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Emerging Adults in Uncertain Employment: An Examination of the Dimensions and Consequences of Precarious Work in the United States

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Emerging Adults in Uncertain Employment:

An Examination of the Dimensions and Consequences of Precarious Work in the United States

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Social Welfare

by

Skye Kathleen Allmang

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ABSTRACT OF THE DISSERTATION

Emerging Adults in Uncertain Employment:

An Examination of the Dimensions and Consequences of Precarious Work in the United States

by

Skye Kathleen Allmang

Doctor of Philosophy in Social Welfare

University of California, Los Angeles, 2019

Professor Todd M. Franke, Chair

Since the 1970s, globalization, changes in technology, and the weakening of unions have transformed employment relations in the United States. One indication of this transformation is the rise in precarious employment, or "employment that is uncertain, unpredictable, and risky from the point of view of the worker" (Kalleberg, 2009, p. 2). Existing research indicates that young people between the ages of 16 and 24 are more likely than workers from other age groups to be in precarious work. There is also a growing body of literature on the relationship between employment and short- and long-term health outcomes, including psychological distress and depression. However, much remains unknown about the pathways and mechanisms linking employment trajectories with health outcomes for young adults, which will be critical for designing effective program and policy interventions. This dissertation used data from the National Longitudinal Study of Adolescent to Adult Health to create a multi-dimensional

measure of precarious employment, and to assess the relationship between changes in precarious employment and changes in self-rated general health, mental health, and behavioral health. First, it used latent class analysis to identify precarious employment groups at Wave III and Wave IV, and assessed the factors associated with precarious employment at that time. From there, the precarious employment groups from Wave III and Wave IV were linked, in order to create a variable representing change in precarious employment over time, and factors associated with the change in precarious employment were assessed. In addition, this study assessed whether participation in job-training made a difference, in terms of the change in precarious employment over time. Lastly, generalized linear models were used to assess the relationship between changes in precarious employment and changes in health. Findings indicated that age, gender, race/ethnicity, and education significantly associated with precarious employment at Wave III, and with the change in precarious employment from Wave III to Wave IV. There was not a significant relationship between participation in job-training and changes in precarious employment. Lastly, changes in precarious employment were not associated with changes in health. It is argued that these findings have important implications for policy and practice; however, more research is needed, in order to better understand emerging adults' experiences in precarious employment today.

The dissertation of Skye Kathleen Allmang is approved.

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2019

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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Articles under review

Allmang, S., Jou, J., Gadoth, A., Rozhenkova, V., Raub, A., & Heymann, J. Legislative protections from discrimination in access to employer-provided training across 193 United Nations countries. *Revise and Resubmit.*

Rozhenkova, V., **Allmang, S.,** Ly, S., Franken, D., & Heymann, J. The role of comparative city policy data in assessing progress toward the urban SDG targets. *Revise and Resubmit.*

Allmang, S., Rozhenkova, V., Khakshi, J. W., Raza, W. A., & Heymann, J. The educational and career aspirations of young women in Sierra Leone. *Under review.*

Book reviews and policy briefs

2018 Held, M. L., **Allmang, S.**, Galarza, J., Scott, J., & de la Rosa, I. A. (2018) Why do people migrate: The context of migration from Central America and Mexico to the United States. Las Cruces, NM: Center on Immigration & Child Welfare

2015 **Allmang, S.** All I want is a job! Unemployed women navigating the public

workforce system [Review of the book *All I Want is a Job! Unemployed Women Navigating the Public Workforce System*]. *Social Service Review, 89*(3), 582-586. https://doi.org/10.1086/683180

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CHAPTER ONE: INTRODUCTION

Statement of the Problem

Since the 1970s, globalization, changes in technology, and the weakening of unions, among other economic and social forces, have transformed employment relations in the United States. One indication of this transformation is the rise in precarious employment, or "employment that is uncertain, unpredictable, and risky from the point of view of the worker" (Kalleberg, 2009, p. 2). The defining characteristic of precarious employment is lack of security in the following domains: job duration, wages, and the availability of employer-provided benefits such as health insurance or retirement benefits (Rodgers, 1989). This type of employment relationship is often compared with the standard employment relationship (SER), or full-time, continuous employment with employer-provided benefits, which was common in the period immediately following World War II. While the standard employment relationship was never available to all workers, it served as the normative model for many workplaces at that time.

The current growth in precarious employment is taking place both in the United States, and around the world. The International Labor Organization (ILO) estimated that 1.4 billion people would work in precarious jobs in 2017 (ILO, 2017). Existing research suggests that young workers between the ages of 16 to 24 are more likely than workers from other age groups to be in precarious work. As part of the aftermath of the recent economic recession, "young people are relegated to bad jobs, as well as being unemployed, underemployed (as in involuntary part-time work), overqualified, and often discouraged" (Kalleberg, 2011, p. 56). Recent media headlines on young people in the gig economy and alternative work arrangements have also called attention to this trend (for example, see Konadu, 2018; Rogan, 2018).

The high numbers of young people in precarious employment is concerning, in light of existing scholarship on the adverse effects of cycling in and out of precarious jobs and unemployment during early adulthood. An extended spell of unemployment, for example, has been found to have a negative effect on long-term wage and employment outcomes (Scarpetta, Sonnet, & Manfredi, 2010). There is also a growing body of literature on the relationship between employment and short- and long-term health outcomes (Benach et al., 2016; Muntaner et al., 2010), including increased psychological distress and depression. However, much remains unknown about the pathways and mechanisms linking employment with health in emerging adults, which will be critical for designing effective program and policy interventions.

Study Overview and Purpose

This study had three major aims. First, it aimed to create a multi-dimensional measure of precarious employment, and to use this measure to assess the factors associated with entering precarious employment, among young people in the United States. In addition, it sought to capture change in precarious employment over time—in other words, whether there was movement away from precarity, no change, or a movement toward precarity—and to assess the factors associated with each of these changes. It was also interested in whether participation in job-training made a difference. Lastly, it attempted to examine whether there was a significant association between changes in precarity and changes in a range of health-related measures, including general health, mental health, and behavioral health.

The study's findings contribute new knowledge to address critical gaps in the existing literature, including: (1) a lack of longitudinal studies on precarious employment (Vencea & Utzet, 2017; Vosko, MacDonald, & Campbell, 2009), (2) limited information on young people in precarious employment (Vencea & Utzet, 2017), and (3) a small number of empirical studies that

examine the association between precarious employment and a range of health measures (Benach et al., 2016).

The study utilized the National Longitudinal Study of Adolescent to Adult Health (Add Health) data to examine the relationship between precarious employment, job-training, and health. Add Health data were gathered from surveys of young people on a range of items expected to affect health including education, training, and work experience. The study primarily focused on Wave III (gathered between April 2001 and August 2002), and Wave IV (gathered between January 2008 and February 2009) (Harris, 2013).

It was hypothesized, in light of the existing research on precarious employment, that the factors significantly associated with being in precarity at Wave III, and movement toward greater precarity from Wave III to IV, would include: gender, race/ethnicity, socioeconomic status, prior experience of homelessness or with the foster care or juvenile justice system, previous work experience, and level of education. It was also hypothesized that participation in job-training would be associated with a decreased likelihood of moving toward greater precarity (in other words, participation in job-training would be associated with improved employment prospects). Lastly, it was hypothesized that increasing precarity would be significantly associated with worsening general health, depression, smoking, and binge drinking from Wave III to Wave IV. Additional information about these hypotheses is included in Chapters Three and Four.

Significance of the Study

This dissertation makes several important contributions to the existing literature on precarious employment. First, it includes a multi-dimensional measure of precarious employment that can be traced over time. It identifies movement toward and away from precarity, and assesses the individual, educational, and family factors associated with these

changes. In addition, it provides insight into whether participation in a job-training is associated with changes in precarious employment, which has not received much attention in prior evaluations of these programs. While these data were collected prior to, and at the beginning of, the recent economic recession, it is believed that the findings from the study provide insight into the distribution of precarious employment, as well as its consequences, for young people in the United States. These findings also have implications for the development of effective social programs and policies to prepare young people to successfully enter and maintain employment.

Structure of this Study

This introductory chapter provides a broad overview of the study significance and purpose. Chapter Two reviews the existing literature on the social problem presented by the recent rise in precarious employment, the distribution and prevalence of precarious employment in the United States, and the ways in which young people are being affected by the current employment landscape. It also introduces the role of job-training as an intervention to help young people prepare to enter and remain in employment. Chapter Three provides an overview of the theories informing the study: developmental theory, which provides insight into the role of employment during the transition to adulthood, and the existing literature on employment as a social determinant of health, which posits that employment experiences can play an important role in shaping health and health behaviors. These theories, together with the empirical evidence from the literature review, inform the main relationships in the conceptual framework for the study. Chapter Four describes the research design and methods. Chapter Five presents the results from the study. Chapter Six discusses the contributions of the study to the existing literature on precarious employment, describes policy and practice implications, and suggests some areas for future research.

CHAPTER TWO: LITERATURE REVIEW

The Context of Youth Employment in the United States

The recent economic recession brought renewed attention to the issue of youth employment in the United States, as youth unemployment rose to levels unseen in over 50 years (BLS, 2010). Following an extended recovery period (Kalleberg & von Wachter, 2017), the youth unemployment rate has returned to pre-recession levels, yet significant labor market challenges remain for young people entering the workforce. Young people today face an unemployment rate that is double or even triple the unemployment rate of the general population: in 2017, the unemployment rate for 25 to 54-year-olds was 3.7 percent, whereas for 20 to 24-year-olds, it was 7.4 percent, and for 16 to 19-year-olds, it was 14.0 percent (BLS, 2018). This means that approximately two million young people between the ages of 16 and 24 were actively looking for work but are unable to find it. Of particular concern is the persistence of differences in access to employment by sub-group among young people. In 2017, for example, the unemployment rate for black youth between the ages of 16 and 19 was 24.0 percent, which was almost twice the unemployment rate for white youth at 12.2 percent (BLS, 2018).

Another indication of the challenges that young people face in the labor market is the youth labor force participation rate, or the percentage of young people who are working or actively seeking work. This rate has been decreasing in recent years and is currently 55.2 percent for young people between the ages of 16 to 24, which is about five percent less than the labor force participation rate for this age group prior to the recession. According to the U.S. Bureau of Labor Statistics: "The participation rates of both 16-to-19-year-olds and 20-to-24-year-olds have decreased sharply over the past several decades. Their rates are expected to decline further, although at a slower rate" (BLS, 2017). This decline has been attributed to a

range of factors including increasing competition for jobs that require less education, and growth in the number of young people in post-secondary education (Fernandes-Alcantara, 2018).

These unemployment and labor force participation figures are thought to be closely related to the recent increase in precarious or insecure employment, in that labor market difficulties can incentivize workers to accept less optimal working conditions (Vancea & Utzet, 2017). The rise of precarious employment has affected a wide range of workers (Kalleberg, 2009; Benach et al., 2016), but appears to have had a larger effect on particular groups of workers than on others (Rodgers, 1989).

The remainder of this chapter reviews the literature on precarious employment. It provides an overview of the structural factors shaping the U.S. labor market, definitions of precarious employment, the characteristics of workers who are most likely to be in precarious employment, and how current labor market conditions affect young people entering the labor market today. It then describes the role of youth job-training programs in helping young people to overcome labor market challenges, and the current gaps in knowledge regarding the effectiveness of these programs within the current economic context.

Precarious Employment in the United States Today

Over the past several decades, structural changes to social, political, and economic institutions have transformed employment relations in the United States. These changes appear particularly stark when compared to the employment practices that characterized the period immediately following World War II. At that time, the combined forces of government protections, powerful unions, and economic growth led to the creation of a new social contract between employers and employees that assured productivity for employers and provided security for employees (Kalleberg, 2011). This social contract was strengthened by the development of

labor laws during the 1960s and early 1970s that provided protections from discrimination and created a variety of new policy interventions.

In the mid-1970s, however, large structural shifts began to occur, which had an effect on employment systems in the United States and on a global scale. Changes in technology, a decline in union power, and the development of new public policies fostered conditions that encouraged greater flexibility for the manufacturing of items outside of the United States or, within the United States, to hire from an enlarged labor pool. Government deregulation of various industries such as trucking, financial services, and telecommunications further increased competition. Manufacturing began to decline, and the services sector grew. Together, these shifts contributed to the lowering of wages, a growth in flexible working conditions, and the rise of precarious forms of employment. While historically, certain groups of workers, such as women and African Americans, and certain types of jobs were frequently excluded from the "standard employment relationship," precarious employment today has expanded so that all workers are now affected by the increase in precarious work.

