Sink or Swim in the Labor Pool: Determinants and Consequences of Teenage Employment

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Abstract

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A majority of all high school students engage in the labor force by the time they complete their senior year. Few studies have investigated the long-term educational trajectories of student workers after high school graduation. Even fewer research studies have concerned themselves with ascriptive stratification patterns of the teenage labor market. Upon achieving a greater understanding of teenage employment stratification, associations between differential educational outcomes and employment histories of teens and adolescents can be more carefully disentangled. Empirical analyses were performed utilizing a uniquely rich data source from the University of Washington Beyond High School project, which captures ascriptive and achieved characteristics as well as both the educational and workforce experiences of high school youth from 2000 to 2005. This data source allowed a more systematic approach to operationalizing differences in the quality of jobs available to students. Employment status, work intensity, as well as job quality were used as measures of the workforce experience of youths. Overall, evidence of stratification along lines of race/ethnicity and socioeconomic status is unambiguous, although somewhat complex. First, teens who are members of racial/ethnic minorities,

particularly, Hispanics and Blacks, are more likely to not work at all, or to work many hours per week than to work fewer hours. Second, there are significant class differences in the chances of having a high intensity job (but not the chances of being employed), with less privileged students more likely to work many hours a week than their more privileged counterparts. I find that jobs in semi-professional or technical settings as well as moderate hours of work are positively associated with the chances of college enrollment. While this association holds true for entry into any college, its strength (in terms of contribution to the explanatory strength of the model) is greatest when looking at enrollment in a four year educational institution. Moderate work hours were also found to increase the chances of completing a four-year degree within five years of high school graduation. These findings may have important policy implications aimed at mitigating social background disadvantage in access jobs found to be positively associated with educational outcomes.

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DEDICATION

To my family – Alla, Arkady (my parents), Igor (my brother), Yelena, and Villi (my amazing grandparents) – who instilled in me a love for education for its own sake, and whose support provided succor when I most needed it.

To my friends – Ellen, Dave, Tyler, Gulrukh, Claudia, Nada, and Lee (this is by no means an exclusive list) – who always remind me that at the end of a long day of writing, there is always joy in getting together and laughing about it.

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To Jon Agnone – an amazing man, friend, and now, life partner. We had boat times, we did things like bosses, and now we are both Doctors. Graduate school brought us together, and we are both incredibly lucky to have found each other. Let our next adventures together begin!

Chapter 1: Teenage Employment: An Introduction

Introduction

The student-to-worker transition is one of the most fundamental steppingstones of adolescence and young adulthood. Yet, it is increasingly difficult to pinpoint the exact locus of this transition, since so many young adults remain in school while simultaneously engaging in the labor force (Warren 2002; Warren, Lee, and Cataldi 2004). Although the recession resulting from the 2008 financial crisis has brought with it significant declines in teen employment rates, the latter part of the 20th Century has been characterized by steady increases in employment among teens, and particularly, among teens who stay in school while holding a job. Before the 1950s, labor force entry was associated with an egress from educational institutions, the increase in employment rates of high school students starting in the 1950s until the early 2000s is largely attributable to greater proportions of would-be dropouts remaining in school rather than an increase in full-time workers among adolescents (Warren, Lee, and Cataldi 2004; Lee and Mather 2008; Morisi 2008).

Corresponding to this observed ubiquity of the dual student-worker, researchers in the social sciences have increasingly focused their attention on the educational consequences of employment while enrolled in high school, although conclusions from these studies are sometimes inconsistent. Fewer studies have examined the longer-term educational trajectories of student workers after high school graduation, and those that have do not account for workforce participation characteristics beyond employment status itself (Carr, Wright, and Brody 1996; Rosenbaum, DeLuca, Roy 1999; Bozick 2009; Bachman, Staff, O'Malley, Schulenberg, and Freedman-Doan 2011). Even fewer have concerned themselves with ascriptive stratification patterns of the teenage labor market (Warren and Cataldi 2006; Bureau of Labor Statistics Brief

on Youth Unemployment, July 2009). Considering well-documented evidence of persistent inequality among adult labor force participants along lines of race/ethnicity, gender, and socioeconomic status (e.g., Morris and Western 1999; Grusky 2001; Reskin 2001; Kaufman 2010) it behooves social science researchers to develop a more nuanced understanding of stratification of occupational opportunities among teens. In addition, stratification vis-a-vis educational opportunities along race/ethnicity, socioeconomic status, and, to some extent, gender has also been an extensively documented social reality (Hout, Raftery, and Bell 1993; Kao and Thompson 2001; Lucas 2001; Goldsmith 2009). Upon achieving a greater understanding of teenage employment stratification, associations between differential educational outcomes and employment histories of teens and adolescents can be more carefully disentangled. And while questions of unobserved background heterogeneity among student workers and non-workers complicate causal inference, accounting for all possible observed heterogeneity among workers and non-workers (as well as between different kinds of employees) may help to reveal the impact of differential work roles while in high school on subsequent educational trajectories.

This project aims to contribute to employment and educational stratification literature by presenting evidence of social background inequality in access to jobs, and in types of employment obtained by students while in high school. It will then go on to investigate the associations between postsecondary enrollment and graduation and past workforce experiences of students, presenting evidence for a positive association between moderate levels of time investment into the workforce and college attendance and completion after accounting for background and educational differences between students.

In subsequent sections of this chapter, I present a review of the literature on both determinants and consequences of employment of teenagers. After providing evidence of the

responsiveness of teenage employment rates to macro-level economic fluctuations (i.e., economic recessions and expansions), I will discuss other potential determinants of differences in workforce participation among teens. I will then present a review of competing perspectives commonly found in the literature on the role of workforce participation on educational outcomes of students. I first present the broad research questions motivating this dissertation, and then provide expected findings to these questions based on competing theoretical perspectives prevalent in the literature, later evaluating these expectations empirically.

Main Research Questions

1. Are student workers significantly different from students who do not work in terms of both achieved and ascribed characteristics? If so, are these differences along:
    a. Social background characteristics? Particularly, do student employment rates present evidence, if indirect, of social background stratification in access to jobs, as well as in holding 'good jobs' (to be defined later)? Are students from less privileged backgrounds (ethnic/racial minorities and/or those with lower parental educational attainment levels) working at higher, lower, or similar rates as students from more privileged backgrounds? Do student workers from disadvantaged backgrounds have similar or different distribution into good jobs than more advantaged teens who work?
    b. Educational characteristics? Specifically, are students with higher grades, those who engage in school-related activities outside of school, and those with more challenging curricula more or less likely to work, and/or more or less likely to

have good jobs than students with weaker academic records, those who are less engaged in after-school activities (both homework and extracurricular), or those who do not take more challenging classes?

2. Is there a relationship between wages and employment rates of students? Specifically, can differences in employment rates of students be explained by differences in wage rates received by different student workers?

3. Accounting for any observed background or educational differences between workers and non-workers, is high school employment independently associated with postsecondary enrollment one year after high school graduation? If so, how does employment status, the number of work hours per week, and/or the type of job students held in high school impact:
    a. Entry into any postsecondary institution one year after graduating from high school?
    b. Entry into a four year institution one year after high school graduation?
4. What, if any, is the association between all three examined dimensions of workforce participation (status, intensity, and type of job) and four-year degree attainment five years after graduating from high school?

Determinants of Teen Work Patterns: Macroeconomic Shifts, Social Stratification, and Individual Agency

Even in times of economic expansions, the rate of unemployment among teen has been about twice the unemployment rate of all workers (BLS Report on the Youth Labor Force 2000;

Edwards and Hertel-Fernandez 2010). Conversely, the responsiveness of the rate of teen employment to overall unemployment rate is illustrated in Figure 1.1. This figure shows a trend consistent with the 'last hired first fired' approach to employing teenagers whereby the overall unemployment rate, and the employment rate for teens have a stark, inverse relationship.

Figure 1.1 about here

Given that teen employment rates are highly responsive, on the aggregate, to overall unemployment rates, and if social background is not a factor in rates of employment of teens from different racial/ethnic or socioeconomic backgrounds, then economic shifts (whether upward or downward) should impact all student employees similarly. However, there is evidence that this is not the case, and that Hispanic and black youths as well as those from disadvantaged socioeconomic backgrounds are disproportionately impacted by economic contractions and the resulting overall increase in teen unemployment rates (Bureau of Labor Statistics Youth Employment Bulletin 2009). The following section explores potential reasons underlying this observed social stratification in teen employment.

Social Stratification in Student Employment

Although legislative and cultural changes have resulted in a decrease of officially and unofficially sanctioned racial/ethnic discrimination in hiring (largely stemming from anti-discrimination provisions of Article VII of the Civil Rights Act of 1964), members of ethnic/racial minorities in the labor force remain at a higher risk of unemployment than do whites (Western and Pettit 2005; Couch and Fairlie 2010). Previous studies have shown that this is also the case in the youth labor market, especially in cases of contraction of available jobs (Sum, Khatiwada, and McLaughlin 2008). Hispanic and African American youths are at a higher

risk of non-employment than whites with non-employment rates at 21.7%, 31.2%, and 16.4% for Hispanics, African Americans, and whites respectively (Bureau of Labor Statistics Youth Employment Bulletin 2009)[1].

Economic turmoil, as is observed during the current recession, disproportionately affects jobs held by marginal workers, with teens foremost among them. Youth employment statistics from the summer months of 2009 illustrate this with the highest rates of unemployment for youths from 16 to 24 since 1948, when collection of such records began (Bureau of Labor Statistics Brief on Youth Unemployment 2009). Unsurprisingly, the reduction in jobs available to teens and adolescents had a disproportionately negative effect on members of race/ethnic minorities (especially Blacks and Hispanics) as well as those from underprivileged socioeconomic backgrounds (Edwards and Hertel-Fernandez 2010). In a stark reversal of previously seen patterns, female teens are more likely to be employed than young male job seekers (Sum, Khatiwada, and McLaughlin 2008).

One potential implication of the dramatic differences in employment and non-employment rates of African American and white teens is that determinants of employment (or, conversely, non-employment) will vary substantially for different ethnic groups. If race/ethnicity is an over-riding factor, African American students from higher socioeconomic backgrounds may be no more likely to get better quality jobs than less privileged African American students. Similarly, if race is indeed among the most salient characteristics underlying employers' choices of who to hire, African Americans' or other minority job seekers' chances of employment should be less correlated with academic achievement or other cognitive or behavioral indicators compared to majority group students. On the other hand, among whites, differences in socioeconomic background, scholastic involvement and possibly high school attended all may

[1] July is traditionally the peak of youth employment (Bureau of Labor Statistics)

have a significant impact on the chances of getting hired. That is, members of some ethnic/racial minorities may experience an often insurmountable initial barrier to entry into jobs, especially the low intensity or better quality jobs.

The degree of ethnic/racial segregation in secondary schools in the US has been widely noted by social scientists (Goldsmith 2009). More broadly, despite efforts to reduce residential segregation, many cities remain characterized by extremely high levels of segregation based on both race/ethnicity and socioeconomic status, and often both (Massey and Denton 1990). This presents an additional set of barriers to desired job attainment for minority and/or underprivileged youth. First, the geographic proximity of the workplace to the home and/or the school is immensely important in facilitating continued involvement in school as a student enters the labor force (Mouw 2000). Second, social networks, typically characterized by a high degree of homophily are even more homogeneous in areas or environments characterized by high levels of segregation (McPherson, Smith-Lovin, and Cook 2001; Currarini, Jackson, and Pin 2010). Information about job opportunities from outside of the neighborhood is unlikely to trickle into these sorts of networks, thus hindering efforts to seek employment in residential areas with greater available work. Finally, career-oriented contacts made with employers through impoverished or segregated schools are likely to be fewer and of poorer quality. Although students in the UW Beyond High School study attended schools that were relatively heterogeneous with respect to both race/ethnicity and socioeconomic status, network homophily and the resulting unequal access to social capital may hinder efforts to find better quality and low intensity jobs by students of color and/or those from underprivileged backgrounds.

The socioeconomic background of students may impact students' choices of jobs in a number of ways. First, as with race/ethnicity, social class-related residential patterns may impact

the number and variety of jobs available to teens who want to work. Second, differences in socioeconomic status underlie disparate access to social capital, which may be a crucial lever for certain students' ability to land jobs that are ideal: those in professional environments and which do not require long work hours. Students whose parents work in professional or white-collar settings are more likely to assist their progeny in finding employment in better jobs (whether in the very office where they work or another workplace). In other words, students with college-educated parent(s) have much greater access to the type of social capital that facilitates access to more lucrative, harder to find, and possibly, better paid positions. Students from higher socioeconomic backgrounds (i.e., whose parents have more education and better jobs) are also more likely to do better in school (Eagle 1989; Sirin 2003; Davis-Kean 2005) thus further complicating the task of disentangling the achieved vs. ascribed student characteristics that result in differential employment rates among students.

Results of empirical analyses presented in Chapter 3 in this dissertation assess the relative impact of both achieved and ascribed characteristics of student workers and non-workers (Research Question 1). Overall, evidence of stratification along lines of race/ethnicity and social background is unambiguous, although somewhat complex. While teens who are members of racial/ethnic minorities (particularly, Hispanics and Blacks) are more likely to not work at all, or to work many hours per week than working at moderate level of intensity (relative to whites), students from different class origins do not differ from one another with respect to chances of being employed. Rather class-based differences between student workers emerge only when looking at work intensity, rather than employment status. The relationship between educational achievement and school-related time use (both homework and extracurricular) is generally

associated with holding better jobs, whether classified by hours worked (moderate) or by the occupational type (professional/office settings rather than food service, retail, or manufacturing).

The Role of Individual Agency in Teen Work Patterns

Is consumption the primary motivator for most or all students' decisions to work? While most students who work use their income earned to expand their purchasing power beyond that which their parents are able or willing to support, some workers may enter the labor market with consumption as the primary and most important end-goal of the employment experience. Other students, perhaps those with more privileged backgrounds, may also seek additional income to support expenditures beyond their existing means, but are not entirely driven by the notion of income to work. How students are sorted (or sort themselves) into work intensity categories may provide a key indicator of these underlying differences.

While the range of rewards, both intrinsic and extrinsic, characterizing the adult labor market is extremely broad, variation in rewards available in the youth labor market is much more constrained. As the range of wages/salaries is very narrow, it is possible that wages/salary levels become less of a concern for students looking for work and other, less concrete/intrinsic characteristics inform their decisions to seek a particular job. Because of a lack of substantial variation in hourly wages, student workers may adjudicate between the earning potential of jobs not by the hourly wages offered, rather, by the possibility of working longer hours, thus allowing them to earn higher overall income. Students who are primarily interested in financing their own consumption habits, then, may use this criteria, rather than hourly wages, as primary their assessment of the attractiveness of a given position. Additionally, students who are most strongly motivated by the earning potential associated with a given job may look for work in industry sectors (such as the service sector) that encourage longer hours.

If students work patterns are reflections of primarily economic motivations, and students' employment trajectories are mainly manifestations of their economic need, there should be a negative relationship between students' socioeconomic status and their likelihood of working (as well as the hours of work they engage in per week). However, previous research studies do not support this expectation (Rothstein 2001, Portfield and Winkler 2007). In fact, students with most underprivileged backgrounds have been shown to be significantly less likely to work than students from middle class backgrounds (Lerman 2000). This finding directly contradicts the expectation of increased labor force participation for students whose need for supplemental income is greatest and indicates the existence of structural impediments to access to employment for teen workers that is similar for adult job seekers (Portfield and Winkler 2007). In other words, working teens are employed mostly because they have an opportunity to do so, rather than as a result of economic necessity. To what extent are students' employment status and intensity[2] a reflection of self-selection into work roles or a result of students' position within a larger socioeconomic hierarchy are question central to student employment literature. That self-selection *and* social stratification both play a role in teens' employment patterns complicate empirical efforts to address this question.

While questions assessing differences in motivations for work were not asked in the survey, data utilized for analyses presented in later chapters examining the relationship between wages, hours worked and students' socioeconomic backgrounds may facilitate a glimpse at the underlying differences in motivations for working. A major point of tension here is that work intensity can be viewed as either a job characteristic (since some types of jobs may require working longer hours per week) *or* as a reflection of students' motivation to work. Many service

[2] Work intensity is defined as the average number of hours a student spends working per week. A formal definition of 'work intensity' is presented in the chapter on Data and Methods.

sector jobs, as well as those in manufacturing sectors tend to be characterized by longer work hours across the board. Others, particularly in professional settings, are more likely to exert modest demands on students' time. If most of the jobs available to students are in the former category, average levels of work intensity should be expected to increase, while the opposite is true with the latter example. Students working greater hours may be working primarily to boost personal income and increase purchasing power, and students working few hours may be motivated by more extrinsic rewards of work, such networking, exposure to career options, or increasing the breadth of productive non-school experience to increase college application competitiveness. Students' employment trajectories are likely a combination of students' own decisions, or agency, regarding the value of working (both economic and non-financial) and facilitators or obstacles to getting good jobs that are rooted in students' socioeconomic and demographic characteristics.

Descriptive analyses assessing the responsiveness of teens' employment rates and hours of work to differential wage rates (Research Question 2) are presented in Chapter 3. The results of these analyses do not support the expectation that teens will seek jobs when prevalent wages rise. This is a tentative finding, at best, as some have posited that jobs available to marginal workers (e.g., teen employees) are negatively impacted by rises in minimum wages. Given that teens' wage rates are closely pinned to minimum wage, and that Washington state has the highest minimum wage rates in the country, it is possible that this perceived lack of responsiveness to wage increases is in fact a contraction in jobs available to those seeking them.

Consequences of High School Employment on Postsecondary Attainment: Competing Frameworks

Although the demographic, technological, and cultural changes observed during the early/mid industrial era were significant, the 20th Century brought about hitherto unseen pace of change and development. Despite hugely unequal levels of access to means for upward mobility for ethnic minorities, immigrants and women, the educational and occupational systems were slowly moving toward an open contest system (Turner 1960; Morgan 1990). These slow and often painful shifts were mostly initiated legislatively or legally, but eventually were infused into prevailing cultural norms and views. Educational expansion was among the most significant transformative forces affecting life outcomes and trajectories. Important to note is that most of the legislative efforts to institute universal, and compulsory, early education were made in conjunction with efforts to curb child labor, which was shifting away from farm work and toward factory production lines (BLS Report on the Youth Labor Force 2000). Despite successful efforts to expand access to primary, and eventually, secondary education, socioeconomic differences in access to educational opportunities perpetuate long-standing inequalities in the labor market by race, ethnicity and gender, as well as other ascriptive characteristics.

Figure 1.2 about here

The expansion of access to higher education (illustrated in Figure 1.2) and the emergence of the 'educational arms race' (Livingstone 1999) in the job market has drastically increased both the demand for and the supply of individuals with postsecondary degrees. As college attendance became the dominant vehicle for upward mobility, what have previously been sequential, non-overlapping roles – from student to worker, to spouse, and parent – have become much less

clearly delineated. Generally, the life course chances and outcomes have become less contingent on, although by no means independent of, family or geographic origins.

The labor market and educational systems have undergone significant changes in the 20th century, with rapid technological growth - especially, in the realm of communication and information processing - altering the employment prospects of youths. While the professional and white collar job sector grow due to this technological progress, career paths for those without postsecondary degrees have increasingly shifted from manufacturing to the service sector, thus increasing the economic penalty for low levels of educational attainment. The moribund status of the manufacturing industry has exacerbated this penalty. While production or skilled labor work had previously provided job stability as well as some opportunity for occupational mobility for high school dropouts, or those with only a high school degree, the decline (and, in many locations, elimination) of these position have closed that path toward desired economic attainment. Despite significant expansions in educational access, opportunities for upward mobility remain entrenched within economic and social institutions, inhibiting an entirely merit-based distribution of outcomes in educational and occupational spheres. Among the allocative mechanisms affecting ascriptive inequality in rates of college enrollment and completion, early employment experience remains not well understood.

After a period of expansion in rates of teenage employment starting in the 1950s, the last ten years have seen an unprecedented decline in workforce participation of teens and adolescents, as increasing numbers of adults displace younger workers in jobs typically reserved for the young (Sum, Kathiwada, and McLauglin 2008; Staff and Schuleberg 2010; Dept. of Labor 2010). Although the dataset utilized in this study does not capture high school employment data beyond 2005, determining whether and how teen workforce participation

impacts educational and career outcomes may allow some extrapolation of how currently-observed declines in employment rates among the youth resulting from the 2008 recession may impact educational outcomes for these youth. If 12th grade unemployment is associated with unemployment after high school, the impact of the current precipitous drop in jobs available to high school students may be deleteriously to teens' postsecondary occupational prospects. If, on the other hand, declines in available job opportunities result in higher rates of entry into postsecondary institutions – known as the warehousing hypothesis[3] (Bozick 2009) – the lack of available jobs may increase the chances that teens and adolescents choose to continue their education after high school, thus increasing their educational and subsequent occupational attainment[4].

The relationship between socioeconomic and educational background of students and their postsecondary outcomes has been documented in a large number of studies over decades of social science and stratification research. The question of the mediating (or exacerbating) potential role of high school employment has been addressed by a few of these studies. Furthermore, findings emerging from these studies have often been inconsistent or contradictory, especially pertaining to the interplay between occupational and educational attainment. Specifically, a number of studies have concluded that working while in high school is positively related to postsecondary occupational attainment, while simultaneously being negatively related to educational attainment (Carr, Wright, and Brody 1996). A key to deciphering this finding

[3] Bozick's (2009) work on the determinants of post-high school employment and educational trajectories finds evidence that decisions about whether to enter the labor force or continue on to postsecondary education are those made based on the opportunity to work. If competition for jobs is low, the likelihood of working after high school increases. Conversely, when available jobs dwindle, high school graduates are more likely to enter a postsecondary educational institution. This is commonly referred to as the 'warehouse hypothesis'.

[4] Given the time of data collection (2000-5), the impact of higher rates of teen employment can be better illustrated. Despite a slow recovery from the economic decline of 2001, teen and adolescent employment rates during the time of data collection were much higher than in subsequent years, which were characterized by declining teen employment rates (Morisi 2008; Department of Labor Reports 2008-10).

emerges from another study, which identifies consistency of employment over time as an important determinant of occupational attainment over time. Thus, aside from qualitative differences in jobs available to high school students, consistent but moderate workforce participation is observed to result in economic and occupational mobility in the long term (Quirk, Keith, and Quirk 2009).

Postsecondary enrollment and degree attainment are still the most well-documented pathways toward upward mobility, improved life chances, and attainment of a desired socioeconomic position within the American stratification system, especially for those emerging from underprivileged backgrounds (e.g., Kao and Thomspon 2003; Keller and Tillman 2008). High school graduates who postpone postsecondary enrollment tend to disproportionately come from underprivileged households and have exhibited poor academic performance. Some studies have found that employment while in high school may exacerbate the chances of delayed postsecondary enrollment, especially when work intensity exceeded the threshold of 13 to 20 hours (Bozick and DeLuca 2005; Quirk, Keith, and Quirk 2009). And although more youths from more privileged backgrounds are typically observed to engage in lower intensity jobs, and enjoy a certain level of protection from the deleterious effects of labor force engagement, some studies find that high intensity employment had a similarly deleterious impact on postsecondary educational attainment of youths regardless of their socioeconomic origins.

Two competing frameworks explicating the association between high school employment and educational outcomes (whether in high school or postsecondary) have emerged in the teen employment literature. For both of these, work intensity is conceived to be largely responsible for producing differential outcomes of student employees, although the underlying reason for this association is often only indirectly tested (in that work intensity is examined as a

characteristic that predicts educational outcomes, but without addressing why this may be the case).

The first of these frameworks is the 'zero-sum' time-use model, which posits that work and school are in direct competition for adolescents' time. According to this view of the role of employment, even low levels of work intensity negatively impact academic achievement indicators (Greenberger and Steinberg 1986; Marsh 1991; Lee and Staff 2007; Marsh and Kleitman 2005), and exert a deleterious effect on various behavioral outcomes such as drug and alcohol use, delinquency and dropout, as well as unhealthy eating and sleeping habits (Osgood 1999; Bachman and Schuleberg 1993; Uggen and Wakefield 2007). Other than detracting students from doing homework and participating in extracurricular activities, workforce participation is viewed as a facilitator of an adult-like orientation toward leisure (leading to an increased propensity for school absenteeism and substance use). Contributing to these negative outcomes is the availability of a disposable income potentially utilized for consumption as well as a substantial amount of time spent unsupervised by school staff or parents.

On the other hand, the threshold model of the effect of employment predicts a curvilinear effect of work intensity, whereby the best outcomes are expected for students employed at a lower intensity level rather than non-working students or those employed at a high level of intensity (D'Amico 1984; Ruhm 1997; Schoenhals, Tienda and Schneider 1998; Oetinger 1999; Rothstein 2001; Staff and Schuleberg 2009). Because high school students spend much of their outside-of-school time on activities which do not contribute positively to educational achievement, moderate workforce participation is not viewed as competing with otherwise productive pursuits. Time spent at work decreases time spent online, watching television, or playing videogames, as is exhibited by examinations of time-use journals kept by high school

workers in some studies. Time management skills fostered by working while in school may also positively contribute to educational achievement. Known as the 'congruence hypothesis', soft skills such as time management and punctuality are predicted to lead to positive outcomes in both the occupational and the educational spheres. Thus, such soft skills learned or reinforced at work may encourage similar behavior in a school setting. This validity of this explanation of the impact of working on educational outcomes may differ by the type of job occupied by student worker.

The impact of high school employment on college enrollment and attendance may not operate entirely on differential time use, or even the conditioning or soft skills attainment that differ by job type. It is possible that differential workforce exposure may result in greater or lesser misalignment between teens' aspirations for work and the educational pathways that are necessary to actualize these goals. Although most jobs available to high school students do not directly contribute to the accumulation of vocational knowledge or the formation of career goals, some positions may facilitate exposure to potentially attractive career paths, while others offer no such opportunities. For instance, students working as administrative assistants in professional offices (e.g., medical, legal, or school-based) are more likely to be exposed to adults with higher levels of education, and whose occupational and economic status may generate student interest.

Exposure to jobs characterized by high levels of age segregation and low average levels of educational attainment, even among those in positions of authority, may depress educational and/or occupational ambitions of the incumbents of these positions. Conversely, and equally deleteriously, these so-called typical teen jobs may contribute to unrealistically inflated occupational ambitions, without providing the requisite knowledge of the concrete educational steps required to get there (Grotevant and Durrett 1980).

On the other hand, positions in the many service industry jobs readily available to high school students are unlikely to facilitate a mentorship relationship, or to result in a concretization of educational or career plans. These are the type of work roles that positively contribute to the formation of vocational ambitions coupled with exposure to positive adult role models. Among the commonly used examples of such beneficial work experiences are internships in various professional or technical firms. Such employment environments to expose adolescents to skills and knowledge sets they are likely to employ later, because these take place in settings that are less segregated by age, thus facilitating a greater likelihood of students identifying adult role-models or mentors (Koehler 1974; Brooks, Cornelius, Greenfield, and Joseph 1995). Although it is reasonable to imagine that *some* teenage jobs may have a similar effect on the formation of aligned ambitions as do internships, studies that examine the role of ambitions on educational outcomes rarely conceive of the potential role of teenage jobs in such light. This is the hypothesized effect of better quality jobs (i.e., those in the professional, administrative, or technical sectors), where students are more likely to be responsible for more complex tasks, and be exposed to more highly educated adult colleagues or authority figures.

Once again, the difficult question of selection into work roles may play a big role in the distribution of students into work intensity and job type categories, whereby more educationally motivated students may seek work opportunities that are less likely to interfere with their primary role as a student. The opposite may also be true of some student workers, whereby work environments may facilitate or prevent workers from investing time into schoolwork, thus encouraging or inhibiting greater emphasis on educational achievement. Students whose educational attainment is less of a priority will invest more time in the labor force thus further decreasing their involvement in school. However, the characteristics of adolescents' jobs in

themselves may exert a direct and independent influence on educational achievement and attainment. The nature of this influence may reside in the types of tasks that are asked of the young incumbents, the supervisory structure of the workplace, the extent of contact with potential adult role models and, more generally, the extent to which the workplace is age-segregated.

Corresponding to the competing frameworks of the role of work intensity on educational outcomes, empirical analyses results presented in Chapters 4 and 5 address the association between work status/work intensity and college entry and completion (Research Questions 3 and 4). Specifically, I present evidence supporting the *'plus-sum'* view of the relationship between workforce participation and the chances of college enrollment and completion in that there a threshold of investment in working that positively contributes to the likelihood of being enrolled in college after graduating from high school. While this association holds true for entry into any college, its strength (in terms of contribution to the explanatory strength of the model) is greatest when looking at enrollment in a four year educational institution.

The association between the type of job held by student workers on postsecondary educational attainment is also addressed in Research Questions 3 and 4. While this association only holds for college entry and not completion, results indicating a positive relationship between college enrollment and holding a job in the with more complex tasks or with a greater degree of responsibility (administrative work in professional settings, tutoring, and some recreational occupations involving a high degree of responsibility). Contrasted with 'typical teenage' sector jobs (in food service and retail, mostly) as well as those in the so-called 'old core' of teenage jobs (mostly manufacturing, labor, landscaping, and stocking), student workers in good jobs were found to be more likely to enter college, and particularly, a four-year school.

Measuring the Quality of Student Employment

One of the potentially important substantive and methodological contributions of this project is the utilization of a novel approach to measuring the nature of student occupations. The UW Beyond High School project dataset (described in greater detail in Chapter 2) contains information on both the occupations and industries of student workers, allowing the construction of a three-part classification of teen jobs, identifying three meaningful groupings of adolescent jobs. These occupational groupings are distinct from one another along a number of important characteristics: the nature of tasks/skills they require, the workplace setting, the closeness of supervision, the amount of contact with other teens or adults, and the magnitude of responsibility placed on the incumbent. These dimensions differentiating jobs within each of the occupational groups result in vastly different on the job experiences for incumbents, producing systematic differences in the *type of socialization* received on the job. In many cases, socialization rather than occupational knowledge or skills is a more likely mechanism underlying the relationship between employment and subsequent educational outcomes. Similarly, some of the characteristics described above – particularly, the extent of age segregation on the job – present different opportunities for the accrual of social capital, especially in cases of longer job tenures. The job classification scale attempts to capture these less tangible but significant differences, as well as the more concrete differences.

Researchers who generally view employment as harmful to the academic achievement of students cite the changes in the nature of jobs available to most students as the underlying reason

for the negative effect of working on other outcomes. The shift in the types of jobs available to students occurred due to the structural changes in the US economy starting in the 1950s. As these changes ultimately lead to the demise of the previously-ubiquitous factory job as well as a precipitous decline in available farm employment, the core of teenage employment shifted from crafts, factories and farms to sales and service (Greenberger and Steinberg 1986). Generally, service sector jobs (the most common of which are in food service and retail trade) confer little autonomy or responsibility upon the job holder, thus they are unlikely to foster the types of non-cognitive traits that facilitate educational achievement or subsequent occupational attainment. Moreover, employees in the service sector tend to have high turn-over, rendering it difficult to build long-lasting relationships with co-workers and management that may lead to greater job opportunities later. Finally, service-sector workplaces (especially those in the fast food industry) are more likely to be highly age-segregated environments, severely constraining access to social networks for students in these positions. Despite the many negative qualities of service sector jobs, they are widely available and have few, if any, entry requirements. They are a readily available and easily obtainable source of employment for adolescents, and most of the working student population holds a job in this sector at some point during high school (BLS Report on the Youth Labor Force 2000). This new core of teenage employment – located in the service/retail sector of the economy – is one of the three categories of the tripartite job-type measure used in this project, and will be referred to as typical teen job type.

Outside of the retail/service sector, there is considerable variability among the occupations and industries in which students are employed. However, this heterogeneous group can be said to fall into one of two major camps. The first is composed mainly of students who work in a clerical capacity, as tutors, athletic coaches and lifeguards, and those who work in a

technical-type computing jobs[5]. These are the jobs that are likely to positively socialize the incumbents, as all of these entail considerable responsibility, capacity to learn and retain new and often complicated tasks, and the ability to make somewhat autonomous decisions within a set of rules/constraints. Parental social capital levels are likely to play a significant role in access to these jobs for many, but not all, of student incumbents. This job type will subsequently be referred to as semi-professional/technical work.

The third remaining occupational/industrial group is composed of what Greenberger and Steinberg (1986) called the old core of student jobs, widely available in the days before de-industrialization. Prevalent in this category are those who work in shipping/receiving, subordinate positions in construction, security and farming, and those who hold various positions in factories/warehouses, and are termed labor/manual jobs.

Each of these three occupational/industrial groupings – typical teen, semi-professional/technical, and labor/manual categories – contain within them a relatively large amount of variation in work environments, amount of age segregation, and the tasks and responsibilities involved. I posit, however, that the within-group variation in these important job dimensions is much less than the between-group variation in this occupational index. Moreover, the type of on-the-job socialization occurring at any specific job within each group is likely to be similar to other specific jobs within the group, even if the variation in the types of jobs found within each group is relatively large. Overall, this more systematic approach to operationalizing differences in the quality of jobs available to students facilitates the inclusion of an empirical measure of student employment contexts in identifying both the determinants and the consequences of labor force participation while in high school.

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[5] A more detailed description of the occupational and industrial categories comprising each teen employment category is presented in the next chapter (Chapter 2)

Subsequent Chapter Outline

The University of Washington Beyond High School project data will be described in detail in Chapter 2, as will the analytical strategy proposed to be used for each subsequent chapter. This chapter will also present descriptive tables depicting the ascriptive, educational, and workforce-related characteristics of the five cohorts of high school seniors captured in the data.

Chapter Three will present results corresponding to Research Questions 1 and 2. It will first briefly explore the extent to which there is an association between wages received by student workers and employment rates of these workers. It will go on to explore the relationship between wages and employment rates *within* work intensity groups (low/mid/high), presenting tentative evidence of a potential association between pay and the proportion of working students employed within each band of work intensity. Consistent with previous studies (Warren and Cataldi 2006; Edwards and Hertel-Fernandez 2010), descriptive and multivariate analyses presented in this chapter provide evidence of social background stratification in employment rates (mostly by race/ethnicity) as well as in work intensity and job type categories (by race/ethnicity and socioeconomic status).

The relationship between students' academic achievement and scholastic investment (measured by grades, time spent on homework/extracurricular activities, and enrollment/completion of Honors/Advanced Placement courses) and the nature of their workforce participation is also examined in this chapter. Findings presented here provide an initial confirmation for the plus-sum or threshold approach to understanding whether student and

worker roles can be successfully combined. Specifically, students with higher grades, greater time investment in homework and extracurricular activities (among other indicators of a positive academic orientation I examine) are found to be more likely to work at a moderate intensity level, rather than to not work at all (as would be predicted by the 'zero-sum' framework).

Similar to work intensity, I also evaluate differential associations between students' academic propensities and the type of job they held in high school.

In the fourth chapter of this dissertation, I will present a detailed analysis of college enrollment of the UWBHS sample of high school students. Given evidence of both social background differences by employment status/intensity/type presented in the previous chapter, I can unpack the extent to which differences in educational outcomes between differential workforce participation roles of students are due to ascriptive/achieved differences, or if employment characteristics remain significantly related with college enrollment after the inclusion of these background and educational differences (Research Question 3). Although this chapter's results (as well as those from the next chapter) may not provide indisputable evidence of a causal relationship between workforce participation and college enrollment due to the ever-present specter of unobserved background differences impacting both work roles in high school and educational outcomes after high school graduation, the consistency and significance of positive associations between work intensity in particular (and job type to a lesser extent) and college entry in the first year after high school graduation can be interpreted as meaningful, and unlikely to be spurious.

Chapter five will address the impact of high school employment on four-year degree completion for three of the five UW Beyond High School cohorts of seniors using college enrollment and completion data obtained from the National Student Clearinghouse. Although

college entry is a necessary condition for college completion, it is not a sufficient one, thus, if the broader question of the role of workforce participation among high school seniors on subsequent life chances and social mobility, the most salient educational outcome addressing such a broad concern is college completion. Because of the import of this outcome to occupational, social and economic mobility, and because of the relatively sparse research efforts evaluating all three dimensions of workforce participation on four-year degree attainment, his chapter may constitute the most significant contribution to the study of the educational impact of early workforce participation.

The final chapter will present the findings of the previous three empirical chapters and outline the potential policy implications of these findings.

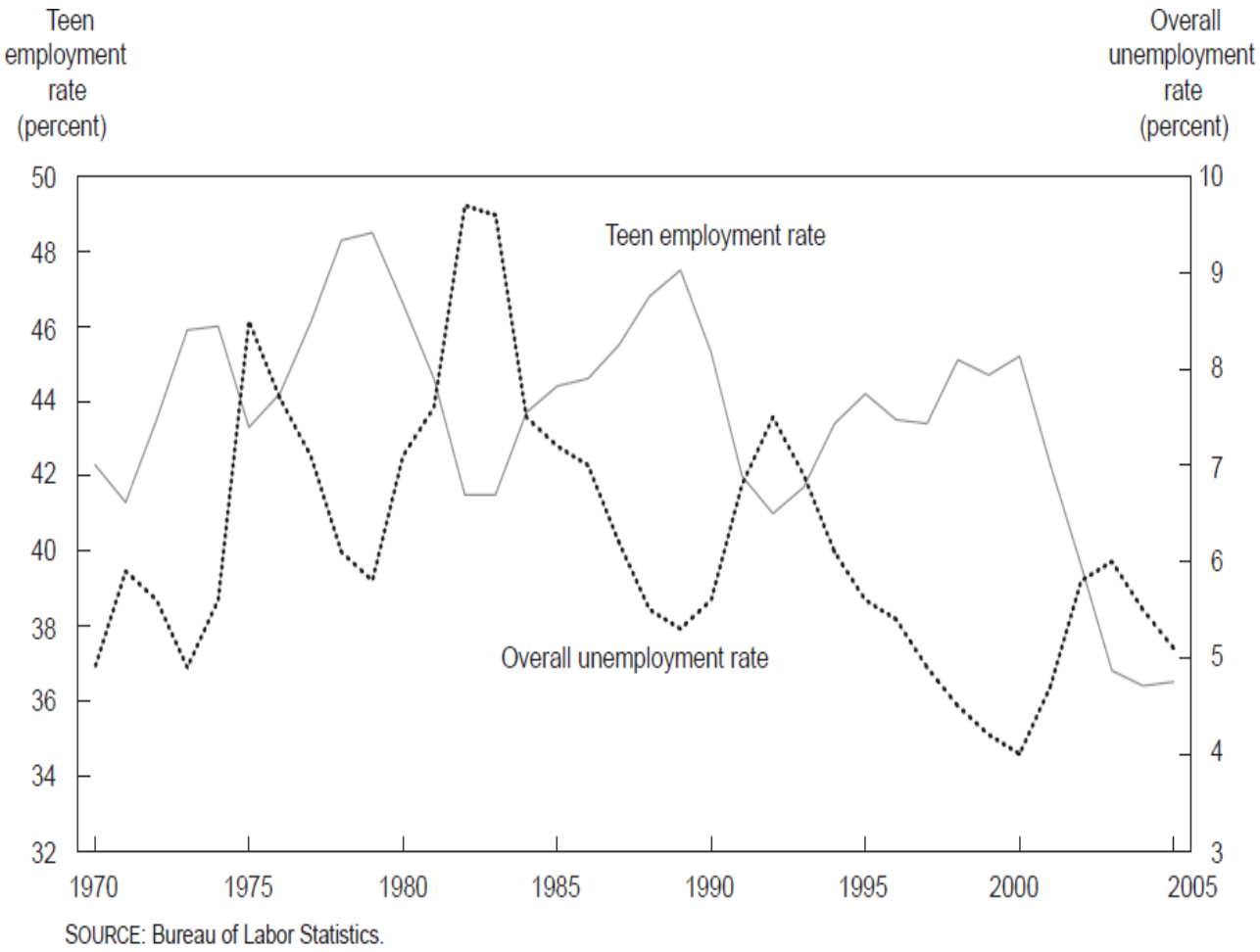
Conclusion

With the empirical and theoretical assessment of the determinants and consequences of adolescent employment taken on in this dissertation, I intend to establish the differential influence of ascriptive and achieved characteristics of students on their workforce participation. More importantly, I aim to untangle the interdependencies between ascription, employment, and academic achievement and demonstrate the independent impact of early labor force entry on postsecondary enrollment and degree completion. Data from the University of Washington Beyond High School project are exceptionally situated to elucidate the relationship between high school workforce participation, intensity, and job quality and college enrollment and attendance. This diverse population of high school seniors facilitates a more nuanced understanding of the differential effect of work on college enrollment. In addition to a greater level of specificity in describing ethnic/racial patterns, this dataset provides detailed descriptions of the work

experience of the respondents, facilitating a more systematic job-type classification and work intensity classification.

