 62 percent. A faster rate of decline in LFP for those not enrolled also contributed to the faster rate of overall teen LFP decline.

The calculations just described only capture the effects of increased schooling at the extensive margin.[25] However, similar effects may be at work on the intensive margin—conditional on being in school, students may be devoting more time to their studies and less to part-time or full-time jobs. However, the evidence on this point is quite a bit sketchier. A U.S. Department of Education (2005) publication reports time spent in school increased 30 hours to 40 hours per year (or about one hour per week) between 1987

TABLE 5

Decomposition of teen LFP decline into enrollment change and within-enrollment-status effects

	1987	1997	Annual change[a]	Contribution to LFP decline	Percent of total LFP decline
A. 1987–97					
Percentage enrolled	61.07	67.60	0.652	–0.184[b]	60.0
LFP of enrolled	43.71	42.55	–0.116	–0.079[c]	25.6
LFP of not enrolled	71.69	70.56	–0.136	–0.044[d]	14.3
Overall LFP	54.69	51.62	–0.307	–0.307	100.0
	1997	**2005**	**Annual change[a]**	**Contribution to LFP decline**	**Percent of total LFP decline**
B. 1997–2005					
Percentage enrolled	67.60	73.16	0.696	–0.195[b]	19.6
LFP of enrolled	42.55	35.80	–0.843	–0.617[c]	62.2
LFP of not enrolled	70.56	65.17	–0.674	–0.181[d]	18.2
Overall LFP	51.62	43.68	–0.993	–0.993	100.0

[a]Percentage points per year.
[b]Annual change multiplied by initial period difference in LFP between enrolled and not enrolled.
[c]Annual change multiplied by end period percentage enrolled.
[d]Annual change multiplied by end period percentage not enrolled.
Note: Final column may not total due to rounding.
Source: Authors' calculations based on data from the *Current Population Survey*.

and 1999. Another U.S. Department of Education (2001) report found that for ages 13 to 17, the amount of homework time increased between 1984 and 1999. Juster, Ono, and Stafford (2004) find large increases in schooling and studying time between 1981 and 2002, although as we discuss later, there are reasons to think that the time-use data on which that study is based may be subject to substantial measurement error.

It is possible, albeit a bit speculative, that the increasing recognition of the value of more education in recent years has played a role in the sharp recent decline in teen LFP. For example, after falling fairly steadily by 3.3 percentage points between the 1983–84 and 1999–2000 school years, the high school graduation rate, defined as the number of diplomas issued as a fraction of the population of 17 year olds, rose 5.1 percentage points to 74.9 percent in the 2003–04 school year. Perhaps recognition that schooling is increasingly valuable is causing teens who are enrolled in school to study harder and graduate more frequently. As a side effect, it may be lowering their rate of labor force participation.

Substituting house work for market work

Among the biggest developments in labor markets over the past several decades has been the increased participation of women, particularly those with children. There is substantial evidence that technological innovations, such as the washing machine, dishwasher, and the like have aided in this transition. Furthermore, there has likely been an important reallocation of home production from wives to husbands.[26] But how has the increase in female labor force participation affected teenage children? Specifically, has it led teenagers to substitute house work for market work?

As part of a pilot study on 322 children aged six to 17 in the early 1980s, the Institute for Social Research (ISR) at the University of Michigan conducted a time-use survey, where parents filled out time diaries in five minute increments. Juster, Ono, and Stafford (2004) compared this survey to a similar one conducted in 2001–02 using families from the Panel Study of Income Dynamics (PSID). For 15 year olds to 17 year olds, they show that market work fell by over one hour per week over the two decades, while home production work increased by two hours per week.[27] However, there are some serious problems with this survey, particularly in the earlier years. The authors warn that the definition of home and market work may have been altered between surveys. Furthermore, many hours in the early 1980s survey are simply unclassified. But if we assume that these unaccounted hours are not work hours, and even if we combine the two work activities, we can infer that teen home production must have increased given the sizable fall in teenager market work hours documented in the CPS.