Defining Precarious Work

There are several similar terms that can be used to describe employment with sub-optimal characteristics, including "atypical employment" and "nonstandard employment," which initially led some scholars to describe this type of employment as "defined more by what it is not than by what it is" (Rodgers, 1989, p. 1). Yet, due to the extensive amount of debate around these concepts in recent years (Campbell & Price, 2016), definitions have become more refined, and a substantial body of theoretical and empirical literature on these concepts has now been developed. This study uses the term "precarious employment," following other recent scholarship in this area, to highlight "the extent of change, the forms of change, and the varied

paths of change" within the labor market (Vosko, MacDonald, & Campbell, 2009, p. 2). Using this term also allows for a focus on the specific and unique characteristics of precarious employment, which differentiate it from the broader concepts of "bad jobs" or low-quality jobs (Kalleberg, 2014).

For the purposes of this study, the term "precarious employment" is used to refer to particular job characteristics, not to worker qualities or workers' subjective interpretations of their employment experiences (Vosko, MacDonald, & Campbell, 2009, p. 2). This study conceptualizes precarious employment as a multi-dimensional construct, as has been frequently done by researchers for the purposes of analysis and for describing the complex realities of work within the current context (Vosko, MacDonald, & Campbell, 2009). According to Rodgers (1989), the dimensions that characterize precarious employment are: instability or high risk of job loss, lack of control over one's work, lack of workplace and employer protections, and low wages. Therefore, many jobs are neither "precarious" nor "not precarious," but rather, they are differentiated by their degree of precariousness (Benach et al., 2016).

Some of the dimensions of precarious employment, when considered individually, may not lead the worker to be in a position of vulnerability. Some workers may prefer more flexible work arrangements, or may choose to change jobs based on changing interests or life circumstances. Yet studies indicate that while many workers today may enjoy having flexibility and control over their jobs, they also place a high value on financial and job security. An analysis of responses to the General Social Survey conducted between 1973 and 2006 by Kalleberg & Marsden (2013), for example, found that the value placed on income and job stability by all workers grew over this time period, perhaps due in part to changes in the workforce that took place during that time. This was particularly true for vulnerable workers,

such as those with low levels of education, who were found to place more value on job security and income than other work values. This suggests that while flexibility may be a desirable job characteristic, it may have less importance relative to other work values, such as security.

Distribution and Prevalence of Precarious Work

As Kalleberg (2014) points out, there are challenges to operationalizing and measuring the concept of precarious work. The first difficulty stems from its multi-dimensional character, which makes it difficult to draw a clear line between work that is precarious and work that is not precarious. In addition, it is often not measured by official surveys and statistics, thereby making it difficult to document the prevalence of precarious work. Yet, while relatively new, research on the distribution and prevalence of precarious employment is able to build upon related scholarship on labor market inequalities. Work by scholars such as England, Farkas, Kilbourne, & Dou (1988) and Anker (1997), for example, have highlighted the ways in which groups of workers are sorted into jobs, and the ways that these jobs differentially reward workers.

In addition, researchers have documented the role of education and training in shaping access to employment opportunities. Studies indicate that over the past several decades, the U.S. labor market has become increasingly polarized by education and skills (Kalleberg, 2011), as evidenced by recent unemployment and earnings figures. For example, in 2016, workers with less than a high school diploma had an unemployment rate of 7.4 percent and a median weekly earned income of $504, while workers with a bachelor's degree had a 2.7 unemployment rate and earned an average of $1,156 a week (BLS, 2017). In other words, workers without a high school diploma were more than twice as likely to be unemployed, and earned half as much as workers with a college degree. These differences translate into additional vulnerabilities for

workers with lower levels of education and skills, particularly in terms of job quality and job security (Kalleberg, 2011).

Recent research suggests that while the broader structural changes taking place in the labor market affect all workers, some workers have been affected more than others (Kalleberg, 2009; Benach et al., 2016). This information comes from various sources, which, taken together, provide a helpful (if somewhat fragmented) view of precarious work. One source of information is the U.S. Bureau of Labor Statistics (BLS) Contingent Work Supplement from 2005, which classified approximately 5.7 million workers (or about 4 percent of the U.S. workforce) as contingent workers, who were defined as workers who do not expect their jobs to last (BLS, 2005). Findings indicated that compared to noncontingent workers, contingent workers were more likely to be female, Hispanic or Latino, and be under the age of 25 (BLS, 2005). However, this categorization of contingent workers has been criticized as being too narrow, in that it excluded workers who had been at their jobs more than a year, as well as workers who expected to continue to be at their jobs at least another year—even if these workers were temporary workers. It also excluded many part-time and self-employed workers that some scholars have argued should have been included (Government Accountability Office, 2010).

In 2010, the Government Accountability Office (2010) produced new estimates of the BLS Contingent Work Supplements from 1999 with an expanded definition of contingent work, and estimated that more than 39 million workers, or about 29.9 percent of the workforce, were in contingent employment (GAO, 2010). Another source of data on precarious work can be found on the 2012 General Social Survey, which asked, "Thinking about the next 12 months, how likely do you think it is that you will lose your job or be laid off--very likely, fairly likely, not too likely, or not at all likely?" Overall, approximately 11.2 percent of workers answered that they

thought that they expected to lose their jobs; but again, these figures were higher for particular groups of workers: about 17.5 percent of black workers expected to lose their jobs, compared to 8.8 percent of white workers, and 14.6 percent of workers with a high school diploma expected to lose their jobs, compared to 5.7 percent of workers who had a college degree. While these figures do not fully capture current rates of precarious employment, they provide compelling evidence of the unequal distribution of precarious work.

Another indicator of the prevalence of precarious work is the extent to which workers are able to obtain health insurance and retirement benefits through their employers (Kalleberg, 2000). This is particularly true in the United States, where these benefits have traditionally been accessed through employers. Yet, for many workers, this coverage is either not available or unaffordable, and in fact, the majority of the uninsured are from households with one or more working adults (Kaiser Family Foundation, 2017). Lack of access may be attributed to a lack of employer-provided coverage, or to coverage that is offered at a premium that is unaffordable for the worker. An analysis of the March 2017 Current Population Survey, for example, found that 74 percent of noninsured workers had an employer that did not offer health insurance coverage (Kaiser Family Foundation, 2017). Without these benefits, workers may have difficulties accessing and paying for healthcare.

Young People in Precarious Employment in the United States

As demonstrated in the previous section, employment opportunities are not equally distributed in the United States. Young workers face particular challenges in the labor market compared to older workers, due to their limited work experience. In addition to grappling with an unemployment rate that is generally about twice that of the adult unemployment rate, young people also often find themselves working in jobs that are unstable, low-paying, or otherwise

precarious. The 2005 Contingent Work Supplement, for example, found that contingent workers were twice as likely as noncontingent workers to be under 25 years old (27 versus 13 percent) (BLS, 2005).

Recent research suggests that young workers are often particularly vulnerable these types of jobs during challenging economic times, such as the recent worldwide economic recession. As Kalleberg pointed out, the recent recession particularly affected young workers, as "[p]oor economic circumstances… led older workers to take and stay in jobs that would otherwise have gone to younger people. So, young people are relegated to bad jobs, as well as being unemployed, underemployed (as in involuntary part-time work), overqualified, and often discouraged" (Kalleberg, 2011, p. 56).

In addition, young workers are also generally concentrated in particular industries, in which jobs are often part-time or temporary. Of the 20.9 million young workers in the United States, the industry with the highest percentage of young workers is the leisure and hospitality industry (which includes food services), in which 26 percent of young workers are employed. The second largest percentage of young workers work in retail (19 percent), followed by education and health services (12 percent) (BLS, 2017).

Within the broader category of young workers are patterns of differential access to employment opportunities by gender, race/ethnicity, and level of education. Young men, black and Latino youth, and young people with lower levels of education have higher rates of unemployment than the overall youth unemployment rate (BLS, 2017). For youth who are employed, job tasks and responsibilities can differ by sociodemographic group membership, also. A national study of workers between the ages of 14 and 18 employed in retail and food service jobs in the United States, for example, found that young men worked in jobs with

physically challenging tasks, such as loading trucks or other types of manual labor, at higher rates than young women (17 percent of young men, versus 7 percent of young women) (Runyan et al., 2007). Lastly, youth from various sociodemographic backgrounds often appear to be sorted into jobs of differing quality. Youth without a high school diploma, for example, are more likely to be in jobs in which the employer does not offer health insurance (Miller & Porter, 2007).

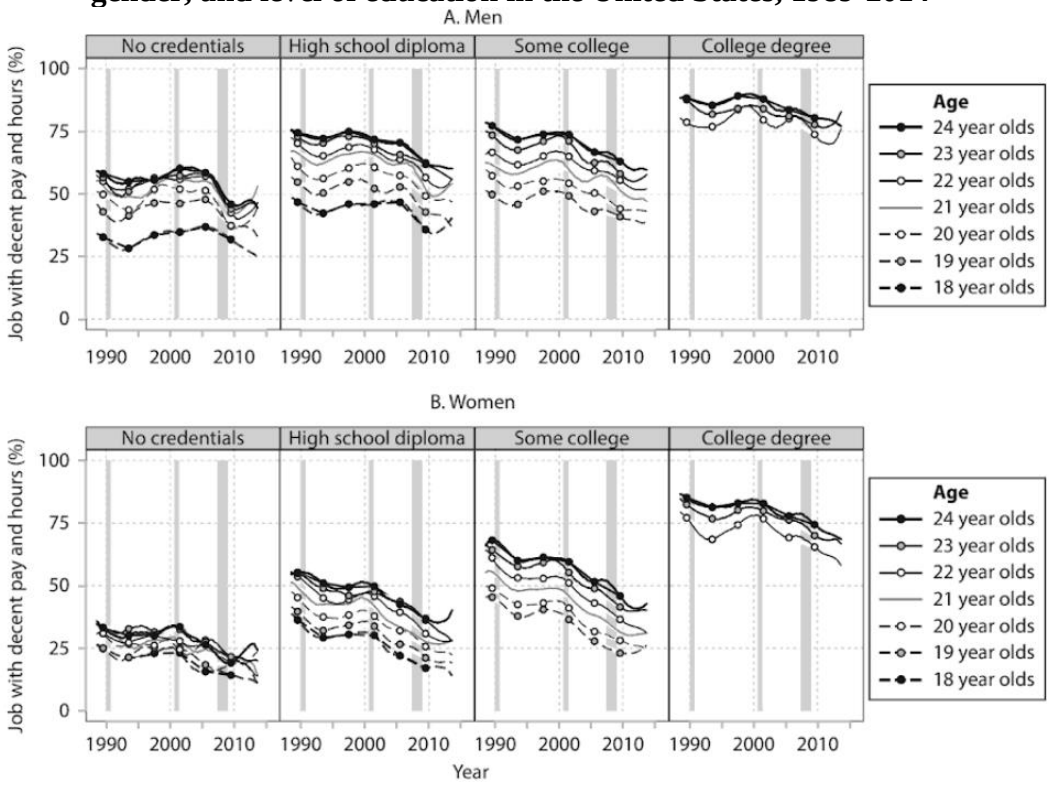
In addition, young people who have had particularly challenging life experiences may encounter difficulties entering the labor market. Some authors have described these challenges to establishing secure employment as "barriers to employment" (Fernandes-Alcantara, 2015; Miller & Porter, 2007). This category may include youth who are low-income, do not have a high school diploma, have experience with the juvenile justice and/or foster care system, have experienced homelessness, or who became parents during their teenage years. These youth have been found to have high rates of labor market instability, with level of education and history of arrest found to be particularly important (Holzer & LaLonde, 1999; Miller & Porter, 2007).

Studies are beginning to identify differing trajectories among young workers. One OECD report on youth employment, for example, categorized young people as either "high performers," "poorly integrated new entrants," "left behind," and "returning to education" (p. 21), based on their changes in employment during the recent economic recession. Youth who were "poorly integrated" into the labor market cycled between temporary work, unemployment, and disconnection from the labor market. Youth considered to be "left behind" were completely disconnected from the labor market for an extended period of time, which was generally more than a year. These youth who were "left behind" were more likely to lack a high school diploma, come from a racial minority or immigrant background, and/or live in a low-income or otherwise

disadvantaged neighborhood than youth from the other categories. Both "poorly integrated new entrants" and youth who were "left behind" were considered to be at risk of experiencing difficulty in obtaining stable employment (Scarpetta, Sonnet, & Manfredi, 2010).

In addition, researchers are beginning to examine patterns in quality of employment over time in the United States. This research seeks to assess sociodemographic differences in access to employment, and to understand them within the context of relevant historical events. For example, Hout (2019) recently assessed the ways in which economic recessions affected young people's access to decent work (based on wages and ability to work the number of hours desired), broken down by age, gender, and level of education (see Figure 1, below), with vertical gray lines indicating years of recession.