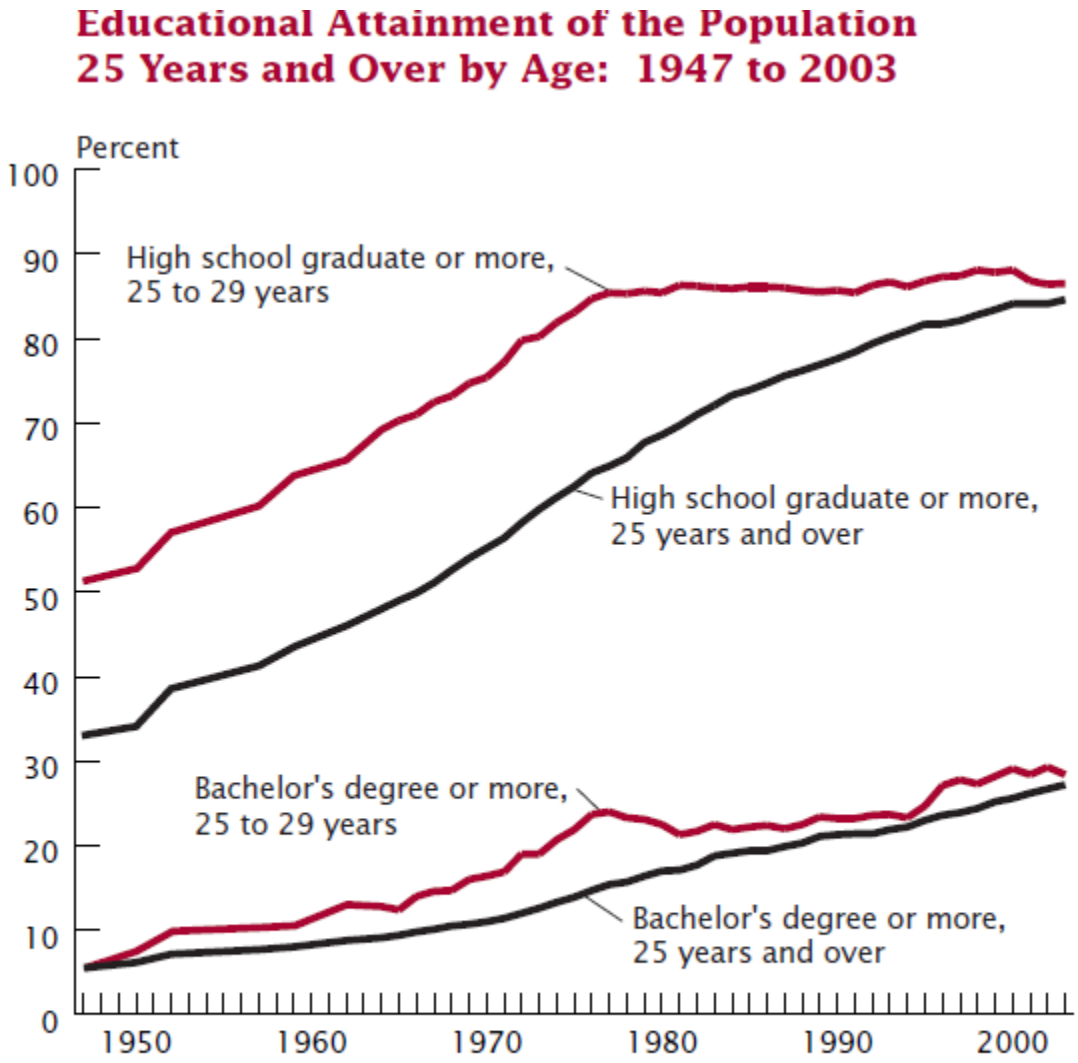
Subsequent chapters will address the question of thresholds and inflection points in the impact of work intensity on college enrollment and completion. Additionally, the impact of differential job qualities available to adolescent workers on postsecondary educational outcomes will be addressed. And while the mechanisms underlying the effect of work quality on educational attainment after high school cannot be captured empirically, evidence of a mediating effect of job type on postsecondary outcomes will in itself provide a valuable contribution to the field of adolescent employment and educational attainment.

Figure 1.1: Teen Employment Rate and Overall Unemployment Rate, 1970-2005



SOURCE: Bureau of Labor Statistics.

Figure 1.2



Note: Prior to 1964, data are shown for 1947, 1950, 1952, 1957, 1959, and 1962.
Source: U.S. Census Bureau, Current Population Survey and the 1950 Census of of Population.

Chapter 2: Data and Methods

Introduction

The analysis in this dissertation will primarily utilize data from the University of Washington Beyond High School (UWBHS) Project. This dataset contains detailed information on social background, educational aspirations, expectations, and achievement of high school seniors in several Western Washington school districts, collected over five years (2000, 2002, 2003, 2004, and 2005) and follow up surveys conducted during the year following high school graduation. Aside from ascriptive and educational characteristics of students, the survey instrument captures a wealth of information on students' labor force participation, and has extensive self-reported information on the nature and amount of work the respondents' experience. Information about these students was captured in the spring semester of the respondent's senior year and in the spring of the following academic year. The in-school paper and pencil questionnaire was administered to respondents mostly in April or May of their twelfth grade, with an additional series of mailings directed at enrolled seniors who were not present on the day the in-school survey was administered. These mailings (following the Dillman (2000) procedure) increased the response rate by approximately 11%.

The survey was completed by 9,809 seniors, although not all these students were included in the so-called 'core' sample utilized in empirical chapters' analyses. The total 'core' completed surveys numbered 9,658 and excluded surveys completed by students who were developmentally disabled, who were non-true seniors (juniors who self-identified as seniors), were exchange students, or students who provided non-interpretable responses.

Assessing the extent of the coverage of the survey of seniors is complicated by the somewhat opaque definition of a high school senior. While a simplified definition of a senior is a

student who has completed the 11th grade and goes on to enroll in the 12th grade, in practice, there are substantial deviations from this standard definition. In some instances, students self-identify as seniors but are officially classified as less than that due to a deficient number of credits. In others, seniors have been enrolled in a given school for more than four years, and are taking classes on a part time basis in order to earn the credits remaining to receive a diploma. These issues confound my ability to identify the true universe of seniors, hence, make it difficult to assess the true response rate. Given the variation in the definitions of a senior class, response rates are assessed in two main two ways. For the most inclusive definition of 'senior', which includes any person enrolled as a senior during the academic year of survey administration, the response rate averaged to 60%[6]. A much higher average response rate, that of 78%, applies to the more stable universe of seniors – those identified as seniors and present in the yearbook as such, as well as being enrolled as a senior during the spring term of the academic year. Given that the survey was administered over to five cohorts of seniors, response rates varied from year to year (with a high of 82% for the second definition of seniors in 2000, and a low of 76% in 2005).

Over the range of years the survey was administered, data was collected from 9 traditional public high schools and 3 private schools, as well as a number of alternative schools. During the 2000 and 2002 waves of the survey, 5 traditional comprehensive high schools and a number of alternative schools were sampled in one Western Washington metropolitan school district. Starting in 2003, the sample was expanded to two more school districts, which added 4 more public high schools and 3 private high schools to the data. Information on seniors from all 12 public and private high schools continued to be collected from 2003 until 2005.

[6] This rate pertains to the 'core' sample. The non-core sample senior (as defined here) response rate was 61%. Please see the implications of the lower response rate for the non-core sample in the 'Study Shortcomings' in the concluding chapter of this dissertation.

A one-year follow-up survey was administered in 2001, 2003, 2004, 2005, and 2006 and had an average response rate of 92%, with a range of 88% in 2001 (for the 2000 cohort) to 95% in 2006 (for the 2005 cohort). A small number of the one year follow up surveys (6%) were completed not by the respondents themselves, rather, by persons who were close to the respondents ('proxies') in cases when the respondent was unreachable[7]. The surveys were administered by phone, by mail, and over the internet (via an online survey instrument as well as by email). Information collected during the follow-up centered largely on educational and employment activities of respondents since high school graduation.

In addition to the one-year follow-up, data on respondents' college attendance and graduation were collected through the National Student Clearing House[8] (NSCH) in the fall of 2008. While enrollment information was collected and can be examined for all cohorts of seniors, college graduation data were not available for the 2005 cohort due to the timing of obtaining data from the NSCH (only 3 years had elapsed since the last cohort's high school graduation). In the chapters examining post-secondary trajectories of students, both the 2004 and 2005 cohorts may be omitted due to the short time interval between initial data collection in their senior year and the subsequent collection of post-secondary data from the National Student Clearing House.

Focal Measures: Employment Status, Work Intensity, and Job Quality

The UWBHS survey instrument contains a number of detailed questions pertaining to the students' current and prior employment experience.

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[7] An example of this situation is if the respondent was serving in the Armed Forces and was deployed for the entire duration of the follow-up survey administration.

[8] The National Student Clearing House is an organization that tracks information on college enrollment and completion, and covers approximately 3,300 post-secondary institutions, or about 92% (http://www.studentclearinghouse.org/about/pdfs/Clearinghouse_profile.pdf).

Employment Status

Work status information captured by the survey covers both current and past workforce participation, although the more detailed work intensity and job quality information covers only the current or the most recent job held by the senior respondent. The standard labor force definition of employment excludes volunteer work, and work done around the house (this is specified in the wording of the question pertaining to work status). Furthermore, unpaid babysitters and those working in other informal jobs are excluded from my analysis, although can be classified as 'currently employed' based on self-reporting. All those responding 'I am currently employed' and who do not fall into the above-specified job type criteria are classified as 'employed' for the purposes of my analysis. The non-employed students fell into two categories based on self-reported workforce participation information: those who were never employed, and those who were employed in the past but not at the time of the survey. Of the 9,658 completed surveys in the core sample, 502 had key employment status information missing, thus, are not included in my empirical analyses[9]. The overall employment rate of high school seniors for all five senior cohorts is 50.7%, although it fluctuates somewhat substantially from year to year[10]. Of the respondents who were not employed at the time of the survey, 22.9% reported never having been employed, and 26.8% report having a job at some point in the past.

[9] In preparing this dissertation for publication, analyses of these missing cases will be undertaken. At present, no such analysis has been done.

[10] The largest proportion of all seniors reporting current employment was in 2000, with 61.3% employed among all those who provided employment status information. The 2005 cohort has the lowest proportion of employed students with 48.5% employed. An important (although not singular) reasons for higher proportions employed among the 2000 and 2002 cohorts compared with the 2003-2005 cohorts of seniors is the inclusion of private high schools in the later cohorts. Employment rates among private high school students are consistently lower than that among students in public schools.

Work Intensity

For the purposes of my analyses, work intensity is defined as the number of hours usually spent working for pay per week by an employed student. Information on work intensity was collected for the current or most recent job. In cases where students held multiple jobs at the same time during their senior year (or during the one-year follow-up), the respondent was prompted to provide information on the 'main' or 'most important' job they held. In addition to the usual number of hours worked per week, information was collected on the number of hours spent at work during the weekend. This distinction is important in evaluating time-use impacts of employment on various in- and out-of school activities aside from working. For all five senior cohorts, average work intensity among respondents employed at the time of the survey was 19.2 hours per week. Of these, averages of 10.3 hours are spent working on the weekend[11].

Numerous studies have identified a potential inflection point when looking at the relationship between work hours and educational outcomes, both in high school and thereafter (e.g., D'Amico 1984; Ruhm 1997; Schoenhals, Tienda and Schneider, 1998; Rothstein 2001). While the exact locus of this inflection point has not been unanimously identified in the literature, most studies have found that working more than 20 hours per week is generally harmful to various educational and behavioral outcomes, while working about 10 hours a week may be beneficial to these same outcomes. In my analyses, I mostly utilize a categorical measure of work intensity, based on the cut-points identified in the literature. These are low intensity (between .5 and 9 hours of work per week), medium intensity (between 10 and 19 of work per week) and high intensity (20 or more hours per week). Additional nuance will be added when I

[11] Similar to employment status, work intensity averages vary from year to year due both to exogenous factors related to demand for teen workers, and to the addition of private and other public high schools starting with the 2003 cohort.

consider the weekday/weekend balance of work intensity. These and other more detailed measures of employment intensity will be explored in subsequent empirical chapters.

Job Quality

Six survey items were used to create an empirical measure of job quality. These questions asked for information on the following workplace and job characteristics[12]: name of the company/business for whom the student worked; the type of business/industry this workplace was engaged in; which industrial sector the workplace fell into; the type of work and most important activities the employee typically engaged in; and the type of employee classification (based on a standard workforce sector classification[13]) the student fell into. Utilizing the 2000 Census Classification of Industries and Occupations, each student employee was assigned a three-digit occupational and industry code based on the descriptions of both the type of employer and the nature of their job. This process occurred over an extended period of time and involved a double-coding procedure to maximize inter-coder reliability. An examination of the distribution of students into both the industry and the occupational designation yielded the conclusion that student employees were highly concentrated in three major industrial/occupational areas, although the occupational codes proved to be a more useful descriptive tool to identify these areas. Based on this observation, these codes were then collapsed into a three-category index containing the following occupational groups: typical teen jobs (mostly those in fast food and personal services), the semi-professional/technical jobs (administrative, tutoring, white collar

[12] Some of these survey questions had a write-in format, while other survey items were in a multiple choice format. See **Appendix A** for the exact question wording.
[13] The four standard employee categories are: employee in a private company/business; government employee; self-employed; or working without pay in a family business or farm.

workplace settings), and labor/manual jobs (those in manufacturing, landscape, and stocking occupations)[14].

These occupational groupings are distinct from one another along a number of important characteristics: the nature of tasks/skills they require, the workplace setting, the closeness of supervision, the amount of contact with other teens or adults, and the magnitude of responsibility placed on the incumbent. These dimensions differentiating jobs within each of the occupational groups result in vastly different on the job experiences for incumbents, producing systematic differences in the type of socialization received on the job. Similarly, some of the characteristics described above – particularly, the extent of age segregation on the job – present different opportunities for the accrual of social capital, especially in cases of longer job tenures. The job classification scale attempts to capture these less tangible but significant differences, as well as the more concrete differences.

Not surprisingly, of the three occupational groups utilized to delineate job quality, the typical teen sector is the modal job category, with an average of 68.4% of respondents reporting being employed during the survey working in so-called typical teen jobs. Of these student workers, 60% are employed in food service and related work, 22.7% are in retail sales or related occupations, and 17.3% are in service and personal care occupations[15]. Generally, service sector jobs confer little autonomy or responsibility upon the job holder, thus are unlikely to foster the types of non-cognitive traits that facilitate educational achievement or subsequent occupational attainment. Moreover, employees in the service sector tend to have high turn-over, rendering it difficult to build long-lasting relationships with co-workers and management that may lead to

[14] **Appendix B** contains the detailed occupational groupings and the constituent three digit occupational codes that compose each of the three major job type categories.
[15] The majority of service and personal care-type occupations are paid child care in nurseries and/or kindergartens. Another common occupational/industrial combination within this job group is entertainment support occupations (working in movie theaters, gyms, and other recreational establishments).

greater job opportunities later. On the other hand, employment of any sort, including that in the service, food, and/or retail sectors, require punctuality, effective time management, respectful customer interaction manner, and potentially, carries important responsibilities (including for the welfare of children in child-care occupations, or for expensive equipment or merchandise in service and retail workplaces). Whether employment in typical teen jobs is harmful or beneficial for educational outcomes or development of soft skills is an important question as they are the most readily available and easily obtainable source of employment for adolescents, and most of the working student population holds a job in this sector at some point during high school (BLS Report on the Youth Labor Force 2000).

Outside of the retail/service sector, there is considerable heterogeneity among the occupations and industries in which students are employed, Despite a multitude of job types held by high school student workers outside of the typical teen sector, two major occupational-type camps emerge. The first is composed mainly of students who work in a clerical capacity, as tutors, workers in technical or computing jobs, as well as certain recreation-related occupations (mostly athletic coaches and lifeguards). These are the jobs that are more likely to positively socialize the incumbents, as all of these entail considerable responsibility, capacity to learn and retain new and often complicated tasks, and the ability to make autonomous decisions within a set of rules/constraints (to a greater degree than workers in food services or retail). However, it is not at all clear that these job characteristics translate into any observable educational benefits for their incumbents while they are in high school or pursuing post-secondary education. Parental social capital levels are likely to play a significant role in access to these jobs for many, but not all, of student incumbents. This job type will subsequently be referred to as “semi-

professional/technical" work, and about 15.3% of the high school workforce employed at the time of the survey reported having work that fell into this category.

The third remaining occupational/industrial group is composed of what Greenberger and Steinberg (1986) called the "old core" of student jobs, widely available in the days before de-industrialization. Prevalent in this category are those who work in shipping/receiving, subordinate positions in construction, maintenance, security, and those who hold various positions in factories/warehouses. This job category can be described as 'labor/manual', given that these descriptors constitute the major common component of all these positions, as well as distinguish them from work in the two other job categories described above. Approximately 16.2% of the employed seniors in the survey reported working in occupations fitting within this category.

Each of these three occupational/industrial groupings – typical teen, semi-professional/technical, labor/manual – contain within them a relatively large amount of variation in work environments, amount of age segregation, and the tasks and responsibilities involved. I posit, however, that the within-group variation in these important job dimensions is much less than the between-group variation in this occupational index. Moreover, the type of on-the-job socialization occurring at any specific job within each group is likely to be similar to other specific jobs within the group, even if the variation in the types of jobs found within each group is relatively large. Overall, this more systematic approach to operationalizing differences in the quality of jobs available to students facilitates the inclusion of an empirical measure of student employment contexts in identifying both the determinants and the consequences of labor force participation while in high school.

The Intersection of Work Intensity and Job Quality

The extent to which work intensity is a consistent or predictable trait of each of the three different job types is a concern central to the question of the causal connection between job type and education outcomes. In other words, if some jobs always place modest time demands upon the incumbents while other jobs demand substantial time commitments, then the relationship between job type and educational achievement may be simply a function of the work intensity associated with a given job type, rather than the qualitative differences between the tasks involved in these jobs, the socialization or soft skills they impart, or any of the other potential mechanisms mentioned above that may underlie the relationship between job quality and high school and post-secondary outcomes. Table 2.1 presents the distribution of the workforce by job type into three categories of work intensity discussed above: those working fewer than 10 hours per week, those working between 10 and 19 hours, and those working 20 or more hours per week.

Table 2.1 about here

While this table shows an unambiguous relationship between work hours and job type, it also depicts the substantial variability in the work intensity composition of each of the job types. For instance, it is clear that a higher proportion of the semi-professional/technical job holders have moderate work hours relative to either the labor/manual or the typical teen employees, a third of the semi-professional/technical workers were employed at a high intensity and another third reported mid-level work intensity. Similarly, both typical teen and labor/manual occupations had a slight majority of workers in the high intensity categories, a non-trivial minority were employed at a low intensity and more than a third of each of these job holders reported mid-level work intensity. The proportion in the mid-intensity level (between 10 and 19

hours of work) is about the same for all three job categories, indicating that the case for work hours being the major agent of the effect of the type of work on other outcomes cannot be supported.

Focal Background and Educational Characteristics

Race/Ethnicity

The UWBHS survey instrument contains a series of questions on race/ethnicity, Hispanic origin, and primary racial/ethnic identity. It also allowed for multi-racial/ethnic identification, producing a more complete picture of racial/ethnic heterogeneity among respondents. The survey also captured information on ancestral origin allowing the imputation of race/ethnicity for those respondents who did not provide a primary race/ethnic identity, but who classified themselves into more than one race/ethnic category[16].

Based on the combined information gleaned from the four questions on race/ethnicity, ancestral origin, and primary identification, a series of more and less detailed classifications were constructed. Of the 9,066 respondents included in my analysis (who provided some sort of employment related information), the majority (61.5%) were white, with the next two most sizable groups being African American (13.2%) and the combined Chinese/Japanese/Korean group (5.6%). Because Mexican-origin and other Hispanics were disaggregated, they do not constitute a sizable minority of respondents, however, if combined, they would be the third biggest race/ethnic group at 5.8%. Each of the other 8 race/ethnic groups employed in my analyses constitutes between 1.5% and 3.5% of respondents.

[16] The exact method of classification of students with multiple race/ethnic identities is detailed here: https://depts.washington.edu/uwbhs/pdf/RaceMemov4.pdf

The UWBHS data benefits greatly from the ethnic/racial diversity as well as a large immigrant population (especially from Asia and the Pacific Rim) of the Puget Sound region. This heterogeneity facilitates a more detailed race/ethnic grouping than is possible in most studies, especially those of teenage employment.

Nativity/Immigrant Status

A large first and second-generation immigrant presence facilitates a distinction among immigrants beyond the often-seen native-born/non-native-born one. Information on the time of arrival, citizenship status, as well as the place of birth allows the construction of a three-generation nativity indicator. For native-born respondents, information on parental place of birth allows the distinction between 2nd and 3rd generation of immigrants. While the majority of high school seniors captured in UWBHS are 3rd generation + (70.5%), information on a substantial numbers of first (12.4%) and second (17.1%) generation students was also collected.

Gender

The gender distribution of the five senior cohorts reflected the slightly higher propensity high school dropout of male students, thus containing an over-representation of female students (55.6% females and 44.4% males). The extent to which certain job types are characterized by levels of sex-segregation visible in the adult labor force will be a question explored in the empirical chapter on characteristics of workers.

Socioeconomic Characteristics

Because the survey does not contain direct questions about income, parental education and home-ownership[17] are used as proximate indicators of students' socioeconomic background. A categorical rather than continuous distribution of the parent employment variable is used because of the nature of the raw survey responses (whereby, the three-category variable allows me to minimize missing cases). In cases where the parents did not have similar levels of education attainment, the value of the parent with the highest level of education was used to assign a value to the variable. However, because people tend to marry within their socioeconomic strata (a tendency known as homophily), many of the students have parents with similar levels of educational attainment.

Academic Engagement and Educational Expectations

The UWBHS survey contains a multitude of questions on students' everyday lives, including questions on the number of hours they allocate to homework and extracurricular activities per week. Responses to both of these questions are used to assess the extent to which students who are spending more time in academically-related activities spend less time working.

In addition to allocating more time to academic rather than work-related pursuits, scholastic engagement can also be signaled by college-related behaviors of students. In other words, if students who invested in the educational system work fewer hours, we should expect those with higher educational expectations and/or those currently on the college track to be employed at a lesser intensity than those who do not intend to go on to a post-secondary education. To assess the extent to which this is true, I include a dichotomous measure indicating

[17] Due to high residential mobility of some students (partly because of the proximity of army bases to some of the high schools in the sample), this measure does not always accurately reflect the ability (or lack thereof) to make the financial investment in a home.

whether the student has or has not taken either the SAT (the College-Board Scholastic Assessment Test) or ACT (American College Test). Because the vast majority of 4-year institutions require that either of these two tests for the admission process, using this as an indicator of students' intention of going on to a four-year university. Additionally, the timing of the survey (spring of senior year) allows for the assumption that all the students who plan to go to a 4-year school the following year would have already taken the test, as it is necessary for the application process (given that most application deadlines are in the fall/early winter of the students' senior year).

The magnitude of students' academic engagement can also be measured (at least, in part) by posing questions on attitudes, perceptions, aspirations and expectations relating to education in general, and the students' future in particular. One such question – prompting respondents to identify what level of education they realistically expect [18] to achieve – will be utilized to identify the impact of the respondents' perceptions of how far they will go in school on the amount of work they engage in. This measure is used to capture the attitudinal dimension of 'academic engagement', as many who have not taken these tests may still be quite invested in their educational attainment. Out of a number of categorical responses, I created a dichotomous variable that I believe to be indicative of the most profound difference that academic engagement can produce – the expectation of getting a college education. Thus, the variable used here indicates the students' expectation of a 4-year college degree.

Detailed information on the demographic, socioeconomic, and educational achievement characteristics facilitate a more nuanced approach to the examination of ascriptive and achieved

[18] Question wording: "Realistically speaking, how far do you THINK you will get in school?" I emphasize the wording of the question to convince the reader that it is a relatively accurate depiction of the respondent's perceived educational trajectory, and will not elicit responses indicating *aspirations* rather than *expectations*. The survey also contains a question specifically designed to capture the educational aspirations of respondents: "How far would you LIKE to go in school?"

differences among workers. Moreover, data available on social background, educational ambition, and engagement, as well as work histories of high school students will render a more accurate depiction of the effects of all these characteristics on post-secondary educational outcomes.

METHODS

Binary and multinomial logistic regression is a widely accepted analysis method when outcome data is dichotomous (binary) or polytomous (multinomial). Although un-exponentiated coefficients produced by this analysis are difficult to interpret, the use of this method facilitates easy transformation into odds ratios and/or predicted probabilities (Hosmer and Lemeshaw 2000).

The first empirical chapter (chapter three) examines the determinants of employment status and work intensity in one model, thus necessitating the use of the multinomial method. Similarly, the multivariate analysis of job type is not broken up into two binary logit models, as the three categories of the job type variable are conceptually linked and should be discussed in light of one another.

On the other hand, empirical analyses presented in chapters four assess the association between workforce participation in high school and subsequent college entry whereby a binary logistic method is used. I do this because enrollment in any college (with a large portion of respondents with a '1' on this outcome going to community colleges) and enrollment in a four-year educational institution is qualitatively different outcomes for the purposes of this study. Generally, the interpretation of results from logistic models is most intuitive when regression coefficients are exponentiated to produce odds ratios. The interpretation of results from logistic regression models is facilitated by exponentiating the regression coefficients produced by those

models (Include a reference here. One possibility is Long and Freese, p. 178). In general, an exponentiated coefficient greater than 1.0 for a given independent variable indicates that the odds of observing a value of 1 on the dependent variable increases with an increase in the value of that independent variable. For example, an exponentiated coefficient equal to 2.0 for a given independent variable tells us that a one unit increase in that variable doubles the odds of observing a value of 1 on the dependent variable. Similarly, an exponentiated coefficient less than 1.0 indicates that increases in the value of an independent variable are associated with decreases in the odds of observing a 1 on the dependent variable. For example, an exponentiated coefficient equal to .5 for a given independent variable tells us that a one unit increase in that variable halves the odds of observing a 1 on the dependent variable. Finally, an exponentiated coefficient that is exactly equal to 1.0 tells us that changes in the value of an independent variable are not associated with changes in the odds of observing a 1 on the dependent variable, or in other words, that there is no association between the predictor and outcome variables.

Table 2.1: Work Intensity Composition of Each Job Type

	Employed at less than 10 hours	Employed at 10 to 19 hours	Employed 20 or more hours	Total
Semi-Professional/Technical	220	229	215	664
	33.10%	34.50%	32.40%	100.00%
Labor/Manual	81	248	373	702
	11.50%	35.30%	53.10%	100.00%
Typical Teen	260	1033	1670	2963
	8.80%	34.90%	56.40%	100.00%
Total	561	1510	2258	4329
	13.00%	34.90%	52.20%	100.00%

Appendix A: Survey items used for job type measures

The following are the survey items describing the type of workplace as well as the nature of the job held by student workers. The workplace descriptions were utilized for assigning a 3-digit industry code to each job, while the characteristics of work tasks and responsibilities were used to assign a 3-digit occupational code to each job.

Q141: For whom do/did you work? (Name of Company or Business)

Q142: What kind of business or industry is/was this? Describe the activity at location where employed.

Q142_a: Is/was this mainly (Circle one)

1) Manufacturing?
2) Wholesale trade?
3) Retail trade?
4) Other (agriculture, construction, service, government, military)

Q143: What kind of work are/were you doing? (For example: construction worker, baby sitter, landscaper, hamburger cook)

Q144: What are/were your most important activities or duties? (For example: install aluminum siding, change diapers, mow lawns, clean grill)

Q145: Are/were you (Circle one)

1) Employee of a private company or business?
2) Government employee?
3) Self-Employed?
4) Working without pay in a family business or farm?

Appendix B: Detailed composition of three-category job type measure

Initially, each workplace and occupation was assigned a three digit code based on the description provided by the survey respondent. These codes ranged from 017 to 618 for industries and from 101 to 530 for occupations. Each industry and occupational code has a specific set of criteria that distinguish it from other jobs or workplaces, as described in the documentation supporting the 2000 Census Classification of Industries and Occupations. The three-digit industry codes were collapsed into four major industrial categories based on the observed distribution of industry codes among student employees and based on major industrial categories used in the 2000 Classification of Industries.

1) Agriculture, forestry, mining, utilities, construction, manufacturing, wholesale, transport, and warehousing (Industry codes between 17 and 459, and between 607 and 639);
2) Retail sales (Industry codes between 467 and 479);
3) Information, finance, real estate, professional, scientific, and technical services, management (including waste) and administrative support, public administration, educational services, health care, and social assistance (Industry codes between 647 and 847, and between 937 and 987)
4) Services including arts, entertainment, recreation, accommodation, food services, and not elsewhere classified services (Industry codes between 859 and 929)

The set of all occupational codes fall into 11 major occupational categories based on the qualitative distinctions in job characteristics, the observed distribution of student workers into

jobs, as well as on the standard major occupational classification used in the 2000 Census. These 11 major categories are:

1) Managerial, business, finance, and legal (occupational codes 1 to 95, and 210 to 215)
2) Computer, mathematics, architecture, engineering, life, physical and social sciences, community and social services, medical professionals, laboratory work, medical technical jobs (occupational codes 100 to 206 and 300 to 354)
3) Education, training, and library occupations (occupational codes 220-255)
4) Arts, design, and entertainment occupations (occupational codes of 260-296)
5) Health-related technical occupations (occupational codes of 360-365)
6) Protective Service (occupational codes of 370-395)
7) Food preparation and related (occupational codes of 400-416)
8) Services excluding protective (occupational codes of 420 – 465)
9) Other services, e.g., personal care, but excluding building maintenance (occupational codes of 470 to 496)
10) Clerical, office, and administrative jobs (occupational codes of 500-593)
11) Farming, construction, installation, repair, production, transport, and military (occupational code of 600-975).

Certain combinations of occupational and industry codes were identified in order to exclude informal job holders, as they did not conform to the conceptualization of the formal workforce at the root of the research question examined in this dissertation. For instance, cases with the industry codes 929 (which delineate ‘own home’ as the place of work), and occupational code of 460 (denoting babysitting) were flagged and excluded from the formal workforce. Landscape

service workers were also eventually excluded from the ‘service’ category and placed within the labor/manual category of jobs (that was built primarily out of occupations in category 11 described above), as the nature of that work most closely resembles other jobs within that job type grouping.

Chapter 3: In or Out of the Labor Pool?

Introduction

Despite the high prevalence of labor force participation among high school and college students, this experience is generally considered to be marginal since most teenagers work part time to support life style consumption and hold jobs that are unlikely to be related to their future careers. The one aspect of teenage employment that has generated considerable research and policy interest – the potential impact of student work on education outcomes – has been difficult to assess due to the uncertainty of selectivity into student work roles. If students are negatively selected into employment, perhaps because the least successful students invest more in work than schooling, the observed correlation between work and education may be spurious. This chapter extends earlier published work on the question of selection into work roles and the stratification of adolescent employment patterns with data on the 2005 UWBHS senior cohort that were previously unavailable, as well as a more nuanced approach to time use patterns related with different labor force participation trajectories (Hirschman and Voloshin 2007).

Generally, the above mentioned study finds that there are clear patterns of social stratification in adolescent jobs, whereby non-workers as well as employees with excessive work hours and in lower quality jobs were more likely to emerge from disadvantaged backgrounds. The link between social origins and teenage work was higher for hours worked than for occupational roles, but similar patterns held for both. Evidence of negative association between ethnic/racial minority status and the likelihood of employment (relative to whites) was also found. In particular, black students seem to be disadvantaged in finding jobs, and in particular,

jobs promoting educational achievement – those characterized by low work intensity and those in the semi-professional/technical ranks.

While ascriptive inequality in access to jobs, and in particular, to good jobs may underlie many of the observed patterns in teen employment rates, other potential explanations for these observed shifts should also be considered. Chief among them is the question of the extent to which employment rates and hours worked among the employed are responsive to observed average wage fluctuations.

This chapter will provide preliminary descriptive evidence of a lack of strong relationship between employment status and wages. On the other hand, shifts in proportion of working students falling into each work intensity category does seem to correspond to wage fluctuations.

The majority of this chapter is dedicated to re-examining the social background distinctions among high school students who work and those who do not. A number of additional dimensions of employment as well as of time use – one of the more consistently identified mechanisms underlying the effect of employment on educational outcomes – will extend previous findings, and will prove crucial in establishing the relationship between workforce participation patterns and educational achievement in the short and long term.

Are teen employment rates responsive to changes in wages?

The following sections address differences between the adult and the youth labor market and implications of the differences on the make-up of the youth labor force. This discussion will address self-selection into jobs, as well as possible employer-based selection of students into

various positions, and how these selection processes may differ due to unique characteristics of the labor force and the jobs available to them.

While the range of rewards, both intrinsic and extrinsic, characterizing the adult labor market is extremely broad, the youth labor market is much flatter and more constrained. First, the range of wages/salaries is highly constrained, which has implications on selection of students into jobs. It is possible that wages/salary levels become less of a concern for students looking for work and other, less concrete/intrinsic characteristics inform their decisions to seek a particular job. On the other hand, given the small magnitude of differences at the bottom and top of the wage distribution[19], adolescents looking for work may over-emphasize minute differences in wage-related payoffs, heavily favoring all positions perceived to pay better than 'average' (which is typically at or close to the minimum wage for the state[20]). Because of a lack of substantial variation in hourly wages, student workers may adjudicate between the earning potential of jobs not by the hourly wages offered, rather, by the possibility of working longer hours, thus allowing them to earn higher overall income. Students who are primarily interested in financing their own consumption habits, then, may use this criteria, rather than hourly wages, as primary their assessment of the attractiveness of a given position. Additionally, students who are most strongly motivated by the earning potential associated with a given job may look for work in industry sectors (such as the service sector) that encourage longer hours.

Second, the range of prestige or status associated with a given position is also much narrower in the youth than the adult labor market. Because teen jobs are heavily concentrated in

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[19] For each year of observation, the difference between the bottom and top 10% of reported wages is at around $3.00 per hour

[20] The Washington state minimum wage is higher than the federal minimum, with 6.50 in 2000, going up to 6.90, 7.01, 7.16, and 7,35 for 2002, 2003, 2004, and 2005, respectively (Washington State Department of Labor and Industries, http://www.lni.wa.gov/WorkplaceRights/Wages/Minimum/History/default.asp)

only a few industry sectors and occupational niches, the status derived from holding a particular position may not be associated closely with the actual job requirements, rather, may be based on perceptions of the attractiveness of employment status among a teen's peer group. If students motivated to work are mostly driven by the promise of financial rewards associated with working, student employment rates should increase more steeply when growth in wages is higher, and conversely, the proportion of working students should decrease in years with lesser wage growth. Furthermore, we should expect to see students working larger numbers of hours in jobs that pay little, in order to be able to compete with others who are paid more.

If students' workforce participation reflects their economic need and is primarily financially motivated, there should be a strong negative relationship between students' socioeconomic status and their likelihood of working and the number of hours of work they engage in per week. However, this expectation is not supported in studies exploring the relationship between students' socioeconomic status and the likelihood of employment (Entwisle, Alexander, and Olson 2000; Rothstein 2001, Portfield and Winkler 2007). The extent to which students' employment status and intensity is a reflection of self-selection into work roles or a result of students' position within a larger socioeconomic hierarchy is a central question in student employment literature.

The following three figures present the fluctuations in wage rates from 2000 to 2005 (presented with three measures of centrality) and the corresponding employment/non-employment rates, as well as overall rates of work intensity in order to determine the extent to which increases or decreases in prevailing wages affect the students' rates of employment as well as their choices of working fewer or longer hours.

Figures 3.1, 3.2, and 3.3 about here

Figures 3.1 and 3.2 demonstrate that students' employment rates are not responsive to wage increases. In fact, the relationship between wage growth and the proportion of students who have never been employed seems a strong negative one, with a significant increase in the proportion of students reporting never having been employed between 2000 and 2003, while wages were reported to also rise during that period. The overall employment rate in Figure 3.3 is also unresponsive to wage growth. From 2000 to 2002, there was an approximate 10% decrease in proportion of students who are employed while mean wages increased from $7.61 to $8.22. This increase was mostly due to changes in minimum wage laws on the state level, thus, impacted most jobs available to students. Finally, variations in proportions of all students working fewer or more hours from year to year also do not appear to be related to changes in prevailing wages.

While changes in mean wages may not be related to overall employment patterns, they may still affect decisions of students already in the labor force. If so, we should expect parallel shifts in the proportions of employed students (rather than all students) working fewer or longer hours. Although no direct evidence of motivation for working can be obtained from survey data, the correspondence of changes in wages offered for different types of investment into the labor force (in other words, work intensity) with changes in the proportion of employed students from year to year may be viewed as indirect evidence for the role of remuneration in working more or less.

Figures 3.4 and 3.5 present employment rates and wages for each year of available data. The distribution of student employees into work intensity categories is also presented for each year in order to determine the extent to which there is a relationship between heavier or lighter participation in the labor force depending on prevailing wage rates for each year.

Figures 3.4 and 3.5 about here

First, there is an interesting inverse relationship between wages prevalent in each work intensity group and the proportion of employed students in each of those work intensity groups. The wages for lowest work intensity group, and the smallest group of all the employed students (represented by the blue line) are by far the highest. This is likely a reflection of the type of jobs or industrial sectors that facilitate different workforce participation levels. Jobs in retail and food services allow (and possibly, demand) long work hours but the pay is typically at or close to the state-mandated minimum wage. The wages prevalent in low-intensity jobs, on the other hand, tend to be in the top twenty percent of all wages.

Second, these figures indicate a tenuous but positive relationship between year-to-year fluctuations in wages and proportions of employed students in the three categories of work intensity displayed here[21]. In particular, the proportion of student employees reporting working more than 20 hours a week (the yellow line) drops by about 10 percentage points from 2000 to 2002, concurrently to a drop in wages. Once wages begin to grow again, so does the proportion of students who report investing more than 20 hours per week into working, although this increase is slight. It is interesting to note that the strength of the association between work intensity and wages differs from one group of the former to another. Specifically, the proportion

[21] This relationship is supported with highly significant and positive Pearson's Rs for each year of observation.

of all employed who report working at the lowest intensity level (less than 10 hours per week) does not seem to be as responsive to wage changes as the group of employed students who report working more than 20 hours per week.

While being careful to not over-interpret the association between wages and employment intensity, tentative inferences can be made that motivations for acquiring high or low intensity workers may be different, with high intensity workers more drawn to the fiscal rewards of holding a job, and lower intensity workers acting on more extrinsic rewards associated with working. Ascertaining the validity of this interpretation is difficult, however, given a lack of empirical measures of underlying decisions for selecting jobs with differential intensity levels. Another potentially confounding factor in gleaning students' motivations for working from the wage-intensity relationship is the much higher than average wages earned by student workers in the lowest intensity categories. If the higher hourly wages of those students allow them to work less while earning more, then conclusions about differences in student motivations to work more or less are harder to draw. However, since the wages of the lowest and highest work intensity groups vary by an average of $2.00 per hour, we should not see such drastic differences in hours worked if all workers were equally motivated by earning the maximum amount of wages possible, leaving the possibility that low-intensity workers make work decisions based on different criteria or motivations than those who work 20 or more hours a week.