Nevertheless, because these results are based on small samples with highly imperfect data, we turn to

more recent time-use data from the U.S. Bureau of Labor Statistics to uncover within-household home–market work distinctions.[28] Because this survey only began in 2003, we must rely on cross-sectional evidence, in this case, differences in the number of earners in the family. We compare the work activity of teenagers with two parents working to the work activity of teenagers with one parent working and one parent at home. Our informal test asks whether teenagers with a mother working out of the home spend more of their day doing housework and, consequently, less of their day in market activity. In fact, we find no evidence of this trade-off. Among teenagers living in a home with both parents working, 11.3 percent of their typical nonsummer day is spent working away from home and 8.9 percent working within the home. Among teenagers living in a two-parent home with only their father working, market activity is lower (9.8 percent) and home production work is higher (9.7 percent), a result inconsistent with mothers shifting more home production work to their older children. Moreover, we find that number of siblings has little impact on market activity and, if anything, leads to more home production work, not less.

Finally, we find similar patterns when looking directly at labor force participation by number of parental earners in the family. If both parents work, teenagers are more likely to work as well. This is true even if we stratify the sample into family income quartiles and look at teen work activity within income quartiles or, in a regression context, if we control for family income (and number of siblings). Consequently, we cannot conclude from these data that the rise in adult female labor force participation has led to the decrease in teenager labor force participation.

Wealth effects

A final explanation of the decline in teen work activity that we explore is the role of increases in wealth among families with teenage children. Basic economic theory predicts that when wealth increases, and the wage available to a worker in the marketplace, as well as preferences for leisure, remain the same, people will want to work less and consume more leisure. In practice, pure wealth effects are hard to uncover because they require situations where these assumptions (especially a constant market wage) hold. Nevertheless, researchers have exploited a number of clever examples where increased sources of wealth are likely exogenous to the person supplying the labor, including bequests, war reparations, and lottery winnings.

At first glance, we find little support for such a possibility. In particular, parental income and teen LFP are, if anything, positively related in 2004 (as well as all other years). However, this could be because parental income is correlated with many other factors that might influence teen work. Moreover, inflation-adjusted *median* net worth has barely budged for families with heads aged 35 to 54, the families where the vast majority of teens reside. However, for such families real *mean* net worth increased 1.5 percent to 2 percent per year between 1983 and 2001 (the latest year of publicly available data) and aggregate real median and mean net worth increased 2.2 percent and 3.7 percent, respectively, per year over the same period. The vast majority of the aggregate increase is due to older households.

Here, we provide several pieces of evidence to quantify the role wealth may play in explaining the recent acceleration in the decline in teenage LFP. All three revolve around college pricing. A fall in the price of college can have two implications for work activity. First, cutting prices causes demand for that product to rise. Since time is constrained, an increase in enrollment pushes people out of work and other activities. Second, as the cost of college falls, students, particularly those at the margin of the enrollment decision, need to work less to afford it. Keane and Wolpin (2001) offer an example of this result within a dynamic model of the school–work decision for young men**.** Among the exercises they present is a simulation of a $3,000 per semester tuition subsidy. Their results suggest that the average full-time student earns over $450 less (and consumes over $1,200 more) per school year than a baseline group that does not receive this subsidy. Using the outgoing rotation files of the CPS to compute hourly wages allows us to infer that someone in their sample (white male full-time student) will work 89 fewer hours per school year after such a subsidy. In other words, a transfer of wealth to students and their families can significantly reduce work time.

We attempted two simple exercises to test the predictions of their simulations. First, we compared the work participation rates of teenagers in states that have introduced state-wide merit scholarships, often called Hope Scholarships, with rates for states that have not. The Hope Scholarship program, initiated in Georgia in 1993 and adopted in some form by 15 other states since, offers students a free or highly reduced tuition to in-state universities so long as they meet minimum entrance requirements, minimum college performance criterion, and attend an in-state

college.[29] In Georgia, for example, qualified in-state students receive up to $4,500 ($3,000 for private school) per academic year for tuition, fees, and book expenses, regardless of family income.