Figure 1. Historical trends in the percentages of young people in decent work by age, gender, and level of education in the United States, 1989-2014



Reprinted from Hout, M. (2019). The Employment Patterns of Young Adults, 1989–2014. In Chancer, L. S., Sanchez-Jankowski, M., & Trost, C. (Eds.) *Youth, Jobs, and the Future: Problems and Prospects*. New York, NY: Oxford University Press, p. 28.

Overall, Hout found that access to decent work was highest for young people with a college degree. In addition, he found that there was overall downward trend in quality of employment for young people at each level of education from the 2001 recession onward, particularly for young women. Interestingly, age differences explained less of the differences in women's employment than they did for the differences in men's employment. This analysis highlights the importance of developing a more in-depth understanding of the ways in which a range of factors can shape access to decent work for young people in the United States today.

Role of Job-Training Policies and Programs

A variety of job-training interventions have been developed to prepare young people for the workforce. In the United States, the most widely recognized youth job-training programs are those funded by the U.S. Department of Labor, which provide a variety of resources including skill development, educational services, supportive services, and job placement. These programs originated out of the New Deal programs of the 1930s, and then renewed as part of the anti-poverty initiatives of the 1960s (O'Leary, Straits, & Wandner, 2004). Today, federally-funded youth job-training programs take a variety of forms, such as basic skills training in workplace contexts, mentoring programs, and alternative high school programs. These programs have various funding streams, including the Job Corps, YouthBuild, and the Workforce Innovation and Opportunity Act (WIOA). In addition to federally-funded programs, states and local governments also fund youth job-training programs.

These programs have been extensively evaluated, yet most prior have concentrated primarily on employment and wage outcomes (King & Heinrich, 2011). Much remains unknown regarding the impact that participation in these programs may have on other types of employment-related outcomes (Crépon & Van den Berg, 2016). It is possible that training and

skill development could lead to a reduced likelihood of being in precarious employment, which could lead to better job opportunities in the future and improved health outcomes. This will require a more detailed look at the jobs obtained by training participants, which researchers have begun to call for (such as Spaulding, Lerman, Holzer, & Eyster, 2015). In addition, studies of youth job-training programs have identified differences in program outcomes by gender, level of education, and other sociodemographic characteristics (for example, see Kugler, Kugler, Saavedra, & Prada, 2015), which are also beginning to receive more attention (Davis & Heller, 2017). More information is needed to better understand these differences in program outcomes, which may have implications for participants' future employment and health outcomes.

Summary

Broad structural changes in the global labor market over the past several decades have made work more precarious for all workers. The labor market appears to be particularly challenging for young people, as evidenced by their high unemployment rates and low rates of labor force participation. Young workers are also more likely than adults to do contingent work, and are often employed in industries with low wages. This raises the question: what happens if young people get stuck in precarious employment, and are unable to move out over time?

The next chapter reviews the theoretical literature on the transition to adulthood, as well as the relationship between health and employment. It then presents the conceptual framework for the study. These chapters create the rationale for the research questions guiding this study, which center around examining precarious employment and the relationship between changes in precarious employment and changes in health for emerging adults.

CHAPTER THREE: THEORETICAL FRAMEWORK AND CONCEPTUAL MODEL

Overview

This study is informed by two theories: developmental theory (Elder, 1974; Erickson, 1950), which provides seminal insight into the role of employment during the transition to adulthood, and more recent literature on employment as a social determinant of health (Graham, 2000; Marmot, 2005). These two literatures are described in this chapter, with a particular focus on the mechanisms and pathways that may lead to poor health outcomes for vulnerable populations. These theories, together with the empirical research described in the previous chapter, provide the basis for the conceptual framework for this study. Following a description of the study's conceptual model, the research questions are presented, along with hypotheses.

Developmental Theory and the Transition to Adulthood

Existing literature on developmental theory has highlighted the importance of identity development, which takes place in stages over the course of a person's life. Early developmental theorists, such as Erik Erickson, posited that individuals pass through identifiable phases throughout the course of their lives, which then shape their experiences in subsequent phases (Erikson, 1950). These phases are often marked by the accomplishment of developmental tasks. In this view, adolescence is a distinct period in which young people must grapple with defining an individual identity and establishing meaningful relationships (Erikson, 1968). More recent developmental theory has called attention to the broader contexts shaping a person's life, as well as issues related to power and oppression based on gender, race, and class hierarchies (Cerulo, 1997). In particular, developmental scholars have called attention to changes in the transition to adulthood that have occurred in recent years in many Western countries (Abrams & Hyun, 2009), which has been categorized as a new phase called "emerging adulthood" (Arnett, 2000).

During emerging adulthood, when young people are approximately 18 to 29 years old, there are delays to the traditional timelines for schooling, home-leaving, marriage, and childbirth (Arnett, Žukauskienė, & Sugimura, 2014). At this time, young people are exploring various possibilities related to school, work, and relationships, and compared with earlier generations, they are taking longer to become independent and self-sufficient (Arnett, 2000). Arnett and other emerging adulthood researchers consider this stage to be distinct from adolescence and the initial stages of full-fledged adulthood, in that emerging adults are generally done with secondary school and are no longer considered minors, but do not yet have stability in many realms, including housing, romantic relationships, or work.

In particular, compared to adolescence, when young people are undertaking "transient and tentative explorations," emerging adulthood is a time of more serious and focused explorations related to employment (Arnett, 2000, p. 473). These work experiences are "more focused on preparation for adult work" than earlier work experiences (Arnett, 2000, p. 474). This period has a high degree of heterogeneity, and Arnett points out that while some young people may be more inclined and have more opportunities to explore options, others may be more constrained in the opportunities available to them (Arnett, 2000). In particular, empirical studies of this stage have documented differences in access to employment by gender, race/ethnicity, and level of education. For example, a study of young people from New York found that women moved out of their families' homes earlier than men did, and to have married earlier (Cohen, Kasen, Chen, Hartmark, & Gordon, 2003). There is also evidence to suggest that there may be differences in the level of importance that emerging adults place on transitioning into employment, and particularly full-time employment, during this time (Arnett, 2003).

Employment experiences during this stage can have important implications for the person in the future (Osgood, Foster, Flanagan, & Ruth, 2005). This includes future wage and employment opportunities, as well as a range of other matters related to health and well-being. More specifically, studies indicate that early unemployment experiences can have an "economic scarring effect" (Glatt & Wunnava, 2016; Kletzer & Fairlie, 1999; Mroz & Savage, 2006). This effect is particularly strong over the first few years after an extended period of unemployment. An analysis that used 1979 National Longitudinal Survey of Youth data, for example, found that an unemployment spell of 26 weeks reduced wages by about 4.6 percent a year later, and 2.9 percent up to three years later (Mroz & Savage, 2006). There are several potential reasons for this scarring effect, including reduced motivation, fewer opportunities to develop new skills, and the potential "signaling" to employers that may come from a period of unemployment (Glatt & Wunnava, 2016).

In addition to the effects of early employment experiences on future earnings and job opportunities, literature is beginning to emerge on the impact of negative employment experiences on health outcomes. Research suggests that young people who face particularly challenging circumstances in the realm of employment can experience immediate mental health impacts, such as depression and anxiety (Arnett, Žukauskienė, & Sugimura, 2014), as well as physical and behavioral health effects. These health issues in early adulthood may impact health and well-being over the life course. This topic is explored in more detail in the following section.

Relationship between Employment and Health

The link between employment and health is being increasingly recognized by researchers across various disciplines (Ahonen, Fujishiro, Cunningham, & Flynn, 2018; Lipscomb, Loomis,

McDonald, Argue, & Wing, 2006). However, much remains to be understood. Developing a better understanding of the mechanisms and pathways connecting employment and health will be critical for designing and evaluating program and policy interventions. This section provides a description of the relevant literature. It begins by reviewing two competing hypotheses regarding the direction of the relationship between employment and health. It then provides a detailed description of the aspects of employment and health that have been assessed by researchers. Finally, it describes the how interventions such as job-training programs may prevent or reduce adverse effects of employment on health.

One of the overarching controversies related to the relationship between employment and health concerns the direction of the relationship. In other words, does poor health lead to employment problems (the "social selection" hypothesis), or do poor-quality employment experiences lead to health problems (the "social causation" hypothesis)? While there is some evidence for both hypotheses (Winefield, 1997), much recent research has lent support to the social causation hypothesis (Vancea & Utzet, 2017).

Two of the most well-known longitudinal studies that provide support for the social causation hypothesis are the Whitehall I and II studies, which examined differences in health among members of the British Civil Service by occupational category (Marmot, Rose, Shipley, & Hamilton, 1978; Marmot et al., 1991). Findings from both studies indicated an inverse association between occupational status and health. The Whitehall I study, which focused on the relationship between occupational status, health behaviors, and mortality, found that ten years after the study began, those in the highest occupational status category had a mortality rate that was about one-third of the rate of those in the lowest status category, which was only partly explained by health risk behaviors (Marmot, Shipley, & Rose, 1984). The Whitehall II study,

which included a wider range of health indicators, found that, compared to those at the highest occupational level, twice as many workers at the lowest level rated their health as average or poor. The study authors also found associations between occupational status and health behaviors, such as alcohol consumption and smoking (Marmot et al., 1991). Together, these two studies make a strong argument for looking closely at the relationships between type of employment and health outcomes.

More recently, a growing body of literature has developed on the varied ways in which employment appears to operate as a social determinant of health (Burgard & Lin, 2013; Benach et al., 2014). In this line of research, employment is related to health in various ways, including: the potential for exposure to physical hazards at the workplace, the provision of wages (which shapes a person's ability to meet his or her material needs), and through the conditions of employment. Beyond the workplace, a range of factors can affect health, including: "…the presence of child labor, bonded agricultural labor, inadequate and polarized land tenure systems, below subsistence level wages, inadequate property rights, unequal distribution of income and political power, increasing polarization of societies…" and other factors (Lahiri et al., 2006, p. 267). Thus, researchers have argued that employment should be viewed affecting health on various levels, even though not all of these levels are likely to be included in a single study (Burgard & Lin, 2013).

One of the ways in which employment appears to be related to health is through exposure to occupational health and safety hazards. Young workers in particular often experience disproportionate exposure to workplace injuries and hazards, compared with workers from other age groups. Data from U.S. Centers for Disease Control and Prevention indicate that from 1998 to 2007, there were 5,719 fatal injuries among younger workers, or an average of 572 deaths per

year (CDC, 2010). The nonfatal injury rate for young workers is also generally double the rate for older workers, at a rate of 5 per 100 full-time employees, or even higher (Castillo & Lewko, 2013). These high rates of injuries have been attributed to a range of factors, including inexperience, lack of training, and limited adult supervision on the job (Castillo & Lewko, 2013). In addition, as mentioned previously, young people are often concentrated in particular occupations and industries where there is an elevated risk of injury (Breslin & Smith, 2013).

A second way is which employment is related to health is through wages, which may be adequate or inadequate for supporting workers' material needs (Lahiri et al., 2006). In addition, researchers have suggested that in cases in which wages and overall compensation are not balanced with the demands of the job, workers may experience stress and poor health outcomes (Siegrist and Rödel, 2006). For young workers, however, working longer hours (and therefore earning more) have been found to be associated with poor behavioral health outcomes, such as cigarette smoking and heavy alcohol use, perhaps due to the excessive demands created by balancing work and school (Valois, Dunham, Jackson, & Waller, 1999). Similarly, studies of employment during young adulthood have found working full-time to be associated with higher rates of cigarette smoking and alcohol consumption, compared to working part-time (Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 2013). For both adolescents and young adults, the strength of the association appears to differ by gender and race/ethnicity (Valois, Dunham, Jackson, & Waller, 1999; Windle, Mun, & Windle, 2005). For example, a national study of adolescents found that all those who were working had higher rates of alcohol and marijuana use than those who were not working—but rates of marijuana use were highest among males and white adolescents (Mihalic & Elliott, 1997).

A third, and less studied, way in which employment is related to health is through employment relations, or the reciprocal obligations of the employer and worker. These relationships establish the ways in which workers access the rights and benefits associated with employment (ILO, 2017), and may have both psychological and material implications. One aspect of employer relations that has received attention from researchers in regards to health is job security. Existing empirical research indicates that workers who perceive their jobs to be insecure are more likely to have negative physical and mental health outcomes, compared with workers who do not perceive their jobs to be insecure, even after adjusting for actual job losses or unemployment (Burgard, Brand, & House, 2009; Sverke, Hellgren, & Näswall, 2002).

Research that includes multi-dimensional measures of employment over time is more limited. As Benach et al. (2016) state:

> Currently, research on precarious employment is often based on static approaches. Yet labour markets can be remarkably dynamic, and workers' employment trajectories vary considerably over time. This requires studies in which different precarious employment conditions are not considered in isolation from one another, but from an integrated, longitudinal perspective that enables analyses of the health impacts of different trajectories while accounting for interactions with spells of unemployment, informal employment etc.