The role of ascription in the risk of student non-employment

The terms 'unemployment' and non-employment should be addressed, since it implies that we know who is in the labor force, an assumption that is more difficult to meet when

looking at student workers. Because no direct question assessing labor force status was asked in the survey instrument, students who report never having a job will not be considered as part of the labor force. All other students, whether employed in the past or not, will be considered non-currently employed for the purposes of this project.

Although legislative and cultural changes have resulted in a decrease of officially and unofficially sanctioned racial/ethnic discrimination in hiring, specifically, by the Civil Rights Act of 1964, Title VII, members of ethnic/racial minorities remain at a higher risk of unemployment than do whites (Waters and Eschbach 1995; Fairlie and Sundstrom 1997). Previous studies have shown that this is also the case in the youth labor market (Gardecki 2001). Hispanic and African American youths are at a higher risk of non-employment than whites with non-employment rates at 21.7%, 31.2%, and 16.4% for Hispanics, African Americans, and whites respectively (Bureau of Labor Statistics Youth Employment Bulletin, July 2009)[22].

Who is at the highest risk of non-employment?

Economic turmoil, as is observed during the current recession, disproportionately affects jobs held by marginal workers, with teens foremost among them. Youth employment statistics from the summer months of 2009 illustrate this with the highest rates of non-employment for youths from 16 to 24 since 1948, when collection of such records began (Bureau of Labor Statistics Brief on Youth Unemployment, July 2009).

Non-employed (and more importantly, the never-employed) high school students may have an over-representation of African Americans, students whose parents are high school grads or below, and students from highly privileged backgrounds (measured through parental

[22] July is traditionally the peak of youth employment (Bureau of Labor Statistics)

education, school attended, home ownership, possibly, parental employment for the group of students who reported this information). It is quite a bifurcated population. Implications for the non-employed most likely are products of the interaction of work history and ascribed characteristics of students: those who are from the upper echelons of the socioeconomic hierarchy will not be less affected by a lack of job experience, most likely. This is the student population for whom positive socialization obtained on the job can be easily substituted by exposure to the parents' social circle, and generally, as a result of parental access to educational and extracurricular resources, job as the context of internalizing important soft can be easily substituted with a number of other contexts that facilitate positive socialization and attainment of non-task-based human capital.

Negative and/or marginalizing consequences of non-employment may be particularly deleterious to minority youths. Although schooling, not employment, is a source of primary identity for teenagers and early adolescents, involuntary non-employment has been noted to have negative or marginalizing consequences, particularly deleterious to minority youths. Generally, non-employment for teens who seek to be in the labor force may push adolescents seeking more adult roles into 'early precocity' manifesting in risk taking sexual behaviors as well as drug/alcohol abuse (Greenberger and Steinberg 1986). A more diffuse negative consequence also observed in the literature is a generalized feeling of alienation with potentially long-term implications on career trajectories and other salient life-course outcomes (Hess, Petersen, and Mortimer 1994; Caspi, Wright, Moffitt, and Silva 1998).

Since typical differentiating factors such as work experience and educational level do not play a role in employee selection in the teen labor market, employers may rely on ethnicity/race group membership as a predictor of employee performance to a greater degree than in the labor

market at large. Given the constrained criteria for employee selection in the teen labor market (given the lack of differentiation in education or experience, largely), employers may rely on ethnicity/race group membership as a predictor of employee performance to a greater degree than in the labor market at large. Although difference in non-employment rates of African American and white youths (31% vs. 16% nationally) (Bureau of Labor Statistics Brief on Youth Unemployment, July 2009) cannot be considered as direct evidence of greater race/ethnicity-based discrimination in hiring, the black/white gap in the rates of non-employment may be indicative of race/ethnicity playing a significant role in adolescents' chances of working.

One potential implication of the dramatic differences in employment and non-employment rates of African American and white teens is that determinants of employment (or, conversely, non-employment) will vary substantially for different ethnic groups. Supporting thought: if race/ethnicity is an over-riding factor, African American students from higher socioeconomic backgrounds should be more likely to get 'good' jobs than less privileged African American students. On the other hand, among whites, differences in socioeconomic background, scholastic involvement and possibly high school attended all may have a significant impact on the chances of getting hired. That is, members of some ethnic/racial minorities may experience an often insurmountable initial barrier to entry into jobs, especially the low intensity or better quality jobs, and the work they are able to get access to does not require high SES background or an academic orientation, thus, rendering those differences insignificant. Empirical analysis of within and between race/ethnicity differences in employment rates, work intensity, and job type should illuminate the extent to which racial/ethnic group membership impacts employment outcomes independently of socioeconomic background.

Employment Patterns of Adolescents on a National Scale: Racial and Ethnic Differences (by Gender)

Table 3.5 depicts the national distribution of adolescent workers into non-agricultural major industry categories in 2005, as well as the proportion male and female workers within each of these industries.

Table 3.5 about here

In industries where the concentration of workers age 16-19 is greatest - wholesale/retail trade as well as leisure/hospitality – the gender distribution is most egalitarian, or most representative of the overall distribution by gender in the general labor market. Neither male nor female adolescent workers are overrepresented among workers age 16 to 19, with 48% male and 52% female workers among the entire workforce in 2005. Jobs in wholesale/retail trade and leisure/hospitality industries are mostly those termed 'typical teen jobs' in the tripartite categorization of job types available to adolescent workers in the UWBHS sample. The prevalence of these among all teen workers captured in the Current Population Survey (CPS) 2005 depiction of workers provides evidence of the similarity between the UWBHS workforce to that on the national scale.

Outside of industries with equal male and female representation, the gender distribution of adolescent workers resembles that of adult workers. Specifically, male adolescent workers are overrepresented in traditionally male-dominated industries such as mining, construction, manufacturing, and transportation/utilities. Female workers age 16-19 are overrepresented in all services industries (educational, health, and 'other' services) as well as financial activities, where they mostly occupy administrative or office-work positions. While both male- and female-

dominated workforce sectors may provide better wages[23] than jobs in retail trade or leisure/hospitability sectors, they may also place unreasonable time demands on the adolescents who occupy these positions. This may be particularly damaging *due* to the higher than average wages characterizing these positions, rendering working longer hours particularly attractive to young workers seeking to maximize their income. During economic boom times, when the adult unemployment rate is low, these higher-paying but more time-demanding jobs may rely on the teenage workforce, especially for positions for which turnover rates are high. On the other hand, when unemployment rates rise for adult among adults, teens (and other marginal workers) tend to be the first to be pushed out (Lee and Mather 2008).

The race/ethnic distribution of all adolescent workers is depicted in Table 3.6, showing that, similar to gender, industries with the highest overall adolescent representation also have the least over-representation by any one race/ethnic group.

Table 3.6 about here[24]

Each ethnic/racial group of workers has industries in which it is over-represented, and in most cases, these areas of industrial concentration are different for each ethnic/racial group. The only exception is the construction industry, where both white and Hispanic workers are overrepresented, relative to their overall proportion in the labor force. Adolescent Hispanic workers are also over-represented in the manufacturing sector. African American young workers are over-represented in transportation and utilities industries, and Asian workers constitute a greater proportion of all youths who work in mining relative to their overall proportion in the

[23] The UWBHS data indicates that manufacturing, construction, and office-based occupations have higher wages than those in the service sectors

[24] It is important to note that workers who identify themselves as Hispanic may also select another race/ethnic group from the choices available. Thus, the overall race/ethnic composition of a given sector may be more difficult to interpret, however, the extent to which any given race/ethnic group is over (or under-) represented can still be gleaned.

adolescent workforce.). Overall these disparate areas of industrial concentration speak to a number of possible underlying determinants of industrial placement: race/ethnic residential patterns and the work opportunities available depending on one's area of residence; employer preferences; and differences in access to educational and occupational opportunities that map onto race and ethnic differences. These factors likely extend to adolescent workers captured in the UWBHS dataset, despite a lack of substantial geographic diversity inherent to a regional dataset.

Figures 3.6 and 3.7 (with data from figures presented in tables 3.6 and 3.7) further subdivide the national adolescent workforce into intersections of race/ethnicity and gender, rendering more visible the differential distribution of workers by both of those characteristics into different industrial sectors.

Figures 3.6 and 3.7 about here

Some areas of ethnic/racial over-representation are similar across genders, while others are not. For instance, both male and female white workers constitute a greater proportion of the 'other services' industrial sector than is their overall workforce proportion. Because many of the job types classified within this industrial category take place in private households, race/ethnicity may play a bigger role in selecting employees than in other industrial sectors. For African American adolescent workers, the transportation and utilities sector is one where they are over-represented. Conversely, gendered distribution of adolescents into work roles is a greater factor for the mining industry, with a substantial male Asian presence and a non-existent female Asian presence.

Another example of disparate gender patterns by industry is observable in the construction sector. While male Hispanic workers comprise a substantial proportion of this sector among males, female Hispanic workers constitute a much smaller (but non-negligible) proportion within construction. While male African American workers are under-represented in the public administration industry sector, female African American workers are substantially over-represented in that sector. Differential distribution of workers into industrial sectors along the lines of gender as well as ethnicity/race are likely influenced by disparate opportunity structures that are strongly related to ascriptive characteristics of workers.

Employment environments, like school contexts, may be those of opportunity for some, but not others. Some jobs may facilitate positive socialization by promoting the soft or non-cognitive skills that facilitate successful transitions into adulthood (including post-secondary education and career-track employment), while others may offer few such learning opportunities and encourage longer working hours, thus impeding educational achievement. Although most jobs available to high school students do not directly contribute to the accumulation of vocational knowledge or the formation of career goals, some positions may facilitate exposure to potentially attractive career paths, while others may expose students to age-segregated workplaces, and requiring little more than the performance of repetitive and rote tasks. On the other hand, it is possible that all types of paid employment may play a positive role in development of non-cognitive skills by encouraging punctuality and accountability.

Why some students find themselves in work-intensive and non-challenging positions while others are able to work fewer hours or find positions offering greater learning opportunities remains a subject of some debate in student employment literature, and this question will be explored in this chapter. Ultimately, greater certainty about relationships between student

characteristics, both ascribed and achieved and student work trajectories is a necessary antecedent to gaining an understanding of the impact of work histories on post-secondary educational attainment.

One serious challenge to exploring the independent effect of employment while in high school on college entry and attainment or other outcomes is the selection of students into work roles. Because certain student characteristics (whether related to attitude, skills, or ability) are directly related to both work patterns and educational/behavioral outcomes, some researchers have posited that any differences observed between employed and non-employed students are probably due to antecedent factors (Warren 2002). However, including direct measures of these background characteristics in empirical models may serve to affirm or reject Warren's hypothesis that the relationship between in-high school employment and post-high school achievement is due to background student heterogeneity.

Another considerable obstacle to the exploration of relationships between student characteristics, student employment experiences, and their consequences is a mostly one-dimensional representation of adolescent labor force participation. Work intensity, rather than the type of job, has been the feature of adolescent labor force participation primarily used as the measure of teen work experience for two major reasons. First, this is due to the difficulty in constructing a classification of student jobs, as the shape and structure of the teenage labor market complicates efforts to create a meaningful but not over-simplified typology. Second, the most consistent empirical relationship observed by most studies of teen workers is between high level of intensity and negative behavioral or educational outcomes. Results pertaining to lower intensity employment (i.e., less than 10 hours per week) have not been as clear cut.

Although demographic and socioeconomic characteristics have been shown to impact labor force participation patterns, there is also evidence that students take agency in deciding whether and how much to work, and these motivations underlying work-related decisions manifest in pursuits outside of the labor market (notably, educational achievement). In her interviews, Mortimer (2003) identified two groups distinguishable by their attitudes toward working, and by the benefit (or lack thereof) they receive from labor market participation. For student workers who are academically oriented, employment in adolescence may serve the purpose of providing exposure to a set of occupational and educational goals. On the other hand, employed students with a minimal investment into the educational sphere have only a vague idea of the future educational course, have not yet formed any specific occupational preferences or interests, and do not seem to gain in any way other than monetary from their labor force participation.

If the effect of labor force participation varies by type and intensity of employment, and if the system of job and labor queues for teens/adolescents is characterized by similar inequalities as those for adults, it is then conceivable that students are distributed into work roles based on background or ascriptive characteristics, as well those based on merit or effort. Alternatively, students' decision to invest more or less time into working may be responding to the financial incentives associated with working more hours in jobs that facilitate higher work intensity, thus sorting themselves into favorable or unfavorable work environments. This chapter will explore three sets of relationships: the association between employment rates and wage fluctuations, the relationship between employment rates and wage fluctuations, the association between how much students worked and the prevalent wages for each category of work intensity, and finally, the demographic composition of the workforce and the non-employed.

The Adolescent Workforce: Ascribed and Achieved Differences between Workers and Non-Workers

The tables presented in this section illustrate the distribution of achieved and ascribed student characteristics into three main employment categories: employment status (never employed, not currently employed, and currently employed), work intensity (fewer than 15 hours, or 15 or more hours), and job type (typical teen, semi-professional/technical, and labor/manual types of employment). Student characteristics depicted here fall into the following categories: demographic, socioeconomic, household, academic, and plans for the future. Although my analysis of the determinants of work patterns for students, as well as the consequences of different employment experiences will expand beyond the scope of the indicators above, they represent some of the core predictors of differential attainment, whether occupational or educational.

Briefly, Table 3.9 depicts the distribution of students into employment status and work intensity categories by achieved and ascribed characteristics, and presents preliminary evidence of differences in work patterns by these attributes. This table presents evidence of racial/ethnic stratification of the teenage workforce, in that members of racial/ethnic minorities are substantially overrepresented among the non-employed (as well as among high-intensity workers, as a subsequent table will show). The zero-sum argument for explaining work patterns is not confirmed with these descriptive patterns, since students who spend more time on homework are not overrepresented among those who do not work.

Table 3.9 about here

Of all the students who provided a response to the employment status question (N=9065), the split between working and non-working students was equal, with 23% of students reporting never having worked, and 27% of students reporting not being currently employed. 32% of the students indicated that they worked 15 hours or more per week, on average, while 18% reported working fewer than 15 hours per week. In other words, high intensity jobs were much more common among those employed at the time of the survey than working at more manageable intensity.

Race and ethnic variation in employment presented in Table 4 is consistent with previous findings, (Rothstein 2001). More specifically, a greater proportion of many of the ethnic/racial minority groups are overrepresented in the non-employed category, and underrepresented among those working fewer hours (with Vietnamese students as a notable exception). Whites, on the other hand, have the lowest proportion of those never employed compared to every other race/ethnicity.

Students' socioeconomic status (operationalized here as highest education obtained by either parent, parental employment, home ownership, and the type of school attended) also appears to play a role in their employment status. Unsurprisingly, students whose parents have higher levels of education are over-represented in the low intensity employment category. Similarly, private school students and those living in non-rented housing are also somewhat over-represented in low intensity employment.

Students' academic achievement and future goals play a role in their decisions whether and how much to engage in the labor force, although this relationship is unlikely to be simply a linear one. Specifically, students who report higher grade point averages (GPA) are somewhat

concentrated in the low intensity employment category, and conversely, under-represented in the high intensity category. However, the proportion of high achieving students who are currently employed is almost identical to the sample-wide average. The time invested into school-related activities, whether homework or extracurricular, is also related to decisions to work, and how much. Surprisingly, students who report spending more than 10 hours on extracurricular civilities are also over-represented in the low intensity employment category. Moreover, students who report the highest levels of extracurricular participation – more than 20 hours per week – are overrepresented in both the high and low intensity employment categories. Although multivariate analysis is needed to flesh out these relationships, this table provides ground for further exploration of the associations between various ascribed and achieved characteristics of students and their work roles.

Table 3.10 about here

Table 3.10 presents the distribution of working students into different employment sectors: semi-professional/technical, labor/manual and typical teen employment. The student characteristics in this table are similar to those in Table 1, with the addition of a 'Work Intensity' category. Of all employed students who provided sufficient information about their position (N= 4349), 15% worked in semi-professional/technical jobs, 16% held labor/manual jobs, and 68% were in typical teen jobs (lending credibility to that moniker).

As in the adult labor market, a gendered distribution into different occupational niches appears. Specifically, while almost one-third of all employed males are in labor/manual employment, only 7% of female employed students report having labor/manual jobs. Females are

substantially over-represented among the typical teen employees (3/4th of all females report this sort of employment compared with 58% of males) and in semi-professional/technical jobs, but to a lesser degree (18% of females report being employed in semi-professional/technical jobs compared to 11% of males). Most ethnic/racial minorities are over-represented in the typical teen jobs compared to whites, which is also consistent with more generalized labor market disadvantage experienced by non-white adults.

Students' educational achievement also appears to be related to the type of job they hold. At 23%, a greater proportion of high achievers (those with a GPA greater than 3.5) are employed in the semi-professional/technical sector than average, and conversely, a smaller than average percentage of those with a low GPA (less than 2.5) reported semi-professional/technical employment (10%). On the other hand, a greater than average proportion of low achieving students reported having labor/manual jobs. Parsing out the relationship between educational achievement and job type will require taking into accounts potential moderator characteristics. For instance, female students are more likely to hold semi-professional/technical jobs and get higher grades, confounding the relationship between achievement and employment characteristics.

The relationship between students' aspirations for the future and the nature of their employment may not be a unidirectional one, as academic orientation may impact student employment trajectories, and employment experiences may, in turn, feed back into students' views about their educational path. The association between students' educational plans after high school graduation and the type of job they hold may be illustrative of this feedback loop, with almost a quarter of students reporting having no plans for college being employed in labor/manual occupations. Because labor/manual positions are often imbedded in workplaces

where a measure of advancement is possible without continuing education after high school, students who are employed in these jobs may elect to discontinue their education and ascend the occupational ladder through work experience. Although this dataset does not allow a comparison of students' educational goals before and after job tenure, I hope to illuminate the interrelationships between work environments and students' educational trajectories in the next section, as well as in subsequent empirical chapters.

Discussion of Multivariate Results

Although descriptive table results presented above indicate a relationship between student characteristics, ascribed and achieved, and workforce participation patterns, a multivariate approach will serve to further illuminate the extent to which these relationships exist net of one another. Table 3.11 depicts the results of a multivariate analysis. The coefficients presented in this table are results of a multinomial logistic regression model, with 'Not employed' and 'High Intensity Employment' as the focal categories, and 'Low Intensity Employment' as the referent category. This table presents odds ratios of an outcome relative to a referent category, which are produced by exponentiating βs produced by the multinomial logistic regression analysis.

Table 3.11 about here

The results of this multivariate analysis confirm the descriptive results presented in Table 3.9, in that African American and Hispanic students have greater odds of either being non-employed or to be employed at a high intensity level relative to white students, than to be employed at a low/moderate level of intensity. Insofar as higher employment intensity is

associated with deleterious educational and behavioral outcomes (Greenberger and Steinberg 1986; Ruhm 1998), members of these ethnic/racial groups are more likely to experience these negative consequences given a greater likelihood of working more than 15 hours per week. While Asian students are more likely to not work than whites relative to low intensity employment, there is no significant difference in the likelihoods of working at a high intensity level between these two groups of students. Of all ethnic/racial groups, NHOPI/AIAN students appear to be at greatest risk of non-employment or high intensity employment relative to whites (whereby the former are 2.5 times more likely to not be working than whites, relative to working a more beneficial, low intensity job). Similarly, NHOPI/AIAN students are over 1.8 times more likely than whites to be engaged in the labor force at a high intensity level, relative to a low level of intensity. Insofar as non-employment or excessive work hours are associated with deleterious educational outcomes, results presented in this table indicate that, net of other pertinent characteristics, African American, Hispanic, and NHOPI/AIAN students are more likely to experience disadvantage relative to whites.

Although no direct measures of income are available for students in the UWBHS sample, parental education[25] provides a proximate source of information on the socioeconomic background of students and the resource disparities between students. Interestingly, no significant differences between students with highly educated parents and those with less educated parents exist with respect to the likelihood of working at a low intensity level relative to not working at all. A lack of statistically significant differences by socioeconomic status may stem from differentials in underlying reasons for not working among more and less privileged students. While more privileged students may be dissuaded from working due to a lack of need

[25] Parental education level is measured as captured as the highest education of either parent if both parents are present in the home.

for disposable income (in other words, because of a greater amount of disposable income available to them due to the financial resources available to their parents), less privileged students may not work due to lack of opportunities or greater household obligations. Because of these potential differences in reasons underlying non-employment of students at different socioeconomic levels, the appearance of a lack of significant relationship between socioeconomic status and the likelihood of working at a moderate level of intensity relative to not working may be deceiving.

The comparison in the odds of high vs. low intensity employment, differences in students' workforce participation by socioeconomic background become apparent. Specifically, students with more highly educated parents have significantly lower odds of working at a high intensity level than students whose parents have obtained less education. These differences are largest when comparing students whose parents have a high school diploma or less relative to students whose parents have obtained a post-graduate degree, however, even when comparing students from households with college-educated parents with those where at least one parent has a graduate or professional degree, the former group of students are significantly different from the latter in their odds of working more than 15 hours per week.

One of the most difficult questions identified in the literature on student employment and its consequences is that of causal priority, or the extent to which there is an independent effect of differential employment trajectories of students on salient outcomes. Given the potential pre-existing differences in the educational orientation of students who opt in or out of the labor force, any subsequent differences in educational (or other) outcomes can be said to be a function of these preexisting differences. By including measures of educational plans[26], as well as actual

[26] A measure of educational plans was constructed from a series of items from the Senior Survey instrument which captured information on the absence or presence of post-secondary plans for the subsequent fall, and, in cases of

grades as well as time spent on doing homework and participating in extracurricular activities, I hope to unpack these differences between non-workers, and low- and high-intensity employees in order to be able to hold constant those differences in subsequent analyses of post-secondary differences between these three groups. This will allow me to more directly identify the direction and magnitude of the independent effect, if any, of differential workforce trajectories of these students on post-secondary educational outcomes.

The relationship between educational plans reported by seniors in the UWBHS sample and their workforce participation indicates that the most educationally ambitious students – those who plan to attend a four-year university after graduating from high school – are more likely to work at a low/moderate level of intensity than to not work at all. They are also more likely to be employed at a lower level of intensity than to work a higher number of hours. While the causal nature of this association cannot be ascertained, the relationship between post-secondary plans for fall following the senior year of high school and workforce participation of students cannot be said to be a function of socioeconomic differences between students, or those in time use, educational achievement or race/ethnicity, given the multivariate nature of analysis employed here. This finding provides support to the so-called 'plus sum' view of the role of student employment, whereby time spent working may reduce time spent on unproductive activities of students, thus contributing to soft skills congruent to educational success, but may exert a deleterious effect on educational outcomes once it reaches or surpasses a certain threshold of hours (in this case, 15 hours of work per week).

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plans, captures information on up to four colleges or universities names by the respondent as potential institutions where the respondent may matriculate after high school graduation. In cases of more than one choice, the first choice was used as a primary indicator of college plans.

Table 3.11 illustrates an interesting disparity in the relationship between homework hours[27], hours spent in extracurricular activities[28] and workforce participation. While there were significant differences between those spending 20 or fewer hours per week on extracurricular activities (all categories), and those spending more than 20 hours on these activities and the odds of non-employment relative to low/moderate intensity work, these differences were not significant for different categories of time spent on homework. That is, regardless of how much time was spent on homework, students were no more or less likely to work at a low/moderate level of intensity, whereas those engaged heavily in extracurricular activities were significantly more likely to work at a lower intensity level.

The relationship between extracurricular activities, homework hours, and the odds of working longer hours relative to a more moderate work engagement also differ. The association between time spent on out-of-school homework and work intensity is as expected: greater time spent on homework is associated with greater odds of working at a lower intensity level relative to a high intensity level. The relationship between extracurricular activities and work status/hours is not as clear-cut. Somewhat paradoxically, students engaged heavily in extracurricular activities (at more than 20 hours per week) are *more* likely to also work at a high level of intensity, relative to students who spend fewer hours in extracurricular activities each week. This finding may provide indirect support for observations made in another study – that teens who work and are engaged in scholastic or extracurricular activities are choosing to spend their time in more active and productive pursuits, rather than electing to hang out with friends or play videogames extensively (Mortimer 2003).

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[27] Two items on the questionnaire capture information on the average number of hours spent on homework per week. This measure only includes hours of homework spent outside of school, given that there is a greater likelihood of a potential trade-off between time spent doing homework and time spent working.

[28] Information on time spent in extracurricular activities captured in the survey instrument includes sport and non-sport-related activities.

While time use patterns and their relationship to employment trajectories are important to consider, high school grades are a more concrete manifestation of school success, and are more directly related to the chances of drop-out and of post-secondary enrollment. Table 3.11 shows that high school grade point average levels are related to employment status and hours of work in the expected direction. Namely, students with lower grades are more likely to not work or work at a high level of intensity relative to working low/moderate hours, compared with students with higher grades (a grade point average of above a 3.5). In other words, low/moderate intensity employment and better grades are associated at a statistically significant level, providing further evidence for the plus-sum conception of the role of work on educational outcomes. The association between non-employment and lower grades may indicate an overarching disengagement from structured or positively sanctioned activities, which may explain the positive association between non-participation in extracurricular activities and non-employment.

Although the students in the UWBHS sample hail from a relatively constrained geographical area, differences in neighborhood or city of residence may produce some disparities in job opportunities, thus, may result in somewhat different workforce participation patterns. While no direct measure of geographical differences are included in these analyses, an indirect indicator of potential geographical differences, as well as socioeconomic ones, are captured through by including school districts (and public/private school distinctions) as covariates in the model of employment status and work intensity. Significant differences exist between students in each of the four city/school type categories, and can be mostly explained by the socioeconomic differences between the school categories. Specifically, students in the upper-middle class public high schools used as the referent category are more likely to be employed than students from less privileged (on average) school districts, or, than students from the private schools. This

relationship can be explained similarly to that observed between parental educational levels and the likelihood of non-employment relative to working at a low level of intensity. Students from less privileged schools may lack the opportunities to find jobs at more moderate levels of intensity, or may seek jobs that allow a greater level of income due to need. Students from more privileged high schools may lack the need to work, and may be actively discouraged from workforce participation. Similarly, students from the most underprivileged high schools are more likely to work longer hours than students from middle-class high schools, while private school students are significantly more likely to work low/moderate hours relative to longer hours, compared to students from middle class public high schools.

Finally, Table 3.12 presents results from a similarly structured analysis to that presented in Table 3.11, with the type of employment as the outcome of interest. As in Table 3.11, this table presents the ratio of odds for an outcome relative to a referent category per one unit increase in each predictor associated with the coefficient. Unlike Table 3.11, the results presented here are based on an analysis of only those students who reported being employed at the time of the survey.

Table 3.12 about here

While most of the covariates utilized in the analysis of employment status and work intensity are also present in the model of job type presented in Table 3.12, a few significant additions are present here. First, gender is added into the model, given the descriptive results presented in earlier tables. If the distribution into job-types is gendered, it is important to account for this characteristic in order to parse out the independent impact of gender on job type as well as to determine the impact of other student characteristics on job type, net of gender. The second

important addition is that of work hours. Given the potential overlapping relationship between work hours and job type, controlling for work intensity in this examination of student characteristics on job type precludes the analysis from conflating the relationship between antecedent student characteristics and job type with that between student characteristics and work intensity.

The relationship between gender and the type of work engaged in by student workers is particularly striking in comparing the odds of holding semi-professional jobs relative to those of holding a labor/manual job. Although some physical attributes may preclude female students from holding some of the jobs in the 'labor/manual' category, not all jobs in that category are prohibitively physically demanding. However, female students have 86% lower odds of holding a job in this category relative to semi-professional/technical jobs. Female students are also somewhat less likely to hold a typical teen job relative to male students, although the magnitude and significance of this difference is substantially lower than that between labor/manual jobs and semi-professional/technical jobs.

Unlike the relationship between race/ethnicity and employment status/intensity, the association between students' race/ethnic status and the type of work they hold is almost non-existent. Only two significant differences between white students and those who are members of ethnic/racial minorities are apparent. The first is between African Americans and Whites with respect to the likelihood of working in a typical teen job vs. a more advantageous job in the semi-professional/technical category, with African Americans significantly more likely to work in the former relative to white students. The other significant disparity in the types of jobs held by members of different race/ethnic groups is that between whites and Asians, whereby Asian students are significantly less likely to work in labor/manual jobs relative to semi-

professional/technical jobs, compared to white students. Given the descriptive results presented in earlier tables, this is not surprising.

While employment status and work intensity are strongly related to the socioeconomic background of students (insofar as it is captured by parental education), the magnitude of the differences in the odds of holding better or worse jobs by parental education is substantially higher. This may indicate differential access to network resources by educated parents, allowing better placement of students into more advantageous jobs by parents who do have access to such resources. Students whose parents have less than a high school diploma are over two times more likely to hold a job in the typical teen sector or the blue collar sector relative to a job in the semi-professional sector, compared with students with highly educated parents. While differences between students with less educated parents attenuate with each additional level of educational attainment (from some high school diploma, to some college, to a four-year degree), they remain significant, and relatively sizable.

Students with no plans to enroll in a post-secondary institution, those without solid plans of enrollment, or those with plans to attend a community college after graduating from high school have higher odds of holding typical teen or labor/manual jobs, relative to the 'better' jobs in the semi-professional/technical category.

Interestingly, while extracurricular activity participation played a significant role in the odds of non-work, low/moderate intensity or high intensity work, hours spent on extracurricular activities exerts *no effect whatsoever* on the likelihood of holding better or worse jobs. This may be an indirect indicator of differential mechanisms underlying the relationship between the decision to engage in the labor force and the factors that lead to greater or lesser intensity employment, and factors that produce job-type differences between students.

Although the vast majority of the associations between lower and higher amounts of time spent on homework outside of school do not reach statistical significance, the relationship between greater hours spent on homework and holding a more beneficial job is positive. Somewhat surprisingly, this relationship is statistically significant for the groups closest to the referent group – that is, those who spend between 1.4 and 5.5 hours a week on homework are significantly more likely to have typical teen jobs or labor/manual jobs relative to better, semi-professional jobs, compared to those who spend more than 5.5 hours a week on homework, while the difference between those who spend less than 1.5 hours per week on homework and those in the highest homework-engagement category is not statistically significant. This non-significant result may be indicative of a null relationship, or could be a product of small sample size.

As with homework hours and post-secondary educational plans, students receiving lower grades in high school are more likely to be employed in a typical teen or labor/manual job than a semi-professional job.

No significant differences exist between students attending public and private schools, or those attending schools in different school districts within the sampled geographical area.

Finally, the relationship between work hours and the type of job is substantial in magnitude and significant statistically, net of all other characteristics of students. Students working at a high level of intensity are more likely to be in either typical teen jobs, or those in the labor/manual sector relative to semi-professional jobs, compared with students engaged in the labor force at a low level of intensity. This is a particularly thorny relationship to disentangle, given that work hours are often a function of the type of job one holds, rather than a predictor of that job type. However, it is possible that students seek out work that fits within a desired

framework of time-use, whereby students looking for greater hours will likely end up in typical teen jobs, such as fast food cashiers, cooks, or retail workers. On the other hand, students seeking a more measured entry into the labor force may end up in jobs which facilitate a lower level of intensity of work.

Conclusion

This chapter presents unambiguous evidence of social stratification in the work roles of teenage high school students. Gender, race/ethnic background, as well as educational engagement are strongly related with observed work patterns, especially the hours worked by student employees. Ascribed and achieved student characteristics were shown to be also related with the type of job that student workers held, although to a lesser extent (as expressed by coefficient magnitudes and significance in multivariate models) than with work intensity.

Gender plays a minor role as a predictor of holding a job and the number of hours worked for students, however, it is strongly related to the type of job held by students. National adolescent workforce figures presented in Tables 3.5 and 3.7/3.8 indicate that there are substantial disparities in the distribution of adolescents into jobs by gender.

Race/ethnicity is more strongly related to employment status and intensity, with white students having higher odds of working fewer hours relative to members of race/ethnic minorities. Whites are also more likely to hold better jobs relative to African Americans, while Asians are more likely to hold better jobs relative to whites (when comparing labor/manual and semi-professional job types). These differences are congruent in the national-level industrial sector data presented in Tables 3.6 and 3.7/3.8.

Educational engagement or orientation is reflected in four predictors used in multivariate models presented in Tables 3.11 and 3.12: post-secondary plans, extracurricular activity hours, homework hours, and high school GPA. The inclusion of time spent on homework and extracurricular activities also provides an indirect test of the zero-sum vs. plus-sum approaches to understanding the mechanism underlying the impact of workforce participation on educational outcomes. Except for the case of higher extracurricular hours being associated with higher work hours, higher grades, more time spent on homework, and plans to go to a four-year college after graduating from high school are associated with a more beneficial pattern of labor force participation, distinguished by lower hours of work (compared to non-employment or high intensity employment) and holding better jobs.

The relationship between work status/hours and job type, while strong is not overwhelming. Furthermore, the relationship between identical predictors used in models of employment status/intensity and type of work held by students were similar in some cases, but different in others. This may indicate somewhat different antecedents, and possibly, consequences, of these two major dimensions of workforce participation for students.

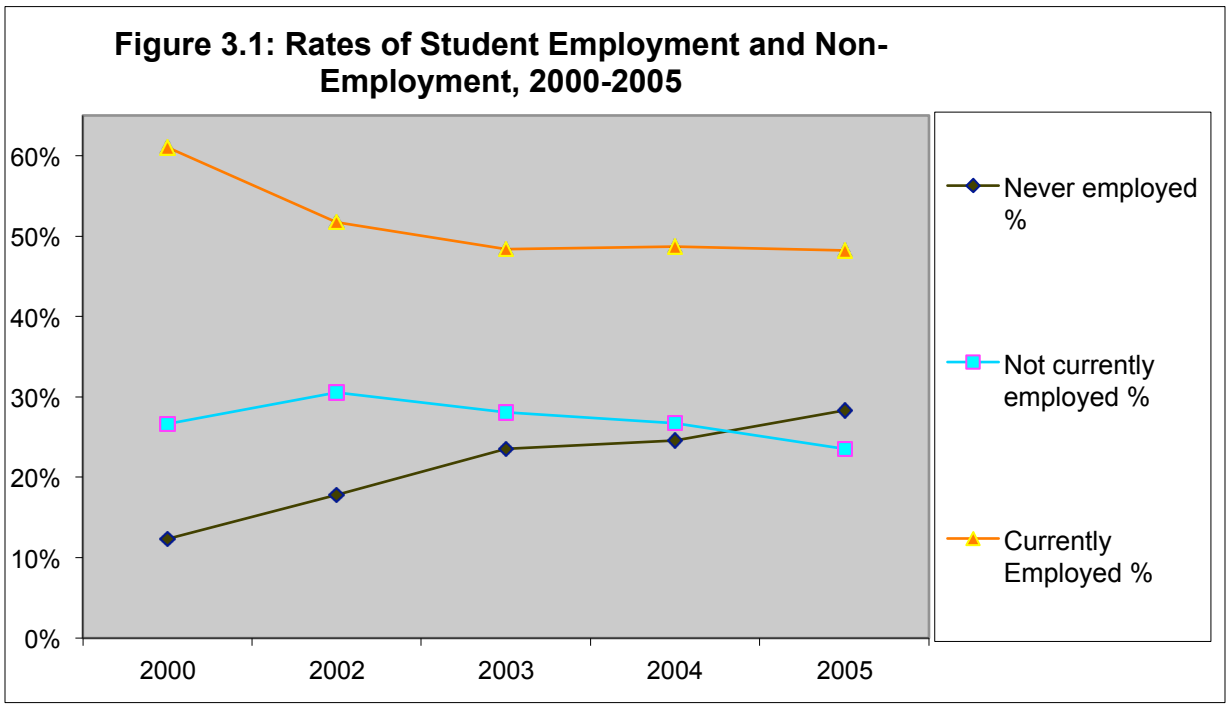
Figure 3.1: Rates of Student Employment and Non-Employment, 2000-2005
60%
50%
40%
30%
20%
10%
0%
2000
2002
2003
2004
2005
Never employed %
Not currently employed %
Currently Employed %

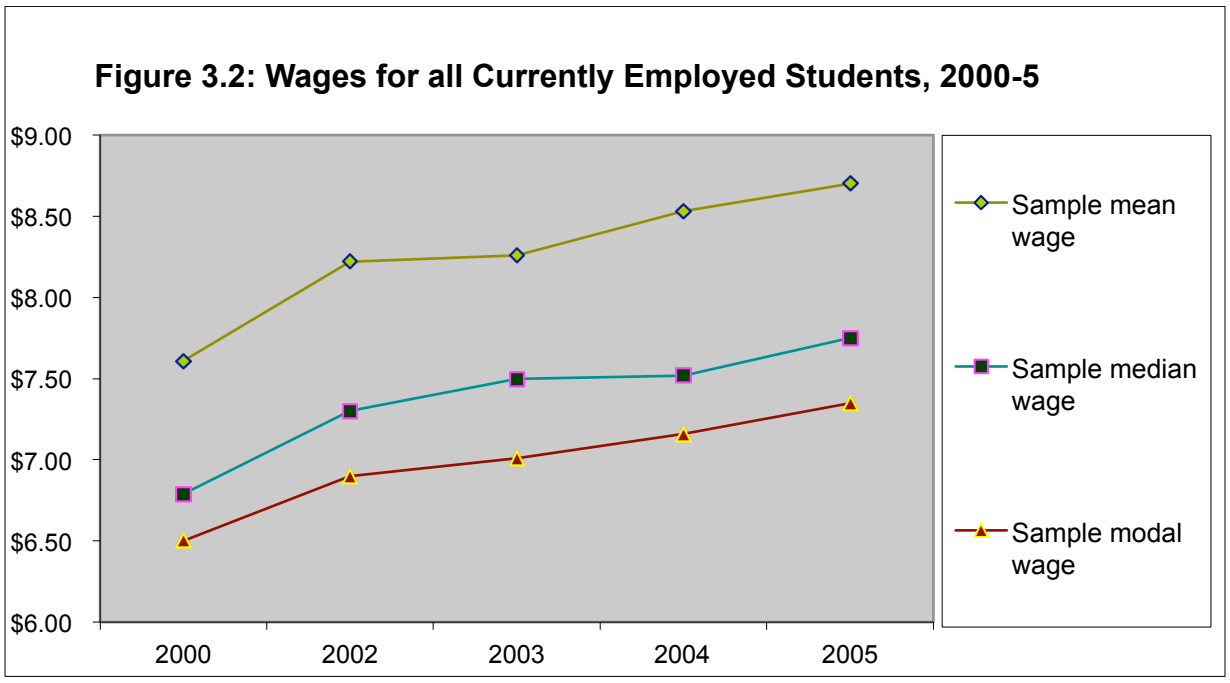
Figure 3.2: Wages for all Currently Employed Students, 2000-5
$9.00
$8.50
$8.00
$7.50
$7.00
$6.50
$6.00
2000
2002
2003
2004
2005
Sample mean wage
Sample median wage
Sample modal wage