Cornwell, Mustard, and Sridhar (2005) find that the program is working as intended—in-state college enrollment has increased. But their research describes several other important results as well. First, Cornwell, Lee, and Mustard (2005) document a number of "grade-enhancing" strategies—including enrolling in fewer classes and withdrawing from those where performance is subpar—used by students to ensure qualification for the scholarship. Second, roughly two-thirds of the increase in in-state enrollment is due to students switching from out-of-state colleges to in-state colleges, particularly four-year institutions. Finally, in line with the Keane and Wolpin (2001) results on consumption, Cornwell and Mustard (2005) show a positive association between county-level car purchases and Hope Scholarship grantees. Together, these results are consistent with the notion that these programs are transferring wealth to college-attending children and their families with relatively little direct impact on skill accumulation and current market wage rates.

Consequently, the Hope program can be thought of as a useful experiment to analyze labor supply wealth effects—what happens if we increase wealth leaving all else unchanged, including a worker's potential market wage. As shown in table 6, among 16 year olds to 17 year olds in Hope states, LFP fell by 10.4 percentage points between 2000 and 2004. By comparison, in states without a Hope program, the decline was 8.7 percentage points. That is, young teen LFP fell 1.7 percentage points more in Hope states after 2000. Since 24 percent of all teens in the country reside in states with merit scholarship programs like Hope, we can estimate the impact these scholarships had on aggregate teen LFP. We find that roughly 5 percent (0.24 times 1.7 divided by 8.8) of the decline in young (16 to 17) teen LFP could be traced to differences in Hope and non-Hope states. The actual impact is likely bigger once we account for timing and generosity differences across states, which we plan to do in follow-up research.

Columns 2 and 3 of table 6 repeat this exercise for 18 year olds to 19 year olds by school enrollment. We find a small negative impact among those in school (about 2 percent of the total decline among 18 year olds to 19 year olds between 2000 and 2004) but no effect, at least on the extensive margin, among those not currently enrolled.[30]

While these effects are relatively small, they also represent just one of many financial aid programs offered in the U.S. (see Wirtz, 2005). A natural way to corroborate and generalize these findings is to see how changes in tuition, more broadly defined, influence work decisions. Typically, such studies examine the impact of tuition on college enrollment decisions.[31] Instead, we analyze the teenager labor force participation rates of tuition using real annual tuition and fees data from the College Board (2005). The data are available back to 1975 for four-year private, four-year public, and two-year public institutions.[32]

In general, the tuition results seem consistent with those for Hope Scholarships. Overall, we find that tuition changes are positively correlated with teen work activity. From a statistical perspective, the strongest results are those for two-year college tuition rates. This is what we would expect since these are the rates that likely affect students whose enrollment decision are most price sensitive. Furthermore, we find that families from the upper middle of the income distribution are more likely to respond to college price changes. This strikes us as plausibly the part of the income distribution for which enrollment decisions are particularly sensitive to tuition.[33] Finally, while tuition at four year colleges has risen in recent years, the cost of attending community college is now substantially lower that during the second half of the 1990s. For instance, the College Board reports that community college tuition, net of grants and education tax benefits, fell from $1,000 for the 1997–98 school year to $200 for 2001–02. Our results suggest this decline could have lowered LFP for some teens.[34]

Overall, we view the evidence as consistent with the hypothesis that increased wealth, via lower education prices, can reduce teen labor supply. The importance of this effect for recent trends depends critically on the real net price of schooling over time, which we believe has fallen at the margin. While the Keane

TABLE 6

Percentage point change in teen LFP, by Hope Scholarship status, 2000–04

	16–17	18–19 in school	18–19 not in school
Hope states (24% of total pop.)	–10.4	–5.9	–3.6
Other states	–8.7	–5.4	–3.6
Difference	–1.7	–0.5	0.0

Source: Authors' calculations based on data from the *Current Population Survey*.

and Wolpin (2001) results are based on a larger tuition reduction program than recent experience, the flavor of their structural model matches our empirical findings.