Developing a more complex understanding of employment and health will be critical for designing programs and policies to promote health and well-being. It will also be necessary to develop a better understanding of the mechanisms and pathways linking employment to health (Ahonen, Fujishiro, Cunningham, & Flynn, 2018). This will require developing a better understanding of how changes in employment relate to changes in health, which is described in more detail in the following section.

Employment and Health Indicators

One widely-used indictor of general health within public health literature is the self-assessment of general health, often referred to as self-rated health (SRH). Self-rated health has been found to be a "powerful predictor of future morbidity and mortality, even after controlling for a variety of physical, socio-demographic and psycho-social health status indices" (Eriksson et al., 2001, p. 326). Studies that have examined the relationship between job quality and SRH in adult workers have found that poor quality employment, or underemployment, to be a predictor of poor general health (Friedland & Price, 2003), particularly for women (Rugulies, Aust, Burr, & Bültmann, 2008).

Another common category of health indictors that has been used to examine the association between employment and health are mental health indicators. This research has largely focused on unemployment and mental health, which has uncovered associations between unemployment and stress, loss of self-esteem, and depression (Bell & Blanchflower, 2010; Goldsmith, Veum, and Darity, 1997). While the research is more limited, there have been similar findings in the literature on quality of employment and mental health. A longitudinal study by Quesnel-Vallée, DeHaney, and Ciampi (2010) found that individuals who held a temporary or contract position were found to have a significantly higher likelihood of depressive symptoms compared to those individuals who had held a temporary position, within two years of having held the position. Studies on underemployment or insecure employment and mental health have uncovered similar relationships (McKee-Ryan & Harvey, 2011; Virtanen et al., 2005).

A third category used to study the relationship between employment and health is behavioral health indicators. Two prominent indicators of behavioral health are smoking and alcohol use (for example, see Kivimäki et al., 2003; Jung, Oh, Huh, & Kawachi, 2013;

Tsurugano, Inoue, & Yano, 2012). These two measures of behavioral health are widely studied, due to the high numbers of people in the United States who engage in unhealthy behavior around smoking and drinking and due to the detrimental effects of these behaviors, which have been linked to heightened risk for chronic disease and mortality (Carpenter & Dobkin, 2009; Ezzati, & Lopez, 2003). A large-scale study of temporary employment, health behaviors, and mortality among Finnish workers, for example, found the causes of mortality were three times more likely to be due to smoking-related cancer for temporary employees than permanent employees and two times more likely to be due to alcohol-related causes for temporary employees than permanent employees (Kivimäki et al., 2003). A nationally representative study of Korean workers similarly found a significant relationship between precarious employment and smoking, compared with full-time permanent employment (Jung, Oh, Huh, & Kawachi, 2013).

Overall, studies of the relationship between temporary employment and health for younger people are limited, even though younger workers are more likely to be in temporary jobs (as described in the previous chapter). In general, reviews of existing studies suggest that long-term effects of remaining in precarious employment on health begin appear as workers age (Burgard & Lin, 2013; Quinlan, Mayhew, & Bohle, 2001). Scholars have suggested that more research is needed in this area (Benach & Muntaner, 2007; Quinlan, Mayhew, & Bohle, 2001).

Role of Program and Policy Interventions in Improving Health

As mentioned in the previous chapter, much of the existing research on job-training interventions has focused on wage outcomes as a measure of program success. However, scholars have suggested a wider range of measures should be used. Mental health, in particular, is beginning to gain attention by job-training program evaluators and researchers. Findings from these studies, while somewhat mixed, suggest that participation in certain job-training programs

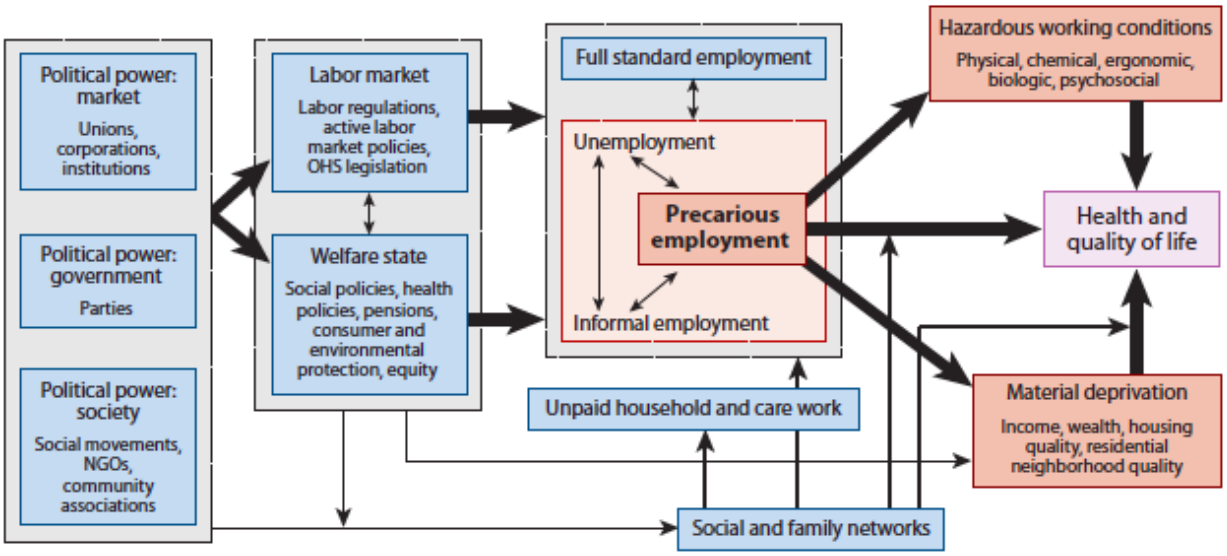
have been associated with improvements in mental health, such as depression (Moore et al., 2017). This study seeks to contribute to this emerging literature on job-training programs by looking at whether these programs are associated with changes in precarious employment, and whether these changes in precarious employment are associated with changes in health.

In summary, extensive literature exists on the relationship between employment and health. This study brings together developmental theory and the literature on social determinants of health, to take a closer look at the relationship between employment and health during the transition to adulthood, as well as whether job-training made a difference, in terms of changes in precarity of employment. The next section presents the conceptual model for this study.

Conceptual Model for this Dissertation

This study assessed the relationships between individual, family, and educational factors, changes in precarious employment, and changes in health. In particular, it drew from the conceptual model developed by Benach et al. (2014) on precarious employment as a social determinant of health (Figure 2). Benach et al.'s model highlights the complex relationships between macro-level forces such as markets, governments, and societies and labor markets/welfare states, between labor markets and employment relationships, and between employment relationships and health outcomes. This model helps to situate this study within a broader societal context, while underscoring the importance of the individual-level relationships between precarious employment and health (highlighted in red), which were the focus of the study.

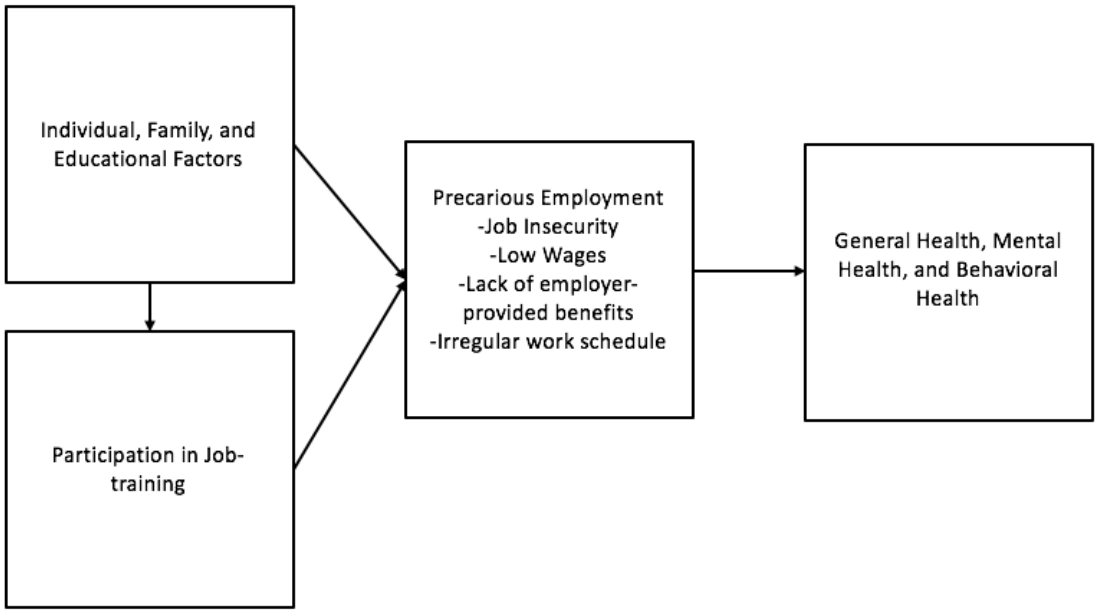
Figure 2. Conceptual model by Benach et al. (2014) depicting the relationship between precarious employment and health and quality of life



Reprinted from: Benach et al. (2014). Precarious employment: Understanding an emerging social determinant of health. *Annual Review of Public Health*, p. 242.

This study built upon previous scholarship on the association between precarious employment and health by taking a longitudinal view of individual, family, and educational factors, precarious employment, and health. It utilized a complex measure of precarious employment, created by identifying underlying groups of job characteristics using latent class analysis at two points in time. These groups were then linked to create a variable that would represent changes in precarious employment over time. It also included participation in job-training, in order to assess whether current job-training interventions made a difference in these changes in precarious employment. Lastly, it operationalized the health measures that would likely be included in the box labeled "health and quality of life" as self-rated general health, depression, and behavioral health. The conceptual model for this dissertation is depicted in Figure 3, below.

Figure 3. Conceptual Model for the Relationships between Individual, Family, and Educational Factors, Participation in Job-training, Precarious Employment, and Health



The first relationship of interest for this study was the relationship between individual, family, and educational characteristics (such as age, gender, race/ethnicity, experiences with the foster care system, parents' education, and educational attainment) and precarious employment at Wave III. In other words, what factors were associated with precarious work in emerging adults? The second relationship of interest was the relationship between background characteristics and changes in precarious employment from Wave III to Wave IV. Examining this association was critical for developing a more dynamic understanding of who moved into precarity, who did not change, and who moved away from precarity over time. It also allowed for the assessment of whether participating in a job-training program was significantly associated with a change in precarious employment over time. The final relationship of interest was the relationship between change in precarious employment and changes in health, which allowed for an assessment of whether precarious employment was linked with a range of health measures including self-rated general health, mental health, and behavioral health.

Research Questions and Hypotheses

Research Question 1: Which individual, family, and educational factors were associated with precarious work at Wave III (when survey participants were 18-26 years old)?

Hypothesis 1: Based on findings from previous studies of unemployment and unstable employment during young adulthood (Holzer & LaLonde, 1999; Miller & Porter, 2007), it was hypothesized that the following factors would be significantly associated with precarious employment in Wave III: gender, race/ethnicity, socioeconomic status, prior experience of homelessness or with the foster care or juvenile justice system, previous work experience, level of education, and the study participants' tract-level unemployment rate.

Research Question 2 and 2a: Which individual, family, and educational factors were significantly associated with a change in quality of employment from Wave III to Wave IV (six years later, when respondents are 24-32 years old)? Did job-training make a difference?

Hypothesis 2: It was hypothesized that the factors significantly associated with a change in quality of employment from Wave III to Wave IV would be similar to factors associated with precarious employment at Wave III: gender, race/ethnicity, socioeconomic status, prior experience of homelessness or with the foster care or juvenile justice system, previous work experience, changes in education, and changes in the study participants' tract-level unemployment rate. It was also hypothesized that participation in job-training would be associated with an improvement in the likelihood of moving away from precarity, based on previous research findings that, while mixed, suggest that workforce development programs can lead to an improvement in earnings for young people (Heinrich & Holzer, 2011).

Research Question 3: Was there a significant association between changes in precarious employment from Wave III and Wave IV and changes in health, mental health, and behavioral health (self-rated general health, depression, smoking, and binge drinking) from Waves III to IV?

Hypothesis 3: It was hypothesized that changes in precarious would be significantly associated with changes in health, mental health, and behavioral health. Specifically, based on the existing literature on insecure or precarious employment and health among adults (for example, see Burgard & Lin, 2013), it was hypothesized that movement into precarity would be associated with worsening general health, mental health, and behavioral health.