Figure 3.3: Rates of Non-Employment, and Work Intensity, 2000-2005

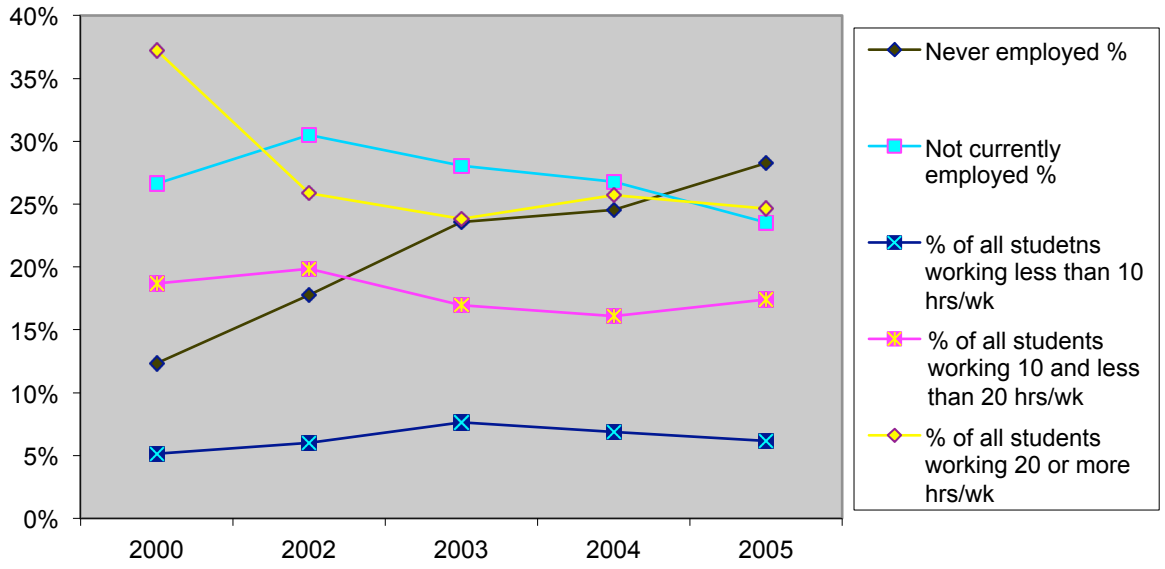

Figure 3.4: Wages of Currently Employed Student Workers, by Work Intensity, 2000-5

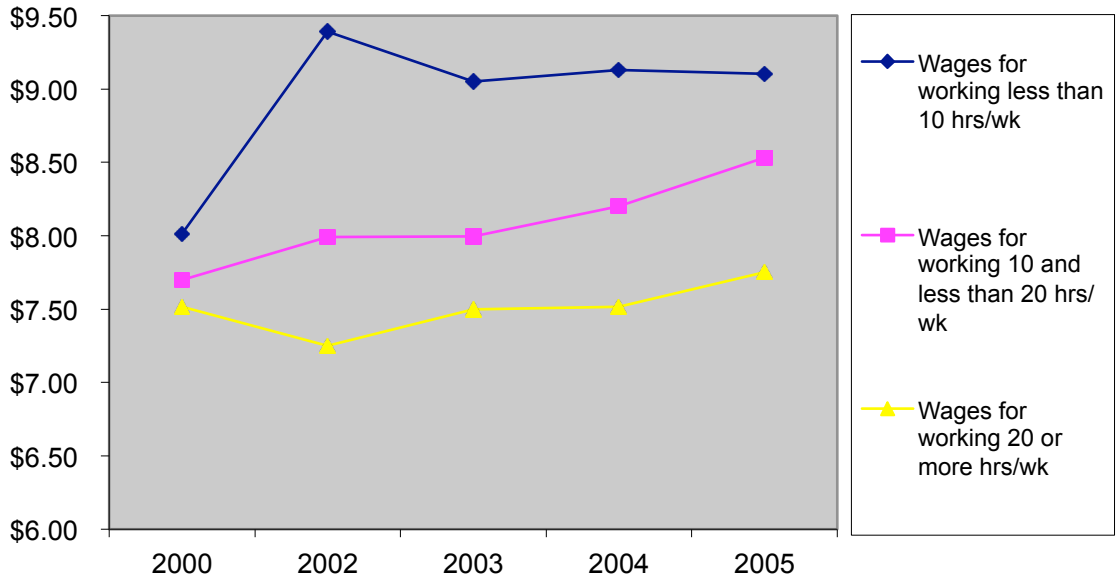

Figure 3.5: Work Intensity Among Employed Students, 2000-5

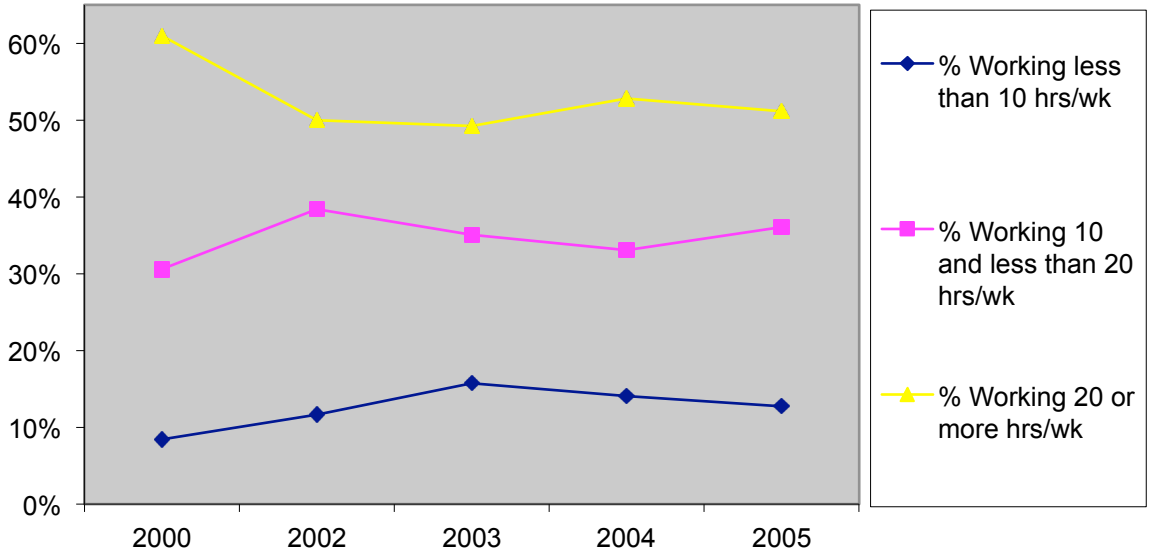

Figure 3.6: Race/Ethnic Composition of All Male Employees 16-19 Years of Age Within Each Non-Agricultural Industry Category

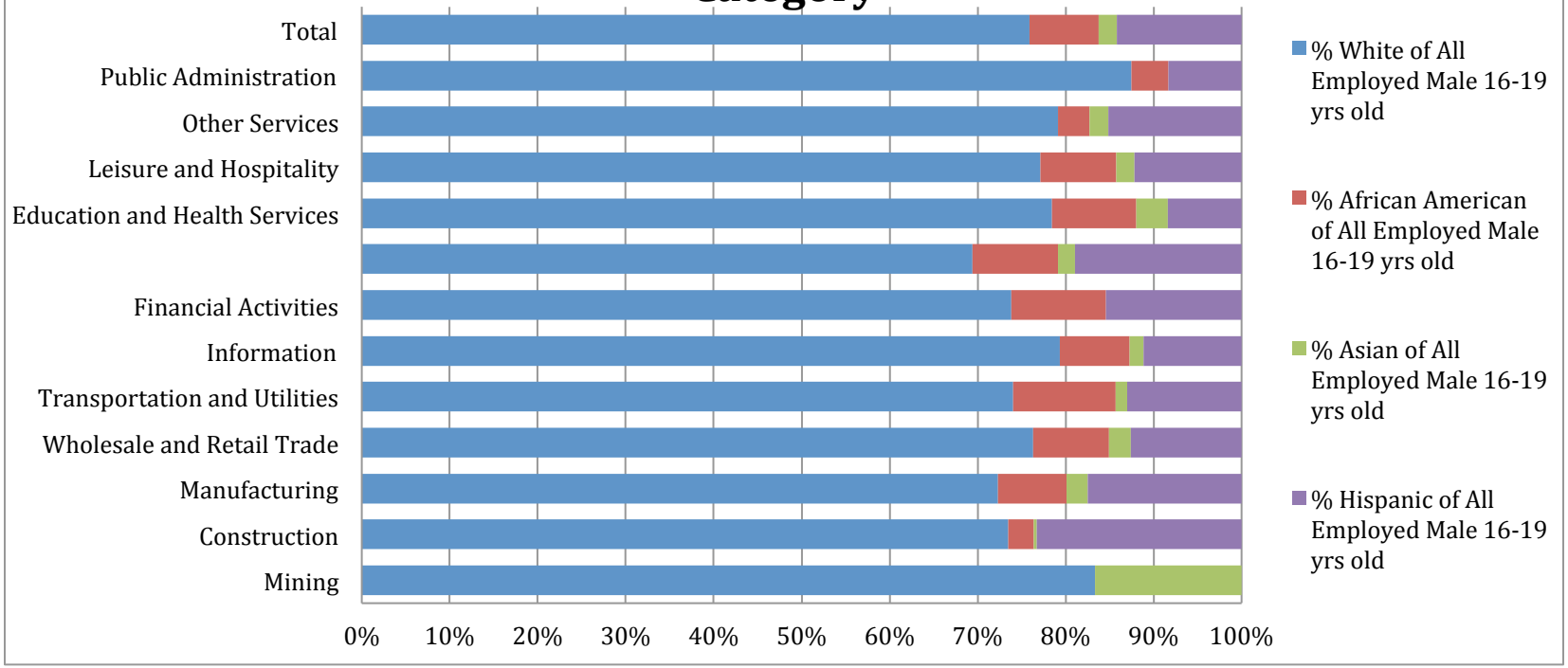

Figure 3.7: Race/Ethnic Composition of All Female Employees 16-19 Years of Age Within Each Non-Agricultural Industry Category

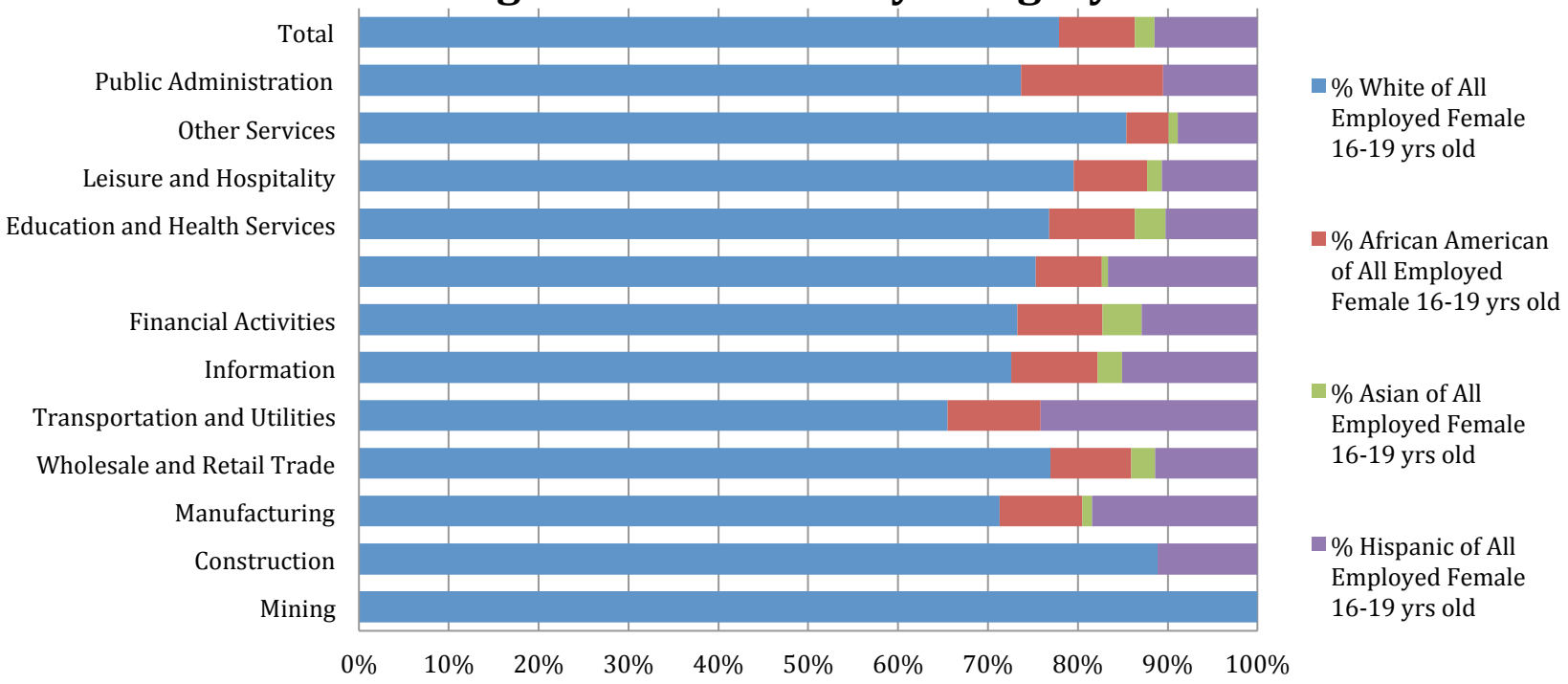

Table 3.1: Rates of Student Employment and Non-Employment, 2000-2005

	2000	2002	2003	2004	2005
Never employed N	132	198	547	547	644
Never employed %	12%	18%	24%	25%	28%
Not currently employed N	285	340	651	596	536
Not currently employed %	27%	31%	28%	27%	24%
Currently Employed N	653	576	1124	1084	1097
Currently Employed %	61%	52%	48%	49%	48%
Total N	1070	1114	2322	2227	2277

Table 3.2: Wages for All Currently Employed Students, 2000-2005

	2000	2002	2003	2004	2005
WA state minimum wage	$6.50	$6.90	$7.01	$7.16	$7.35
Sample Mean	$7.61	$8.22	$8.26	$8.53	$8.70
Difference between mean and WA state minimum wage	$1.11	$1.32	$1.25	$1.37	$1.35
Sample Median Wage	$6.79	$7.30	$7.50	$7.52	$7.75
Sample Modal Wage	$6.50	$6.90	$7.01	$7.16	$7.35
Bottom Wage Decile	$6.50	$6.90	$7.01	$7.16	$7.35
Top Wage Decile	$8.86	$10.00	$10.00	$11.00	$10.50
Total N reported wages	604	518	964	923	933
Total Missing N	49	58	160	161	164

Table 3.3: Proportion of Employed Students in Work Intensity Categories (original and alternative coding), 2000-2005

	2000	2002	2003	2004	2005
Original Coding of Work Intensity					
% Working 10 hrs/wk or less	12%	18%	21%	20%	19%
% Working between 11 and 20 hrs/wk	46%	48%	46%	45%	48%
% Working more than 20 hrs/wk	42%	33%	33%	36%	33%
Alternative Coding of Work Intensity					
% Working less than 10 hrs/wk	8%	12%	16%	14%	13%
% Working 10 and less than 20 hrs/wk	31%	38%	35%	33%	36%
% Working 20 or more hrs/wk	61%	50%	49%	53%	51%

Table 3.4: Wages of Currently Employed Students, by Work Intensity (original and alternative coding), 2000-2005

	2000			2002			2003			2004			2005		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Original Coding of Work Intensity															
Wages for working 10 hrs/wk or less	$7.90	$7.00	70	$8.94	$7.65	90	$8.84	$8.00	209	$8.90	$8.00	176	$9.17	$8.10	174
Wages for working between 11 and 20 hrs/wk	$7.55	$6.66	282	$7.90	$7.10	250	$7.95	$7.33	450	$8.19	$7.50	415	$8.35	$7.59	448
Wages for working more than 20 hrs/wk	$7.61	$6.95	252	$8.29	$7.42	178	$8.31	$7.50	305	$8.77	$7.66	332	$8.94	$8.94	311
Alternative Coding of Work Intensity															
Wages for working less than 10 hrs/wk	$8.02	$7.00	49	$9.39	$7.57	58	$9.05	$8.00	157	$9.13	$8.00	124	$9.10	$8.25	112
Wages for working 10 and less than 20 hrs/wk	$7.70	$6.60	187	$7.99	$7.25	197	$7.99	$7.33	344	$8.20	$7.50	309	$8.53	$7.65	348
Wages for working 20 or more hrs/wk	$7.52	$6.85	368	$8.12	$7.25	263	$8.18	$7.50	463	$8.59	$7.52	490	$8.73	$7.75	473
Overall	$7.61	$6.79	604	$8.22	$7.30	518	$8.26	$7.50	964	$8.53	$7.52	923	$8.70	$7.75	933

Table 3.5. Total Number (in Thousands) and Percent Within Each Non-Agricultural Industry of All Workers Aged 16-19, With Comparison by Gender: United States, 2005

	All Employed 16+	All Employed 16-19	Percent 16-19	Total Male 16-19	Percent Male of all 16-19	Total Female 16-19	Percent Female of all 16-19
Mining	624	7	1.1%	6	**85.7%**	1	14.3%
Construction	11197	294	2.6%	270	**91.8%**	24	8.2%
Manufacturing	16253	249	1.5%	174	**69.9%**	75	30.1%
Wholesale and Retail Trade	21405	1664	**7.8%**	807	48.5%	857	51.5%
Transportation and Utilities	7360	93	1.3%	70	**75.3%**	23	24.7%
Information	3402	122	3.6%	58	47.5%	64	52.5%
Financial Activities	10203	163	1.6%	56	34.4%	107	**65.6%**
Professional and Business Services	14294	301	2.1%	171	**56.8%**	130	43.2%
Education and Health Services	29174	597	2.0%	160	26.8%	438	**73.4%**
Leisure and Hospitality	12071	2043	**16.9%**	931	45.6%	1111	54.4%
Other Services	7020	302	4.3%	120	39.7%	182	**60.3%**
Public Administration	6530	42	0.6%	24	**57.1%**	18	42.9%
TOTAL	**139533**	**5877**	**4.2%**	**2847**	**48.4%**	**3030**	**51.6%**

Note 1: Bolded cells denote industry categories with substantial over-representation for each group

Note 2: Estimates for the above race groups (white, black or African American, and Asian) do not sum to totals because data are not presented for all races. In addition, persons whose ethnicity is identified as Hispanic or Latino may be of any race and, therefore, are classified by ethnicity as well as by race.

Source: 2005 Current Population Survey, available online at: ftp://ftp.bls.gov/pub/special.requests/lf/aa2005/pdf/cpsaat14.pdf

Table 3.6. Total Number (in Thousands) and Percent Within Each Non-Agricultural Industry of All Workers Aged 16-19, With Comparison by Race/Ethnicity United States, 2005

	All Employed 16-19	**All White Employees 16-19**	**% White of All Employed 16-19**	**All African American**	**% African American of All Employed 16-19**	**All Asian**	**% Asian of All Employed 16-19**	**All Hispanic**	**% Hispanic of All Employed 16-19**
Mining	7	6	86%	0	0%	1	**14%**	0	0%
Construction	294	273	**93%**	10	3%	1	0%	82	**28%**
Manufacturing	249	211	85%	24	10%	6	2%	52	**21%**
Wholesale and Retail Trade	1664	1411	85%	162	10%	47	3%	221	13%
Transportation and Utilities	93	76	82%	12	**13%**	1	1%	17	18%
Information	122	103	84%	12	10%	3	2%	18	15%
Financial Activities	163	133	82%	18	11%	5	3%	25	15%
Professional and Business Services	301	256	85%	31	10%	5	2%	64	**21%**
Education and Health Services	597	492	82%	61	10%	22	4%	62	10%
Leisure and Hospitality	2043	1737	85%	186	9%	41	2%	251	12%
Other Services	302	274	**91%**	14	5%	5	2%	38	13%
Public Administration	42	35	83%	4	10%	0	0%	4	10%
	5877	**5007**	**85%**	**534**	**9%**	**137**	2%	**834**	14%

Table 3.7. Total Number (In Thousands) and Percent Within Each Non-Agricultural Industry of All Male Workers Aged 16-19, With Comparison by Race/Ethnicity United States, 2005

	Male 16-19 yrs. old								
	Total	**White**	**% White of All Employed Male 16-19 yrs. old**	**African American**	**% African American of All Employed Male 16-19 yrs. old**	**Asian**	**% Asian of All Employed Male 16-19 yrs. old**	**Hispanic**	**% Hispanic of All Employed Male 16-19 yrs. old**
Mining	6	5	83%	0	0%	1	**17%**	0	0%
Construction	270	249	**92%**	10	4%	1	0%	79	**29%**
Manufacturing	174	149	86%	16	9%	5	3%	36	**21%**
Wholesale and Retail Trade	807	684	85%	77	10%	22	3%	113	14%
Transportation and Utilities	70	57	81%	9	**13%**	1	1%	10	14%
Information	58	50	86%	5	9%	1	2%	7	12%
Financial Activities	56	48	86%	7	**13%**	0	0%	10	18%
Professional and Business Services	171	143	84%	20	**12%**	4	2%	39	**23%**
Education and Health Services	160	131	82%	16	10%	6	**4%**	14	9%
Leisure and Hospitality	931	786	84%	88	9%	21	2%	124	13%
Other Services	120	110	**92%**	5	4%	3	3%	21	18%
Public Administration	24	21	88%	1	4%	0	0%	2	8%
Total	**2847**	**2433**	**85%**	**254**	**9%**	**65**	**2%**	**455**	**16%**

Table 3.8. Total Number (In Thousands) and Percent Within Each Non-Agricultural Industry of All Female Workers Aged 16-19, With Comparison by Race/Ethnicity United States, 2005

	Female 16-19 yrs. old								
	Total	**White**	**% White of All Employed Female 16-19 yrs. old**	**African American**	**% African American of All Employed Female 16-19 yrs. old**	**Asian**	**% Asian of All Employed Female 16-19 yrs. old**	**Hispanic**	**% Hispanic of All Employed Female 16-19 yrs. old**
Mining	1	1	**100%**	0	0%	0	0%	0	0%
Construction	24	24	**100%**	0	0%	0	0%	3	13%
Manufacturing	75	62	83%	8	11%	1	1%	16	**21%**
Wholesale and Retail Trade	857	727	85%	85	10%	25	3%	108	13%
Transportation and Utilities	23	19	83%	3	**13%**	0	0%	7	**30%**
Information	64	53	83%	7	11%	2	3%	11	17%
Financial Activities	107	85	79%	11	10%	5	**5%**	15	14%
Professional and Business Services	130	113	87%	11	8%	1	1%	25	**19%**
Education and Health Services	438	361	82%	45	10%	16	**4%**	48	11%
Leisure and Hospitality	1111	951	86%	98	9%	20	2%	127	11%
Other Services	182	164	**90%**	9	5%	2	1%	17	9%
Public Administration	18	14	78%	3	**17%**	0	0%	2	11%
Total	**3030**	**2574**	**85%**	**280**	**9%**	**72**	**2%**	**379**	**13%**

Table 3.9: Distribution of Students into Employment Status and Intensity Categories for Washington State High School Seniors 2000-2005

	% Not Employed		% Employed		Total N	% in Category
	% Never Employed	% Not Employed Currently	% Working < 15 hours/week	% Working 15 or more hours/week		
Demographic Characteristics						
GENDER						
Female	22%	25%	20%	34%	5038	56%
Male	25%	30%	16%	30%	4011	44%
Not Reported	--	--	--	--	16	0%
						100%
RACE/ETHNICITY						
White & NEC	20%	26%	21%	33%	5177	57%
African American	24%	31%	12%	32%	1213	13%
Hispanic (Mexican and Other)	24%	27%	14%	35%	734	8%
Asian						
East Asian	34%	26%	16%	24%	675	7%
Cambodian	25%	25%	15%	35%	203	2%
Vietnamese	24%	29%	24%	23%	254	3%
Filipino	32%	26%	14%	28%	392	4%
AIAN/NHOPI	29%	28%	13%	30%	414	5%
Not Reported	--	--	--	--	3	0%
						100%
NATIVITY						
1st Generation	22%	29%	17%	31%	1197	13%
2nd Generation	22%	27%	19%	32%	1393	16%
3rd + Generation	22%	27%	19%	32%	6364	71%
Not Reported	--	--	--	--	111	1%
						100%
Socioeconomic Characteristics						
HIGHEST EDUCATION OF PARENT						
Less than HS diploma	27%	28%	13%	33%	582	6%
HS diploma	23%	25%	14%	38%	1396	15%
Some college	22%	25%	18%	35%	3312	37%
BA/BS	22%	27%	21%	30%	1791	20%
Advanced Degree	24%	31%	23%	23%	1825	20%
Not Reported	--	--	--	--	159	2%
						100%
PARENTAL EMPLOYMENT**						
Both parents or guardians unemployed	29%	24%	11%	35%	348	4%
One parent or guardian unemployed	27%	27%	16%	29%	2611	29%
Both parents or guardians employed	20%	27%	20%	33%	5408	60%
Not reported	--	--	--	--	698	8%
						100%
HOME OWNERSHIP						

Rents Home	24%	29%	13%	34%	2247	25%
Owns Home	22%	26%	21%	31%	6265	69%
Not Reported	--	--	--	--	553	6%
						100%
SCHOOL						
Public District 1	21%	27%	17%	35%	5333	59%
Private District 1	27%	34%	26%	13%	907	10%
Public District 2	31%	23%	15%	32%	932	10%
Public District 3	22%	25%	20%	33%	1827	20%
Other/Alternative	23%	41%	6%	30%	66	1%
						100%
Household Characteristics						
FAMILY INTACTNESS						
One-parent household	22%	26%	15%	37%	3483	38%
Two-parent household	24%	27%	21%	28%	5377	59%
Not Reported	--	--	--	--	205	2%
						100%
SIBSHIP						
Only child	27%	26%	19%	28%	470	5%
1 sibling	24%	27%	21%	28%	2544	28%
2 sibling	23%	27%	19%	32%	2187	24%
3 or more siblings	22%	27%	17%	35%	3537	39%
Not Reported	--	--	--	--	327	4%
						100%
Academic Characteristics						
GRADE POINT AVERAGE						
LE 2.5	25%	29%	12%	34%	2594	29%
GT 2.5 and LE 3.0	20%	28%	17%	35%	1496	17%
GT 3.0 and LE 3.5	21%	25%	20%	34%	2684	30%
GT 3.5	24%	25%	25%	26%	2168	24%
Not Reported	--	--	--	--	123	1%
						100%
AP/HONOR/ IB COURSES						
Have Never Taken	25%	27%	14%	33%	3816	42%
Have Taken or Currently Enrolled	23%	26%	23%	28%	4026	44%
Not Reported	--	--	--	--	1223	14%
						100%
EXTRACURRICULAR ACTIVITIES						
Not Participating	24%	26%	13%	36%	3233	36%
BW 1 and 5 hours/week	26%	26%	19%	29%	1424	16%
BW 5 and 10 hours/week	24%	27%	19%	30%	1084	12%
BW 10 and 20 hours/week	22%	29%	23%	26%	2151	24%
More than 20 hours/week	17%	25%	22%	37%	1183	13%
						100%
HOMEWORK HOURS						
None	19%	27%	15%	39%	809	9%
LT 2.5 hours/week	21%	26%	17%	36%	4221	47%
BW 2.5 and 5.5 hours/week	24%	27%	18%	30%	1654	18%
BW 5.5 and 9.5 hours/week	26%	28%	23%	23%	1414	16%
GT 9.5 hours/week	26%	29%	22%	22%	643	7%
Not Reported	--	--	--	--	324	4%

Plans for the future

EXPECTED AGE AT FIRST BIRTH						
Already have child	18%	42%	8%	32%	149	2%
21 or before	24%	33%	8%	35%	413	5%
Between 22 and 25	21%	25%	16%	38%	3462	38%
Between 26 and 30	22%	26%	23%	29%	3472	38%
After 30	27%	29%	20%	24%	758	8%
Not expecting to have a child	31%	29%	16%	24%	680	8%
Not Reported	--	--	--	--	130	1%
						100%
EDUCATIONAL EXPECTATIONS						
Some College (up to a 2-year degree)	24%	27%	12%	37%	2580	28%
Bachelor's Degree	22%	26%	20%	32%	3158	35%
Graduate/Professional Degree	23%	27%	23%	27%	2601	29%
Not Reported	--	--	--	--	726	8%
						100%
EDUCATIONAL PLANS						
No Plans for College Next Fall	25%	29%	12%	34%	985	11%
Not Sure	27%	27%	11%	35%	799	9%
Plans for College next fall	22%	27%	20%	31%	6952	77%
Not Reported	--	--	--	--	329	4%
						100%
YEAR						
2000	12%	27%	16%	45%	1085	12%
2002	18%	31%	19%	32%	1128	12%
2003	24%	28%	19%	30%	2330	26%
2004	24%	27%	18%	30%	2237	25%
2005	28%	24%	19%	30%	2285	25%
TOTAL	23%	27%	18%	32%	9065	100%

*Note: 502 cases with missing employment status information and 90 cases with missing work hours information was excluded from this table.

**Note: Parental Employment Variable includes those in non-intact households, but does not include those who reported having no parental figures (these cases are enumerated in 'Not Reported' category)

Table 3.10: Distribution of Working Students into Constructed Job Type Categories, for Washington State High School Seniors 2000-2005

	Semi-Professional/Technical	Labor/Manual	Typical Teen Employment	Total N	% in Category
Demographic Characteristics					
GENDER					
Female	18%	7%	75%	2613	60%
Male	11%	31%	58%	1729	40%
Not Reported	--	--	--	--	100%
RACE/ETHNICITY					
White & NEC	16%	18%	66%	2696	62%
African American	9%	13%	78%	519	12%
Hispanic (Mexican and Other)	15%	12%	73%	336	8%
Asian					
East Asian	21%	13%	65%	260	6%
Cambodian	9%	14%	77%	98	2%
Vietnamese	17%	15%	69%	109	3%
Filipino	14%	14%	72%	157	4%
AIAN/NHOPI	14%	17%	69%	174	4%
Not Reported	--	--	--	--	0%
					100%
1st Generation	15%	16%	70%	561	13%
2nd Generation	18%	13%	70%	694	16%
3rd + Generation	15%	17%	68%	3094	71%
Not Reported	--	--	--	--	0%
					100%
Socioeconomic Characteristics					
HIGHEST EDUCATION OF PARENT					
Less than HS diploma	9%	14%	78%	247	6%
HS diploma	10%	17%	73%	693	16%
Some college	14%	17%	69%	1665	38%
BA/BS	18%	17%	65%	886	20%
Advanced Degree	24%	15%	62%	792	18%
Not Reported	--	--	--	66	2%
					100%
PARENTAL EMPLOYMENT**					
Both parents or guardians unemployed	9%	14%	77%	147	3%
One parent or guardian unemployed	16%	16%	68%	1148	26%
Both parents or guardians employed	16%	17%	67%	2760	63%
Not reported	--	--	--	294	7%
					100%
HOME OWNERSHIP					
Rents Home	12%	15%	73%	996	23%
Owns Home	17%	17%	66%	3125	72%
Not Reported	--	--	--	228	5%
					100%
SCHOOL					
Public District 1	13%	15%	72%	2642	61%

Private District 1	26%	20%	54%	349	8%
Public District 2	16%	19%	64%	408	9%
Public District 3	17%	16%	67%	926	21%
Other/Alternative	17%	25%	58%	24	1%
Household Characteristics					
FAMILY INTACTNESS					
One-parent household	13%	16%	71%	1746	40%
Two-parent household	17%	16%	66%	2520	58%
Not Reported	--	--	--	83	2%
					100%
SIBSHIP					
Only child	20%	16%	65%	210	5%
1 sibling	19%	16%	65%	1188	27%
2 sibling	15%	18%	67%	1068	25%
3 or more siblings	13%	15%	71%	1759	40%
Not Reported	--	--	--	124	3%
					100%
Academic Characteristics					
GRADE POINT AVERAGE					
LE 2.5	10%	21%	70%	1137	26%
GT 2.5 and LE 3.0	13%	19%	68%	743	17%
GT 3.0 and LE 3.5	16%	13%	70%	1366	31%
GT 3.5	23%	13%	65%	1055	24%
Not Reported	--	--	--	48	1%
AP/HONOR/ IB COURSES					
Have Never Taken	11%	18%	70%	1700	39%
Have Taken or Currently Enrolled	20%	14%	66%	1951	45%
Not Reported	--	--	--	698	16%
					100%
EXTRACURRICULAR ACTIVITIES					
Not Participating	12%	16%	72%	1521	35%
BW 1 and 5 hours/week	16%	14%	70%	657	15%
BW 5 and 10 hours/week	18%	15%	67%	505	12%
BW 10 and 20 hours/week	18%	17%	65%	994	23%
More than 20 hours/week	17%	18%	65%	672	15%
					100%
HOMEWORK HOURS					
None	10%	19%	70%	396	9%
LT 2.5 hours/week	13%	17%	70%	2114	49%
BW 2.5 and 5.5 hours/week	15%	16%	69%	765	18%
BW 5.5 and 9.5 hours/week	22%	13%	65%	642	15%
GT 9.5 hours/week	26%	13%	61%	277	6%
Not Reported	--	--	--	155	4%
Plans for the future					
EXPECTED AGE AT FIRST BIRTH					
Already have child	13%	13%	75%	55	1%
21 or before	7%	15%	78%	165	4%
Between 22 and 25	13%	17%	71%	1788	41%

Between 26 and 30	18%	17%	66%	1714	39%
After 30	23%	14%	63%	318	7%
Not expecting to have a child	16%	14%	71%	257	6%
Not Reported	--	--	--	52	1%
					100%
EDUCATIONAL EXPECTATIONS					
Some College (up to a 2-year degree)	9%	19%	72%	1202	8%
Bachelor's Degree	15%	16%	68%	1565	28%
Graduate/Professional Degree	21%	13%	66%	1253	36%
Not Reported	--	--	--	329	29%
					100%
EDUCATIONAL PLANS					
No Plans for College Next Fall	9%	24%	67%	428	10%
Not Sure	10%	16%	74%	347	8%
Plans for College next fall	17%	15%	68%	3408	78%
Not Reported	--	--	--	166	4%
					100%
YEAR					
2000	11%	19%	70%	640	15%
2002	14%	14%	72%	556	13%
2003	18%	17%	65%	1022	23%
2004	17%	16%	67%	1049	24%
2005	14%	16%	70%	1082	25%
					100%
WORK STATUS					
Currently Employed at 15 hours./week or less	25%	15%	60%	1585	36%
Currently Employed at more than 15 hours/week	10%	17%	73%	2764	64%
TOTAL	15%	16%	68%	4349	100%

*Note: 502 cases with missing employment status information and 90 cases with missing work hours information was excluded from this table. Another 204 cases with missing job type were excluded.
**Note: Parental Employment Variable includes those in non-intact households, but does not include those who reported having no parental figures (these cases are enumerated in 'Not Reported' category)

Table 3.11: Multinomial Logistic Regression of Determinants of Non-Employment and High Intensity Employment Relative to Low/Moderate Intensity Employment, 2000-2005

	Not Employed		High Intensity Employment	
	Referent Category: Low Intensity Employment			
Race/Ethnicity				
African American	**1.937**	0.000	**1.502**	0.000
Hispanic	**1.724**	0.008	*1.515*	0.054
Asian	**1.546**	0.000	1.012	0.896
NHOPI/AIAN	**2.557**	0.000	**1.818**	0.009
White (ref)				
Highest Education of Parents				
Less than HS diploma	1.140	0.426	**1.642**	0.005
HS diploma	1.061	0.594	**1.734**	0.000
Some college	0.872	0.098	**1.392**	0.000
BA/BS	0.919	0.337	**1.288**	0.012
Advanced Degree				
Educational Plans for Next Fall				
Not college plans/not sure	**1.638**	0.000	**1.561**	0.000
2-year college	**1.289**	0.003	**1.587**	0.000
4-year university				
Extracurricular Hours				
No hours	**1.554**	0.000	1.082	0.460
1-5 hours	**1.372**	0.004	**0.771**	0.026
5-10 hours	**1.472**	0.001	0.863	0.243
10-20 hours	*1.208*	0.052	**0.673**	0.000
More than 20 hours (ref)				
Homework hours				
No hours	0.946	0.692	**1.532**	0.004
1.5 hours or fewer	0.949	0.524	**1.421**	0.000
BW 1.5 and 5.5 hours	1.051	0.605	**1.281**	0.025
More than 5.5 hours (ref)				
High School GPA				
LE 2.5	**1.536**	0.000	**1.488**	0.000
GT 2.5 and LE 3.0	**1.291**	0.008	**1.535**	0.000
GT 3.0 and LE 3.5	1.054	0.502	**1.319**	0.001
GT 3.5 (ref)				
High School				
Public District 1	*1.171*	0.064	1.106	0.269
Private District 1	**1.267**	0.026	**0.462**	0.000
Public District 2	**1.341**	0.018	**1.345**	0.024

Public District 3 (ref)

	MODEL FITTING INFORMATION -2 Log Likelihood
Intercept Only	14303
Final	13523
Degrees of Freedom	62
Significance	0.000

Table 3.12: Multinomial Logistic Regression of Working in Typical Teen Jobs and Labor/Manual Jobs Relative to Working in Semi-Professional/Technical Jobs, 2000-2005

	Typical Teen Work		Labor/Manual Work	
	Referent Category: Semi-Professional/Technical Work			
Gender				
Female	*0.841*	0.088	**0.134**	0.000
Male				
Race/Ethnicity				
African American	**1.403**	0.044	0.777	0.245
Hispanic	1.039	0.898	0.690	0.325
Asian	0.906	0.439	**0.561**	0.001
NHOPI/AIAN	0.758	0.306	0.781	0.488
White (ref)				
Highest Education of Parents				
Less than HS diploma	**2.249**	0.002	**2.150**	0.022
HS diploma	**1.859**	0.000	**2.149**	0.000
Some college	**1.382**	0.008	**1.573**	0.006
BA/BS	*1.245*	0.094	**1.470**	0.030
Advanced Degree				
Educational Plans for Next Fall				
Not college plans/not sure	**1.304**	0.079	*1.408*	0.064
2-year college	**1.255**	0.076	**1.585**	0.004
4-year university				
Extracurricular Hours				
No hours	1.136	0.380	0.967	0.854
1-5 hours	1.122	0.473	1.187	0.417
5-10 hours	0.925	0.641	0.975	0.909
10-20 hours	0.991	0.951	0.979	0.907
More than 20 hours (ref)				
Homework hours				
No hours	1.199	0.384	1.143	0.612
1.5 hours or fewer	1.200	0.138	1.191	0.307
BW 1.5 and 5.5 hours	**1.301**	0.073	**1.527**	0.037
More than 5.5 hours (ref)				
High School GPA				
LE 2.5	**1.406**	0.020	**1.550**	0.019
GT 2.5 and LE 3.0	**1.326**	0.052	**1.462**	0.044
GT 3.0 and LE 3.5	*1.210*	0.094	1.089	0.597
GT 3.5 (ref)				

High School				
Public District 1	1.159	0.236	0.986	0.929
Private District 1	0.903	0.542	1.333	0.194
Public District 2	0.898	0.539	1.262	0.296
Public District 3 (ref)				
Work Hours				
More than 15 hours/week	**2.609**	0.000	**2.424**	0.000
15 or fewer hours/week (ref)				

	MODEL FITTING INFORMATION
Intercept Only	6979.09
Final	6167.40
Degrees of Freedom	66
Significance	0.000

Chapter 4: Enrollment and Employment One Year After High School Graduation

Introduction

Stratification literature has long concerned itself with discerning the determinants of educational inequality. The extent to which student employment *contributes to or moderates* this inequality is an important and somewhat underexplored research question. Utilizing measures of the amount and the type of employment of high school seniors, and data on a multitude of student characteristics, I hope to adjudicate between different conceptions of the relationship of working on other aspects of the lives of students. In order to develop a greater understanding of the effects of labor force participation while in high school, I intend to first explore the interrelationships between students' work lives and their ascriptive and achieved characteristics, their home and school environments, and their ambitions for the future. Then, accounting for contextual, achieved, and ascribed student characteristics, I aim to show the nature of the short, mezzo, and long term effect of various employment trajectories on college enrollment (in this chapter) and completion (in the next).