Conclusion

Teens can be thought of as allocating their time between current market work, current leisure, and human capital investment. Since the late 1970s and especially since 2000, they have devoted less of their time to current market work. To a significant extent, they have also been increasing the time they devote to human capital investment. The increased value of education for their future earnings has apparently caused teens to increase their school enrollments and likely also the intensity with which they pursue their studies when enrolled. We know less about any possible changes in their leisure time. However, we have found some preliminary evidence that wealth effects from increased financial aid may have reduced their work effort as well.

It is possible that a sudden drop in demand for teen labor has played a role in the recent, sharp decline in teen participation rates. The modest decline in relative teen wages would be consistent with some role for weakened labor demand. We doubt, however, that this is the main explanation. The latest recession ended more than four years ago. In an unusual development, teens who are out of the labor force are not likely to report that they want a job, and the industries that typically employ them have been reporting stronger than usual overall employment growth. Of course, only time will tell whether the recent drop in teen participation is a manifestation of a weak labor market or a new equilibrium. The increases that we have noted in teen's human capital investments, however, do suggest some reason for optimism for future levels of productivity.

NOTES

[1]See, for example, Aaronson and Sullivan (2001) for a discussion of the impact of greater educational attainment on aggregate productivity.

[2]See Moretti (2004) for a review of this evidence.

[3]See Ruhm (1997) and Stinebrickner and Stinebrickner (2003) for interesting discussions of these issues.

[4]For example, see Katz and Autor (1999). See Card and DiNardo (2002) for a skeptical view of the skill-biased hypothesis.

[5]This definition ignores several interesting groups. First, the data does not include those who are under 16. Second, by concentrating on the noninstitutionalized population, we are ignoring the sizable increase in incarceration over the last three decades. The adult prison population has grown from 0.2 percent of the adult population in the early to mid 1970s to almost 1 percent by the late 1990s. See Katz and Krueger (1999). Their study assumes that 35 percent of the incarcerated would be employed if not in jail. A similar assumption for incarcerated teenagers would lead to an even stronger trend down in the teenager LFP over time. Finally, the civilian population ignores the military. This might be of particular concern during the 1960s.

[6]Recent declines in teenager work participation have occurred throughout much, but not all, of the developed world, according to data from the Organization for Economic Cooperation and Development.

[7]For example, a "–20" reveals that that teenage group's LFP is 20 percent lower than the same gender's adult population.

[8]For example, in the early to mid-1970s, female school enrollment was 3 percentage points to 6 percentage points lower than males among 18 year olds to 19 year olds (calculated from the October files of the CPS). By the early 1990s, this gap disappears. Several years later, school enrollment among the same aged females was 1 percentage points to 4 percentage points higher than their male peers.

[9]We focus on the period since 1979 because the CPS outgoing rotation files begin in that year. As a third alternative, we have also used the Hodrick–Prescott Trend, a standard statistical tool to isolate a long-term trend from short-term fluctuations in time-series. Those results provide a similar story to the two cyclically adjusted series presented in figure 3.

[10]We have also estimated this equation with a lag in U_t to allow for delays in responding to aggregate conditions. This has no appreciable difference on the results. This equation seems adequate for picking up the time trend since 1979 but would not work as well over a longer period since there appears to be trend breaks in this series in late 1970s and early 1980s and perhaps in the early 1960s as well. In that case, we would simply estimate the time trends separately for different periods. We chose to focus our analysis on the post-1979 period.

[11]However, Staiger, Stock, and Watson (1997) show how imprecisely estimated the natural rate is.

[12]These regressions also use time dummies rather than linear time trends. Time dummies are unidentified in the time-series version.

[13]We use the outgoing rotation files of the CPS. Participating households are surveyed for four months, left out of the sample for eight months, and finally surveyed again for four additional months. Those households in the fourth and eighth months of their participation are known as the outgoing rotation groups.

[14]Our technique for matching teenagers with their parents exploits the family relationship variable in the outgoing rotation files. This variable begins in 1984. We subtract the teenager's own income from the family income measure.