Summary of Theoretical Framework and Conceptual Model

This chapter provided the theoretical framework and the conceptual model for this dissertation. This information guided the formation of the research questions and hypotheses for this study, which were also described. The next chapter uses this information to make the case for the methodology that was used for the study. It then explains the Add Health study design, sample, sampling weights, measures, and the methods used in the study's analyses.

CHAPTER FOUR: METHODS

Overview

The research questions guiding this study centered around developing a more in-depth understanding of the relationships between individual, family, and educational factors, precarious employment, and health in emerging adults in the United States. Therefore, the study utilized a longitudinal research design, based on secondary data gathered from surveys with young people on factors thought to affect employment and health, including family characteristics, education, training, and work experience. Descriptive analyses, such as means and correlations, as well as analyses based on general linear models, were conducted.

Add Health Study Design

There are a limited number of data sources that regularly capture data on specific features of both employment and health, particularly in the United States (Ahonen, Fujishiro, Cunningham, & Flynn, 2018). This study used a dataset with longitudinal information to contribute a more detailed understanding of the relationship between precarious employment and health over time for emerging adults. It sought to identify changes in precarity, and how these changes related to changes in a range of health measures, including self-rated general health, mental health, and behavioral health.

This study utilized data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), which is a nationally-representative, longitudinal study of young people in the United States. At each wave of data collection, respondents were asked questions regarding personal traits, education, training, work experience, and health. In addition, data from the first and third waves of data collection included sociodemographic and family characteristics, which were also utilized for this study.

Add Health was developed in response to a mandate by the U.S. Congress to fund a study to examine some of the causes of adolescent health outcomes and health behaviors, with a particular emphasis on understanding the multiple contexts of a person's life (Resnick et al., 1997). It has been primarily funded by the National Institute of Child Health and Human Development (NICHD), as well as 23 other federal government agencies and foundations. Four waves of surveys, beginning in 1994-1995 when respondents were in grades 7 through 12, have been completed, and a fifth wave of data collection is currently underway. Data for the study are available as public use and restricted use files. This study used restricted use data from three waves, obtained through the Carolina Population Center at the University of North Carolina, Chapel Hill.

The primary sampling frame for Add Health was derived from the Quality Education Database. A sample of 80 high schools and 52 middle schools from the United States were chosen with unequal probability of selection. Systematic sampling methods and implicit stratification were incorporated to ensure representation by region, urbanization, school type, school size, race/ethnicity, and grade span (Resnick et al., 1997).

Wave I of data collection took place from September 1994 to April 1995. During this time, in-school surveys were administered to over 90,000 students in grades 7 to 12. In-home interviews were then conducted from April and December 1995 with a core sample of 12,105 young people, to obtain more in-depth information regarding respondents' educational aspirations, employment experiences, and health status information.

Data collection for Wave II was undertaken from April to October 1996 (about one year after Wave I), with 14,738 young people. Data were collected from young people who

participated in Wave I in-school data collection, as well as a limited number of people who did not participate in Wave I.

Wave III data were collected between April 2001 and August 2002. Respondents were 18-26 years old. Interviews with 15,197 Wave I respondents were completed. In Wave III, many questions from Wave I were repeated, and new sections were added, including information about friendships, romantic relationships, and college and work contexts.

Data collection for Wave IV was conducted from January 2008 to February 2009, when respondents were 24-32 years old. In total, 15,701 people from Wave I were re-interviewed. Again, many questions from Wave I were repeated on the social, economic, psychological, and health circumstances of the respondents. In addition, some questions were changed and new questions were added to improve the assessment of health status and health behaviors.

Weighted Design

Because the individuals in the Add Health study were selected with unequal probability, adjustment was necessary, to ensure that estimates were not biased (Chen & Chantala, 2014). Add Health has developed sampling weights, strata, and primary sampling units (PSUs) for each wave of data, as well as guidance on choosing the correct sampling weights for analysis. These weights were used to ensure that the sample used for the analyses in this study represented the population of young people in the United States at the time data were collected.

Sample

The sample for this dissertation included people who participated in Waves I, III, and IV of Add Health. It excluded Wave II, as many of the Wave II respondents were not re-interviewed in Waves III and IV. Due to this study's interest in assessing changes in precarious employment, it also excluded any respondents who did not provide an answer to the question of

whether they were working at least 10 hours a week in Waves III and IV. In addition, in order to focus on young people who are mainly focused on work activities, it excluded anyone who was enrolled in school full-time at Wave III and IV.

A total of 20,745 young people participated in Wave I of data collection. Of those, 5,575 were lost to follow-up in Wave III. Of the respondents who participated in Waves I and III of data collection, 8,049 were working at least ten hours a week at Wave III, and were not enrolled in school full-time. Of these, 6,981 study participants (unweighted), representing 10,672,000 people (weighted), had information for each of the measures of precarious employment. This formed the sample for the first research question, which used outcome data from Wave III only.

For research questions 2 and 3, which used data from Waves I, III, and IV, the sample included the 4,117 young people who participated in all three waves of data collection, were working at least 10 hours a week at Waves III and IV, and were not enrolled in school full-time at Wave III and IV. Of these young people, 3,594 people (unweighted), representing 6,495,508 people (weighted) had data on all variables, including the four measures of precarious employment from Waves III and IV. More information about the samples sizes for each research question is provided in Chapter 5.

Dependent Variables

Precarious Employment

The dependent variables for research questions 1 and 2 are measures of precarious employment. The operationalization of precarious work follows Vosko, MacDonald, and Campbell (2009) in identifying precarious employment using the following measures: limited employer-provided benefits, job insecurity, a changing work schedule, and low wages. Latent class analysis, a technique to measure unobserved (or latent) groups through the analysis of

observed variables (McCutcheon, 1987), was used to classify survey respondents into groups based on the following four measures.

Variables used in the creation of latent classes

Job (in)security. To assess job security, the respondent's major occupational group (the first two digits of the six-digit 1998 Standard Occupational Classification code) was recoded to represent the likelihood of being employed in "alternative work arrangements," or nonstandard positions, a category that includes temporary help agency workers, on-call workers, contract workers, and independent contractors. This information was obtained from an analysis by Lawrence Katz and Alan Krueger of the Bureau of Labor Statistics' Contingent Worker Survey (CWS) from 2005 (Katz & Krueger, 2016). In total, twenty-two occupational categories were recoded into percentages, representing the percentage of workers from each occupational category that were employed in alternative work arrangements from the 2005 CWS, which ranged from 3.0 to 31.2. More information on the coding for job insecurity can be found in Appendix A.

Control over one's work schedule. Whether the respondent had control over his or her work schedule was captured through the question, "Which of these categories best describes the hours you work at this job?" Responses included: "regular day shift," "regular evening shift," "regular night shift," "shift that rotates, that is it changes periodically from day to evening or night," "split shift that consists of two distinct periods each day," and "irregular schedule or hours." The response "irregular schedule or hours" was considered to represent lack of control over one's work schedule.

Employer-provided benefits. The measure of whether the respondent received benefits from his or her employer was assessed using the answer to the question: "which of the following

currently describes your current health insurance situation?" The response "you get insurance through work" was used to represent whether the person received health insurance through their employer.

Wages. Lastly, wages were measured by the question, "Now think about your personal earnings. In {year of the survey}, how much income did you receive from personal earnings before taxes, that is, wages or salaries, including tips, bonuses, and overtime pay, and income from self-employment?" Responses were grouped into eight categories: $1 to $10,000, $10,001 to $14,999, $15,000 to $19,999, $20,000 to $29,999, "30,000 to $39,999," "$40,000 to $49,999," "$50,000 to $74,999," and "$75,000 and above."

Latent class analysis

The latent class analyses were conducted using Mplus. The modeling process began with a one class model, and the number of classes was increased until there was no additional improvement in the model. Model comparison statistics (specifically, the Akaike Information Criterion and the Bayesian Information Criterion) were used to assess the goodness of fit for each model, and to choose the most appropriate grouping.

For both Wave III and Wave IV data, these measures all formed three latent classes: an "extremely precarious" group, a "semi precarious" group, and a "least precarious" group. These groups were defined separately for each wave. The least precarious group was characterized by a high level of health insurance through one's employer and higher wages, relative to the other two groups. The semi precarious group had lower wages and a lower of health insurance through one's employer than the least precarious group, and lower levels of job insecurity than the extremely precarious group. Finally, the extremely precarious group was characterized by high levels of job insecurity. More detail on the three groups at Wave III can be found in

Appendix B, and more information on the predicted probabilities and estimated means can be found in Appendix C.

The processes for creating the three groups can be illustrated by the following model, where Y takes the following values: 1 (for least precarious), 2 (for semi precarious), and 3 (for extremely precarious). Let s represent job security, b represent employer-provided benefits (health insurance through one's employer), w represent wages, and i represent irregular work schedule.

$$Y = \begin{cases} 1, & if\ \{s, b, w, i\} \in S_1 \\ 2, & if\ \{s, b, w, i\} \in S_2 \\ 3, & if\ \{s, b, w, i\} \in S_3\ . \end{cases}$$

S_1, S_2, and S_3 were determined by latent class analysis, as described above. These three groups (least precarious, semi precarious, and extremely precarious) were the dependent variable for Research Question 1.

Next, using the three groups from Waves III and IV, a new five-level variable was formed that captured change in quality of employment over time, which was the dependent variable for Research Question 2. The variable was created to represent degree of movement either away from precarity, no change, or movement into greater precarity. More specifically, the five levels were: "moved two levels into precarity," "moved one level into precarity," "no change," "moved one level away from precarity," and "moved two levels away from precarity."

The creation of these groups allowed for the assessment of whether increasing precarity was significantly associated with negative changes in general health, mental health, and behavioral health, which was Research Question 3. The five precarious employment levels (along with the number of people in each group) for the available study sample for the second and third research question for this study are illustrated in Figure 4, below.

Figure 4. Change in precarious employment (N=4,117)

Wave IV→ / Wave III ↓	Least Precarious	Semi Precarious	Extremely Precarious
Least precarious	1,213	218	121
Semi precarious	1,203	598	222
Extremely precarious	216	100	226

	Moved two levels into precarity
	Moved one level into precarity
	No change
	Moved one level away from precarity
	Moved two levels away from precarity

Health Variables

The dependent variables for the third research question were changes in self-rated general health, depression, smoking, and binge drinking. As this research question was interested in whether health improved, got worse, or remained the same, the health variables represented a change from Wave III to IV.

Self-rated general health. Self-rated general health (SRH) is a common measure in epidemiological studies, which has been found to have a strong relationship with mortality (DeSalvo, Bloser, Reynolds, He, & Muntner, 2006). The reliability of the SRH measure has been found to compare favorably with other self-rated measures of health, including measures of functional abilities and common illnesses (Lundberg & Manderbacka, 1996). Self-rated general health was assessed through the question: "In general, how is your health?" Potential responses ranged from 1 ("excellent") to 5 ("fair"). Responses from Waves III and IV were linked and

recoded so that those who improved between Waves III and IV were coded as 1, those who stayed the same were coded as 0, and those who got worse were coded as -1.

Depression. Symptoms of depression were assessed using nine items from the Center for Epidemiologic Studies Depression (CES-D) Scale (Radloff, 1977). This short version of the CES-D has been used in previous studies to assess depression among adolescents and young adults (for example, see Dunn et al., 2013). In all three waves of data collection, respondents were asked the frequency of depressive symptoms during the past week, with responses ranging from "never or rarely" (coded as 0) to "most/all of the time" (coded as 3). A total of these responses was then calculated, which ranged from 0 to 27. Overall, these responses appeared to be reasonably reliable (alpha of .8 for Wave III). There is no cutoff for clinical depression with the nine-question version of CES-D, so changes in depression symptoms over time were assessed by subtracting Wave III scores from Wave IV scores. Therefore, the coding of this variable differed from the other three health variables, in that positive scores represented more depressive symptoms, 0 represented no change, and negative scores represented less depressive symptoms.

Smoking. Respondents were asked about their smoking habits at Waves III and IV. In order to create a variable that would assess whether or not there was a change in smoking over time, two aspects of smoking were considered: whether the study participant had ever smoked a cigarette every day for thirty consecutive days, and whether he or she had smoked at least once a day for ten out of the past thirty days. This is the cut-off for smoking that has been used by other Add Health researchers (for example, see Maralani, 2014). Responses from Waves III and IV were then linked and recoded so that those who improved between Waves III and IV were coded as 1, those who stayed the same were coded as 0, and those who got worse were coded as -1.