Previous research has produced conflicting finding on the nature of postsecondary consequences of early work experience (Carr, Wright, and Brody 1996). Although employed adolescents are somewhat less likely to attend college or obtain a degree than their non-working counterparts, early work experience is positively related with postsecondary wages and occupational attainment. Despite the counterintuitive nature of this finding, it is conceivable as many high-skilled manufacturing and craft jobs could, at one time, provide ave nues for income attainment and career advancement. However, with the decline of the manufacturing sector and increased rigidity of educational requirements associated with most occupations with prospects of upward mobility, this finding is unlikely to be replicated with current or recently

graduated high school students. If the relationship between early employment and college enrollment and attainment remains negative, it is likely that the relationship between early labor force participation and later income and occupational attainment will prove to be negative. On the other hand, if there is evidence of a positive relationship between employment in high school and postsecondary educational attainment, then the mechanism for the observed positive relationship between early and later work experiences may be illuminated.

Arguably, one of the most crucial transitions occurring during adolescence is that from high school to college. The employment experience of high school students may have substantial impact on this transition. Furthermore, some studies have demonstrated that the nature of this impact may depend on both the characteristics of the teenage worker and the characteristics of jobs held by them. In his 1999 study, Oetinger shows that low intensity employment is associated with beneficial postsecondary educational outcomes (such as higher rates of college entry). Consistent with Oetinger, Rothstein (2001) shows that working less than 20 hours a week while in high school is associated with higher college entry rates for employed students than the non-employed or those who hold high intensity jobs.

On the other hand, he demonstrates that high intensity employment has a disproportionately negative effect on post-high school prospects of Hispanic and African American adolescent workers. Similarly, Lee and Orazem (2010) find that high intensity employment while in high school leads to lower rates of college enrollment, although, somewhat paradoxically, holding a job is also associated with lower high school dropout. As with many other studies of the impact of high school employment on academic outcomes, the Lee and Orazem study did not address the potential impact of differential job type on high school completion and college enrollment.

Given the pervasiveness of employment experiences among teens, and evidence of both positive and negative consequences of working observed while teens are still in high school, understanding the role of early workforce participation may facilitate more productive employer-school relationships as well as policy-level decision-making regarding these linkages. The few empirical studies on the topic have yielded mixed or inconsistent conclusions on the nature of impact of early labor force experience on postsecondary outcomes. While there is greater concurrence on the beneficial impact of working while in high school on the occupational and income attainment in the decade following high school graduation (Carr, Wright and Brody 1996; Rothstein 2001; Marsh and Kleitman 2005), there is much less consensus on the nature of the effect of working while in high school on postsecondary educational trajectories, with some researchers finding positive impacts (Mortimer and Johnson 1998; Shanahan and Flaherty 2001; Rothstein 2001; Mortimer 2003; Marsh and Kleitman 2005) and others producing findings pointing to a deleterious effect of working while in high school on postsecondary enrollment and educational attainment (Carr, Wright and Brody 1996; Ruhm 1997; Stinebrickner and Stinebrickner 2003). Compounding the difficulty of assessing the independent effects of labor force participation while in high school is the ever-present question of selection into work roles and the impact of this selection on determining the causal priority of postsecondary educational achievement and high school employment. However, holding constant salient student traits should produce evidence of the independent effects of labor force participation on postsecondary outcomes.

The question of endogeneity in the characteristics of adolescents that may influence both educational and employment outcomes extends to both ascriptive and achieved traits. Studies of the composition of the teen and adolescent labor force have consistently identified that minority

students (especially African Americans and Hispanics) are much more likely to be employed at high intensity levels or non-employed than their white counterparts. As posited in prior literature findings, these work roles tend to have a deleterious impact on in-high school achievement and may continue to negatively impact educational attainment after high school. Similarly, students from more advantaged socioeconomic backgrounds have been shown to have greater access to low intensity office jobs and internships associated with better educational outcomes while in high school. Despite the correlation between students' ascriptive background, their workforce participation and their educational attainment, there are a number of reasons to explore the possibility that employment exerts an independent effect on educational attainment during and after high school.

As with school, family, and friendship domains, the workplace can be an agent of socialization for adolescents, one that may influence attitudes toward the value of educational and occupational attainment. Some employment conditions (i.e., professional/technical type positions) may encourage behaviors and attitudes rewarded both in the labor market and educational institutions (e.g., time management, punctuality, organization of materials, critical thinking). This is sometimes referred to as the *congruence hypothesis* underlying the potential positive impact of working while in school (D'Amico 1984). In analyses discussed in the previous chapter, high school GPA, college plans, and time devoted to positively sanctioned in- and out-of school activities are found to be positively associated with the odds of holding a semi-professional/technical job (relative to a job in the typical teenage sector). Experiences in such jobs can impart valuable 'soft skills' (e.g., time management, autonomous decision-making in light of a complicated rule structure) congruent with educational attainment at the postsecondary level or beyond (Mortimer 2003). On the other hand, workplaces with high levels of churn and

low levels of autonomy may encourage an orientation toward more immediate monetary rewards associated with longer hours while discouraging an investment in longer-term pathways toward career attainment (Ruhm 1997). In other words, the steps needed to enter a postsecondary institution, and, more importantly, to obtain a four-year degree may be facilitated by some work experiences and inhibited by others. Given the import of college degree attainment on virtually every other life course outcome, the nature of this relationship is an important one to unpack. This is the aim of the next section. In subsequent sections of this chapter, I show that there are unambiguous direct effects of working in the right jobs and in jobs with modest time demands on the prospects of attending college. The resulting gain in understanding of the impact of dual student/worker roles for adolescents should be an important one, as greater proportions of teens and adolescents take on multiple roles, attempting to successfully navigate through the turbulent waters between childhood and adulthood.

Theoretical Framework

Why and how would work experience affect college enrollment after high school? The answer to this question depends on the hypothesized mechanism underlying the impact of labor force participation on both academic and non-academic outcomes. I explore two competing yet potentially complementary explanations for the effect of employment on educational attainment. The first of these concerns the role of work intensity in fostering significantly higher time management proficiency and the ability to balance multiple obligations simultaneously, as may be predicted by the threshold perspective (non-linear relationship). And although it is expected that some amount of student self-selection must occur, it is likely that adolescent workers have

an advantage over their non-employed counterparts in that they improve on their existing 'soft skills' (such as management of multiple responsibilities and time commitments) on the job. While the expectation is that working is potentially a positive learning experience, the benefit of employment does not extend to all levels of work intensity. Since students' primary responsibility is to achieve while in school, high intensity engagement in the labor force may displace this priority. And because even minimum wage jobs can yield seemingly impressive discretionary income if a student works 20 or more hours per week, the immediate and palpable returns in form of this disposable income may triumph over the more delayed gratification of doing well in school. It may be that the decision to moderate the number of hours may in itself be indicative of the sense of personal responsibility and discipline associated with doing well at school and at work; I propose that employment experience, albeit at moderate levels, reinforces already acquired time management skills and imparts new ones as well.

The second potential explanation of the impact of adolescent employment on educational attainment is rooted in the qualitative distinction between the types of jobs available to students. Although there are a number of ways to differentiate between workplaces occupied by adolescent workers, this study employs a tripartite categorization of semi-professional/technical employment, labor/manual employment, and typical teen jobs. Although it is likely that most of the jobs, regardless of the hue of the collar, impart few if any 'hard' skills upon their incumbents, 'soft' skills and benefits in form other than financial may be strongly associated with some workplace settings but not others. Juxtapose, for instance, the job of filing or data entry in an office occupied by white-collar professionals with that of retail salesperson in a clothing store. Both jobs require few skills, but are likely to foster some level of organization and responsibility. Neither job is likely to be particularly cognitively intensive, or contribute significantly to a

students' ability to perform tasks they need to outside of their workplace. However, the office setting provides invaluable exposure to potential future work and school contacts, and role models. It also facilitates a familiarity with a more complex authority and rank structure, one not marked by stark contrasts of school-based authority relationships. The interaction patterns in an office are continuous and iterative, thus, it pays to be respectful, not shirk on responsibilities or cut corners. Relationships established at such a workplace between student workers and adult employees may also contribute significantly, as an important weak tie or, even more importantly, as a mentor and continuing role model.

The service sector, on the other hand, is likely to have greater rigidity in relations between authority figures and employees, thus preventing the formation of long-term bonds. Role-modeling is also less likely to take place within retail or food service. Oftentimes, mid- or low-level management in such workplaces are identical in age and qualifications to entry-level employees, creating a workplace that does not present many challenges to the workers, consequently, is unlikely to foster any soft skills or accrue social capital helpful in college enrollment or degree attainment. Of course, depending on the extent of local unemployment rates and competition for jobs, holding a food service job may represent occupational success for some student job seekers (or, at times, for adult job seekers).

Labor/manual workplaces are not characterized by age segregation, and may facilitate closer relationship between adult supervisors and young workers. However, many (but not all) of these supervisory figures obtained their senior position through years of on the job experience rather than educational attainment, a path that is less likely to yield upward mobility for workers now entering the labor force. Still, the expectation with respect to the impact of labor/manual

employment on short and long-term postsecondary educational outcomes is less clear than those employed in professional offices or workers in typical teen jobs.

While it is possible that workplace conditions, job demands, and the characteristics of coworkers exert an effect on all workers universally, consideration must be given to the possibility that the impact of job quality on academic outcomes during and after high school may be conditional on worker characteristics. If this is the case, similar jobs and workplace conditions may exert discrepant effects on students from certain backgrounds, or those with differential college aspirations.

For many adolescents, there is a profound disconnect between occupational aspirations and an understanding of the process of attaining career goals expressed in middle school and high school (Schneider and Stevenson 1999). Although levels of career ambition are high among the most adolescents, many also exhibit a lack of comprehension of the steps required to be taken to achieve their occupational aspirations. Partly due to rapid technological growth (especially, in the realm of communication and information processing), the expansion of available white collar and professional jobs and a swift decline in career paths within the manufacturing sector has significantly altered employment prospects of youths, increasing the economic penalty for low levels of educational attainment. Students may be exposed to a multitude of messages (from parents, teachers, college counselors, and at times, popular culture) that value of a high school diploma in the labor market is low, and that some postsecondary education is required for many jobs. However, most students do not develop specific vocational interests or skills while in high school, due, in part, to the largely comprehensive nature of secondary education which is designed to allow for greater mobility in an open contest educational system. Accordingly, competition over entry into college – especially selective four-year schools – may take

precedence over the choice of major/specialization, which in turn may lead to higher levels of dissatisfaction with the chosen field while in college, prolonged matriculation times and the resulting increase in debt. Subsequent entry into the labor market is characterized by uncertainty, both on the parts of the prospective workers (even those who end up graduating from college) and on the part of employers (who must select employees without relying on sets of occupationally specific knowledge as evaluation criteria). College graduates do experience greater income and occupational attainment levels over the life course, and are more likely to hold general skills rewarded in the labor market.

Although most jobs available to high school students do not directly contribute to the accumulation of vocational knowledge or the formation of career goals, some positions may facilitate exposure to potentially attractive career paths, while others offer no such opportunities. For instance, students working as administrative assistants in professional offices (e.g., medical, legal, or school-based) are more likely to be exposed to adults with higher levels of education, and whose occupational and economic status may generate student interest. On the other hand, positions in the many service industry jobs (in particular, food service and retail) readily available to high school students are unlikely to facilitate a mentorship relationship, or to result in a concretization of educational or career plans.

The nature or quality of teenage jobs is a dimension of adolescent work experience that rarely appears in models of postsecondary attainment, as the work opportunities available to teens do not appear to substantially differ from one another. In fact, the majority of student workers are largely relegated to the margins of the labor market, receiving little economic or human capital returns on their time investment. The shape and structure of the teenage labor market also complicates efforts to construct a classification of student jobs, thus there have been

few efforts to empirically model the effect of job type on college enrollment. Despite appearances, the quality of jobs available to high school students varies on a number of dimensions that affect the amount of human capital or positive socialization resulting from incumbency. For instance, low levels of age segregation and high amounts of adult supervision may foster a greater sense of responsibility. Students may also gain a greater amount of vocational knowledge in some jobs than others (Ruhm 1997), thus facilitating a more informed selection of an educational trajectory matching their career choice (this is referred to as 'aligned ambition').

Descriptive Analysis Discussion

I first present a descriptive table illuminating the bivariate relationships between students' characteristics and the following two postsecondary outcomes: enrollment in any college, enrollment in a four-year college. I then present evidence of a continuation of the worker-student role between high school and college.

Postsecondary Enrollment

Table 4.1 presents preliminary evidence of a relationship between a set of ascribed and achieved characteristics and postsecondary trajectories of adolescents.

Table 4.1 about here

First, race/ethnic and nationality-group differences appear rather significant. For instance, almost two thirds of the East Asian (Chinese, Korean and Japanese) students report being enrolled in a four year school at the time of the one year follow up, while less than a quarter of Cambodian students report university enrollment. Whites, representing 62% of all students, have rates of 4-year college attendance similar to the overall average. Members of ethnic/racial minorities that have been documented to be consistently underrepresented among university attendees (Ward 2006) have substantially below average university enrollment rates. Specifically, Mexican, Native Hawaiian/Other Pacific Islander, and, to a lesser degree, African American students exhibit substantially lower enrollment rates than is observed for other groups.

The discrepant rates of overall college attendance (and non-attendance) merit attention. As may be foreshadowed by the high rates of four year college attendance, Chinese, Korean and Japanese students have very low levels of postsecondary non-enrollment (at 16% compared to the 32% overall student average). At the other extreme of postsecondary enrollment patterns, Mexican and NHOPI (Native Hawaiian and Other Pacific Islander) students have very high rates of non-attendance after high school (with 50% and 52% of non-enrollees, respectively). The extent to which these and other race/ethnic discrepancies reflect different socioeconomic, academic and employment patterns of students are explored below utilizing multivariate logistic regression models.

Differences by gender and nativity with respect to college attendance reflect a shift in the gender balance of college students (as well as college graduates) observed nationally, with greater proportion of female than male students among those attending any college, and among those enrolled in a four year school (Bachman and DiPrete 2006).

It is notable that a small 'second generation advantage' appears in this table. Rates of overall enrollment as well as enrollment in four year colleges are higher among 2nd generation students. American-born students whose parents are foreign-born exhibit substantially higher rates of 4-year university enrollment relative to their foreign-born peers, and, to a lesser degree, 3rd generation students.

Previous studies have found that parental education (more so than income) exerts a strong effect on postsecondary educational outcomes. The intergenerational transfer of status (whether advantaged or disadvantaged) operates partly through the relationship between parental education and college enrollment. The results presented in Table 1 are consistent with previous findings indicating that students whose parents do not have a college education are less likely to attend an academic institution after high school, and are significantly underrepresented among those attending a four-year school compared to students from more advantaged backgrounds. Students from the two top parental education categories (those whose parents have a Bachelor's degree or an advanced degree) do not differ in their non-enrollment rates. However, the intergenerational transfer of privilege is visible in the difference between the rates of four-year college enrollment between those two groups, as the social and financial capital accrued by their more highly educated parents facilitates access to opportunities unavailable to less privileged students. University attendance rates by parental education illustrate the result of differential access, with only less than a quarter of students of high school educated parents reporting enrollment in a four year school one year after high school graduation compared with 61% of students the highest-educated households. While less dramatic, rates of enrollment in any college also substantially differ by parental education, with a 30 percentage point difference in these

rates between students from the least privileged backgrounds (those whose parents did not obtain a high school diploma) and those whose parents completed a four year degree.

The influence of the school environment is captured in this table, albeit indirectly. Students in the UW BHS study hail from three different school districts, and attend both private and public schools, thus, I expect between-school differences in academic resources (e.g. college councilors), budgetary provisions, curricular characteristics, and other school-related factors to affect college attendance patterns. It is apparent that students attending private high schools have a significant advantage over students in public schools with respect to college attendance rates. Differences between public school districts also emerge, although these differences are more pronounced in rates of overall college attendance rather than university attendance.

Two types of household characteristics of students are presented: household intactness and sibship size. Adolescents from non-intact households do not fare as well as those from two-parent households when it comes to postsecondary enrollment trajectories. Students in single-parent households have substantially lower rates of any college enrollment, as well as four year university attendance. Students from non-intact homes also reported higher rates of employment than students from intact households. Students from smaller families (less than 3 siblings) have higher four year college attendance rates and lower non-enrollment rates. Interestingly, when it comes to postsecondary enrollment patterns, there emerges an optimal family size. In families with two children, the rates of four-year college attendance are higher than the overall average rate by 10 percentage points. This is not the case for families with one child or three children, which have rates of enrollment and non-enrollment almost identical to each other.

Although academic engagement or orientation may be an unobserved (or latent) characteristic of students, academic aspirations and achievement can serve as proximate

measures of the extent to which students are invested into the educational system. High school grades are considered heavily in college admissions and reflect students' orientation toward educational attainment (although this relationship is complicated and possibly, non-recursive). It is, therefore, not surprising that grades often appear as the singular strongest predictor of postsecondary enrollment (Marsh and Kleitman 2005). This table illustrates a strong positive relationship between high school grades and college enrollment patterns.

Similar to grades, completion of Honors or Advanced Placement (AP) courses is strongly associated with college attendance, especially since they are explicitly designed to prepare motivated and capable students for the rigors of college curricula. This is visible in the college attendance rates by Honors/AP course enrollment whereby 61% of those who have taken these more advanced courses eventually enrolled in a four-year university, compared with 19% of non-Honors/AP course takers who later attended a four-year school. Overall attendance rate differences between more and less academically oriented students (insofar as Honors/AP class attendance is an indirect measure of academic orientation) are also dramatic, with a 30 percentage point difference between these two groups.

Vast differences in college attendance emerge among students with different educational aspirations, indicating a potent relationship between attitudes regarding future educational attainment and actual behaviors of students after high school. As mentioned previously, some of the inconsistent findings on the consequences of teen employment stem from pre-existing selection into work roles. Students' choices regarding participation in the labor force, as well as the extent to which he/she invests time into schoolwork is likely influenced by the level of his/her academic engagement (Mortimer 2003). About a third of the students whose educational aspirations do not include getting a four year degree reported enrollment in an educational

institution one year after high school, while 87% of those who aspire to an advanced/professional degree reported attending some type of college at that time. Even more starkly, only 3% of students with the lowest educational aspirations reported enrollment in a four year school at the time of the follow up survey, while two thirds of students with the highest aspirations reported university enrollment.

Similarly striking differences in attendance rates are apparent between students with concrete postsecondary plans and those without them, with a 60 percentage point difference in university attendance between students who reported no plans for college enrollment during their senior year and students who planned to enroll in college.

At the crux of questions of students' selection into work roles are pre-existing differences in academic engagement or aspirations that may influence students' decisions to participate in the labor force while in high school. Because these pre-existing differences may influence both decisions to participate in the workforce and to invest more or less effort into studies, it is possible that students' high school employment trajectories may mediate the relationship between educational aspirations and attitudes and postsecondary outcomes. However, if the impact of work characteristics remains significant net of the impact of educational expectations once a multivariate analysis is performed, that would present powerful evidence of the effect of work independent of any antecedent student characteristics.

In order to fully assess the impact of early workforce participation on postsecondary outcomes, Table 4.1 presents rates of enrollment and employment along four important dimensions of high school workforce participation: work status, work intensity, duration of current job tenure, and job type. The non-employed are divided into two groups: the never employed and the not-currently employed, although this descriptive analysis does not present

evidence of any differences between these two groups when it comes to college enrollment patterns (there are, however, differences with respect to postsecondary employment rates). Student workers do differ from one another quite dramatically with respect to their enrollment trajectories. These differences provide preliminary support for the expectation of a curvilinear effect (the threshold hypothesis) of work intensity on college enrollment. While the point of inflection in the effect of work hours in teen employment literature is typically 20 hours a week, the difference in attendance rates between students working 10 or fewer hours, and 11 to 20 hours per week suggests that this threshold may be quite a bit lower than 20 hours. The differences between low (10 or fewer hours/week) and moderate (11 to 20 hours/week) intensity workers are most dramatic with respect to four-year college enrollment. Whereas 82% of low intensity students report attending a college or university one year after high school, 73% of moderate intensity workers and 57% of high intensity workers report enrollment in an academic institution. University attendance rates also differ considerably by the level of high school work intensity, with a 6 percentage point difference between low and high intensity workers (with 59% and 23% reporting university attendance, respectively). High school employment at low or even moderate intensity appears to have a substantial beneficial association with rates of enrollment in any school, and low intensity employment appears to be associated with significantly elevated rates of university enrollment. The extent to which this association is causal will be tested via a multivariate analysis presented later in this chapter.

Arguably, an important contribution of this project is the parsimonious and empirically-based treatment of the types of jobs available to student workers. The distribution of job type categories indicates that the type of jobs students obtain has a substantial effect on educational (and possibly, other) outcomes while in high school as well as after its completion. It is evident

that those in the 'semi-professional/technical' category (in other words, the 'good' jobs) have disproportionately high rates of overall attendance (81%) as well as four-year college attendance (57%) than other workers or the overall average (68% for any college and 39% for university attendance). Workers in the other two job categories exhibit enrollment rates closer to the overall average. I expect the association between this job type and college attendance patterns to become more apparent when other student characteristics are included in a multivariate model college enrollment.

Postsecondary Enrollment and Employment

For those who do not enroll in a postsecondary institution after high school, working is an expected outcome. However, employment while also being enrolled in college is not a normative outcome (with almost 70% of non-enrolled adolescents working or looking for work, compared to only 39% working or looking for a job among those enrolled in college), and is of substantive interest for a number of reasons. For some students, continued employment is a substantial facilitator of college enrollment due to the financial costs of higher education. For others, it may provide greater opportunities of contact with potential mentors, and with workplaces or positions that may inform selection of majors and other choices directly affecting educational and economic attainment. Thus, I examine employment after high school conditional on enrollment in a postsecondary institution.

While there is preliminary evidence of employment after high school as representative of a strategic choice to invest time and effort into the labor force as a means of income and status attainment (with a concomitant decrease in the likelihood of college enrollment), it is possible

that there are differences in motivation and associated employment rates among student enrolled after high school. For instance, if low intensity student workers are more likely to be enrolled and employed than non-workers at the time of the one year follow up, it is possible that this subgroup of workers continues to successfully juggle work and school-related responsibilities, using time management and efficiency skills they began learning before they graduated high school. Aside from the potentially positive effect of successful combination of student and worker roles, continuous labor force participation has also been shown to have a positive effect on employment rates in adulthood (Schoenhals, Tienda, and Schneider 1998; Carr, Wright, and Brody 1996). Thus, the extent to which students employed in high school are more likely to be enrolled *and* employed after graduating is of interest. This potential relationship will be explored in Table 4.2, where rates of employment in and after high school are presented conditional on postsecondary enrollment outcomes.

Table 4.2 about here

First, I briefly address the degree of association between employment status and work intensity during high school and one year after graduation for those who are enrolled in any educational institution. I will then focus on those enrolled only in four-year universities.

Table 4.2 presents compelling evidence of an association between workforce participation between high school and college for those who enrolled the year after high school completion. Of those who were not employed in high school, a little under two-thirds (61%) were not employed at the time of the follow-up. Furthermore, the likelihood of employment after high school increases for students with greater work hours when employed in high school. Since

all those in this table are enrolled at the time of the follow up, this relationship is not a matter of differential investment in education. Instead, this positive relationship may have underlying economic motivators (in order to finance tuition or other expenses related with higher education). It is also possible that students who work find extrinsic benefits from working, and choose to continue being employed while in college regardless of their ability to afford expenses associated with college attendance.

Because Table 4.2 distinguishes between enrollment in any college or university, and enrollment in a four-year school, it is possible to examine the extent to which the relationship between employment in high school and after is contingent on the selectivity of postsecondary institutions. Since four-year universities have more stringent entry requirements, greater competition for entry, and a more rigid application process, those enrolled in a four-year institution have had to make a number of choices with respect to time investment while in high school to facilitate university attendance. The rigors of attending a four year school may also exceed those of attending a community college, thus, rendering working and going to school more difficult compared with employment while attending a community college.

Although the relationship between working while in high school and after is attenuated for students enrolled in a university, this table presents clear evidence of that this relationship persists here. The proportion of non-workers in high school who continue to be non-employed while in the first year of university attendance is quite high, at almost three fourths of all those who did not work in high school (72%). Students in low and middle-intensity high school employment categories did not differ from one another in proportion employed at follow up, both with 48% (about 10% higher than the average). Students employed at the highest level of intensity in high school – 20 hours per week or more – were substantially more likely to be

employed at follow up than all other groups, with 58% of all high intensity high school workers reporting being employed during the follow up. Once again, these relationships between working in high school and after cannot be said to be a function of differential educational trajectories, since all employment outcomes presented in this table are for enrollees in similar types of educational institutions.

Non-parametric tests of association indicate a significant but modest in size association between high school work patterns and employment at the time of follow-up for both enrolled in any college and enrolled in a four-year college group (with a Kendal τ-b at .272 and Spearman's ρ at .310, for the former and Kendal τ-b at .206 and Spearman's ρ of .233 for the latter, both significant at .001 level). In other words, while high school work experience exerts an effect on the likelihood of employment after high school, this relationship is a somewhat modest one for both enrollment groups.

Table 4.2 may also be interpreted to present preliminary evidence for a zero-sum relationship between working and enrollment at the postsecondary level. The differences in overall employment rates at the time of follow-up between those enrolled in any educational institution after high school and those enrolled in a four year university may illustrate differential ability to invest time into labor force participation. Specifically, overall employment rates for those enrolled in any institution were substantially higher than for those enrolled in four year institutions (with 53% and 39% employment rates, respectively). Since university attendance is typically much more expensive than attendance in a two-year schools, these employment rate differences cannot be said to be a function of economic motivators, given that we would expect to see *more* university students working if paying for education is the primary motivator for employment while enrolled in college.

While the previous descriptive tables have illustrated the association between high school and postsecondary employment characteristics and college attendance, the independent effect of workforce participation can only be elucidated with multivariate analyses accounting for the salient student characteristics. They are presented in the following section.

Discussion of Multivariate Results

Tables 4.3 and 4.4 contain results of three binary logistic models of the determinants of college enrollment. The predictors used in each of the tables are identical, with two different outcomes: Table 4.3 presents results of modeling enrollment in any college, and Table 4 displays analysis results of models of four year college attendance. The extent to which the effect of workforce participation differs depending on the type of postsecondary institution a student is enrolled in is one of the questions that these tables will address. Of equal concern is the differential impact of work intensity on enrollment in any institution vs. a four year institution, as well as the disparities, if any, between holders of different job types with respect to the chances of their college attendance.

Tables 4.3 and 4.4 about here

The coefficients from each of the models in both tables are exponentiated (into odds ratios) for greater interpretability. These odds ratios are expressed relative to the omitted category for each independent variable. To illustrate, for gender, the omitted category is males. For race/ethnicity, the omitted or reference category is non-Hispanic whites. Finally, for work

status, the low intensity employment category is omitted for greater contrast. Broadly, coefficients with a value of less than 1.0 are negatively related to the outcome variable, and coefficients above the value of 1.0 are positively related to (or elevate the likelihood of) the outcome variable relative to the omitted category. Furthermore, they can be expressed as percent differences between odds, whereby the difference between one and the coefficient value is the increase or decrease in the percentage, relative to the omitted category, of the odds of the event happening given an increase by one unit in the level of a given independent variable. For instance, the coefficient for "female" in model 1 of Table 4.3 is 1.137, which can be interpreted to mean that female students have approximately 14% greater odds of attending any college relative to males, when all other student characteristics in Model 1 are taken into account.

In both tables 4.3 and 4.4, Model 1 presents ascribed and achieved characteristics of students as predictors of their likelihood of postsecondary enrollment. Model 2 contains only employment-related variables as predictors of postsecondary college attendance while Model 3 combines predictors from models 1 and 2 to produce a fully-specified depiction of the determinants of both types of postsecondary enrollment (any college in Table 4.3 and university in Table 4.4).

As noted earlier, the nationally observed shift in the gender balance of college attendees is visible among five cohorts of seniors examined in this study. Even after accounting for salient student characteristics said to play a role in increasing overrepresentation of females among college students (such as educational aspirations and achievement – see Bachman and DiPrete 2006), Model 1 in Table 4.3 indicates that females are still significantly more likely to attend any college. Interestingly, a more nuanced modeling approach (see Appendix Table A.1) shows that the addition of grades, homework hours, and educational expectations accounts for gender

differences in college attendance, however, once socioeconomic characteristics are added (see Model 3 in Appendix Table A.1, gender differences re-emerge, whereby female students are more likely to attend college than male students.

When the focus is on university enrollment rather than enrollment in any school, the 'female advantage' disappears once grade differences, time spent on homework outside of school and educational expectation differences are controlled for. The differences in the effect of gender between enrollment in any college and four year college enrollment are somewhat difficult to interpret. One potential explanation may be differential willingness of parents to invest in an arguably more expensive form of education by gender of their offspring (Hopcroft 2005; Bailey and Dynarsky 2011).

Race/ethnic differences emerging from both tables are also notable. Interestingly, traditionally underrepresented minorities (even those presenting very low levels of college or university attendance in Table 4.1) are not significantly different in their chances of college or university enrollment relative to whites when socioeconomic and achievement characteristics are accounted for. Some traditionally underrepresented groups emerge as somewhat more likely than whites to attend college, with African Americans exhibiting a 22% greater likelihood of attending any college and a 66% greater likelihood of attending a university relative to whites. This, of course, is a result of holding constant many of the differences that are strongly associated with race/ethnicity, such as parental education and home ownership. In other words, because of joint association between factors that heavily impact students' likelihood of university attendance (such as parental socioeconomic background, as measured by educational level and home ownership) and race/ethnicity, race/ethnic differences in college attendance are likely to be a result of socioeconomic background differences associated with race/ethnic group membership.

Once background characteristics are held constant, differences along racial/ethnic lines attenuate, or in this case, reverse in direction.

The most dramatic differences between whites and any other ethnic/racial group are that for Vietnamese students, who almost 3.5 times (347%) are more likely to attend any college than whites. Interestingly, when four-year university attendance rather than enrollment in any college is the outcome of interest variable, no significant differences between Vietnamese and white students emerge. Chinese, Korean, and Japanese students are significantly more likely to attend a university relative to white students, independently of whatever socioeconomic, achievement or school attendance differences exist between these groups.

While no differences by generational status emerge for any college attendance, foreign-born (or, first generation) students are about 30% less likely to attend a university than students whose parents are native born. No significant difference between the second and third plus generation appear in this analysis, despite preliminary evidence of a 'second generation advantage' identified in Table 4.1.

Postsecondary attendance of any sort is strongly related to parental education, with substantially lower likelihoods of college or university attendance for students whose parents have less than a college degree relative to students with more highly educated parents. The two top parental educational attainment categories did not differ significantly from each other in their impact on the likelihood of college or university enrollment. As stated earlier, access to financial and social capital associated with college degree attainment clearly facilitates entry into postsecondary institutions for students who have access to it in their households.

Not surprisingly, private school attendance exerts a significant impact on postsecondary enrollment outcomes, with particularly dramatic differences emerging when university

enrollment is the dependent variable (whereby private school students were 9.28 times more likely to attend a university relative to students attending public schools in a relatively affluent or middle-class school district). Independent of household-level socioeconomic characteristics, students who attended private schools likely benefitted from curricular and informational resources leading to higher college attendance rates.

Household characteristics display similarities in effect on either college or university enrollment, with higher likelihood of attendance for students from intact households, as well as students from homes with smaller sibship sizes. In no way surprising, these findings likely point to how decreased fiscal resources (that are more likely to occur in cases of marriage splits or larger household size) negatively impact college enrollment rates for persons living in such households.

Educational achievement and aspiration-related characteristics exert the strongest effect on the model (as measured by the contribution to pseudo-R^2), a finding that is consistent with others in the field. Students with lower overall grades as well as those who have not been exposed to (or chose not to expose themselves) to more rigorous academic curriculum while in high school were significantly less likely to attend any postsecondary institution one year after graduating from high school.

Higher educational expectations continue to exert an independent effect on the likelihood of postsecondary enrollment, with students expressing a desire to go beyond a four year degree exhibiting substantially higher likelihoods of postsecondary attendance relative to students with lower aspirations. Particularly striking is the difference between students whose ambitions did not extend to a four year degree relative to students with postgraduate degree goals with respect

to four year college attendance, with the former group being about 95% less likely to attend a university than students with more ambitious educational goals.

Models 2 in both Tables 4.3 and 4.4 present results for all employment related characteristics, and provide preliminary support to expectations stated in the "Outcomes and Expectations" section of this chapter. It is important to note that employment status and work intensity are subsumed into one variable, to facilitate a comparison between working and non-working students as well as between those who are employed at different intensity levels. Aside from the inclusion of both the employed and the non-employed into the work status/intensity categorization, the interpretation of the work status/intensity coefficients should be in light of the referent category – working 10 hours or fewer per week.

The employment-only model suggests that low-intensity employment may be the optimal level of workforce participation with respect to increasing the likelihood of college attendance, given that all other types of workforce participation are associated with lower chances of being enrolled in college one year after graduating from high school. This effect is independent of the effect of job tenure/work duration (a proximate measure of the volatility of workforce participation) and of job type. This effect persists whether looking at the outcome of enrollment in any college or enrollment in a four-year university.

Duration of job tenure is has a weaker relationship to attending any college than it does to attending a university, and while there may be a number of reasons for this, one potential explanation is the 'mentor' effect proposed earlier in this chapter. To speculate on the mechanism potentially underlying this relationship, students who remain on their jobs for lengthier time periods, regardless even of the type of job they have, may be more likely to form interpersonal relationships with adult supervisors/managers and these relationships may facilitate

higher chances of university attendance (especially in the absence of these resources in the students' household).

Finally, the effect of job type on either outcome (attendance in any college or university attendance) is clear, with significantly lower likelihoods of either type of enrollment for labor/manual or typical teen workers relative to students working in more professional environments. Again, while the mechanism underlying this finding is difficult to observe empirically, the nature of tasks, the type of supervisory structure and the degree of age segregation associated with each broad job type category may underlie these differences in the likelihood of college or university attendance between different types of job holders.

Model 3 combines ascribed and achieved student characteristics with those related to employment in order to parse out the independent effect of work on the odds of college attendance. While the addition of covariates accounting for students' background and educational achievement reduces the magnitude and significance of some of the employment-related covariates, the impact of some of these remains significant. Moreover, the more selective of the two outcomes – university enrollment – appears to be more strongly related to high school work patterns than enrollment in any postsecondary institution.

When examining the determinants of enrollment in any postsecondary institution, only employment status and work intensity remained significant when all other student characteristics were held constant. Because job tenure and job type did exert a significant direct effect on college enrollment when other characteristics were not in the model, the attenuation of their significance indicates that these work characteristics are strongly related with ascribed and achieved student characteristics. While the magnitude of the impact of work intensity on the likelihood of college attendance is attenuated, it remains highly significant for all groups other

than moderate intensity. This means that, net of socioeconomic, education-related, household and demographic characteristics, working at a low intensity job in high school has a significant and positive impact on the chances of attending college subsequent to college graduation.

When it comes to 4-year university attendance, all four employment dimensions highlighted in this chapter exert a significant effect. As with attendance of any postsecondary institution, low intensity workers are substantially more likely to be enrolled in a four year school than students who were not working (ever or at the time of the senior survey), or students who worked more than 20 hours per week. This result lends support to the curvilinear or threshold effect perspective on the effect of work intensity, with low levels of workforce involvement affecting educational attainment positively above and beyond student characteristics that may also be associated with this level of employment.

Job tenure remains a significant predictor of university attendance when all other student characteristics are held constant, with longer job tenures associated with higher likelihood of being enrolled in a four year school at the time of the one year follow up. As with work intensity (or job type for that matter), it is difficult to adjudicate between the possible explanations underlying this relationship, however, it is likely that both workplace attachment promotes relationships with adult role models, as well as facilitating greater levels of responsibility (given that a student does not decide to quit or does not get fired over a year and a half) and 'stick-to-itiveness'.

Finally, while job type does not appear to be a predictor of attendance of any postsecondary institution, four year school enrollment is substantially more likely for semi-professional/technical workers than it is for labor/manual or typical teen employees. This may lend support to the 'negative socialization' hypothesis associated with jobs where the adult

workforce is less likely to have postsecondary degrees, and where upward mobility may not appear to be related to educational attainment. On the other hand, this finding may provide further evidence to the 'congruence hypothesis' (D'Amico 1984) in that the 'soft skills' or behaviors encouraged in the semi-professional/technical teen work sector are also positively sanctioned in the educational sphere, thus, leading to higher rates of college entry for workers in that sector. Whatever the explanation, it is evident that jobs in both labor/manual and typical teen workers exert an independent and negative effect on the likelihood of college attendance, with workers in these less desirable sectors exhibiting an about 25% lower likelihood of attending a university than workers in semi-professional/technical jobs, independent of all other pertinent student characteristics.

Conclusion

This chapter presents a series of analyses showing the impact of working while in high school on postsecondary enrollment one year after graduation by first depicting the differential distribution of survey participants into postsecondary outcomes (non-enrollment, enrollment in any college and enrollment in a four-year university) along their ascribed and achieved characteristics. The analyses presented here aim to address the questions posed at the outset of this chapter, namely, whether work experience of high school students impacts these students' postsecondary trajectory independent of other characteristics found to have been influential in post-high school educational outcomes (such as race/ethnicity, gender, socioeconomic status, and educational achievement). The results depicted in this chapter confirm that employment experience of high school students is a factor in influencing post-high school enrollment of these students. More specifically, these analyses provide support for the 'plus-sum' perspective on the

role of work, identifying an optimal level of labor force participation of students, providing support for findings of some studies (e.g., Rothstein 2001; Ruhm 1997) which purport differential impact on college attendance by employment intensity, with lower hours worked associated with the highest rates of college attendance, relative to not working or to working at a high intensity level. Aside from providing further evidence on the differential impact of employment by work hours, this chapter contributes to the body of student employment literature by examining the impact of the type of job students hold in high school on postsecondary enrollment. As expressed in the "Expectations and Outcomes" section of the chapter, employment status in itself does not substantially impact the chances of being enrolled after high school graduation, rather, the intensity and nature of jobs held by student workers affect the likelihood of attending college after high school.

In addition to its depiction of the relationship between high school employment and postsecondary outcomes, this chapter also demonstrates an unambiguous relationship between working in high school and after high school graduation. Insofar as continuous work experience in adolescence is positively associated with higher economic and occupational attainment later in life, working in high school may have an indirect but beneficial effect on longer-term employment outcomes long after high school completion.

Finally, this chapter facilitates a more nuanced understanding of the impact of employment while in high school on different *types* of postsecondary enrollment, a distinction not often made in studies of the impact of high school work on college attendance. When looking at attendance at more selective, four-year institutions, the impact of work experience while still in high school is magnified. Low intensity workers, those who hold semi-professional/technical jobs, as well as those jobs holders more steady work experience are more likely to attend

universities than be un-enrolled one year after high school than students who held high intensity jobs, those who worked in the teen or labor sectors, and those who had intermittent work experience.