[15]We specified the time trends so that there is a kink, rather than a discontinuous jump, at 1997.

[16]We have also run these regressions with controls for school enrollment status and its interaction with the time trends. Adding these additional regressors does not impact the gender, race, income, or (unreported) regional time trends in a significant way. The impact of enrollment on LFP is discussed later.

[17]The weeks worked calculation is based on the March CPS. We are able to compute family income back to 1979 because the March files contain an explicit measure of family income (that is, there is no reason to have to match teenagers with other family members). Again, we use family income less the teenager's own income.

[18]Over the period shown, between 66 percent and 80 percent of teenagers (and 80 percent to 90 percent of 16 year olds to 17 year olds) had wage rates within 50 percent of the minimum wage.

[19]Of course, one possibility is that teens report not wanting a job because they know wages are not above their reservation price (that is, the lowest wage at which they are willing to work). This story has particular resonance if we believe that teens look at the minimum wage, which has declined steadily since last raised at the federal level in 1997, rather than actual market wages when deciding whether to work.

[20]Card (1990) selected these cities because of their similarity to Miami in terms of racial composition and economic growth during the late 1970s and early 1980s.

[21]For example, the LFP rate of single mothers with two or more children has grown by 30 percent since 1996, while the rate for single women with no children has been relatively flat.

[22]These results, as well as others referenced in the text without tables and figures, are available upon request from the authors.

[23]See, for example, Katz and Autor (1999).

[24]The estimates are based on a regression of the natural logarithm of wage rates on standard variables such as potential experience, gender, and race and indicator variables for different levels of schooling. The data are from the March CPS. See Aaronson and Sullivan (2001).

[25]An alternative way that time in school may have increased is through changes in legally mandated years in school. Acemoglu and Angrist (2001) find that the number of years required in school has not changed much since the middle of the 1900s. See also Lochner and Moretti (2004).

[26]See Blau (1998) and Greenwood and Vandenbroucke (2005).

[27]In this article, the term "home production work" includes all work performed within a household for which no compensation is received from outside parties.

[28]The data are available at www.bls.gov/tus/home.htm. We use both the 2003 and 2004 surveys. Hammermesh, Frazis, and Stewart (2005) provide background.

[29]In some states (like Georgia), there are two components to the Hope program—a merit scholarship that requires minimum grades and is applied to degree programs and a grant that can be applied to two-year and less than two-year programs but has no grade requirements.

[30]However, Cornwell, Mustard, and Sridhar (2005) and Cornwell, Lee, and Mustard (2005) find that a sizable fraction of the college enrollment effect happens among freshmen who delayed college enrollment by more than 12 months past their high school graduation.

[31]See Mazumder (2003) for a nice review.

[32]To allow for information delays, we include two years of lags on tuition. LFP is computed from September to August to correspond with school year tuition data.

[33]When we estimate teen LFP regressions separately by family income quartile, data limitations only allow the series to start in 1985. We find that the only income quartile where there is a statistically significant response to price changes is the second highest (income between the median and 75th percentile), although all quartiles have a positive, albeit imprecisely estimated, point estimate.

Despite the small sample sizes, we found that none of these results are sensitive to outliers. We also tried using a separate dataset on two-year college tuition rates provided by the Washington State Education Group. The advantage of their data is that it is disaggregated by state. When we aggregate their data to the national level, we find correlations that are very similar to the College Board data. However, our attempts to use panel methods to take advantage of state differences in tuition and teen LFP growth are unreliable. We suspect measurement error is severe at the state level, which attenuates estimates of the betas. Mazumder (2003) finds little correlation between this tuition measure and enrollment, which is generally contrary to the literature. Obviously, there are many refinements that could be made to each of these analyses that would limit the damage from measurement error, including looking at teenagers who are at the margin of deciding whether to go to college and improving our understanding of what the relevant tuition measure is. The latter, for example, would entail better information on financial aid.

[34]See College Board (2005). Since 2002, two-year college costs have begun to rise and aid has stagnated, but net costs remain historically low.

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