Binge drinking. This study used responses to the question, asked in Wave III and IV: "During the past 12 months, on how many days did you drink five or more drinks in a row?" Responses were categorical, and ranged from "none" or "1 or 2 days in the past 12 months" to "3 to 5 days a week" or "everyday or almost everyday." Based on the existing literature, binge drinking was calculated separately for males and females. Study participants were considered to have participated in binge drinking based on the number of days in the past year that the person drank five drinks in a row (if male) or 4 or more drinks in a row (if female), based on other studies (i.e., Park et al., 2018) and the guidance of Add Health. Responses from Waves III and IV were linked and recoded so that those who improved between Waves III and IV were coded as 1, those who stayed the same were coded as 0, and those who got worse were coded as -1.

Independent Variables

Individual factors

Age. Age was calculated from Wave III data by subtracting the respondent's birth month and year from the interview month and year.

Gender. Gender was reported in Wave III. It was coded as 0 for "male" and 1 for "female."

Race/ethnicity. A variable representing race/ethnicity was constructed from responses to two questions: "Are you of Hispanic or Latino origin?" and "What is your race?" The variable for race was recoded into dummy variables to represent the following categories: White (Non-Hispanic), Black (Non-Hispanic), Hispanic or Latino, Asian or Pacific Islander (Non-Hispanic), Native American (Non-Hispanic), or Other.

Barriers to employment. The analysis included three barriers to employment: foster care system involvement, juvenile justice system involvement, and whether the respondent had ever experienced homelessness. These were each measured in Wave III. Foster care system involvement was measured using the question "Did you ever live in a foster home?" Responses were coded as 0 for no and 1 for yes. Juvenile justice experience was measured based on the question "Have you ever been arrested or taken into custody by the police?" Responses were coded as 0 for no and 1 for yes. Whether the respondent had experienced homelessness was measured by the response to the question "Have you ever been homeless for a week or longer—that is, you slept in a place where people weren't meant to sleep, or slept in a homeless shelter, or didn't have a regular residence in which to sleep?" Responses were coded as 0 for no and 1 for yes.

Prior work experience. Prior work experience was measured using data from Wave I based on the question "How many hours do you spend working for pay in a typical non-summer week?" Responses were continuous, and ranged from 0 to 145 hours. Responses that were between 1 and 145 were recoded as 1 or "yes," indicating that they had work experience at Wave I, and responses of zero remained 0 or "no," indicating that they did not have work experience at Wave I.

Tract-level unemployment rate. Geographic unemployment information, derived from the address of the study participant, was measured at Waves III and IV. Specifically, the study utilized the Census tract-level unemployment rate (for all persons 16 years old and older) for each study participant. The tract-level unemployment rate at Wave III was utilized for analyses to answer the first research question, and the change in tract-level unemployment from Waves III to IV, was utilized for analyses to answer the second and third research questions.

Precarious employment. For Research Question 3, the five-level variable that captured change in precarious employment was used as an independent variable, in order to examine its association with change in health.

Family factors

Highest level of education in the household. The highest level of education was used to represent household socioeconomic status. This variable was constructed from the following question, related to the level of education of the study participant's mother and father: "How far in school did he/she go?" Responses for both the mother and the father were recoded as 0 for "less than high school," 1 for "high school graduate," 2 for "some college," and 3 for "college graduate or higher." From there, a new variable was created that captured the highest level of education attained by either parent.

Educational factors

Study participant's level of education. Information about the study participant's level of education was assessed based on his or her response at Wave III. Study participants were asked "What is the highest level of education you have achieved to date?" Responses were dummy coded for each of the possible responses: "Less than high school," "High school diploma or GED," "Vocational certificate or Associate's degree," "Bachelor's degree," "Master's degree," and "PhD or post baccalaureate professional degree (i.e., law school)."

Change in educational attainment. Whether respondents underwent additional education between Waves III and IV was assessed based on whether their highest level of education changed from Wave III to Wave IV. Responses were coded as 0 if the respondent's level of education remained constant, and 1 if the respondent's level of education increased.

Participation in job-training. Whether the respondent ever participated in job-training was assessed using the response from the question posed in Wave III, "What kind of institution did you attend or are you attending for your {FIRST/NEXT} training program?" Possible responses included: "vocational/trade school," "community college," "cosmetology/beauty/barber school," and "job training through city/county/state/federal government," among others. The question was repeated a total of 15 times; however, the number of people in government-funded job-training programs was zero after the eighth time the question was asked. Therefore, the response "job training through city/county/state/federal government" to the first eight times the question was asked was used to create the variable representing participation in a government-funded job-training program.

Statistical Analysis

Complex Sampling Design

Because the schools and the students chosen to participate in the Add Health study were selected with unequal probabilities, survey weights must be used, to ensure that estimates from the analyses are not biased. If the sampling design is not taken into account, standard errors may be underestimated, which may lead to type I errors, or false-positive results (Chen & Chantala, 2014). Therefore, in order to incorporate the appropriate complex sampling design, weights, PSUs and strata were used in all analyses to ensure that the results represent the total population of adolescents in the United States.

Missing Data

An analysis of missing data was undertaken to assess whether there were substantive differences between the respondents included in the analytic sample and those who were eliminated due to missing data. All of those who worked at least ten hours a week, were not

enrolled in school full-time, and had responses for all variables of interest at Wave III (6,981 respondents) were compared to those who worked at least ten hours a week, were not enrolled in school full-time, and who did not have responses for all variables of interest at Wave III (1,068 respondents). Results indicated that those who were included in the analytic sample had slightly higher levels of education (16% had a bachelor's degree or higher, while 7% of those were eliminated had a bachelor's degree or higher) and previous work experience (62% had previous work experience, while 56% of those who were eliminated had previous work experience). Overall, based on this analysis, it was concluded that there were not substantive differences between the two groups.

Analysis

The goal of the study was to examine the relationships between individual, family, and educational factors, precarious employment, and health. Latent class analysis was used to identify precarious employment groups in Wave III, and then to link them with precarious employment groups in Wave IV to create a variable representing change in precarious employment. Descriptive analyses were then conducted with the dependent and independent variables using survey weights. The level of measurement of the dependent variable played a central role in determining which type of analysis is appropriate. The use of a general linear model (GLM) and associated link functions[1] provided a flexible means of developing numerous different types of models depending on the nature of the dependent variable. Approaches applicable to GLM include, but are not limited to, analysis of variance and covariance models, correlation/regression models (including logistic, multinomial and poisson regression models),

[1] Link functions commonly used are the Normal, Gamma, Inverse normal, and Poisson distributions, depending on the assumed distribution of the dependent variable (y).

and multivariate models. In addition, to account for the unequal probability of selection, sampling weights were used to ensure that the analyses were generalizable to the population of emerging adults in the United States.

Descriptive Statistics

Weighted descriptive statistics for the independent and dependent variables were generated, including means and frequencies. In addition, correlations were run for key variables, to assess for multi-collinearity.

Research Question 1

The first research question posed by this study was: "Which individual, family, and educational factors were associated with precarious work at Wave III (when survey participants are 18-26 years old)?" To address this question, multinomial logistic regression analyses were conducted.

The model for the regression analysis was as follows. Let Y^* represent the ordered categories for precarious employment, such that

$$Y^* = X\beta + \varepsilon$$

where X includes individual, educational, and family factors, and ε is an error term. Further suppose that while we cannot observe Y^*, we instead can only observe the categories of response

$$Y = \begin{cases} 1, & if\ Y^* \leq \mu_1 \\ 2, & if\ \mu_1 < Y^* \leq \mu_2 \\ 3, & if Y^* > \mu_2 \end{cases}$$

where μ_i are the externally imposed endpoints of the observable categories.

It was hypothesized that factors significantly associated with precarious employment in Wave III would include gender, race/ethnicity, socioeconomic status, prior experience of

homelessness or with the foster care or juvenile justice system, previous work experience, level of education, and the study participants' tract-level unemployment rate.

Research Question 2

The second research question was: "Which individual, family, and educational factors were significantly associated with a change in quality of employment from Wave III (when respondents were 18 to 26 years old) to Wave IV (six years later, when respondents are 24-32 years old)? Did job-training make a difference?"

The assumption of proportional odds was tested, in order to test whether ordinal logistic regression would be appropriate. The assumption was violated, and a partial proportional model was applied. For Research Question 2a, which tested the effect of participation in a job-training program, the variable representing whether the person ever participated in job-training (from Wave III) was added in as an independent variable. It was hypothesized that the factors significantly associated with a change in precarious employment from Wave III to Wave IV would be similar to factors associated with precarious employment at Wave III: gender, race/ethnicity, socioeconomic status, prior experience of homelessness or with the foster care or juvenile justice system, previous work experience, changes in education, and changes in the study participants' tract-level unemployment rate. It was also hypothesized that participation in job-training would be associated with an improvement in the likelihood of moving away from precarity.

Research Question 3

The third and final research question was: "Was there a significant association between changes in precarious employment from Wave III and Wave IV and changes in health, mental

health, and behavioral health (self-rated general health, depression, smoking, and binge drinking) from Waves III to IV?"

For this question, suppose the process for health was the following:

$$health^{*} = X\gamma + \eta$$

where X represents individual, family, and educational factors, as well as each of the precarious employment trajectories, and η represents the error term. The variables used to represent health were: self-rated general health, depression, smoking, and binge drinking.

Depression was a continuous variable, and therefore ordinary least squares (OLS) regression was conducted. The other three health variables were ordered. Therefore, the proportional odds assumption was tested, to assess which type of analysis would be appropriate. Ordinal logistic regression was used to assess which variables were associated with changes in self-rated general health and changes in binge drinking. A partial proportional odds model was used to assess the variables associated with changes in smoking. Two different models were used to assess the sensitivity of model specification for changes in binge drinking and changes in smoking.

Overall, it was hypothesized that changes in precarious would be significantly associated with changes in health, mental health, and behavioral health. Specifically, based on the existing literature on insecure or precarious employment and health among adults (for example, see Burgard & Lin, 2013), it was hypothesized that movement into precarity would be associated with worsening general health, mental health, and behavioral health.

Limitations

There were several important limitations to this study. First, job security was measured indirectly. It is measured based on the likelihood that a particular occupation has alternative

work arrangements, which Katz and Krueger (2016) define as "temporary help agency workers, on-call workers, contract company workers, and independent contractors or freelancers" (p. 2). A more direct way of assessing job security might have been through a question such as the one from the General Social Survey, described on page 10 of this dissertation, which asks, "Thinking about the next 12 months, how likely do you think it is that you will lose your job or be laid off--very likely, fairly likely, not too likely, or not at all likely?" This question was not included in the questions asked about employment in the dataset used for this study, and therefore was not able to be used in the classification of precarious employment groups. Similarly, this study used a variable for whether the study participant received health insurance through his or her employer to represent access to employer-provided benefits, a key aspect of precarious work. There may be better measures of access to employer-provided benefits that could be used in future studies of precarious employment, particularly for studies that focus on emerging adults.

In addition, information about some individual-level characteristics, such as motivation, that research suggests could influence a person's employment and/or participation in job-training, was also not gathered by Add Health. Other variables, such as educational attainment, may help to capture some of this information. The existing literature on the relationship between employment and health suggests that uncertainty related to work may lead to stress, which may serve as an important mechanism linking employment and health. However, the dataset for this study contains only information about stressors (in other words, traumatic life events, such as witnessing a violent event), not stress. It also does not contain information about work-related stress, which research has linked to behavioral health outcomes, in particular, and therefore was not included in the study.

Lastly, this study used data that were collected prior to, and at the beginning of, the recent economic recession. Therefore, while the issue of precarious employment is relevant to young people in the United States today, the findings from this study are only generalizable to young people who worked at least ten hours a week and were not enrolled in school full-time in 2001/2002 and 2008/2009. Despite these limitations, it is believed that this study contributes new knowledge on the relationship between precarious employment and health, in that it brings together a multi-dimensional measure of precarious employment over time, participation in job-training, and a range of health measures.

CHAPTER FIVE: RESULTS

Introduction

This chapter presents the major findings of the study. Specifically, it presents data to address the questions of: 1) which factors were associated with precarious work at Wave III, when study participants were 18 to 26 years old, 2) which factors were associated with changes in precarious employment six years later at Wave IV, when respondents were 24 to 32 years old, and whether participation in job-training made a difference, and 3) whether there was an association between changes in precarious employment and changes in self-reported health, mental health, and behavioral health. The chapter begins by describing the descriptive statistics for the sample included in Research Question 1, then reports the results of the regression analyses conducted for Research Questions 1, 2, and 3.

Descriptive Statistics

Table 1 presents the weighted descriptive statistics for the sample included in the first research question, both for the entire sample and broken out by precarious employment groups. Those included in the sample worked at least 10 hours a week and were not enrolled in college or university full-time at Wave III. The total sample was 6,981 people (unweighted), representing 10,672,100 people (weighted).