Table 4.1: Enrollment Outcomes One Year After High School Completion by Ascribed, Achieved and Employment Related Student Characteristics, 2000-5 Senior Cohorts

	Postsecondary Enrollment			
	Attended any college	Attended 4-year college	Total N	% in Category
Demographic Characteristics				
GENDER				
Female	70%	41%	4996	55.5%
Male	64%	36%	3998	45.5%
RACE/ETHNICITY				
White & NEC	69%	42%	5549	62%
African American	58%	30%	1182	13%
Hispanic				
Mexican	50%	23%	308	3%
Other Hispanic	58%	34%	218	2%
Asian				
East Asian	84%	62%	507	6%
Cambodian	60%	23%	239	3%
Vietnamese	86%	39%	260	3%
Filipino	75%	38%	255	3%
Other Asian	64%	32%	169	2%
AIAN/NHOPI				
American Indian	61%	26%	132	1%
Pacific Islander	48%	24%	175	2%
NATIVITY				
1st Generation	67%	33%	1299	14%
2nd Generation	72%	44%	1537	17%
3rd + Generation	67%	39%	6147	68%
Socioeconomic Characteristics				
HIGHEST EDUCATION OF PARENT				
Less than HS diploma	49%	18%	571	6%
HS diploma	53%	23%	1382	15%
Some college	63%	31%	3290	37%
BA/BS	80%	52%	1777	20%
Advanced Degree	83%	61%	1817	20%
Not Reported/No parental figure reported				1.7%
HOME OWNERSHIP				
Rents Home	54%	24%	2222	25%
Owns Home	74%	46%	6231	69%
Not Reported				6%
SCHOOL				
Public District 1	63%	32%	5331	59%
Private District 1	96%	86%	906	10%
Public District 2	62%	36%	931	10%
Public District 3	72%	37%	1826	20%

Table 4.1:, continued Enrollment Outcomes One Year After High School Completion by Ascribed, Achieved and Employment Related Student Characteristics, 2000-5 Senior Cohorts

	Postsecondary Enrollment			
	Attended any college	Attended 4-year college	Total N	% in Category
Household Characteristics				
FAMILY INTACTNESS				
Not intact	58%	29%	3641	40%
Intact	74%	46%	5353	60%
Not Reported				7%
SIBSHIP				
Only child	70%	43%	467	5%
1 sibling	78%	50%	2535	28%
2 sibling	70%	41%	2173	24%
3 or more siblings	60%	31%	3495	39%
Not Reported				4%
Academic Characteristics				
GRADE POINT AVERAGE				
Self-Reported High School GPA	3.32	3.52	8873	100%
AP/HONOR/ IB COURSES				
Have Never Taken	53%	19%	3773	42%
Have Taken or Currently Enrolled	84%	61%	4018	45%
Not Reported				13%
HOMEWORK HOURS				
Average hours spent on homework outside of school	3.6	4.3	7660	85%
Not Reported				15%
Plans for the future				
EDUCATIONAL EXPECTATIONS				
Some College (up to a 2-year degree)	35%	3%	2540	28%
Bachelor's Degree	79%	46%	3139	35%
Graduate/Professional Degree	87%	67%	2595	29%
Not Reported				8%
EDUCATIONAL PLANS				
No Plans for College Next Fall	24%	6%	1805	20%
Not Sure	61%	1%	2088	23%
Plans for College next fall	86%	66%	5101	57%
Employment				
WORK STATUS				
Never Employed	67%	40%	2063	23%
Not Currently Employed	66%	41%	2398	27%
Employed at 10 or fewer hrs/wk	82%	59%	592	7%
Employed at more than 10 but fewer than 20(inc) hrs/wk	73%	40%	1569	17%
Employed at more than 20 hrs/wk	57%	23%	2372	26%

DURATION OF CURRENT JOB (Only Employed Students)				
Low Duration (less than 2.1 months)	66%	34%	1165	26%
Mid Duration (2.2 and 19.6 months)	69%	36%	2225	49%
High Duration (more than 19.6 months)	73%	43%	1143	25%
JOB TYPE (Only Employed Students)				
Professional/Technical	81%	57%	664	15%
Labor/Manual	65%	33%	702	15%
Typical Teen	68%	35%	2963	65%
Not Reported				5%
TOTAL N	6082	3504	8994	100%
TOTAL PERCENT	68%	39%		

Table 4.2: Continuity of Employment in and after High School by Enrollment Outcomes, 2000-05 Senior Cohorts

	Enrolled in Any College		Enrolled in Four Year University		Total
	Not Employed at Follow Up	Employed at Follow Up	Not Employed at Follow Up	Employed at Follow Up	
Employment Status/Intensity in High School					
Not Employed	61%	39%	72%	28%	50%
Employed at less than 10 hrs	44%	56%	52%	48%	9%
Employed at 10 (inc) to 20 (not inc) hrs	36%	64%	52%	48%	23%
Employed 20 or more hrs	23%	77%	42%	58%	18%
Total	47%	53%	61%	39%	100%

Table 4.3: Enrollment in any college one year after high school graduation, 2000-5 senior cohorts

	Model 1: Ascribed and Achieved Characteristics		Model 2: Employment Characteristics		Model 3: Full Model	
	Enrolled in Any College vs. Did Not Enroll in Any College					
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
GENDER						
Female	1.137	.024			1.102	.099
Male (ref)						
RACE/ETHNICITY						
African American	1.224	.014			1.248	.007
Hispanic						
Mexican	.871	.364			.888	.435
Other Hispanic	.754	.102			.770	.130
Asian						
East Asian	1.528	.007			1.564	.004
Cambodian	1.735	.002			1.740	.002
Vietnamese	3.468	.000			3.388	.000
Filipino	1.388	.074			1.418	.058
Other Asian	.870	.506			.872	.510
AIAN/NHOPI						
American Indian	1.385	.123			1.449	.080
Pacific Islander	.815	.274			.845	.368
White (ref)						
NATIVITY						
1st Generation	1.023	.813			1.033	.736
2nd Generation	1.055	.536			1.052	.555
3rd + Generation (ref)						
HIGHEST EDUCATION OF PARENT						
Less than HS diploma	.518	.000			.520	.000
HS diploma	.569	.000			.569	.000
Some college	.698	.000			.696	.000
BA/BS	1.003	.978			.992	.937
Advanced Degree (ref)						
HOME OWNERSHIP						
Rents Home	.673	.000			.689	.000
Owns Home (ref)						
SCHOOL						
Public District 1	.763	.000			.771	.001
Private District 1	3.864	.000			3.843	.000
Public District 2	.674	.000			.679	.000
Public District 3 (ref)						

Table 4.3, continued: Enrollment in any college one year after high school graduation, 2000-5 senior cohorts

	Model 1: Ascribed and Achieved Characteristics		Model 2: Employment Characteristics		Model 3: Full Model	
	Enrolled in Any College vs. Did Not Enroll in Any College					
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
FAMILY INTACTNESS						
Not intact	.778	.000			.782	.000
Intact (ref)						
SIBSHIP						
Only child	1.217	.131			1.212	.140
1 sibling	1.636	.000			1.645	.000
2 sibling	1.302	.000			1.311	.000
3 or more siblings (ref)						
GRADE POINT AVERAGE						
LE 2.5	.321	.000			.327	.000
BW 2.5 and 3.0	.603	.000			.610	.000
BW 3.0 and 3.5	.628	.000			.631	.000
GT 3.5 (ref)						
AP/HONOR/ IB COURSES						
Have Never Taken	.561	.000			.571	.000
Have Taken or Currently Enrolled (ref)						
HOMEWORK HOURS						
None	.583	.001			.587	.001
LT 2.5 hours	.734	.032			.718	.022
BW 2.5 and 5.5 hours	.844	.265			.840	.256
BW 5.5 and 9.5 hours	1.017	.921			1.002	.989
9.5 or more hours (ref)						
EDUCATIONAL EXPECTATIONS						
Some College (up to a 2-year degree)	.208	.000			.209	.000
Bachelor's Degree	.824	.016			.825	.018
Graduate/Professional Degree (ref)						
WORK STATUS/WORK INTENSITY						
Never Employed			.252	.000	.607	.003
Not Currently Employed			.246	.000	.581	.001
Employed at more than 20 hrs/wk			.317	.000	.640	.000
Employed at more than 10 but fewer than 20 hrs/wk			.633	.000	1.006	.960
Employed at 10 or fewer hrs/wk (ref)						

DURATION OF CURRENT JOB (Only Employed Students)					
Low Duration (less than 2.1 months)		.776	.007	.871	.211
Mid Duration (2.2 and 19.6 months)		.867	.093	.920	.401
High Duration (more than 19.6 months) (ref)					
JOB TYPE (Only Employed Students)					
Typical Teen work		.628	.000	.947	.675
Blue Collar		.510	.000	.858	.319
White/Pink Collar (ref)					
-2 Log Likelihood	8084.454	204.903		8163.587	
Chi-Square	3074.703	254.878		3127.531	
df	47	9		56	
Sig of Chi-Square	.000	.000		.000	

Table 4.4: Enrollment in a four year college one year after high school graduation, 2000-5 senior cohorts

	Model 1: Ascribed and Achieved Characteristics		Model 2: Employment Characteristics		Model 3: Full Model	
	Enrolled in a Four Year College vs. Did Not Enroll in a Four Year College					
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
GENDER						
Female	.881	.041			.883	.053
Male (ref)						
RACE/ETHNICITY						
African American	1.663	.000			1.682	
Hispanic						
Mexican	.914	.642			.939	
Other Hispanic	1.150	.476			1.176	
Asian						
East Asian	1.982	.000			1.970	.000
Cambodian	1.201	.403			1.224	.359
Vietnamese	1.063	.736			1.002	.991
Filipino	.810	.251			.827	.304
Other Asian	.646	.055			.631	.044
AIAN/NHOPI						
American Indian	1.116	.667			1.162	.560
Pacific Islander	1.206	.430			1.262	.329
White (ref)						
NATIVITY						
1st Generation	.715	.002			.715	.002
2nd Generation	1.004	.969			.987	.886
3rd + Generation (ref)						
HIGHEST EDUCATION OF PARENT						
Less than HS diploma	.571	.001			.612	.003
HS diploma	.581	.000			.613	.000
Some college	.638	.000			.663	.000
BA/BS	.898	.230			.910	.296
Advanced Degree (ref)						
HOME OWNERSHIP						
Rents Home	.702	.000			.699	.000
Owns Home (ref)						
SCHOOL						
Public District 1	1.064	.450			1.056	.512
Private District 1	9.277	.000			8.633	.000
Public District 2	1.269	.034			1.269	.036
Public District 3 (ref)						

Table 4.4, continued: Enrollment in a four year college one year after high school graduation, 2000-5 senior cohorts

	Model 1: Ascribed and Achieved Characteristics		Model 2: Employment Characteristics		Model 3: Full Model	
	Enrolled in Any College vs. Did Not Enroll in Any College					
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
FAMILY INTACTNESS						
Not intact	.865	.027			.891	.081
Intact (ref)						
SIBSHIP						
Only child	1.093	.520			1.079	.587
1 sibling	1.327	.000			1.308	.000
2 sibling	1.158	.059			1.158	.062
3 or more siblings (ref)						
GRADE POINT AVERAGE						
LE 2.5	.122	.000			.123	.000
BW 2.5 and 3.0	.311	.000			.319	.000
BW 3.0 and 3.5	.501	.000			.512	.000
GT 3.5 (ref)						
AP/HONOR/ IB COURSES						
Have Never Taken	.354	.000			.361	.000
Have Taken or Currently Enrolled (ref)						
HOMEWORK HOURS						
None	.425	.000			.447	.000
LT 2.5 hours	.675	.001			.677	.001
BW 2.5 and 5.5 hours	.825	.135			.824	.135
BW 5.5 and 9.5 hours	1.054	.698			1.042	.765
9.5 or more hours (ref)						
EDUCATIONAL EXPECTATIONS						
Some College (up to a 2-year degree)	.058	.000			.058	.000
Bachelor's Degree	.655	.000			.657	.000
Graduate/Professional Degree (ref)						
WORK STATUS/WORK INTESITY						
Never Employed			.241	.000	.545	.000
Not Currently Employed			.249	.000	.601	.001
Employed at more than 20 hrs/wk			.233	.000	.494	.000
Employed at more than 10 but fewer than 20(inc) hrs/wk			.530	.000	.873	.238
Employed at 10 or fewer hrs/wk (ref)			.	.		

DURATION OF CURRENT JOB (Only Employed Students)					
Low Duration (less than 2.1 months)		.706	.000	.787	.041
Mid Duration (2.2 and 19.6 months)		.761	.001	.804	.036
High Duration (more than 19.6 months) (ref)					
JOB TYPE (Only Employed Students)					
Typical Teen work		.561	.000	.761	.022
Blue Collar		.465	.000	.757	.073
White/Pink Collar (ref)					
-2 Log Likelihood	7041.074	208.968		7061.770	
Chi-Square	4866.766	424.476		4943.818	
df	47	9		56	
Sig of Chi-Square	.000	.000		.000	

Appendix

Appendix Table A.1: Determinants of Enrollment in Any College One Year After High School Graduation, 2000-5 senior cohorts (Nuanced Models)

	Model 1: Race, Gender, Nativity (Demographic Characteristics)		Model 2: Demographic and Academic Characteristics		Model 3: Demographic, Academic, Socioeconomic and Household Characteristics		Model 4: Employment Characteristics		Full Model	
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
GENDER										
Female	1.372	.000	1.020	.711	1.137	.024			1.102	.099
Male (ref)										
RACE/ETHNICITY										
African American	.608	.000	.810	.006	1.224	.014			1.248	.007
Hispanic										
Mexican	.431	.000	.615	.001	.871	.364			.888	.435
Other Hispanic	.580	.000	.648	.009	.754	.102			.770	.130
Asian										
East Asian	2.219	.000	1.448	.013	1.528	.007			1.564	.004
Cambodian	.638	.002	.967	.843	1.735	.002			1.740	.002
Vietnamese	2.924	.000	2.262	.000	3.468	.000			3.388	.000
Filipino	1.303	.090	1.439	.042	1.388	.074			1.418	.058
Other Asian	.764	.110	.761	.169	.870	.506			.872	.510
AIAN/NHOPI										
American Indian	.644	.013	.977	.908	1.385	.123			1.449	.080
Pacific Islander	.383	.000	.544	.001	.815	.274			.845	.368
White (ref)	.	.								
NATIVITY										
1st Generation	.878	.134	.922	.415	1.023	.813			1.033	.736
2nd Generation	1.221	.006	1.079	.359	1.055	.536			1.052	.555
3rd + Generation (ref)										
PARENTAL EDUCATION										

Less than HS diploma			.518	.000		.520	.000
HS diploma			.569	.000		.569	.000
Some college			.698	.000		.696	.000
BA/BS			1.003	.978		.992	.937
Advanced Degree (ref)							
HOME OWNERSHIP							
Rents Home			.673	.000		.689	.000
Owns Home (ref)							
HIGH SCHOOL ATTENDED							
Public Schools 1			.763	.000		.771	.001
Private Schools 1			3.864	.000		3.843	.000
Public Schools 2			.674	.000		.679	.000
Public Schools 3							
FAMILY INTACTNESS							
Not intact			.778	.000		.782	.000
Intact (ref)							
SIBSHIP							
Only child			1.217	.131		1.212	.140
1 sibling			1.636	.000		1.645	.000
2 sibling			1.302	.000		1.311	.000
3 or more siblings (ref)							
GRADE POINT AVERAGE							
LE 2.5	.299	.000	.321	.000		.327	.000
BW 2.5 and 3.0	.587	.000	.603	.000		.610	.000
BW 3.0 and 3.5	.589	.000	.628	.000		.631	.000
GT 3.5 (ref)							
AP/HONOR/ IB COURSES							
Have Never Taken	.517	.000	.561	.000		.571	.000
Have Taken or Currently Enrolled (ref)							
HOMEWORK HOURS							
None	.505	.000	.583	.001		.587	.001
LT 2.5 hours	.673	.004	.734	.032		.718	.022

BW 2.5 and 5.5 hours		.784	.091	.844	.265		.840	.256
BW 5.5 and 9.5 hours		.967	.821	1.017	.921		1.002	.989
9.5 or more hours (ref)								
EDUCATIONAL EXPECTATIONS								
Some College (up to a 2-year degree)		.165	.000	.208	.000		.209	.000
Bachelor's Degree		.752	.000	.824	.016		.825	.018
Graduate/Professional Degree (ref)								
WORK STATUS/WORK INTESITY								
Never Employed						.252	.607	.003
Not Currently Employed						.246	.581	.001
Employed at more than 20 hrs/wk						.317	.640	.000
Employed at more than 10 but fewer than 20(inc) hrs/wk						.633	1.006	.960
Employed at 10 or fewer hrs/wk (ref)								
DURATION OF CURRENT JOB (Only Employed Students)								
Low Duration (less than 2.1 months)						.776	.871	.211
Mid Duration (2.2 and 19.6 months)						.867	.920	.401
High Duration (more than 19.6 months) (ref)								
JOB TYPE (Only Employed Students)								
Typical Teen Work						.628	.947	.675
Labor/Manual						.510	.858	.319
Professional/Technical								
-2 Log Likelihood								
Intercept Only	656.142	6933.894		11173.744		406.978	11019.103	
Final	331.746	4315.575		8098.858		169.614	7930.46	
Chi-Square	324.396	2618.319		3074.886		237.364	3088.643	
df	13	27		47		8	55	
Sig of Chi-Square	.000	.000		.000		.000	.000	
Pseudo R-Square (Nagelkerke)	0.049	0.35		0.404		0.037	0.414	
Concordance Index C	0.606	0.814		0.838		0.587	0.843	

Chapter 5: College Degree Attainment

Introduction

Ample evidence exists for the economic benefits of obtaining a four-year college degree, including greater opportunities for occupational and wage mobility, as well as greater access to capital (financial and otherwise) and other resources that positively affect life chances (Autor, Katz, and Kearny 2006; Fischer and Hout 2006; Schneider 2008). The benefits associated with earning a college degree (or, conversely, the penalties associated with not having one) have resulted in increasing gaps in earnings between college and high school graduates. As of 2008, *The Conditions of Education* report released by the US Department of Education (2010) showed a 53% difference in yearly earnings of college graduates relative to earnings of workers with a high school diploma only. The difference between associates and bachelor's degree holders was also substantial (28%). In addition to earnings benefits, college degree holders were substantially less likely to be unemployed than those without a college degree.

To illustrate the disparity in earnings by educational attainment, Table 5.1 presents national trends in earnings by differential levels of educational attainment over a 13 year period.

Table 5.1 about here

Of particular interest for this project are comparisons of earnings by educational attainment level between whites and members of ethnic and racial minorities presented in Table 5.1. Although member of all racial/ethnic groups are remunerated at higher levels as their educational attainment increases, the relative rise in earnings among four-year

college degree holders vs. those possessing only a high school diploma among African Americans, Hispanics, and Asians is even higher than that of whites. For instance, in 2008, whites with a bachelor's degree earned on average 36% more than whites with only a high school degree. In contrast, the earnings differential between college and high school degree holders amongst African Americans was 56%, 66% for Hispanics, and 86% for Asians. In other words, while Table 5.1 illustrates the remaining earnings disparities between Whites and racial/ethnic minorities – college-educated whites earn more than college-educated Hispanics or African Americans (but not college-educated Asian workers) – it also shows that increasing rates of college degree attainment have resulted in an attenuation of these disparities (McCall 2001). Still, while education almost certainly pays off for members of all background groups, the payoff for higher educational attainment is associated with greater relative rewards for members of underprivileged groups than for those from more advantaged origins (Brand and Xie 2010).

Despite unprecedented expansion of postsecondary education beginning in the second part of the 20th Century, access to educational opportunities is not equally distributed along socioeconomic and racial/ethnic lines. Given the powerful effect of educational attainment on social and economic mobility and, more broadly, on life chances, this unequal access may exacerbate existing stratification patterns. As the gap in earnings, prestige, and lifestyle of the more- and less-educated grows, social scientists continue to strive to identify determinants of college entry and, more importantly, completion. The role of early work experience in post-secondary educational opportunities remains an underexplored area of research on educational attainment,

despite the prevalence of employment among adolescents. This chapter aims to contribute to literature on the linkage, if any, of early work experience in high school and college degree attainment. While job type is found to have no significant association with degree attainment five years after graduating from high school, moderate levels of work intensity continue to be positively associated with four year degree attainment, net of all other ascribed or achieved student characteristics.

Theoretical Framework

The paths to higher education differ substantially by social background, economic resources, and the social and cultural norms associated with these differences (Coleman 1988). Outside of an easily quantifiable average economic benefit associated with college degree attainment, the extent to which these benefits differ by social background has been a subject of some contention within stratification literature. On the one hand is the so-called positive selection hypothesis, which predicts that individuals with the highest chances of college attendance/completion will also receive greater benefits from post-secondary educational attainment (Carneiro, Heckman, and Vytlacil 2011). On the other hand, the negative selection hypothesis posits the opposite relationship: those individuals who are least likely to attend and complete college receive the greatest benefits from college attendance and completion (Brand and Xie 2010). Work experience obtained during adolescence may play a pivotal role in facilitating (directly or indirectly) opportunities for postsecondary educational attainment for precisely those who are least likely to enter and complete college (especially a 4-year university) due to background disadvantage. It is also possible that the students from more advantaged backgrounds

receive the greatest benefit from work experience are also those who are most likely to go to college, thus rendering adolescent employment an additional factor exacerbating inequality distributed along the lines of socioeconomic and demographic characteristics of students.

Chapter 3 of this dissertation presents evidence that socioeconomic and ascriptive characteristics influence the opportunities of students to obtain work and, in particular, good jobs. For instance, students from advantaged backgrounds (insofar as advantage is encapsulated by higher educational attainment of parents, home ownership and private school attendance) are more likely to work moderate hours and be employed in professional or technical job settings. These are also students who, regardless of workforce participation, are more likely to have the resources (financial, informational, and even cultural) to enter post-secondary educational institutions and complete their four-year degrees. Despite the observed social stratification in teenage employment (Hirschman and Voloshin 2007), there is a non-trivial number of workers who emerge from less privileged backgrounds and/or are members of ethnic/racial minorities typically underrepresented among college-goers who reported beneficial employment experiences – those characterized by moderate work hours and professional settings. The extent to which these workforce experiences continue to exert an effect long after high school graduation is the central question of this chapter. If employment while in high school affects postsecondary degree attainment, the logical subsequent question is whether this effect of work experience is additive, thus, similar for all groups, or if the effect of employment differs depending on background characteristics of student workers.

Descriptive Results Discussion

As recent evidence from the Graduation Rate Survey conducted by the NCES indicates, most students entering a four year institution do not graduate in four years, rather taking five or six to complete their degree (Ingels and Dalton 2008). Consequently, rates of degree attainment will vary substantially depending on the number of years elapsing between high school graduation and the time of college enrollment and completion data collection. Table 5.2 presents the rates of degree completion within five years after graduating from high school by high school graduation cohort. Only the graduating cohorts of 2000, 2002, and 2003 are included in these analyses. The 2004 and 2005 cohorts are excluded since college graduation data were obtained in the summer of 2008, and these cohorts have not had sufficient exposure to the 'risk' of graduation by that time.

Table 5.2 about here

It is important to note a key distinction between the senior cohorts examined here. While 2000 and 2002 cohorts all came from public high schools in an urban school district, the 2003 cohort (as well as those from 2004 and 2005) expanded to include students from private high schools in the same urban area, as well as public school students in more affluent areas of the state. Thus, between-cohort differences in college graduation rates reflect not only the disparities in the time since high school graduation,

but also the composition by socioeconomic and other characteristics that are associated with post-secondary enrollment and degree attainment.

Gender differences, while not stark, are substantial and consistent with national trends in college degree attainment (Buchman and DiPrete 2006), whereby a substantially greater proportion of female than male students in the UWBHS sample going on to complete a four-year degree. The gender gap in the proportion attaining a BA/BS degree also grew over time, from 4% in 2000 to 8% for the 2003 cohort. This observed gender disparity among college attendees as well as college degree recipients is consistent with the national trend.

Race/ethnic group differences in degree attainment are substantial from cohort to cohort, in addition to considerable within-ethnic/racial group between-cohort variation. As mentioned previously, the between-cohort variation is likely to be a reflection of the additional schools appearing in the dataset as of 2003. In addition, some of the ethnic and racial groups are small in number, so fluctuations in proportion that completed a four year degree may not be interpretable. The addition of middle class students emerging from schools added to the study in 2003 impacts the degree attainment rates among race/ethnic groups, as well as overall patterns in college completion.

Among the largest-represented ethnic/racial groups, white students had completion rates somewhat above overall cohort-specific rates for each of the three senior classes. African American students' degree completion rates, on the other hand, trended somewhat to substantially below the cohort-specific averages, with an almost 10 percentage point difference for the 2000 and the 2003 cohorts. Korean, Japanese and Chinese students, despite their higher-than-average enrollment rates shown in chapter 5,

did not have above-average degree completion rates for 2000 and 2002 senior classes. However, the proportion of the 2003 cohort who completed their four-year degrees is substantially higher than the cohort average (with 31% and 24% completion rate, respectively) – a likely result of the additional 'middle class' school district added in 2003.

Overall, the closing of the race/ethnic gap in post-secondary attainment is less apparent when looking at degree completion rates than rates of post-secondary enrollment. In other words, while access to educational opportunities after high school may be expanding to previously underrepresented minorities, these groups are still at a disadvantage when it comes to completing the programs in which they enroll. On the other hand, given time to completion disparities between groups delineated by socioeconomic and/or racial/ethnic differences, the differences in college graduation rates may be somewhat magnified due to the timing of college-related data collection (in that a later data collection time may have captured a more equitable race/ethnic or socioeconomic distribution of degree attainment).

As expected, the educational attainment of parents is strongly correlated with the rates of four year degree completion for students in every cohort. Those whose parents have a four year degree are two to three times more likely (depending on the cohort) to also receive a four year degree, relative to students whose parents hold a high school diploma or less. Proportions of students from the most privileged backgrounds who receive a four year degree are substantially higher than the cohort average, by as much as 16% percentage points (for the 2003 cohort). As with college enrollment, the inflection point in terms of intergenerational transfer of advantage is between attaining some

college and a college degree. Students whose parents did not complete but did attend college have rates hovering slightly below the cohort average, while students whose parents were able to complete their degree have substantially higher than average rates of college degree completion. Whether a given student's parents completed a high school diploma or did not did not substantially affect college completion rates, and they were significantly lower than average for both of these groups.

As discussed previously, the UW Beyond High School Study expanded data collection to two other public school districts, and three private schools located in the same urban area as the initial 2000 and 2002 cohorts. The data presented here illustrate sizable between-school differences in degree completion. Predictably, students hailing from private schools (albeit, with substantial differences between these schools) have approximately twice the overall rates of four-year degree attainment.

Educational success and engagement while in high school is highly correlated with post-secondary success, even when this outcome is separated by five years from high school graduation. Grades attained in high school (presented here as a grade point average) are strongly associated with university completion in the expected direction. The inflection point for high school GPA appears to be at the 3.0 mark, whereby students above that mark have substantially above-average rates of college degree completion, while students with less than a B-average have below-average four-year degree completion rates. Although the direct impact of higher academic performance in high school is likely to have dissipated after some years at a university, study habits and learning techniques acquired as part of a more academically engaged high school experience continue to exert an effect reaching far beyond the high school years.

It is interesting to note that with the addition of more affluent schools to the 2003 cohort of high school seniors, the lowest achieving students (those with less than a 2.5) from higher socioeconomic backgrounds had doubled the rates of achieving a college degree, as did students with similar grades from less advantaged socioeconomic backgrounds. Overall rates of degree completion also went up, however, the relative impact on the low achieving group was greater than that for the high achieving group. While there may be a number of potential explanations for this, it is likely that lower achievers from more privileged backgrounds have access to more financial and other resources that greatly facilitated college degree attainment. Students from more affluent backgrounds may receive greater tutoring (an expense less privileged students' parents may not be able to afford), or may attend smaller, private universities where individualized attention mitigates the risk of dropout that lower achieving students in larger, public universities face.

As with college enrollment, educational expectations and plans are closely related with actual post-secondary outcomes. Students who indicated expectations of graduate or professional degree completion as well as those who had plans to go to a four-year school immediately following high school graduation had substantially higher rates of college degree completion than their less ambitious counterparts. The relationship between educational ambitions and the actuation of these ambitions may mediate the relationship between student background characteristics (particularly, socioeconomic status) and college attendance and completion. In addition, as noted in recent studies of transition to adulthood, students' stated educational aspirations are higher now than ever before, including students from underprivileged backgrounds (Csikszentmihalyi and Schneider

2000). Due to this educational ambition inflation, with more than two thirds of all students expecting at least a four year degree, the inflection point between more and less ambitious students may now be between those aspiring to graduate/professional degrees and those aspiring to less than that level of attainment. This may be the group characterized by a combination of high educational aspirations and the know-how (or ability to obtain it) of the way to implement these aspirations. Csikszentmihalyi and Schneider (2000) characterized this congruence between having high educational goals and knowing how to achieve them as 'aligned ambitions'.

One of the potentially mediating effects of student employment, especially for disadvantaged students, is the exposure of these students to workplaces that aid in the formation of realistic ambitions through contact with adult mentors and first-hand knowledge of educational credentials necessary to obtain higher-level positions. I expect this to be true especially for those in the semi-professional/technical jobs that mostly take place in offices and other professional environments where this kind of exposure is more likely. In addition to the favorable workplace context that these 'good' jobs have, they also tend to be characterized by more moderate work hours, hence promoting better time management without competing with study time or other school-related activities.

It is possible that underprivileged students who are able to obtain better jobs may differ from students who do not get such jobs in motivation or ability. It is also possible, even likely, that employment experiences may impact educational expectations, thus, having an indirect yet substantial impact on postsecondary trajectories via students' educational goal formation. In order to determine the extent to which employment experiences impact educational expectations (resulting in the suppression of the effect of

working when both employment and expectations are included as predictors of college degree completion), I will present results from analyses that include and exclude educational expectations. Insofar as preexisting differences can be parsed out by controlling for educational ambitions or plans, as well as by including educational achievement covariates in multivariate analyses of the effects of employment while in high school on subsequent college degree attainment, analyses presented later in this chapter should identify the independent effect of workforce participation.

Table 5.3 about here

The question of mezzo- and long-term impact of early labor force participation has not received much research attention, and studies that do examine the longer term effects of employment in adolescence have produced conflicting results (e.g., Carr, Wright, and Brody 1996; Marsh and Kleitman 2005; Staff and Mortimer 2007; Bachman, Staff, O'Malley, Schulenberg, and Freedman-Doan 2011). Table 5.3 is illustrative of the relationship between student work histories while in high school and subsequent educational attainment. While the non-workers (whether the never-employed or the once-but not employed at the time of the survey) do not differ substantially from the average of all students the degree of investment in work during high school appears to be strongly related to degree completion. Similar to the patterns of relationship between college enrollment and work intensity, the lowest intensity group (students working 10 or fewer hours per week) are substantially more likely to complete a four year degree than students with higher levels of work intensity (those working more than 20 hours per week). Interestingly, those who work a moderate number of hours, between 10 and 20 a week, also appear more likely to complete a four year degree than students who did not work in

high school, and have a higher proportion of degree completion than the overall average. How much of the effect of work on college completion is due to the positive effect of work on college entry versus the positive effect of work on college completion net of college entry will be explored in multivariate analyses presented later in this chapter.

As previously noted, the associations between work and educational outcomes presented here suggest that a finer gradation than the usual bivariate distinction in work intensity categories should be employed in studies of impact of high school employment. While the 2000 cohort does not exhibit these differences, the moderate and low intensity workers from 2002, and 2003 high school classes differ from one another in their rates of four-year degree completion. While these differences may be an attributable to ascribed or achieved characteristics of moderate vs. low intensity workers, I contend that the nature of workforce participation itself exerts an independent effect on post-secondary achievement, including four year degree completion.

The long-term effect of the type of position held by students in high school is presented here. In some ways, the three job type categories represent the two extremes and the middle bulk of the jobs available to students, both in number and in quality. While professional/technical job holders are substantially more likely to complete a four year degree, their labor/manual employed counterparts are somewhat less likely than average to complete a four year degree. The observed negative association between labor/manual job tenure and post-secondary degree attainment may occur for reasons similar to those responsible for the positive association between professional/technical tenure and degree attainment. Manufacturing and labor jobs (even those requiring high levels of acquired skills) tend to be staffed with workers and supervisors who have lower

average educational attainment, thus, are unlikely to positively impact educational aspirations of student workers employed alongside them. It is also possible that students without plans to attend college self-select into these jobs. While these jobs were at one the 'old core' of teen (and adult) employment, positions in these industrials sectors are quickly dwindling, resulting in displaced workers mostly ending up in the service sector. Students in typical teen jobs have rates almost identical to the cohort-specific averages.

Table 5.4 about here

Aside from work intensity and job type, job tenure or attachment may have direct and indirect effects on post-secondary degree attainment (Mortimer 2003). Table 5.4 presents a distribution of student workers into three groups, coded by self-reported job tenure whereby the 'low duration' group falls into the 25th percentile of job tenure based on overall responses, and the 'high duration' group falls into the 75th percentile of the number of months spent on the job prior to survey administration. The average reported job tenure for the three cohorts of high school seniors was 8 months.

Job tenure could be interpreted as a characteristic of the job, as well as a reflection of unobservable student characteristics that may also impact postsecondary educational achievement. Longer job tenure may be an indirect indication of a certain level of stick-to-itiveness that is also positively associated with post-secondary educational outcomes. Time spent working in one firm/company may also be positively related with attaining soft- or non-cognitive skills, even in typical teen or labor/manual jobs. On the other hand, shorter duration of working in one place may discourage the formation of good habits rewarded in both the labor market and educational institutions, even in workplace environments that would typically be associated with better educational outcomes, since

the student worker does not have enough time to form close relationships with potential adult mentors at jobs held for a brief period of time.

As anticipated, students whose job tenure was in the 75th percentile (students who have had their job for longer than a year and a half by Spring of their senior year, the time that the senior survey was administered) have somewhat higher than average rates of degree completion. Conversely, students who have not had their job for long (and, possibly, moved from job to job prior to their current position) have slightly below average rates of degree attainment. While these differences are not as stark as those between work intensity groups, the amount of time spent on the job may speak to another under-researched dimension of the impact of early work histories on post-secondary degree attainment.

Students' socioeconomic background is strongly related with degree completion, and the question of mediating effects of work on socioeconomic disparities in degree attainment is of particular import. The following table presents a comparative snapshot of the impact of early workforce participation for two groups of students delineated by the level of education obtained by their parents.

Table 5.5 about here

Students with parents who have traversed the college terrain and have earned a four-year degree should have a distinct advantage in following in their parents' footsteps than students who will be the first in their family to obtain a baccalaureate degree. Thus, I divided the students into two groups: those who have at least one parent with a college degree, and those who do not. The overall degree completion differences between the two

groups are striking, yet not surprising, with almost twice the degree attainment rates for students from more privileged backgrounds than for students from less privileged ones.

With almost twice the rates of college degree completion in each cohort, the advantage of having college-educated parents is illustrated in this table. Once again, low intensity work and professional/technical employment is positively associated with the likelihood of obtaining a four-year degree for both groups. However, as with the race/ethnic differences identified in Table 5.2, the relative impact of workforce participation differs substantially in magnitude between these two socioeconomically disparate groups. Low-intensity workers from families with lower educational attainment gain substantially from this type of employment participation (at 45%, 63%, and 80% increase in college degree attainment) compared to the overall proportion who obtained a college degree in this group. For the more privileged group of students, moderate employment participation increased the proportion completing a college degree by 33%, 38%, and 47% for each successive cohort. Consistent with Brand and Xie (2010), the relative impact of low-intensity work for the less privileged group is of much greater magnitude, or conversely, the relative deleterious effect of high intensity work is also much greater for underprivileged and ethnic/racial minority students.

Of note is the discrepancy in the relationship between holding a labor/manual job and college degree attainment for these two student groups. Labor/manual job-holding students of non-degree holding parents had college degree attainment rates very similar to the overall average. Students from more privileged households, on the other hand, had substantially lower college degree completion rates than their counterparts.

The extent to which workforce participation mediates observed race/ethnic disparities in college degree attainment is illustrated in Table 5.6.

Table 5.6 about here

Groups of working- and non-working African American and white students are juxtaposed in their rates of college degree completion. Overall, both groups of students were more likely to have earned a college degree five years after high school if they were employed at a low intensity. Interestingly, while whites working 10 or fewer hours in high school had a 69% higher proportion of college degree holders than the average, African American low intensity workers had 103% greater completion rates than the average for that group (27% vs. 13%, respectively). In other words, it can be said that African American students working at low levels of intensity have relatively higher returns on 'good teen jobs' (as it manifests in college degree completion) than whites. Nevertheless, the absolute black-white college degree completion gap remains for all groups delineated by workforce participation.

Multivariate Results Discussion

While bivariate results depicted in the descriptive tables presented above are illustrative of gross relationships between labor market participation and college degree attainment, it is only with a multivariate model that the independent effect of working while in high school can be isolated from the impact of other salient characteristics on college degree attainment. Table 4 presents results of binary logistic regression analyses of the likelihood of completing a four-year degree incorporating salient student background characteristics, as well as educational and employment-related

characteristics. While the inclusion of all students in the analysis obviates the small cell-size problem inherent in selecting only students who reported entering a four year university, it is important to isolate the impact of predictors on college persistence and completion by filtering respondents based on college enrollment information.

The analytical approach presented in Table 5.7 (which includes high school workers and non-workers) is replicated on only the students who reported working in high school (see Appendix Table A.2). The final model restricted to only workers facilitates the assessment of all employment-related characteristics simultaneously, a task that is impossible if non-workers are also included in analyses. Partial models including only demographic or only educational characteristics were also produced in order to assess the impact of inclusion of work-related variables once other student characteristics are accounted for. Aside from Table A.2, the Appendix to this chapter also contains Table A.3, with results from analyses excluding educational expectations as a predictor of Bachelor's degree attainment. These analyses were performed in order to determine the extent to which the inclusion of educational expectations attenuates the significance or magnitude of employment-related variables on degree completion. While small changes to some education- and socioeconomic status-related predictors is observed when comparing Tables 4.4 and A.3, the impact of employment status, intensity, and quality remains at roughly the magnitude and significance levels observed when educational expectations are included.

Table 5.7 about here

In Table 5.7, the impact of various salient factors in college completion identified in the literature is estimated with an incremental modeling approach. Model 1 includes only the ascriptive and socioeconomic indicators in order to determine the extent to which race, gender, nativity, and socioeconomic status differences significantly affect college enrollment after high school[29]. Model 2 contains predictors measuring education-related behaviors and characteristics while in high school. Model 3 combines the predictors related with students' background (from Model 1) and students' educational characteristics (Model 2) in order to assess the net effects of both of those important categories of covariates. Model 4 (A and B) presents the bivariate effects of employment characteristics on the likelihood of obtaining a college degree. Model 4 in the Appendix Table A.2 examines only those who reported being employed during the time of the senior survey, and includes all employment characteristics in order to assess their net effect on college degree completion. Two fully-elaborated models with three sub-component models are presented. Model 5 (A and B) includes each employment-related variable (one per sub-model) as well as all predictors determined as significantly related to college degree attainment from Models 1 and 2. It includes both working and non-working students in order to examine the impact of work status as well as hours worked and job type. The final model (6) once again includes only those employed during the senior survey in order to assess independent effects of work intensity and job quality on the odds of college degree attainment net of all other salient student characteristics in one model.

[29] Although not discussed, I also include a year of survey control variable. Because of the timing of implementation of various programs aiming to equalize access to a college education in the Northwest, it is necessary to control for the year in which students surveyed were in high school.

Model 1 accounts for ascriptive (both demographic and socioeconomic) characteristics of students, and confirms the bivariate results on the important role of students' background on college attendance. Consistent with other studies, female students are more likely to graduate with a four year degree than males, net of other background characteristics, although this 'female advantage' may attenuate when grade attainment measures are introduced (Buchmann and DiPrete 2006; Bailey and Dynarsky 2011).

Some significant ethnic/racial differences in the odds of college graduation persist in this model, despite the inclusion of socioeconomic factors (which may account for some of the ethnic/racial group differences in educational attainment). Because of the restricted sample utilized for analyses in this chapter, some of the more detailed race/ethnic categories were collapsed into what are sometimes called 'pan-ethnic' categories. This approach is necessary given the sample size, but is unfortunate given that one of the major strengths of data obtained from the UW Beyond High School Project is rich information on racial/ethnic identities of the students. Nonetheless, for the purposes of these multivariate analyses, I collapse the more detailed groups into: African Americans, Hispanics, Asians, and AIAN-NHOPI (American Indian/American Native and Native Hawaiian/Other Pacific Islander). While differences between Hispanics and whites, and Asians and whites were not significant, substantial differences remain in the odds of college graduation between African Americans and whites, and to an even greater extent, between whites and the AIAN-NHOPI group.