The mean age for the sample was 22 years old. Approximately 55 percent of the sample was male, and 45 percent was female. Just over two-thirds identified as non-Hispanic white, 13 percent identified as non-Hispanic black or African American, another 13 percent identified as Hispanic or Latino, 3 percent identified as Asian or Pacific Islander and non-Hispanic, and 3 percent identified as another race/ethnicity. For over two-thirds (68 percent) of the sample, the highest level of education was a high school diploma or GED, for 14 percent it was a bachelor's

degree, for 10 percent it was less than a high school diploma, for 7 percent it was an associate's degree or vocational certificate, and for about 1 percent it was a graduate degree. The vast majority did not have the barriers to employment identified in the literature and assessed in this study, which were: previous experience with the foster care system (2%), ever having been arrested (13%), or ever having experienced homelessness (4%). About two-thirds had worked prior to Wave III. The mean unemployment rate was 6 percent. The highest level of education in the household varied. For about one-third of study participants, the highest level of education in the household was a high school diploma or GED, slightly less than a third had a bachelor's degree or more, and the remaining third was split between those who had an associate's degree or vocational certificate (21%) and those that had less than a high school diploma (14%).

As shown in Table 1, 35 percent of the sample were in the least precarious group, 51 percent were in the semi-precarious group, and 13 percent were in the extremely precarious group. Information on how the three precarious employment groups were created can be found in Chapter 4. Standard errors for the measures of the three precarious employment groups can be found in Appendix D.

Table 1. Descriptive information for independent variables (Unweighted N=6,981, Weighted N= 10,672,100)

	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Unweighted	6,981	2,636	3,480	865
Weighted	10,672,100	3,830,149	5,424,014	1,417,937
Percentage	1.00	0.35	0.51	0.13
		Mean		
Continuous variables	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Age at Wave III	22.26	22.81	21.88	22.24
Tract-Level Unemployment Rate at Wave III	0.06	0.06	0.07	0.06
		Percentage		
Categorical variables	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Gender				
Male	0.55	0.59	0.47	0.70
Female	0.45	0.41	0.53	0.30
Race				
Asian or Pacific Islander (Non-Hispanic)	0.03	0.04	0.03	0.01
Black (Non-Hispanic)	0.13	0.11	0.14	0.11
Hispanic or Latino	0.13	0.13	0.13	0.11
Other (Non-Hispanic)	0.03	0.03	0.03	0.03
White (Non-Hispanic)	0.69	0.69	0.67	0.74
Study participant's level of education				
Less than high school	0.10	0.06	0.12	0.14
High school diploma or GED	0.68	0.67	0.68	0.71
Vocational Certificate or Associate's degree	0.07	0.08	0.06	0.05

	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Bachelor's degree	0.14	0.16	0.13	0.10
Master's degree	0.01	0.01	0.01	<0.01
PhD/JD/MD	<0.01	0.01	0.01	<0.01
Ever in foster care				
No	0.98	0.99	0.98	0.99
Yes	0.02	0.01	0.02	0.01
Ever arrested				
No	0.87	0.88	0.88	0.81
Yes	0.13	0.12	0.12	0.19
Ever experienced homelessness				
No	0.96	0.97	0.95	0.94
Yes	0.04	0.03	0.05	0.06
Previous work experience				
No	0.34	0.27	0.39	0.31
Yes	0.66	0.73	0.61	0.69
Highest level of education in the household				
Less than high school	0.14	0.13	0.15	0.14
High school diploma or GED	0.35	0.35	0.35	0.35
Vocational Certificate or Associate's degree	0.21	0.21	0.21	0.24
Bachelor's degree or more	0.30	0.32	0.29	0.26

In looking across the three precarious employment groups, a few major sociodemographic differences stand out. First, there were large differences in the percentages of males and females across the three groups. The extremely precarious group was 70 percent male and 30 percent female, the least precarious group was approximately 59 percent male and 41 percent female, while the semi precarious group had a greater percentage of females (53%) than males (47%). There were also small differences in regard to education and race across the groups.

Research Question 1

This section describes the results of the multinomial logistic regression analysis for the first research question, which was: Which individual, family, and educational factors were associated with precarious work at Wave III (when survey participants were 18-26 years old)? The significant results are shown in the table below (Table 2). The Relative Risk Ratio (RRR) is provided for each coefficient. The RRR, obtained by exponentiating the multinomial logit coefficients, represents the risk of the outcome falling into the comparison group, compared to the risk of the outcome falling into the reference group (UCLA Statistical Consulting Group, n.d.). More detail on all of the multinomial logistic regression results for can be found in Appendix E.

The base category for this analysis was the least precarious group. For each additional year of age, the likelihood of being in either the semi precarious or extremely precarious group decreased (RRR=.73 and .85, respectively). Females were more likely than males to be in the semi precarious group (RRR=1.59), but less likely to be in the extremely precarious group (RRR=.67). Race was only significant for the comparison between those who were in the least precarious group, compared to those who were in the extremely precarious group: study

participants who were Asian or Pacific Islander or Hispanic or Latino were both significantly less likely to be in the extremely precarious group than those who were non-Hispanic white.

Study participants' level of education was found to be significant for both comparisons. Those who had a high school diploma or associate's degree were significantly less likely to be in the semi precarious or the extremely precarious group than in the least precarious group. Having experienced homelessness increased one's likelihood of being in the semi and extremely precarious group (RRR=1.64 and 1.73, respectively).

Two additional variables were only significant for the comparison between those who were in the least precarious group and those who were in the semi precarious group: the Census tract-level unemployment rate and whether or not the study participant had previous work experience. Findings indicated that for each 1 percentage point increase in unemployment, the likelihood of being in the semi precarious group was 19.2 times higher. In addition, having previous work experience significantly decreased one's likelihood of being in the semi precarious group (RRR=.75).

Overall, these findings fit with the existing literature, but a few are of note. For example, gender operated differently across the two comparisons. In addition, only some of the race variables operated as expected. These findings will be discussed in more detail in Chapter 6.

Table 2. Multinomial logistic regression results for RQ1 (Unweighted N=6,981, Weighted N=10,672,100)

Base category: Least precarious group

	Semi Precarious Group				Extremely Precarious Group			
	Coef.	SE	P	RRR	Coef.	SE	P	RRR
Age at Wave III	-0.31	0.03	<0.01	0.73	-0.16	0.04	0.00	0.85
Gender								
Female	0.47	0.07	0.00	1.59	-0.40	0.11	<0.01	0.67
Race								
Asian or Pacific Islander (Non-Hispanic)	-0.04	0.19	0.82	0.96	-1.02	0.36	<0.01	0.36
Hispanic or Latino	-0.17	0.16	0.30	0.84	-0.31	0.15	0.05	0.74
Study participant's level of education								
High school diploma or GED	-0.46	0.15	<0.01	0.63	-0.64	0.20	<0.01	0.53
Vocational Certificate or Associate's degree	-0.53	0.21	0.01	0.59	-1.02	0.30	<0.01	0.36
Bachelor's degree or more	-0.34	0.20	0.09	0.71	-0.88	0.28	<0.01	0.42
Master's degree	-0.21	0.43	0.62	0.81	-2.38	1.01	0.02	0.09
PhD/JD/MD	-0.35	0.57	0.54	0.70	-1.88	0.84	0.03	0.15
Ever experienced homelessness								
Yes	0.50	0.18	<0.01	1.64	0.55	0.24	0.02	1.73
Previous work experience								
Yes	-0.29	0.10	<0.01	0.75	-0.14	0.14	0.32	0.87
Unemployment rate at Wave III	2.95	0.91	<0.01	19.20	0.06	1.01	0.95	1.06

Reference groups are: Male, White (Non-Hispanic), Study participant's level of education- less than high school diploma, No- ever in foster care, No- ever arrested, No- ever experienced homelessness, No- previous work experience

Research Question 2 and 2a

This section describes the results for the second set of research questions, which were: Which individual, family, and educational factors were associated with a change in precarious employment from Wave III (when respondents were 18 to 26 years old) to Wave IV (six years later, when respondents are 24 to 32 years old)? Did job-training make a difference? For this question, three additional variables were added to estimate the change: participation in training, change in educational attainment from Wave III to Wave IV, and change in unemployment rate from Wave III to Wave IV. Descriptive information for these variables can be found in Appendix F.

Those included in the sample for Research Question 2 and 2a worked at least 10 hours a week and were not enrolled in college or university full-time during Waves III and IV. The total sample was 3,594 people (unweighted), representing 6,495,508 people (weighted). In order to choose the appropriate model for the data, the proportional odds assumption was tested using the Brant test. The Brant test indicated that the proportional odds assumption had been violated, and a partial proportional odds model was applied. This model was viewed as the most appropriate, in that ordinal logistic regression requires that the data adhere to the proportional odds assumption, and multinomial logistic regression does not allow for order to be taken into consideration, but a partial proportional odds model allows for the analysis of certain variables (that meet the proportional odds assumption) as ordered, while the other variables are analyzed as unordered variables (Williams, 2006).

The outcome variable for this question ranged from -2 to 2 (with -2 representing "moved two levels away from precarity," -1 representing "moved one level away from precarity," 0 representing "no change," 1 representing "moved one level into precarity," and 2 representing

"moved two levels into precarity). The creation of this variable is described further in Chapter 4. *Gologit2* (the command used for the partial proportional odds models) produced a series of logistic regression models: moved two levels away from precarity compared to any other change (including no change); any movement away from precarity compared to no change and any movement into precarity; any movement away from precarity and no change compared to any movement into precarity; and moved 2 levels into precarity compared to any other change (including no change). Articles such as Williams (2006) and Williams (2018) provide more detailed information on the use and interpretation of *gologit2* models.

Results from applying the proportional odds model are shown in Table 3 (below). The variables that were found to be significantly associated with changes in precarious employment were: age, gender, race/ethnicity, educational change, previous work experience, and highest level of education in the household. Age, gender, race/ethnicity, and highest level of education in the household did not meet the proportional odds assumption, and significant p-values represent instances in which the independent variable was significantly associated with one of the four comparisons described in the previous paragraph. For example, compared to study participants from households where the highest level of education was less than a high school diploma, those who were from households where the highest level of education was a vocational certificate or associate's degree were less likely to have been in worsening forms of precarious employment over time. Along a similar line, study participants who obtained additional education between Waves III and IV were less likely to have been in increasing forms of precarious employment. One unexpected finding was that those who had previous work experience were found to be more likely to have been in increasing forms of precarious employment.

Table 3. Partial proportional odds model for change (increase) in precarious employment (Unweighted N=3,594, Weighted N=6,495,508)

	Coef.	SE	P	RRR
Age at Wave III	0.06[a]	0.05	0.25	1.06
	0.12[b]	0.03	0.00	1.13
	-0.07[c]	0.04	0.07	0.93
	0.09[d]	0.07	0.23	1.09
Gender				
Female	0.59[a]	0.29	0.04	1.81
	0.04[b]	0.09	0.68	1.04
	-0.14[c]	0.14	0.32	0.87
	-0.83[d]	0.29	0.00	0.44
Race				
Asian or Pacific Islander (Non-Hispanic)	2.54[a]	0.56	0.00	12.72
	0.07[b]	0.24	0.78	1.07
	-0.71[c]	0.36	0.05	0.49
	-1.57[d]	0.85	0.07	0.21
Black (Non-Hispanic)	-0.10	0.12	0.42	0.91
Hispanic or Latino	-0.06	0.13	0.66	0.94
Other (Non-Hispanic)	0.08	0.29	0.77	1.09
Change in educational attainment (Wave III&IV)	-0.33	0.09	0.00	0.72
Ever in foster care				
Yes	0.50	0.44	0.25	1.65
Ever arrested				
Yes	0.17	0.14	0.24	1.18
Ever experienced homelessness				
Yes	-0.21	0.22	0.34	0.81
Previous work experience				

	Coef.	SE	P	RRR
Yes	0.22	0.10	0.02	1.25
Highest level of education in the household				
High school diploma or GED	-0.10	0.14	0.47	0.90
Vocational Certificate or Associate's degree	-0.54[a]	0.27	0.05	0.58
	-0.34[b]	0.16	0.04	0.71
	-0.72[c]	0.17	0.00	0.49
	0.25[d]	0.33	0.45	1.28
Bachelor's degree or more	-0.33[a]	0.29	0.27	0.72
	-0.46[b]	0.16	0.01	0.63
	-0.38[c]	0.21	0.07	0.68
	0.57[d]	0.34	0.09	1.76
Change in unemployment rate (Wave IV-III)	0.53	0.80	0.51	1.69

Dependent variable coding: 1= moved 2 levels away from precarity, 2= moved 1 level away from precarity, 3= no change, 4= moved 1 level into precarity, 5= moved 2 levels into precarity. For variables that violate the proportional odds assumption: a= coefficient for moved two levels away from precarity compared to any other change (including no change), b= coefficient for any movement away from precarity compared to no change and any movement into precarity, c= coefficient for any movement away from precarity and no change compared to any movement into precarity, d= coefficient for moved 2 levels into precarity compared to any other change (including no change). Reference groups for independent variables were: Male, White (Non-Hispanic), Ever in foster care- no, Ever arrested- no, Ever experienced homelessness no, Previous work experience- no, Highest level of education in the household- less than a high school diploma.