Students whose parents own their home, those coming from smaller families and/or intact families have higher odds of graduating from a four-year institution than

students who live in rented properties, who come from households with more offspring, or those whose parents are not together. All of these indicators are directly or indirectly measuring resources available to support, both financially and otherwise, a college going student. For instance, students with a greater number of siblings may have emerged from households where each child gets a lesser share of resources thus diminishing the odds of completing college five years after graduating from high school. Similarly, the amount of available resources in intact families relative to those which are not intact may vary, producing differential college graduation patterns between students.

Although substantial association between student background characteristics and the odds of college degree attainment are evident in Model 1, even more powerful than socioeconomic predictors of college degree completion are educational characteristics of students. Model 2 demonstrates that the sizable bivariate relationships shown in Table 5.2 between educational characteristics and postsecondary degree attainment persists for some of these (in particular, for high school grade point average and college plans) continues to exert a significant impact, while others attenuate in predictive power and/or significance (such as time spent on doing homework). Interestingly, some of these predictors – average number of hours spent on doing homework chief among them – were shown to have a substantial and statistically significant association with college entry.

Two powerful predictors of four-year degree completion emerge – high school grade point average and plans for postsecondary enrollment disclosed at the time of responding the senior survey. The nature of the relationship between educational characteristics and the likelihood of completing a four-year college are not surprising.

Specifically, academically under-achieving students are significantly less likely to complete a college degree relative to students with at least a B+ average. Of interest is the somewhat severe drop-off in the likelihood of completing college among those who reported relatively good grades in high school (a cumulative GPA between 3.0 and 3.5). These students were almost half as likely to attain a college degree 5 years after graduating from high school as students who got better grades (a 3.5 to a 4.0 GPA). Similarly, those students who reported having firm plans to go to college in the spring of their senior year of high school were significantly more likely to graduate from college at the time of data collection, holding constant grades and other educational characteristics for those who reported entering a four-year institution. Students reporting higher levels of academic ambitions (postsecondary degree of some sort) were substantially more likely to complete a four year college than those with relatively low levels of educational expectations. However, unlike the findings on differences in the chances of college *entry* reported in Chapter 5, no significant difference in the chances of college *completion* is found between students reporting an expectation to get a bachelor's degree and those who expected going beyond an undergraduate education.

When comparing measures of explained variance in models including both ascribed (demographic and socioeconomic) characteristics as well as those pertaining to education, it's clear that educational predictors contribute almost three times the explanatory power than do student background characteristics.

Although the magnitude of the socioeconomic status indicators abates slightly upon the introduction of educational variables, Model 3 shows that both ascription and achievement contribute significantly to disparate rates of college completion. This model

also presents evidence that high school grades and postsecondary plans somewhat mediate the relationship between demographic and socioeconomic characteristics of students and subsequent college degree completion rates, albeit not entirely. In particular, evidence of an inter-generational inheritance of advantage (or disadvantage) is apparent upon examination of the effect of parental education on college enrollment in Model 1, however, abates somewhat in Model 3, with the introduction of educational achievement and plans. While students whose parents have less than a four-year degree are still significantly less likely to complete a four-year degree, the difference in the odds of this outcome is cut in half between Models 1 and 3. Still, the advantage of having at least one college-educated parent is apparent, and this is not surprising, as higher levels of educational attainment are typically indicative of greater available economic and social capital. These and other resources are utilized by parents to maximize the chances of college attendance for their offspring.

Of interest is the impact of the addition of educational predictors on the association between race/ethnicity and gender and college degree attainment. Buchmann and DiPrete (2006) hypothesized that the female advantage observed in college enrollment and completion rates may be partly explained by differential grade attainment between female and male students. This indeed seems to be the case here. While there was a substantial difference between male and female students (with the latter 55% more likely to complete college in Model 1, at a significance level of .000), the introduction of educational characteristics cuts the magnitude of that difference by more almost a third (to 17% more likely at a .1 significant level). Similarly, although race/ethnic differences in college degree attainment remain, this is not the case for all groups. For instance, while

the AIAN-NHOPI group continues to be significantly less likely to graduate from college relative to whites, the difference between African Americans and whites is reduced to non-significance. Somewhat surprisingly, a suppression effect of educational characteristics emerges for one group that was not significantly different from whites in the odds of completing college in Model 1. Upon accounting for both background (demographic and socioeconomic) and educational characteristics of students, Asians appear to be somewhat less likely than whites to graduate from college.

Models 4A and B depict the bivariate associations between each dimension of employment discussed previously – employment status, work intensity, and the type of job held by students – and the completion of a four-year degree five years after graduating from high school. Model 4 in the Appendix Table A.2 presents evidence of the relationship between all employment characteristics and the chances of college degree completion for those who reported being employed at the time of the senior survey.

The first two sub-component models (A and B) depict the gross association between dimensions of teens' work experience and their eventual chances of graduating from college. While Table 5.2 presented earlier in this chapter presents some evidence of a bivariate relationship between work status, intensity, job type, and postsecondary degree attainment, this bivariate representation of the association allows the depiction of the impact of employment characteristics on the *odds* of completing college for those who enter a four year institution. Generally, both variables measuring different student employment dimensions are significantly related to the outcome of degree completion. However, they do not, by themselves, explain much of the variation in degree attainment, as indicated by measures of pseudo-R^2 and the C-statistic of association (Hosmer and

Lemeshow 1980). As in analyses presented in previous chapters, moderate work intensity (relative to not working, or to working more hours) is associated with substantial increases in the odds of completing a four year university. Similarly, professional-technical workers appear to be more likely to complete college than students who held typical teen or labor/manual jobs. Of great interest is the extent to which these effects will attenuate after the introduction of educational and background student characteristics. In other words, of central importance is the question of direct or mediating effects of work on educational attainment, and this question will be addressed in subsequent models.

As shown in Chapter 2, there is quite a bit of an overlap between work intensity and job type, in that 'good jobs' (those in the professional/technical group) are also jobs that are more likely to demand fewer hours of work per week (the 'good' work intensity category). If this overlap is substantial enough, the impact of one of those dimensions may attenuate or lose significance when both are introduced into one model. Since this is not possible without restricting the analysis to only students who reported working at the time of the student survey, all models discussed in this section were also performed for the working population only. Because most of the predictors did not vary substantially in direction between models restricted to only workers and models allowing non-working as well as employed students to be included, I will not be discussing most of the results of these models in this section. However, Model 4 for only the working population (see Appendix Table A.2) limits the analysis population to only those who worked at the time of the senior survey in order to evaluate the net effect of both work intensity and job type on the odds of degree completion for those who entered a four year university. It shows that high intensity workers are substantially less likely (by 55%) to complete a four year

degree net of the type of job they held. Similarly, it shows that, net of work intensity, students holding typical teen jobs are about 36% less likely to complete college once they entered. This difference was even larger when comparing labor/manual job holders with those in professional/technical job settings in high school, whereby the former were 45% less likely to complete a four year degree five years out from high school graduation than the comparison group. Despite the significant association of both measures of employment dimensions, it is work intensity that produces the largest impact on the outcome variable, and has the greater explanatory power (as measured by the Negelkerke Psedo-R^2 of .047 for work intensity, and 0.022 for job type in incremental models including only one and then both of those variables for only the working students). If the impact of one or both of those characteristics of work maintains significance in the fully specified model, that would constitute powerful evidence of the long-term impact of working while in high school on subsequent educational attainment, and indirectly, life chances (insofar as they are related to postsecondary degree completion).

All three dimensions of the adolescent work experience are significantly related to the odds of degree attainment, although these relationships attenuate once other student characteristics are accounted for, as is shown in the fully specified model discussion below. The relative impact of work experience on groups delineated by socioeconomic status and minority ethnic/racial group membership is also explored below. The decomposition of the impact of employment in high school on college degree attainment by background characteristics can address the question of whether and how work experience mitigates or exacerbates extant disparities in the chances of college degree attainment. The implication of a greater understanding of the role of early employment

can be beneficial to creating an accurate overall picture of facilitators and inhibitors of greater equality of access to the rewards associated with postsecondary degree attainment for groups who are the least likely to attend and most likely to benefit from attendance (Brand and Xie 2010).

The results of Models 5A and B indicate that accounting for work experience and its dimensions attenuates some of the background characteristic-based differences in the odds of completing college. Specifically, while the female advantage with respect to degree attainment was somewhat reduced with the introduction of educational predictors, female students were still found to be significantly more likely (at the .1 level) to graduate from college. When work status and intensity is introduced as a covariate (in Model 5A), the difference between genders is no longer significant. Further, differences in the odds of college degree attainment between Asian and white students emerging in Model 3 recedes back into non-significance once measures of work status and intensity are introduced.

On the other hand, some socioeconomic and educational predictors of college degree attainment are unaffected by the introduction of work variables. The advantage of having at least one college educated parent remains significant in this model. High school GPA, educational expectations, and college plans maintain a substantial association, and can be said to account for much of the explanatory power of this model (as is indicated by a comparison of overall model fit and model accuracy discussed earlier in this section).

While all three dimensions of work appeared to be significantly impacting the odds of college completion (in Models 4A and B), upon the inclusion of all salient

background and educational characteristics, it is work status and intensity which maintain a significant association with the likelihood of college graduation. As hypothesized, low intensity employment appears to be the most beneficial type of labor force participation insofar as it leads to greater chances of graduating from college than not working or working a larger number of hours. Interestingly, the group that's least likely to graduate relative to the low intensity high school workers was not the high intensity group, as some studies may have suggested (Bachman, Staff, O'Malley, Schulenberg, and Freedman-Doan 2011), but students who were never employed, whether at the time of the survey, or at any other time prior to that. And while differences in job type may expose student workers to environments which are more or less conducive to postsecondary educational attainment, Model 5B accounting for demographic, socioeconomic, and educational differences among students as well as job type shows that the odds of college graduation for professional/technical workers is not significantly different from that of typical teen or labor/manual workers. Professional/technical workers do appear to have greater odds of completing college than those who did not work in high school, net of all other student characteristics.

As previously mentioned, the only path toward evaluating the relative impact of work intensity *and* job type simultaneously is to limit the analysis to only those students reporting employment at the time of the senior survey. Model 5 in Appendix Table A.2 shows the results of this analysis. Unlike college entry, job type is not significantly related to the odds of college graduation for students who were employed in their senior year. Perhaps this is because the tools required to enter a selective college differ from those needed to actually complete a degree once there. While the impact of role models

or other relationships formed while working in better jobs may be important for providing direction on college entry, the motivation to finish and the requisite time management skills may not be job specific, rather, a product of having additional time pressures associated with early employment. This is especially true for those who are already academically successful enough to enter a four-year school, as these are students who are more likely to be involved in extracurricular activities and do more out of school homework while in high school resulting in a saturated after school schedule on both weekdays and weekends. The resultant work ethic, sense of moderation, and the ability to juggle time commitments and fulfill obligations contribute significantly to the chances of college completion. And again, because socioeconomic, demographic, and academic characteristics of students are also included in this analysis, this relationship cannot be due to the privilege associated with low intensity positions or due to greater time devoted to studies (or better educational achievement, for that matter).

In order to more clearly depict the gross and net impact of employment on postsecondary degree attainment, a series of predicted probabilities have been constructed from incremental models discussed above. Figures 5.1 and 5.2 present results from bivariate models (4A and B) including only work status/intensity and job type.

Figures 5.1 and 5.2 about here

Both of these figures provide preliminary yet powerful evidence of the persistence of the impact of employment characteristics on college degree attainment long after observed workforce participation. When other student characteristics are not accounted for, the starkest difference is between working students in low and high intensity categories of work hours. While students who invested more hours into their work were

predicted to have a 21% chance of graduating from college five years after graduating from high school, students working in low intensity jobs were 38% likely to attain a college degree in that same period of time. Although this difference is substantial, the disparity in the chances of college degree attainment between holders of different types of job is even more considerable.

Students in professional/technical settings are predicted to have a 41% likelihood of graduating from college, while students holding labor/manual jobs are substantially less likely to obtain a degree, at 24%. Although these predicted probabilities are illustrative of the potential magnitude of work intensity and job type, having discussed fully specified models of odds of college completion has provided a glimpse into the relative import of both of these when all other salient student characteristics are accounted for. These differences are presented in Figures 5.3 and 5.4, where focal contrast groups are selected, and probabilities of college completion for each of them are presented based on the fully specified model of degree attainment discussed above.

Figure 5.3 about here

To further illustrate the long-term impact of workforce participation while in high school, predicted probabilities of college degree attainment were produced for students identical to one another in every way except race. These probabilities are presented in Figure 5.3. Whereas race is the focal characteristics in this figure, the next figure will highlight the contribution of moderate employment to the chances of college degree completion for two hypothetical students different from one another by parental educational attainment.

Modest workforce participation contributes 5 to 6 percentage points to the probability of graduating from college for students from a working/middle class background (with neither parent holding a four-year degree, attending Mukilteo), with good (but not great) high school grade point average, and expectations of attaining a four year degree. A never-employed white student with these background and educational characteristics has about a 15% probability of obtaining a college degree five years after graduating from high school, while as similar student who is African American has about a 12% chance of graduating with a degree in that time. Interestingly, high intensity employment contributes, albeit negligibly, to the probability of obtaining a college degree. As expected, students working moderate hours during the time of the senior survey are have a 21% of graduating from college for whites, and a 17% probability of graduating for African Americans. Although the absolute magnitude of impact was higher for white students, the relative contribution of working moderate hours while in high school is greater for African Americans. If the Brand and Xie (2010) hypothesis holds, and those who are less likely to attend college receive the greatest benefit from college degree completion, moderate intensity workforce participation while in high school may provide a greater relative contribution to the chances of attaining a college degree for these students.

As shown in Table 5.7, parental educational exerts a substantial effect on the chances of graduating from college, even when other salient student characteristics are held constant. The question of the impact of employment at different intensity levels (and non-employment) on degree attainment is addressed in the next figure, where the all student characteristics are held constant except for parental education.

Figure 5.4 about here

Figure 5.4 depicts the predicted probability of college degree attainment for two hypothetical African American female students, with the only difference between them being parental educational attainment. The advantage of having college-educated parents is immediately apparent. A never-employed student who has received middle-of-the-road grades in high school (3.0 to a 3.5 range), has had a more rigorous curriculum (honors or AP classes) and expressed plans to go to college after graduating from high school has approximately a 19% likelihood of graduating from college with a degree if at least one of her parents also holds a college degree. An identical student without college-educated parents has a 13% of obtaining a college degree in the same amount of time. While high intensity employment adds negligibly to the chances of graduating from college, moderate intensity employment increases the chances of college graduation to 25% for students emerging from more advantaged households, and to 19% for students who hail from more modest origins. As in the previous example, the relative impact of the moderate workforce participation is much greater for the less privileged student than it is for students coming from more advantaged backgrounds, although both groups receive a similar absolute 'boost' in the chances of college graduation if they spent at least a part of their senior year in high school working 15 or fewer hours.

Conclusion

Among the strongest criticisms of adolescent workforce participation is that it robs students of the time needed to engage in academic or other productive pursuits, such as sports or academic clubs. As mentioned previously, the zero-sum view of adolescent

time use predicts that time invested in the workforce is time lost from other, arguably more important activities that should be prioritized by teenagers. Other studies on the psychological impact of teenage employment-related outcomes have identified a phenomenon referred to as 'pseudo-maturity' and school disengagement as a direct consequence of employment while in high school. In previous chapters, I present evidence contrary to this view, whereby students employed at moderate intensity levels and in 'good' jobs tend to have levels of extracurricular participation and homework hours equal to or greater than the non-employed students. However, evidence presented previously extended only to educational outcomes contemporaneous with employment, or that which occurred one year after high school graduation (college entry). While entering college is necessary, it is not a sufficient condition for degree attainment. Given the vast and growing gap in social and economic mobility and life chances related with differential educational attainment levels, it is the *completion* of a college degree that is, arguably, the most important outcome to investigate.

While some longitudinal studies investigating the long-term impacts of student employment have found a persistent negative effect of working longer hours while in high school on college degree attainment, the extent to which working at moderate hours is beneficial to the chances of college graduation is less clear (Bachman, Staff, O'Malley, Schulenberg, and Freedman-Doan 2011). Results presented in this chapter addresses this question and present evidence of a long-term, persistent effect of workforce participation, and particularly, work intensity, on postsecondary outcomes five years after graduating from high school. Strikingly, non-employment, and specifically, never having held a job, is negatively associated with college completion, relative to modest intensity employment

and high intensity employment. This is partly explained by selecting into my analysis only those students who reported being enrolled in a postsecondary institution. High intensity employment may *appear* to have a negative impact on college degree attainment because high intensity employment has a significant negative association with the chances of *entering* a postsecondary institution (especially a four-year school). The central question at the heart of this chapter and the analysis results presented therein is one of the impact of workforce participation on college graduation, thus, parsing out the relatively impact of employment on college entry vs. completion was important in order to isolate this effect. Overall, the beneficial effect of modest intensity employment on postsecondary outcomes is clear from these analyses. The policy implications of this finding may be to create greater ties between employers and high schools in order to facilitate entry into the workforce for those who desire a job, while limiting the number of hours worked and exposure to non-beneficial work conditions. Suck linkages may prove particularly valuable for underprivileged students who are less likely to enter and graduate from college, as well as find employment opportunities that align with their primary student role.

Figure 5.1: Predicted Probability of College Degree Attainment by High School Work Status and Work Intensity (Gross Effects)

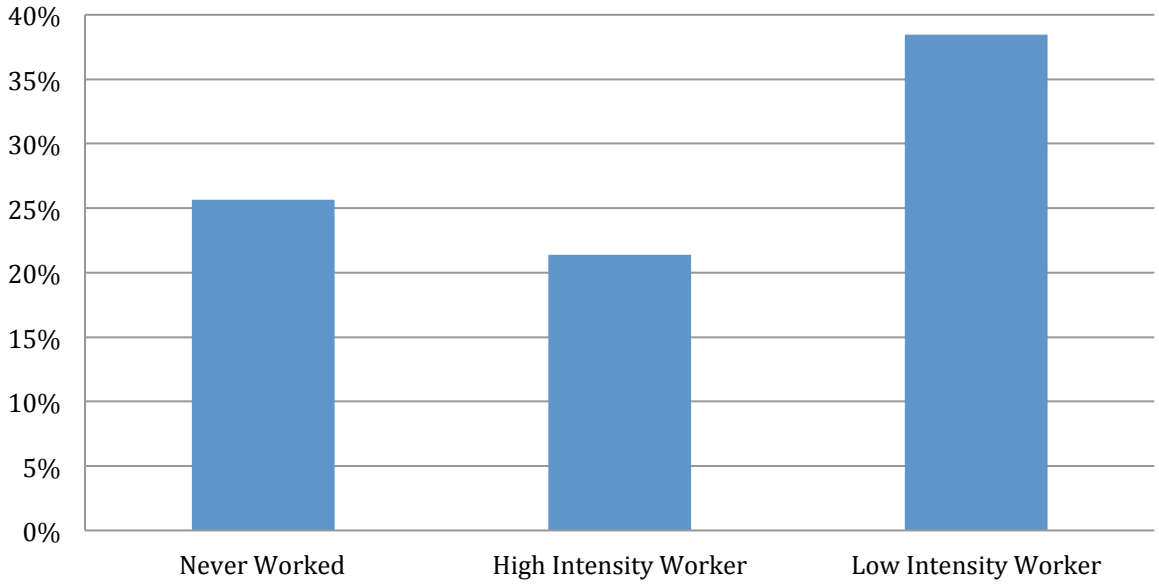

Figure 5.2: Predicted Probability of College Degree Attainment by High School Job Type (Gross Effects)

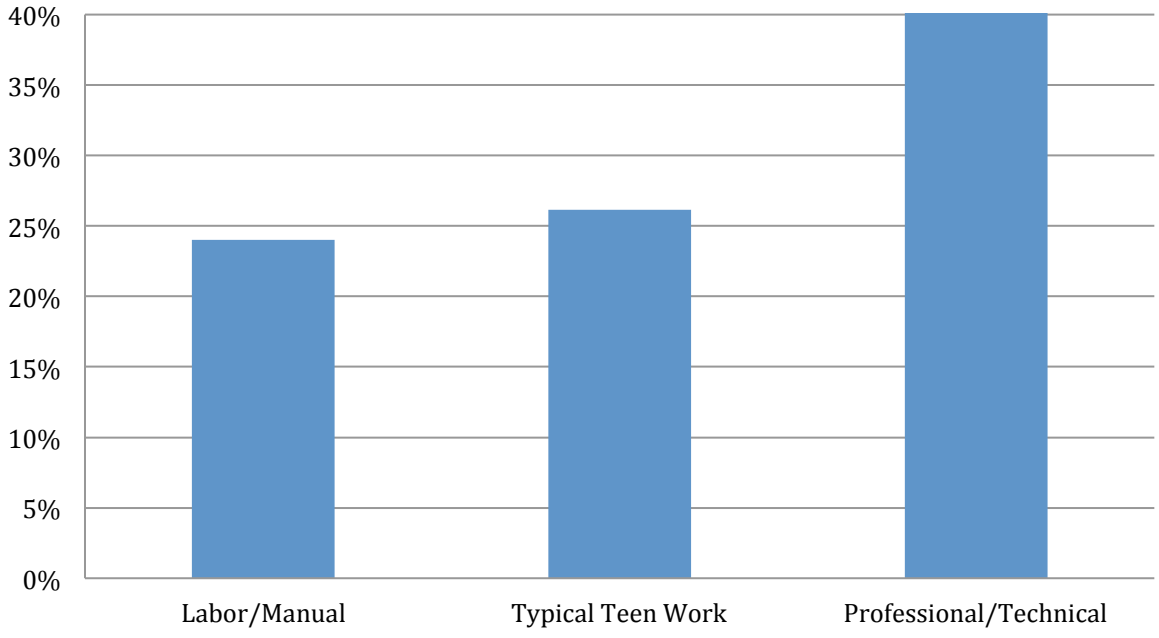

Figure 5.3: Impact of Work Status and Intensity on the Probability of College Degree Attainment for White and African American Male Students with Similar Backgrounds (Less-Privileged), Grades, and Educational Plans

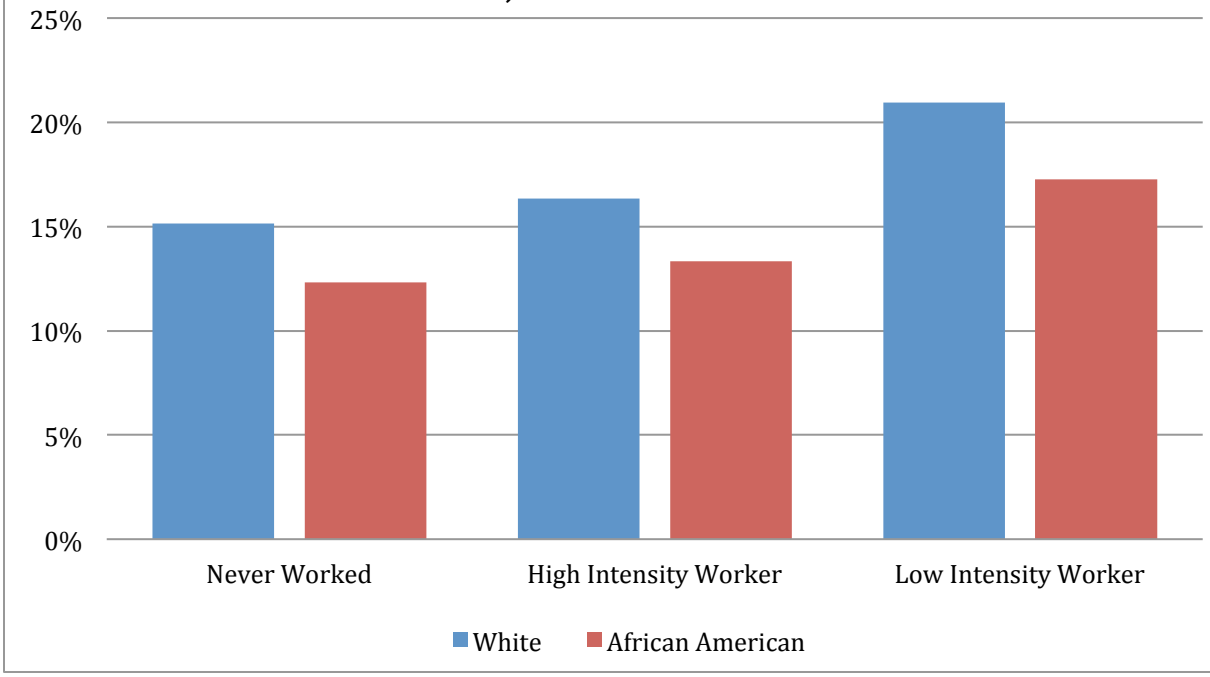

Figure 5.4: Impact of Work Status and Intensity on the Probability of College Degree Attainment for African American Female Students with Differential Parental Education, but with Similar Academic Characteristics

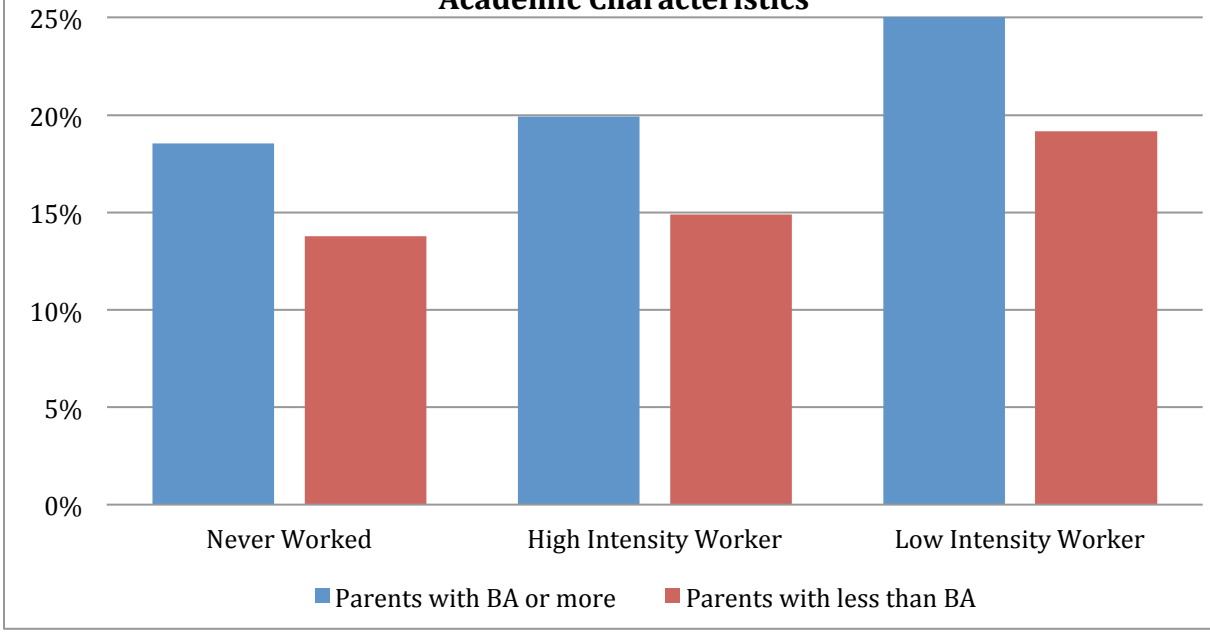

Table 5.1. Median Annual Earnings and Percentage of Full-Time, Full-Year Wage and Salary Workers Ages 25–34, by Educational Attainment, Sex, and Race/Ethnicity: Selected Years, 1980–2008

Educational attainment, sex, and race/ethnicity[1]	1995	2000	2005	2008
Total[3]	**$35,300**	**$37,500**	**$37,300**	**$37,000**
Less than high school	22,900	25,000	24,300	23,500
High school diploma or equivalent	29,400	31,300	30,800	30,000
Some college[4]	32,900	35,000	34,700	32,000
Associate's degree	35,300	37,500	37,500	36,000
Bachelor's degree or higher	46,600	50,000	48,500	50,000
Bachelor's degree	43,800	48,800	45,000	46,000
Master's degree or higher	56,500	56,300	55,100	55,000
Sex and educational attainment				
Male	**38,900**	**42,500**	**38,600**	**40,000**
Less than high school	26,800	25,500	27,200	25,000
High school diploma or equivalent	33,900	36,300	33,100	32,000
Some college[4]	36,700	41,100	38,600	37,000
Associate's degree	36,700	46,300	43,000	41,000
Bachelor's degree or higher	52,700	57,500	55,100	55,000
Bachelor's degree	49,500	56,300	49,600	53,000
Master's degree or higher	62,600	66,300	60,600	65,000
Female	**31,100**	**33,800**	**33,100**	**34,000**
Less than high school	18,700	20,800	19,800	17,000
High school diploma or equivalent	24,900	26,300	26,500	25,000
Some college[4]	28,300	30,000	30,900	29,000
Associate's degree	33,900	32,500	33,100	32,500
Bachelor's degree or higher	42,400	44,400	44,100	45,000
Bachelor's degree	39,600	43,800	41,900	42,000
Master's degree or higher	49,500	50,000	51,800	51,000
Race/ethnicity[1] and educational attainment				
White	**36,700**	**40,500**	**38,600**	**40,000**
Less than high school	25,400	25,000	25,400	26,400
High school diploma or equivalent	31,100	34,400	33,100	31,200
Some college[4]	33,900	37,500	35,300	33,100
Associate's degree	36,700	40,000	38,600	40,000
Bachelor's degree or higher	48,000	50,000	49,600	50,000

Bachelor's degree	45,200	50,000	45,200	47,000
Master's degree or higher	56,500	56,300	55,100	55,000
Black	**29,700**	**31,700**	**31,900**	**30,000**
Less than high school	19,800	23,800	22,900	20,000
High school diploma or equivalent	25,400	26,300	25,400	26,000
Some college[4]	31,100	32,500	32,100	30,000
Associate's degree	31,100	31,300	30,900	31,000
Bachelor's degree or higher	38,900	43,800	43,000	45,000
Bachelor's degree	36,700	41,300	39,700	40,000
Master's degree or higher	48,000	53,800	48,500	53,000
Hispanic	**$28,300**	**$31,300**	**$29,800**	**$30,000**
Less than high school	22,000	22,800	22,900	22,000
High school diploma or equivalent	26,800	28,800	26,500	27,000
Some college[4]	28,300	33,800	35,300	30,100
Associate's degree	33,900	37,500	37,500	32,000
Bachelor's degree or higher	42,400	47,500	45,200	45,000
Bachelor's degree	40,700	45,000	44,100	42,000
Master's degree or higher	‡	‡	55,800	52,000
Asian	[5] **36,700**	[5] **45,000**	**44,100**	**50,000**
Less than high school	[5] ‡	[5] ‡	‡	‡
High school diploma or equivalent	[5] 28,300	[5] 31,300	29,800	28,000
Some college[4]	[5] 26,300	[5] 35,000	33,100	33,000
Associate's degree	[5] 28,300	[5] 37,500	38,600	31,700
Bachelor's degree or higher	[5] 46,600	[5] 62,500	55,100	60,000
Bachelor's degree	[5] 43,100	[5] 61,300	55,100	55,000
Master's degree or higher	[5] 53,700	[5] 66,300	60,600	70,000
Pacific Islander	[5]	[5]	**‡**	**‡**
American Indian/Alaska Native	**28,300**	**30,000**	**33,100**	**29,000**
Two or more races	**—**	**—**	**38,600**	**34,000**

— Not available.

‡ Reporting standards not met (too few cases).

1 Race categories exclude persons of Hispanic ethnicity. Estimates for educational categories for Pacific Islander, American Indian/Alaska Native, and Two or more races subgroups did not meet reporting standards. For more information on race/ethnicity, see supplemental note x.

[2] Full-time, full-year wage workers as a percentage of the population ages 25–34 who reported working or looking for work in 2008.

[3] Totals for 1980 and 1985 include other racial/ethnic groups not shown.

[4] Due to changes in categories across time, the category "some college" prior to 1992 is not comparable with "some college" from 1992 onward. Prior to 1992, "some college" may have included students who earned an associate's degree.

[5] From 1989 through 2002, data for Asians and Pacific Islanders were not reported separately; therefore, Pacific Islanders are included with Asians during this period.

NOTE: Earnings are presented in constant dollars by means of the Consumer Price Index (CPI) to eliminate inflationary factors and allow for direct comparison across years. For more information on the CPI, see supplemental note 10. Full-year worker refers to those who were employed 50 or more weeks during the previous year; full-time worker refers to those who were usually employed 35 or more hours per week. For more information on the CPS, see supplemental note 2.
SOURCE: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), March and Annual Social and Economic Supplement, selected years, 1981–2009.

Table 5.2: BA Degree Completion Five Years After High School Graduation by Student Characteristics,

2000-2003

Demographic Characteristics	5-year College Graduation as of Summer of 2008		
	2000 cohort	2002 cohort	2003 cohort*
GENDER			
Female	20%	21%	26%
Male	16%	13%	18%
RACE			
White & NEC	23%	20%	25%
African American	11%	13%	13%
Hispanic			
Mexican	0%	7%	17%
Other Hispanic	7%	23%	13%
Asian			
East Asian	18%	19%	31%
Cambodian	20%	13%	14%
Vietnamese	19%	28%	20%
Filipino	15%	11%	25%
Other Asian	18%	11%	16%
AIAN/NHOPI			
American Indian	0%	5%	19%
Pacific Islander	0%	4%	5%
NATIVITY			
1st Generation	14%	14%	16%
2nd Generation	21%	20%	27%
3rd + Generation	18%	17%	23%
HIGHEST EDUCATION OF PARENT			
Less than HS diploma	14%	10%	8%
HS diploma	10%	8%	12%
Some college	16%	17%	17%
BA/BS	25%	26%	31%
Advanced Degree	34%	30%	40%
Not Reported/No parental figure reported			
FAMILY INTACTNESS			
Intact (incl Adoptive)	23%	21%	27%
Non-Intact	13%	13%	16%
Not Reported			
SCHOOL			
Tacoma Public	19%	18%	19%
Tacoma Private	--	--	49%
Mukilteo	--	--	23%
Clover Park	--	--	21%
High School GPA			

Less than a 2.5	2%	2%	4%
Between 2.5 and 3.0	9%	11%	17%
Between 3.0 and 3.5	26%	21%	27%
3.5 or greater	41%	41%	48%
EDUCATIONAL EXPECTATIONS			
Some College (up to a 2-year degree)	3%	2%	2%
Bachelor's Degree	21%	22%	27%
Graduate/Professional Degree	35%	34%	40%
Not Reported			
EDUCATIONAL PLANS			
No Plans for College Next Fall/Not Sure	2%	3%	5%
Plans for 2-yr college	8%	5%	4%
Plans for 4-yr college	35%	30%	37%
TOTAL N	1085	1127	2319
TOTAL 4-YR COLLEGE GRADUATION RATE	19%	18%	24%

Table 5.3:Comparison of Differences in Rates of BA Degree Completion Five Years After High School Graduation by Student Employment, Work Intensity and Type of Job, 2000-2003

	Did not obtain BA in 5 yrs	Obtained BA in 5 yrs
Never Employed	80.8%	19.2%
Not Currently Employed	80.6%	19.4%
Employed at 10 hrs or less	62.0%	38.0%
Employed at 10 (not inc) to 20 (inc) hrs	75.2%	24.8%
Employed at more than 20 hrs	88.2%	11.8%
WORKERS ONLY		
Semi-Professional/Technical	64.0%	36.0%
Manual/Labor	81.8%	18.2%
Typical Teen Work	78.9%	21.1%
Total	**79.1%**	**20.9%**
Total for workers only	**77.1%**	**22.9%**

Table 5.4 Comparison of Differences in Rates of BA Degree Completion Five Years After High School Graduation by Student Employment Tenure/Length, 2000-2003

	Did not obtain BA in 5 yrs	Obtained BA in 5 yrs
Never Employed	80.8%	19.2%
Not Currently Employed	80.6%	19.4%
Low Work Duration	81.5%	18.5%
Mid/Average Work Duration	78.4%	21.6%
High Work Duration	73.3%	26.7%
Total	**79%**	**21%**

Table 5.5: Comparison of Differences in Percent Who Obtained a BA Degree Between Students Whose Parents Obtained at Least a BA/BS Degree and those Whose Parents Did Not, by Student Employment, Work Intensity and Job Type, 2000-2003

	Parental Education less than BA	**Parental Education BA or more**
Never Employed	16%	33%
Not Currently Employed	16%	33%
Employed at 10 hrs or less	33%	51%
Employed at 10 (not inc) to 20 (inc) hrs	21%	44%
Employed at more than 20 hrs	10%	23%
WORKERS ONLY		
Semi-Professional/Technical	31%	50%
Manual/Labor	15%	40%
Typical Teen Work	18%	38%
Total for all	**17%**	**36%**
Total for workers only	**19%**	**41%**

Table 5.6: Comparison of Differences in Percent Who Obtained a BA Degree Between African American and White Students, by Student Employment, Work Intensity and Job Type, 2000-2003

	Whites	**African Americans**
Never Employed	23%	10%
Not Currently Employed	23%	11%
Employed at 10 hrs or less	41%	27%
Employed at 10 (not inc) to 20 (inc) hrs	28%	19%
Employed at more than 20 hrs	14%	10%
WORKERS ONLY		
Semi-Professional/Technical	39%	28%
Manual/Labor	19%	13%
Typical Teen Work	25%	14%
Total for all	**24%**	**13%**
Total for workers only	**26%**	**16%**

Table 5.7: Determinants of Bachelor's Degree Attainment Five Years After High School Graduation, 2000-03 Senior Cohorts

	Model 1: Demographic, Socioeconomic and Household Characteristics		Model 2: Academic Characteristics		Model 3: Demographic, Academic, Socioeconomic and Household Characteristics		Model 4A and 4B: Gross Employment Status, Intensity, and Quality Effects		Model 5A: All Background Characteristics and Employment Status/Intensity		Model 5B: All Background Characteristics and Job Quality		Model 6: Only Workers, Fully Specified	
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
GENDER														
Female	**1.549**	0.000			*1.169*	0.087			*1.155*	0.116	*1.150*	0.142	0.985	0.912
Male														
RACE/ETHNICITY														
African American	**0.660**	0.002			0.840	0.244			0.870	0.354	0.843	0.267	0.983	0.937
Hispanic	0.672	0.143			0.864	0.630			0.901	0.733	0.908	0.754	0.941	0.896
Asian	0.878	0.312			*0.770*	0.074			*0.788*	0.105	0.807	0.150	**0.622**	**0.029**
AIAN/NHOPI	**0.299**	0.001			**0.331**	0.003			**0.346**	0.005	**0.355**	0.006	**0.248**	**0.028**
White														
NATIVITY														
1st Generation	0.924	0.609			0.960	0.815			0.974	0.879	0.926	0.664	1.157	0.564
2nd Generation	*1.238*	0.065			1.148	0.288			1.161	0.250	1.115	0.409	1.307	0.154
3rd + Generation														
PARENTAL EDUCATION														
Less than BA	**0.528**	0.000			**0.738**	0.003			**0.733**	0.003	**0.727**	0.002	**0.657**	0.006
BA or more														
HOME OWNERSHIP														
Rents Home	**0.625**	0.000			**0.760**	0.028			**0.762**	0.030	**0.777**	0.048	0.777	0.165
Owns Home														
FAMILY INTACTNESS														
Not Intact	**0.774**	0.004			0.896	0.268			0.909	0.335	0.875	0.183	0.938	0.649
Intact (incl adoptive)														

	Model 1		Model 2		Model 3		Models 4A and B	Model 5A		Model 5B		Model 6	
HOUSEHOLD SIZE													
Only Child	*1.325*	0.133			1.169	0.459		1.196	0.397	1.122	0.593	1.228	0.525
One Sibling	**1.332**	0.004			*1.188*	0.123		*1.189*	0.123	*1.195*	0.117	*1.340*	0.069
Two Siblings	**1.335**	0.006			*1.188*	0.137		*1.185*	0.144	*1.185*	0.149	**1.437**	0.026
Three or more Siblings													
GRADES													
LE 2.5			**0.118**	0.000	**0.129**	0.000		**0.132**	0.000	**0.120**	0.000	**0.106**	0.000
BW 2.5 and 3.0			**0.310**	0.000	**0.332**	0.000		**0.334**	0.000	**0.326**	0.000	**0.360**	0.000
BW 3.0 and 3.5			**0.588**	0.000	**0.622**	0.000		**0.624**	0.000	**0.607**	0.000	**0.707**	0.017
GT 3.5													
HONORS/AP CLASSES													
Did not take Honors/AP Classes			**0.711**	0.003	**0.756**	0.017		**0.764**	0.022	*0.795*	0.055	**0.680**	0.023
Took Honors/AP Classes													
HOMEWORK													
None			1.027	0.905	1.003	0.991		0.994	0.979	0.970	0.896	1.060	0.857
BW .5 and 5.5 hours			0.910	0.442	0.915	0.475		0.904	0.421	0.903	0.422	*0.709*	0.063
BW 5.5 and 9.5 hours			0.893	0.413	0.908	0.492		0.895	0.432	0.854	0.274	**0.534**	0.004
9.5 or more hours													
EDUCATIONAL EXPECTATIONS													
Some College (up to a 2-year degree)			**0.262**	0.000	**0.281**	0.000		**0.282**	0.000	**0.273**	0.000	**0.324**	0.000
Bachelor's Degree			0.919	0.372	0.969	0.746		0.966	0.722	0.961	0.690	1.046	0.748
Graduate/Professional Degree													

	Model 1	Model 2		Model 3		Models 4A and B		Model 5A		Model 5B		Model 6	
EDUCATIONAL PLANS													
No Plans for College Next Fall/Not Sure		**0.310**	0.000	**0.319**	0.000			**0.326**	0.000	**0.336**	0.000	**0.300**	0.000
2-year college		**0.283**	0.000	**0.292**	0.000			**0.296**	0.000	**0.289**	0.000	**0.266**	0.000
4-year university													
HIGH SCHOOL ATTENDED													
Public Schools 1		0.837	0.228	0.899	0.482			0.890	0.440	0.882	0.413	0.808	0.344
Private Schools 1		**1.737**	0.002	**1.540**	0.019			**1.514**	0.025	**1.518**	0.025	**1.857**	0.035
Public Schools 2		0.895	0.568	1.002	0.991			0.996	0.982	0.936	0.744	1.172	0.586
Public Schools 3													
HIGH SCHOOL EMPLOYMENT STATUS AND INTENSITY						4A							
Never Employed						**0.553**	0.000	**0.668**	0.003				
Not Employed at Time of Survey						**0.552**	0.000	**0.748**	0.018				
Working 15 or more hours						**0.436**	0.000	**0.751**	0.018			**0.728**	0.017
Working fewer than 15 hours													
HIGH SCHOOL EMPLOYMENT STATUS AND QUALITY						4B							
Never Employed						**0.493**	0.000			**0.688**	0.028		
Not Employed at Time of Survey						**0.492**	0.000			*0.770*	0.103		
Typical Teen Work						**0.507**	0.000			0.866	0.356	0.970	0.853
Labor/Manual						**0.452**	0.000			0.921	0.703	0.938	0.783
Professional/Technical													
-2 Log Likelihood						4A	4B						
Intercept Only	1842.889	2134.105		3925.242		93.378	63.64	4032.069		3926.528		2111.037	
Final	1603.652	1266.337		3005.448		27.843	32.913	3101.906		3012.892		1558.183	
Chi-Square	239.237	867.768		919.794		65.535	30.728	930.163		913.636		552.854	
df	17	20		35		3	4	38		39		38	

Sig of Chi-Square	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R-Square (Nagelkerke)	0.095	0.317	0.334	0.027	0.013	0.337	0.341	0.382
Concordance Index C	0.666	0.802	0.813	0.557	0.536	0.814	0.815	0.833

APPENDIX

Appendix Table A.2: Determinants of Bachelor's Degree Attainment Five Years After High School Graduation **for Working Students**, 2000-03 Senior Cohorts

	Model 1: Demographic, Socioeconomic and Household Characteristics		Model 2: Academic Characteristics		Model 3: Demographic, Academic, Socioeconomic and Household Characteristics		Model 4: Employment Intensity and Quality of Jobs		Model 5: Fully Specified (Demographic, Socioeconomic, Household, Academic, and Employment Characteristics)	
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
GENDER										
Female	**1.368**	0.004			1.025	0.850			0.985	0.912
Male										
RACE/ETHNICITY										
African American	*0.724*	0.068			0.958	0.835			0.983	0.937
Hispanic	0.595	0.182			0.819	0.658			0.941	0.896
Asian	**0.693**	0.042			**0.614**	0.020			**0.622**	0.029
AIAN/NHOPI	**0.221**	0.014			**0.218**	0.015			**0.248**	0.028
White										
NATIVITY										
1st Generation	1.129	0.569			1.207	0.444			1.157	0.564
2nd Generation	**1.436**	0.021			*1.370*	0.081			1.307	0.154
3rd + Generation										
PARENTAL EDUCATION										
Less than BA	**0.507**	0.000			**0.654**	0.004			**0.657**	0.006
BA or more										
HOME OWNERSHIP										
Rents Home	**0.641**	0.004			0.771	0.135			0.777	0.165
Owns Home										
FAMILY INTACTNESS										
Non-Intact	*0.812*	0.079			1.060	0.666			0.938	0.649
Intact (incl Adoptive)										

	Model 1		Model 2		Model 3		Model 4	Model 5	
HOUSEHOLD SIZE									
Only Child	1.403	0.201			1.406	0.267		1.228	0.525
One Sibling	**1.417**	0.011			*1.348*	0.055		*1.340*	0.069
Two Siblings	**1.607**	0.001			**1.436**	0.023		**1.437**	0.026
Three or more Siblings									
GRADES									
LE 2.5			**0.125**	0.000	**0.125**	0.000		**0.106**	0.000
BW 2.5 and 3.0			**0.351**	0.000	**0.364**	0.000		**0.360**	0.000
BW 3.0 and 3.5			**0.678**	0.004	**0.719**	0.019		**0.707**	0.017
GT 3.5									
HONORS/AP CLASSES									
Did not take Honors/AP Classes			**0.573**	0.001	**0.604**	0.002		**0.680**	0.023
Took Honors/AP Classes									
HOMEWORK									
None			1.152	0.639	1.079	0.806		1.060	0.857
BW .5 and 5.5 hours			**0.696**	0.036	**0.706**	0.050		*0.709*	0.063
BW 5.5 and 9.5 hours			**0.631**	0.022	**0.621**	0.021		**0.534**	0.004
9.5 or more hours									
EDUCATIONAL EXPECTATIONS									
Some College (up to a 2yr dgr)			**0.293**	0.000	**0.321**	0.000		**0.324**	0.000
Bachelor's Degree			0.971	0.821	1.039	0.777		1.046	0.748
Graduate/Professional Degree									
EDUCATIONAL PLANS									
No Plans for College Next Fall/Not Sure			**0.268**	0.000	**0.271**	0.000		**0.300**	0.000
2-year college			**0.249**	0.000	**0.266**	0.000		**0.266**	0.000
4-year university									

	Model 1	Model 2		Model 3		Model 4		Model 5	
HIGH SCHOOL ATTENDED									
Public Schools 1		0.816	0.337	0.848	0.446			0.808	0.344
Private Schools 1		**2.370**	0.002	**2.105**	0.009			**1.857**	0.035
Public Schools 2		1.176	0.550	1.268	0.394			1.172	0.586
Public Schools 3									
WORK INTESITY									
Working 15 or more hours						**0.454**	0.000	**0.728**	0.017
Working fewer than 15 hours									
JOB QUALITY									
Typical Teen Work						**0.637**	0.001	0.970	0.853
Labor/Manual						**0.554**	0.002	0.938	0.783
Professional/Technical									
-2 Log Likelihood									
Intercept Only	1181.730	1339.957		2185.065		113.233		4032.069	
Final	1050.404	821.620		1624.887		34.592		3101.906	
Chi-Square	131.326	518.336		560.178		78.641		930.163	
df	17	20		35		3		38	
Sig of Chi-Square	0.000	0.000		0.000		0.000		0.000	
Pseudo R-Square (Nagelkerke)	0.096	0.344		0.368		0.062		0.337	
Concordance Index C	0.665	0.815		0.829		0.625		0.814	

Appendix Table A.3: Determinants of Bachelor's Degree Attainment Five Years After High School Graduation with Educational Expectations Omitted, 2000-03 Senior Cohorts

	Model 1: Demographic, Socioeconomic and Household Characteristics		Model 2: Academic Characteristics		Model 3: Demographic, Academic, Socioeconomic and Household Characteristics		Model 4A and 4B: Gross Employment Status, Intensity, and Quality Effects		Model 5A: All Background Characteristics and Employment Status/Intensity		Model 5B: All Background Characteristics and Job Quality		Model 6: Only Workers, Fully Specified	
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
GENDER														
Female	**1.549**	0.000			*1.162*	0.098			*1.148*	0.131	*1.138*	0.172	0.963	0.786
Male														
RACE/ETHNICITY														
African American	**0.660**	0.002			0.869	0.345			0.902	0.487	0.866	0.346	0.981	0.928
Hispanic	0.672	0.143			0.842	0.568			0.877	0.662	0.877	0.666	0.866	0.753
Asian	0.878	0.312			*0.770*	0.073			*0.788*	0.103	0.807	0.149	**0.616**	**0.025**
AIAN/NHOPI	**0.299**	0.001			**0.346**	0.005			**0.362**	0.007	**0.371**	0.008	**0.272**	**0.040**
White														
NATIVITY														
1st Generation	0.924	0.609			0.951	0.770			0.966	0.839	0.910	0.589	1.164	0.546
2nd Generation	*1.238*	0.065			1.152	0.273			1.165	0.239	1.113	0.417	1.268	0.201
3rd + Generation														
PARENTAL EDUCATION														
Less than BA	**0.528**	0.000			**0.706**	0.001			**0.702**	0.001	**0.696**	0.000	**0.641**	0.003
BA or more														
HOME OWNERSHIP														
Rents Home	**0.625**	0.000			**0.753**	0.022			**0.754**	0.023	**0.771**	0.041	*0.755*	0.117
Owns Home														
FAMILY INTACTNESS														
Non-Intact	**0.774**	0.004			0.896	0.268			0.903	0.302	0.868	0.158	0.930	0.598
Intact (incl Adoptive)														

	Model 1		Model 2		Model 3		Models 4A and B	Model 5A		Model 5B		Model 6	
HOUSEHOLD SIZE													
Only Child	*1.325*	0.133			1.178	0.433		1.199	0.386	1.126	0.580	1.187	0.593
One Sibling	**1.332**	0.004			*1.199*	0.103		*1.198*	0.107	*1.199*	0.109	*1.310*	0.090
Two Siblings	**1.335**	0.006			*1.205*	0.105		*1.201*	0.113	*1.196*	0.124	**1.412**	0.032
Three or more Siblings													
GRADES													
LE 2.5			**0.104**	0.000	**0.115**	0.000		**0.118**	0.000	**0.108**	0.000	**0.097**	0.000
BW 2.5 and 3.0			**0.298**	0.000	**0.323**	0.000		**0.325**	0.000	**0.317**	0.000	**0.355**	0.000
BW 3.0 and 3.5			**0.578**	0.000	**0.617**	0.000		**0.619**	0.000	**0.604**	0.000	**0.712**	0.019
GT 3.5													
HONORS/AP CLASSES													
Did not take Honors/AP Classes			**0.650**	0.003	**0.697**	0.002		**0.706**	0.003	**0.733**	0.008	**0.633**	0.006
Took Honors/AP Classes													
HOMEWORK													
None			0.902	0.639	0.883	0.578		0.877	0.557	0.849	0.477	0.915	0.778
BW .5 and 5.5 hours			0.859	0.209	0.870	0.262		0.861	0.230	0.856	0.217	**0.673**	0.030
BW 5.5 and 9.5 hours			0.866	0.300	0.885	0.385		0.873	0.335	0.830	0.196	**0.526**	0.003
9.5 or more hours													
EDUCATIONAL EXPECTATIONS													
Some College (up to a 2-year degree)			**0.240**	0.000	**0.281**	0.000		**0.282**	0.000	**0.264**	0.000	**0.324**	0.000
Bachelor's Degree			**0.217**	0.000	0.969	0.746		0.966	0.722	**0.226**	0.000	1.046	0.748
Graduate/Professional Degree													

	Model 1	Model 2		Model 3		Models 4A and B		Model 5A		Model 5B		Model 6	
EDUCATIONAL PLANS													
No Plans for College Next Fall/Not Sure		**0.310**	0.000	**0.253**	0.000			**0.259**	0.000	**0.336**	0.000	**0.232**	0.000
2-year college		**0.283**	0.000	**0.230**	0.000			**0.233**	0.000	**0.289**	0.000	**0.216**	0.000
4-year university													
HIGH SCHOOL ATTENDED													
Public District 1		0.831	0.210	0.899	0.482			0.890	0.440	0.878	0.395	0.812	0.349
Private District 1		**1.793**	0.001	**1.540**	0.019			**1.514**	0.025	**1.553**	0.019	**1.969**	0.021
Public District 2		0.905	0.606	1.002	0.991			0.996	0.982	0.945	0.780	1.161	0.606
Public District 3													
HIGH SCHOOL EMPLOYMENT STATUS AND INTENSITY						4A							
Never Employed						**0.553**	0.000	**0.671**	0.003				
Not Employed at Time of Survey						**0.552**	0.000	**0.742**	0.015				
Working 15 or more hours						**0.436**	0.000	**0.733**	0.010			**0.711**	0.010
Working fewer than 15 hours													
HIGH SCHOOL EMPLOYMENT STATUS AND QUALITY						4B							
Never Employed						**0.493**	0.000			**0.686**	0.027		
Not Employed at Time of Survey						**0.492**	0.000			*0.757*	0.083		
Typical Teen Work						**0.507**	0.000			0.848	0.288	0.967	0.841
Labor/Manual						**0.452**	0.000			0.873	0.526	0.913	0.690
Professional/Technical													
-2 Log Likelihood						4A	4B						
Intercept Only	1842.889	1642.238		3782.229		93.378	63.64	3979.942		3868.194		2089.772	
Final	1603.652	825.039		2908.215		27.843	32.913	2094.059		3000.815		1562.243	
Chi-Square	239.237	817.199		874.013		65.535	30.728	884.882		867.38		527.529	
Df	17	17		32		3	4	35		36		38	
Sig of Chi-Square	0.000	0.000		0.000		0.000	0.000	0.000		0.000		0.000	
Pseudo R-Square (Nagelkerke)	0.095	0.301		0.334		0.027	0.013	0.323		0.326		0.367	

Concordance Index C	0.666	0.795	0.806	0.557	0.536	0.808	0.809	0.828

Chapter 6: Conclusion

Introduction

While the recent economic decline and the concomitant rise in the unemployment rate among all age groups have disproportionately affected the youth labor market (Edwards and Hertel-Fernandez 2010), the interval between the early 1950s and the late 1990s has been characterized by consistent growth in employment rates among high school students. Far from a marginal experience, workforce participation became the norm with the majority of students reporting having at least one job while in high school (Warren 2002; Warren, Lee, and Cataldi 2004; Lee and Mather 2008; Morisi 2008). This increase in employment rates among students resulted not from increased workforce participation among older teens, rather, from decreases in drop out among high school students. Adolescents who may have discontinued their secondary education after entering the workforce in the first part of the 20th Century have been more likely to stay in school while holding a job in the second half of the last century. Interestingly, this shift toward a dual student worker role is somewhat gendered, whereby male entrants into the labor force are less likely to drop out than they were before, female students are more likely to enter the labor force as opposed to just being enrolled, relative to their likelihood of workforce entry before the 1950s (Warren and Cataldi 2006).

Decrease in high school dropout resulting from strengthened policy on compulsory secondary education, as well as educational expansion at the postsecondary level has resulted in opened pathways to social mobility for groups previously unable to access those paths. However, this very expansion, resulting in greater than ever rates of college enrollment and graduation has also raised the 'educational requirement floor' for occupational and wage growth (Livingstone

1999). Those who do not obtain any postsecondary schooling are having a harder time finding jobs with sufficient upward mobility prospects than they would have in previous generations. And while inequality in access to educational opportunities has fallen somewhat as rates of postsecondary attendance and degree attainment increased, it has, by no means, disappeared (Hout, Raftery, and Bell 1993; Kao and Thompson 2001; Lucas 2001; Goldsmith 2009).

Given the well-documented import of postsecondary educational attainment (e.g., Autor, Katz, and Kearny 2006; Fischer and Hout 2006; Engberg 2009; An 2010; Danziger and Ratner 2010), the nature of the impact of high school employment on longer-term outcomes merits attention. This dissertation aims to contribute to the body of research on high school employment addressing questions on postsecondary impacts of high school labor force participation that remain unanswered in the literature. Access to a uniquely rich data source from the Beyond High School project capturing both the educational and workforce experiences of high school youth facilitates a thorough empirical examination of these experiences. Both the type of job as well as the amount of time spent working is found to impact the likelihood of college entry, especially with four-year colleges and universities. Four-year degree completion five years after high school graduation is impacted less by job quality than by work intensity, and by having any kind of workforce experience before leaving high school.

Reasons for Inconsistent Findings in Previous Research

The omission of empirical measures of job quality from most accounts of the impacts of teen employment on academic outcomes may, in part, have led to varied findings. Attributing the impact of employment entirely on workforce participation or the hours of work may obscure an

important mechanism through which the effect of employment operates. Although the controversy surrounding teenage work is focused on employment status and intensity, research on adolescents and adults indicates that the quality of work experience matters for mental and emotional health (Alexander and Klein 2001; Mortimer, Harley, and Staff 2002; Bartley, Sacker, Schoon, Kelly, and Carmona 2005) as much or more so than work intensity.

Concerns about the selection of students into work roles are often compounded by the close association between ascribed characteristics of students and their educational outcomes, as well as that between ascription and employment (Warren, LePore, and Mare 2000; Staff, Schulenberg, and Bachman 2010). Of central import are questions about the mediating or exacerbating effects of student/worker role overlap on existing ascriptive and socioeconomic inequality in educational achievement in high school and postsecondary enrollment. For student workers who are academically oriented, employment in adolescence may serve the purpose of providing exposure to a set of occupational and educational goals (Mortimer 2003). On the other hand, employed students with a minimal investment into the educational sphere have only a vague idea of the future educational course, have not yet formed any specific occupational preferences or interests, and do not seem to gain in any way other than monetary from their labor force participation.

There are many reasons why adolescents elect to seek work while in high school. Teens from all backgrounds may desire to attain a sense of autonomy or independence associated with employment and earned income. Similarly, students from all background are unlikely to be exposed to vocational experience or education, thus, may see employment opportunities as a means to vocational exploration (Mortimer and Staff 2007). Class-based disparities in these motivations exist for both the student workers and their parents. Higher SES parents may want to

instill a hands-on understanding of the 'value of a dollar' given the high likelihood that students from privileged backgrounds are shielded from considerations of finances until reaching early adolescence. While it is unlikely that teens from such homes experience real deprivation, they may experience a purposive reduction in parental financial support meant to encourage the motivation to obtain a job. Teens from less privileged backgrounds may feel greater financial pressure to seek work opportunities, although, as shown in analyses presented in earlier chapters, they are less likely to be employed.

For many adolescents, there is a profound disconnect between occupational aspirations and an understanding of the process of attaining career goals expressed in middle school and high school. Although levels of career ambition are high among the most adolescents, many also exhibit a lack of comprehension of the steps required to be taken to achieve their occupational aspirations. Students do understand that the value of a high school diploma in the labor market is low, and that some post-secondary education is required for many jobs. However, most students do not develop specific vocational interests or skills while in high school, due, in part, to the largely comprehensive nature of secondary education which is designed to allow for greater mobility in an open contest educational system. Accordingly, competition over entry into college – especially selective four-year schools – takes precedence over the choice of major/specialization, leading to higher levels of dissatisfaction with the chosen field while in college, prolonged matriculation times and the resulting increase in debt. Subsequent entry into the labor market is characterized by uncertainty, both on the parts of the prospective workers (even those who end up graduating from college) and on the part of employers (who must select employees without relying on sets of occupationally specific knowledge as evaluation criteria).

Although most jobs available to high school students may not directly contribute to the accumulation of vocational knowledge or the formation of career goals, some positions may facilitate exposure to potentially attractive career paths, while others offer no such opportunities. For instance, students working as administrative assistants in professional offices (e.g., medical, legal, or school-based) are more likely to be exposed to adults with higher levels of education, and whose occupational and economic status may generate student interest. On the other hand, positions in the many service industry jobs readily available to high school students are unlikely to facilitate a mentorship relationship, or to result in a concretization of educational or career plans.

This project examines both the determinants of workforce participation, and, most importantly, the postsecondary outcomes associated with differential employment histories. These outcomes are found to be directly impacted students' employment characteristics, although, these impacts differ depending on which postsecondary stage is being examined. Work status and intensity affect all postsecondary outcomes of interest, including any postsecondary enrollment, enrollment in a four year university, and most importantly, obtaining a four-year degree. On the other hand, job type exerts a direct effect on four-year college entry, but is not significantly related with to the chances of degree attainment five years after graduating from high school.

At the outset of this work, I have delineated a set of research questions and expectations. I will now address some of them.

Summary of Findings

Social Stratification in Access to Employment Opportunities for Teens

Evidence of occupational and earnings inequality along ascriptive lines abounds in the stratification literature. Whether similar types of inequality in access to jobs exist in the teen labor force is a question that remains underexplored. This study adds to the small but growing body of evidence of the impact of social background on teen employment patterns. It finds that ethnic/racial minority members (particularly, black, Hispanic, and Native Hawaiians and Other Pacific Islanders) are less likely to be employed than whites or higher socioeconomic origin students. Working students from socioeconomically disadvantaged backgrounds are found have a greater likelihood of being employed at higher intensity levels (15 to 20 hours per week or more) than students from more advantaged origins. Students from lower socioeconomic backgrounds are also more likely to hold jobs in food service or retail. Although no data were collected on the mentorship opportunities in these so-called typical teen jobs, Current Population Survey data indicates that these are occupations with highest proportions of teens in them, leading to higher levels of age segregation, thus, a decreased exposure to adult mentors. Additionally, it is possible that the nature of tasks involved in holding jobs in fast food restaurants and retail stores is qualitatively different than tasks involved in working in administrative roles in professional/office settings, or working in occupations where the health and safety of others is somewhat contingent on oversight by student employees (lifeguarding is an example of such an occupation).

Evidence of social background stratification presented here is a non-negligible contribution to the student employment literature in itself, however, what makes it compelling is evidence that access jobs, and in particular, those in professional settings, and most importantly, those which do not demand an excessive time input is positively associated with postsecondary educational outcomes after high school graduation. Since postsecondary educational attainment

is tied most types of social mobility and since opportunities for such attainment continue to be unequally distributed between members of different race/ethnic groups, as well as by socioeconomic background, evidence of inequality within the teen labor market may provide a small yet important piece of the overall puzzle of the contributing factors to social background-related persistent inequality.

Ascriptive characteristics, while important determinants, do not explain the majority of the differences (or variance of the dependent variable) observed between workers in different work intensity or job type categories. High school grades, time spent on educational and extracurricular activities, and postsecondary plans and aspirations account for much of the overall explained variance. If educational characteristics that are strongly related with college attendance and completion are also this closely related to workforce participation, I may anticipate the attenuation or disappearance of any significant association between employment characteristics of youths and their postsecondary outcomes, once educational characteristics are controlled for. This is not the case.

Employment While in High School and Subsequent Educational Outcomes

Previous research has produced conflicting finding on the nature of post-secondary consequences of early work experience. Although employed adolescents are somewhat less likely to attend college or obtain a degree than their non-working counterparts, early work experience is positively related with post-secondary wages and occupational attainment. Despite the counterintuitive nature of this finding, it is conceivable as many high-skilled manufacturing and craft jobs could, at one time, provide avenues for income attainment and career advancement. However, with the decline of the manufacturing sector and increased rigidity of

educational requirements associated with most occupations with prospects of upward mobility, this finding is unlikely to be replicated with current or recently graduated high school students. Utilizing data collected in more recent past (2000 to 2005) than many longitudinal studies utilized in empirical analyses of educational consequences of teenage employment (e.g., NLSY79) this study presents evidence of the positive association between moderate workforce participation and college enrollment, regardless of the type of postsecondary institution. And while job type was not significantly associated with entry into any college one year after high school graduation, holding a job in the semi-professional/technical sector is associated with greater odds of entry into a (more selective) four year educational institution. Although there is a burgeoning debate about the contention that four-year degrees are typically associated with greater returns for all (whereby the contention is that some two-year degrees, especially those in the skilled trades can facilitate similar economic rewards as four-year degrees while costing substantially less money to obtain), national-level data present clear evidence that BA/BS degrees are associated with greater levels of economic mobility than a two-year degree, on average. Since both job type and work intensity appear to be positively associated with entry into a four-year institution, greater access to 'good jobs' – those with lower hours and in more professional environments – may prove to ameliorate, at least to some degree, continually observed disparities (along mostly racial/ethnic, and socioeconomic lines) in entry into more selective four-year institutions.

Aside from questions of how early work experience affects post-secondary outcomes immediately after high school, the extent to which adolescent employment affects outcomes beyond one or two years out from high school graduation is explored here.

Chapter 3 of this project presents evidence of the selection of students into work roles in order to establish which student characteristics are significantly related with workforce participation. Results of empirical analyses presented in Chapters 5 and 6 address the question of independent effects student employment characteristics on postsecondary enrollment, net of other salient student characteristics. The extent to which the effect of workforce participation is truly independent speaks to the question of student selection into work roles. Some researchers have suggested that students who work tend to also possess measurable characteristics predisposing them to greater chances of postsecondary enrollment and graduation. I include various measures (established as salient in Chapter 3) of socioeconomic status, race/ethnicity, gender, household characteristics, and importantly, educational expectations, plans, and achievement while in high school in order to disentangle this potentially interwoven set of determinants of postsecondary outcomes.

Two sets of perspectives on the mechanism underlying the impact of work on educational outcomes have been examined in the literature. The zero-sum view of the role of employment predicts linearly negative consequences to working, as time spent on the job has a direct negative consequence on time spent in other, more educationally productive pursuits.

Contrary to this view, the plus-sum perspective of the impact of employment on educational achievement posits that there may be an optimal amount of time a student may invest in workforce participation. If students are able to work at a modest level of intensity (with this threshold of hours worked ranging from 10 to 15 hours per week, on average), this investment is unlikely to interfere with any productive pursuits, and may decrease the amount of time spent watching television, playing video games, or engaging in other typical teenage (but unproductive) activities.

Chapter 3 presents preliminary evidence for the plus-sum view of the role of employment. Analyses presented in this chapter show that students who work are more likely to be engaged in extracurricular activities although students who were not employed at the time of the survey reported spending slightly more time, on average, doing homework. Most importantly, non-working students *and* high intensity workers reported lower overall high school grades than those employed at moderate intensity, net of all other student characteristics. These two groups were also similar in their lower educational expectations compared to the students working moderate hours during their senior year.

Although the relationship between job type and student characteristics was not as strong as that between work intensity and student attributes, students holding positions classified as professional/technical were more likely to get better grades and have higher educational expectations than students working in either typical teen or labor/manual jobs. And while it is impossible to ascertain the causal direction of this relationship – whether students in better quality jobs elevate their educational expectations as a result of their workplace environment, or if these students had educational aspirations that were better aligned with more professional workplaces – this persistent association is important to note.

Educational outcomes contemporaneous with employment have been among the most closely examined in the literature. However, the extent to which educational achievement after high school graduation is impacted by previous workforce participation is much less understood. Chapter 4 examines the short-term educational consequences of differential employment trajectories while in high school. Three postsecondary outcomes are examined – non-enrollment, enrollment in any postsecondary institution, and four-year college enrollment. Thus, I am able to distinguish discrepancies, if any, in the impact of teen work depending on the

selectivity of the postsecondary institution. As posited at the outset of this project, greater selectivity results in differential effects of high school employment on the chances of enrollment. Specifically, while only work intensity is significantly related to the chances of being enrolled in *any* college one year after high school graduation, all four employment dimensions examined here were significantly related to the chances of entering a four-year university. Students working moderate hours, those who held onto their jobs for more than 6 months, and those who worked in professional/technical workplace environments were significantly more likely to be enrolled in a four-year school after graduating from high school than students who worked many hours, or those jumping from job to job, and, importantly, those in either typical teen or labor/manual positions.

The question of labor force attachment is also briefly addressed in Chapter 4. Because continuous participation in the workforce is associated with lower unemployment rates and higher wages ten years after graduating from high school, the question of attachment to the labor force is an important one to address. Here, labor force attachment is operationalized as reported employment at the time of the senior survey, and employment reported at the time of the one-year follow-up.

Chapter 5 explores longer-term consequences of employment while in high school on postsecondary outcomes, focusing on the determinants of college degree attainment five years after graduating from high school. Findings presented in this chapter presents evidence for continued, albeit attenuated, impact of workforce participation in high school a half decade afterward. In particular, the effect of holding a job with moderate hours continues to positively impact educational outcomes, increasing the likelihood of college degree attainment for moderate high school workers. This positive association is of particular import for

underprivileged students. Although, in absolute terms, students from more advantaged backgrounds have higher likelihoods of college degree attainment regardless of workforce participation, those from less privileged socioeconomic origins experience a greater relative boost in the odds of college completion if they worked moderate hours in high school, relative to students emerging from more advantaged origins.

Study Shortcomings

Results of empirical analyses, especially those pertaining to postsecondary enrollment and degree attainment should be interpreted in light of data-related and methodological shortcomings.

The timing of the senior survey administration presents a problem of undercounting seniors who are most at risk of drop out, or those who have already dropped out. Because it was administered in the last months of the senior year in high school, information on students who have left school before this time was not captured. If information on workforce participation, as well as social background characteristics of these at-risk students could be captured, I may be able to establish a stronger connection between employment while in high school and educational outcomes (given that high school drop-out is strongly associated with non-entry or delayed entry into postsecondary educational institutions).

Similarly, while the response rate for traditional high schools was high, alternative schools within the three districts sampled for the UW BHS study had much lower response rates. This undercount may depress possible negative associations between workforce participation and

academic or behavioral problems that sometimes result in students' placement in alternative schools in lieu of traditional ones.

Distinguishing between non-employed and unemployed students is not possible here. To make this distinction, I would need to know answers to two questions not present in the survey (of whether the student has been actively looking for a job in the past 4 weeks, and whether the student is available for work at the time of the job search). Because voluntarily non-employed students and those who want to work but cannot find a job must be grouped together into a 'not-working' category (albeit, this general category is further divided into the 'never employed' and the 'not-employed at time of survey' groups), it is difficult to assess the extent to which observed relationships between employment rates and ascriptive characteristics can be interpreted as completely clear evidence of social background stratification. This problem of interpretation also extends of educational characteristics of students.

Although problems with establishing causal priority are not unique to this study, they present arguably the thorniest issue in this study. If, for instance, students who eventually get a high intensity and/or typical teen job as high school seniors are said to be less likely to enter college, the extent to which the impact of job holding on this educational outcome is not due to some background attitudinal, motivation, or other unobserved characteristics is impossible to say. If students who become high intensity workers later in high school become disinvested from school at a much younger age (middle- or even elementary school), then the impact of this pre-existing difference may be erroneously attributed to workforce participation. This problem of selection into jobs and selection into educational trajectories may never be fully solved, although utilizing multivariate analyses including student characteristics predictive of both schooling and employment trajectories may mitigate this shortcoming to some degree.

Policy Implications

Testimony presented to the Joint Economic Committee of the US Congress in the Spring of 2010 stated that 2009 and 2010 have been among the worst years ever recorded for teen unemployment, with unemployment rates averaging 25 percent. African American youths' are especially disconcerting, with unemployment around 40 percent. One potential pathway for decreasing unequal access to employment opportunities (thus increasing long term employment and enrollment prospects) is funding existing programs aimed at facilitating labor market entry for disadvantaged youth (e.g., YouthBuild, the Youth Service and Conservation Corps, or Youth Opportunities). School-workplace partnerships may also prove particularly effective, since schools may be able to exert greater restrictions on weekly work hours, thus mitigating social background disadvantage in access to 'good jobs', i.e., those found to be positively associated with educational outcomes. The connection between educational and occupational institutions, and joint reinforcement of traits valued in both those spheres is especially important for the most disadvantaged students: low-socioeconomic origin minority members. Members of this group are less likely to hold jobs, and of those that do, less likely to hold good jobs, as well as being less likely to enroll in and graduate from postsecondary institutions. As job opportunities for teenage employees disappear, these students may be subject to cumulative disadvantage in both the labor force and the educational spheres.

Future Research Directions

Although this study has illuminated some important relationships between student characteristics and their workforce participation, as well as between differential work roles and postsecondary educational outcomes, many opportunities for further research remain. Specifically, the question of student workers' responsiveness to wage fluctuations is addressed only descriptively, and merits further, more methodologically sophisticated attention. Likewise, although postsecondary employment is addressed in chapter 4, a more nuanced examination of differential workforce participation among students who worked and did not work in high school may provide greater evidence for the consistently positive association between high school employment and the likelihood of being employed ten years after high school graduation (Carr, Wright, and Brody 1996). Along similar lines, data from the ten year follow-up may prove particularly illuminating of the relationship, if any, between high school work and occupational or income attainment a decade later.

Finally, and possibly most importantly is the newly acquired Clearinghouse data allowing me to expand my analysis to all five cohorts of high school seniors (rather than restricting it to only three). Aside from providing the ability to disaggregate the pan-ethnic groups into their more detailed constituent parts, it will also allow me to expand the length of time that has elapsed since high school graduation, and to account for delayed entry, or for intermittent enrollment of students, and depict the association between early labor force participation on more finely graded educational outcomes.

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CURRICULUM VITAE

Irina Voloshin
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Education:

2012 Ph.D., Sociology, University of Washington, Seattle
Committee: Charles Hirschman (chair), Stewart Tolnay, Lowell Hargens, Jake Rosenfeld, Gunnar Almgren (GSA)
Title: "Sink or Swim in the Labor Pool? Determinants and Consequences of Student Employment "

2004 M.A., Sociology, University of Washington, Seattle
Committee: Stewart Tolnay (chair), Avery (Pete) Guest
Title: "Determinants of Disparities in Self-employment Rates: Push or Pull?"

2001 B.A., Sociology and Russian Literature, University of Texas, Austin
Minor in Computer Science
Honors: Sociology

Research and Teaching Interests:

Educational stratification; Labor market inequality; Demography (particularly, immigration and assimilation); Methods and Statistics;

Peer Reviewed Publications:

Hirschman, Charles, and Irina Voloshin. 2007. "The Structure of Teenage Employment: Social Background and the Jobs Held by High School Seniors" *Research in Social Stratification and Mobility*, 25:189-203

Working Manuscripts:

"Predicting Attrition among First and Second Year College Students: The Impact of Socioeconomic Background on Student Persistence"

"Working to Learn or Learning to Work: The Impact of Adolescent Employment on College Enrollment"
"Determinants of Self-Employment among Immigrants and African Americans: Opting Out or Acting on Advantage?"

"Adolescent Work Patterns: Impact of Family Resources on Employment Sector and Intensity of Male and Female High School Seniors"

"Occupational Aspirations of High School Students: Do Gender Differences Persist?"

Conference Presentations:

"Working to Learn or Learning to Work: The Impact of Adolescent Employment on College Enrollment" Presented at the annual meeting of the *American Sociological Association* in San Francisco, CA, Aug 2009

"Adolescent Work Patterns: Impact of Family Resources on Employment Sector and Intensity of Male and Female High School Seniors" Presented at the annual meeting of the *American Sociological Association* in Boston, MA, Aug 2008

"Determinants of Self-Employment among Immigrants and African Americans: Opting Out or Acting on Advantage?" Presented at the annual meeting of the *Population Association of America* in New Orleans, LA, April 2008

"Consequences of High School Employment on College Enrollment" Presented at the University of Washington Beyond High School Workshop in Seattle, WA, Oct 2007

"Work Intensity among High School Seniors: Exploring the Student- and School-level Determinants of Hours Worked" Presented at the annual meeting of the *American Sociological Association* in New York, NY, Aug 2007

"Work Matters: Consequences of High School Employment on College Attendance" (with Charles Hirschman) Presented at the annual meeting of the *Population Association of America* in New York, NY, March 2007

"The Structure of Teenage Employment: Social Background Influences on Types of Jobs and Hours of Work of High School Seniors" (with Charles Hirschman) Presented at the annual meeting of the *American Association for the Advancement of Science* in Washington, DC, Feb 2005

"Job Patterns of High School Students" Presented at the annual meeting of the *Washington Educational Research Association* in Tacoma, WA, Nov 2004

"Determinants of Disparities in Self-employment Rates: Push or Pull?" Presented at the annual meeting of the *American Sociological Association* in San Francisco, CA, Aug 2004

Research Experience:

2010-current	Statistical and Research Analyst for Institutional Research, Seattle University. Developing models of undergraduate enrollment, decomposition analysis and intervention/policy setting in the area of retention/graduation of at-risk student populations
2008-2010	Graduate Research Assistant, Center on Reinventing Public Education Project Involvement: Inside Charter Schools Project, National Study of Charter Management Organizations
2003-2008	Graduate Research Assistant, UW Beyond High School Project Principal Investigator: Charles Hirschman

Teaching Experience:

Summer 2007	Instructor: Soc 321 (Population and Society)
Spring 2003	TA: Soc 371 (Criminology with Prof. Robert Crutchfield)
Winter 2003	TA: Soc 316 (Sociological Theory with Prof. Edgar Kiser)
Fall 2002	TA: Soc 371 (Criminology with Prof. Ross Matsueda)
Spring 2002	TA: Soc 270 (Social Problems with Prof. Al Black)
Winter 2002	TA: Soc 271 (Deviance with Prof. Robert Crutchfield)
Fall 2001	TA: Soc 112 (Comparative Social Change with Prof. Steve Pfaff)

Consulting Experience:

2005	Consultant, Outcome/Efficacy Analysis for YouthForce, Seattle, WA

Other Training:

2007	Luxembourg Income Study Summer Workshop, University of Luxembourg
2006	GIS Workshop, Center for Urban Research

Data Management and Software Skills

Software: Proficient in STATA, SPSS, Microsoft Suite, DreamWeaver
Familiar with SQL, R, S PLUS, SAS, C++

Data Management Experience: Data collection, Survey Administration, Work with Large Data Sets (Census), Datafile construction from Survey Data

Department/University Service

Fall	2007	Panel Presented for New Cohort Orientation
Fall	2006	Graduate Student Representative on Faculty Recruitment Committee
Fall	2005	Panel Presenter for CIDR-sponsored Orientation and Information Session on Research Roles of Graduate Students
Fall	2005	Panel Participant for New Cohort Orientation
Fall	2005	Chair of GSA Demography Group
Winter	2005	Participant in GSA Demography Group
Spring	2004	Panel Presenter for Prospective Student Recruitment

Professional Membership:

2001–present	American Sociological Association
2005–present	Population Association of America