There were similar findings for Research Question 2a, which assessed whether participation in training made a difference in whether there were changes in precarious employment from Wave III to Wave IV. Again, age, gender, race/ethnicity, educational change, previous work experience, and highest level of education in the household were significantly associated with changes in precarious employment. However, participation in training was not significant. These findings are discussed in more detail in Chapter 6.

Research Question 3

This section presents the results for the third research question, which focused on the relationship between changes in precarious employment and changes in health, mental health, and behavioral health (smoking and binge drinking) from Wave III to IV. Self-rated general health, smoking, and binge drinking were ordinal variables (coded as "got worse," "stayed the same," or "got better"), and depression was a continuous variable (Wave III subtracted from Wave IV scores). Descriptive information for these variables is in Appendix G.

Criteria for being included in the sample for Research Question 3 was similar to Research Question 2, in that the sample for Research Question 3 included those who worked at least 10 hours a week and were not enrolled in college or university full-time during Waves III and IV. The sample size for each of the analyses for this question differed, however, according to the data available for each health measure.

Overall, the precarious employment change variable was not significantly associated with any of the health variables. F-tests of overall significance for the models for changes in self-rated general health and depression were not significant. Univariate statistics indicated that change in precarious employment, considered on its own, also were not significantly associated

with changes in self-rated general health or changes in depression. The tables below present the results for the models that were found to be significant.

Table 4 presents the results from the ordinal logistic regressions conducted to assess the variables associated with changes in smoking from Wave III to Wave IV. Two models are presented: in Model 1, individual, educational, and family variables, as well as changes in precarious employment, were included as independent variables. In Model 2, individual, educational, and family variables, as well as changes in precarious employment and dummy variables representing semi and extremely precarious employment at Wave III (used to capture a potential "scarring" effect of precarious employment at this time), were included as independent variables.

Model 1 and Model 2 had similar results. Each additional year of age was associated with positive changes in smoking (in other words, that the person's smoking behaviors improved) from Wave III to Wave IV (For Model 1, OR=1.10, and for Model 2, OR=1.09). Compared to males, females were 1.36 times more likely to have positive changes in smoking. Lastly, having ever been arrested was significantly associated with positive changes in smoking (for Model 1, OR= 1.90, for Model 2, OR=1.91). Univariate analyses of the relationship between changes in precarious employment, as well as the dummy coded Wave III precarious employment variables, indicated that there was not a significant relationship between changes in precarious employment and changes in smoking.

Table 4. RQ3 Ordinal logistic regression results: Change (improvement) in smoking (Unweighted N=2,306, Weighted N=4,384,711)

	Model 1				Model 2			
	Coef.	SE	P	OR	Coef.	SE	P	OR
Age at Wave III	0.10	0.04	0.01	1.10	0.09	0.04	0.01	1.09
Gender								
Female	0.30	0.13	0.02	1.36	0.31	0.13	0.02	1.36
Race								
Asian or Pacific Islander (Non-Hispanic)	0.24	0.39	0.53	1.27	0.22	0.39	0.58	1.24
Black (Non-Hispanic)	0.05	0.25	0.85	1.05	0.06	0.25	0.82	1.06
Hispanic or Latino	0.02	0.22	0.93	1.02	0.01	0.23	0.97	1.01
Other (Non-Hispanic)	-0.46	0.47	0.33	0.63	-0.45	0.46	0.33	0.64
Change in educational attainment (Wave III & IV)	0.05	0.15	0.74	1.05	0.07	0.15	0.66	1.07
Ever in foster care								
Yes	-0.31	0.72	0.67	0.74	-0.30	0.73	0.68	0.74
Ever arrested								
Yes	0.64	0.22	0.01	1.90	0.65	0.22	0.00	1.91
Ever experienced homelessness								
Yes	0.44	0.28	0.12	1.56	0.45	0.28	0.11	1.57
Previous work experience								
Yes	-0.05	0.15	0.76	0.96	-0.05	0.15	0.76	0.96
Highest level of education in the household								
High school diploma or GED	0.36	0.24	0.15	1.43	0.33	0.25	0.19	1.39
Vocational Certificate or Associate's degree	0.03	0.27	0.90	1.03	0.01	0.28	0.98	1.01
Bachelor's degree or more	0.29	0.24	0.24	1.33	0.26	0.25	0.30	1.29
Change in unemployment rate (Wave VI-III)	-2.17	1.25	0.09	0.11	-2.20	1.25	0.08	0.11
Change in precarious employment (Wave III & IV)	-0.05	0.07	0.48	0.95	-0.11	0.10	0.24	0.89
Semi precarious at Wave III					-0.20	0.17	0.25	0.82

Most precarious at Wave III	-0.24	0.23	0.29	0.79

Dependent variable coding: 1= Got Worse, 2= Stayed the Same, 3= Got Better. Reference groups for independent variables were: Male, White (Non-Hispanic), Ever in foster care- no, Ever arrested- no, Ever experienced homelessness- no, Previous work experience- no, Highest level of education in the household- less than a high school diploma, Least and most precarious at Wave III, and Least and semi precarious at Wave III

Table 5 presents the partial proportional odds model for the variables associated with changes in binge drinking from Wave III to Wave IV. Again, two models are presented: Model 1 includes individual, educational, and family factors, and the change in precarious employment variable, while Model 2 includes individual, educational, and family factors, as well as the change in precarious employment variable and dummy-coded Wave III precarious employment variables.

Models 1 and 2 had similar results. Race/ethnicity, whether the study participant had ever been in foster care, and whether the study participant had previous work experience at Wave I were significantly associated with positive changes in binge drinking (meaning that the person's binge drinking behaviors improved). Results indicated that, compared to study participants who identified as white, study participants who identified as black or Asian or Pacific Islander were less likely to have had positive changes in binge drinking from Wave III to Wave IV. Having previous work experience was associated with positive changes related to binge drinking over time. Univariate analyses suggested that there was not a significant relationship between changes in precarious employment, experiences of either having been semi or extremely precarious at Wave III, and changes in binge drinking. These findings are discussed in more detail in Chapter 6.

Table 5. RQ3 Partial proportional odds model: Change (improvement) in binge drinking (Unweighted N=2,302, Weighted N=4,221,732)

	Model 1				Model 2			
	Coef.	SE	P	RRR	Coef.	SE	P	RRR
Age at Wave III	-0.04	0.04	0.30	0.96	-0.06	0.04	0.17	0.95
Gender								
Female	-0.15	0.12	0.24	0.86	-0.12	0.13	0.34	0.89
Race								
Asian or Pacific Islander (Non-Hispanic)	-0.44	0.19	0.02	0.64	-0.43	0.20	0.03	0.65
Black (Non-Hispanic)	-0.41	0.19	0.03	0.66	-0.37	0.18	0.05	0.69
Hispanic or Latino	0.11[a]	0.18	0.56	1.11	0.09	0.18	0.61	1.10
	-0.63[b]	0.25	0.01	0.53	-0.65	0.25	0.01	0.52
Other (Non-Hispanic)	-0.14	0.45	0.77	0.87	-0.13	0.46	0.79	0.88
Change in educational attainment (Wave III & IV)	0.04	0.15	0.80	1.04	0.05	0.15	0.75	1.05
Ever in foster care	-1.83[a]	0.63	0.01	0.16	-1.82	0.63	0.01	0.16
Yes	3.19[b]	1.06	0.00	24.31	3.21	1.06	0.00	24.88
Ever arrested								
Yes	0.25	0.17	0.15	1.28	0.24	0.17	0.16	1.28
Ever experienced homelessness								
Yes	0.17	0.27	0.52	1.19	0.19	0.27	0.48	1.21
Previous work experience								
Yes	0.27	0.12	0.03	1.31	0.26	0.13	0.04	1.30
Highest level of education in the household								
High school diploma or GED	-0.33	0.24	0.17	0.72	-0.36	0.25	0.15	0.70
Vocational Certificate or Associate's degree	-0.07	0.26	0.77	0.93	-0.10	0.26	0.69	0.90
Bachelor's degree or more	-0.04	0.25	0.88	0.96	-0.05	0.25	0.82	0.95
Change in unemployment rate (Wave VI-III)	-0.32	1.07	0.77	0.73	-0.34	1.06	0.75	0.71
Change in precarious employment (Wave III & IV)	0.06	0.06	0.34	1.06	0.01	0.08	0.87	1.01

Semi precarious at Wave III	-0.30	0.15	0.05	0.74
Most precarious at Wave III	0.01	0.21	0.98	1.01

Dependent variable coding: 1= Got Worse, 2= Stayed the Same, 3= Got Better. For variables that violate the proportional odds assumption: a= coefficient for got worse compared to stayed the same or got better, b= coefficient for got worse compared to got better and stayed the same. Reference groups for independent variables were: Male, White (Non-Hispanic), Ever in foster care- no, Ever arrested- no, Ever experienced homelessness no, Previous work experience- no, Highest level of education in the household- less than a high school diploma.

Summary

This chapter presented the findings for the three research questions guiding the study. The following chapter provides a discussion of these results, implications for policy and practice, and reflections on potential directions for future research.

CHAPTER SIX: DISCUSSION

Introduction

This chapter describes the contributions of this study to the growing body of literature on precarious employment. It begins with a discussion of how the study's main findings relate to the existing literature and potential reasons for why the findings from this study support or diverge from findings from previous studies. Following that, implications for policy and practice are presented. Finally, the chapter closes with directions for future research.

The purpose of the study was to develop a multi-dimensional measure of precarious employment that could be traced over time, which could be used to assess the factors associated with precarious employment at a single point in time, as well as the factors associated with changes in precarious employment over time. It also aimed to assess whether participation in a job-training was associated with changes in precarious employment. Lastly, it examined the relationship between changes in precarious employment and changes in a range of health measures, including self-rated general health, depression, smoking, and binge drinking. Together, these analyses were expected to provide new insight into precarious employment among emerging adults in the United States.

Measuring Precarious Employment

Precarious employment scholars have described the "definitional ambiguities as to the very meaning of 'precarious work'" and the challenges associated with its assessment (Kalleberg & Vallas, 2018, p. 7). One common approach has been to measure the likelihood that a person will lose his or her job. However, these single measures of precarity have been considered to be too narrow by some researchers (for example, see Kalleberg & Vallas, 2018), in that they do not capture the multiple dimensions of precarious employment.

In an effort to create a complex, nuanced measure of precarity, this study identified patterns in four aspects of precarious employment identified by Rodgers (1989)-- job insecurity, lack of access to employer-provided benefits, low wages, and irregular scheduling—which were used to identify three groups: an "extremely precarious" group, a "semi precarious" group, and a "least precarious" group. Data came from Waves I, III, and IV of the National Longitudinal Study of Adolescent to Adult Health (Add Health), which allowed for the assessment of changes in precarious employment and health over time.

Using the Add Health dataset also put the focus of the study squarely on young people, for whom there is limited literature on the relationship between employment and health (Vencea & Utzet, 2017). Findings from the first research question, which assessed the factors associated with precarious employment, supported the findings of previous studies of precarious employment for the general population in a number of ways. For example, increases in age and education were associated with a decreased likelihood of being in the semi precarious or extremely precarious group, compared to being in the least precarious group.

However, there were also some surprising findings. While females were more likely than males to be in the semi precarious group (compared to the least precarious group), they were also less likely to be in the extremely precarious group. One possible explanation, at least in part, could be due to occupation: while high percentages of both males and females worked in food service and retail or sales occupations, high percentages of females also worked in occupations that, in this study, were coded as having been semi-insecure, such as office and administrative support occupations, while high percentages of males worked in occupations that were coded as highly insecure, such as construction and extraction occupations.

Another interesting finding was that, while race/ethnicity was found to be significant overall, only certain racial/ethnic groups appeared to be significantly different from the reference group (white), and race/ethnicity was not significant for the comparison between those in the least and semi precarious groups. This could represent an area for future research, that could consider multiple identities together (gender, race/ethnicity, etc.) and use more complex measures of race/ethnicity.

There were also some interesting findings related to variables that had not been included in previous studies of precarious employment, such as the "barriers to employment" variables (which were: whether the person was ever arrested, ever in foster care, or ever experienced homelessness). It was hypothesized that if these experiences negatively affect access to employment, they might also affect access to "good" or less precarious jobs. Findings from this study suggest that this may be at least partially true. For example, having experienced homelessness was significantly associated with precarious employment at Wave III (although ever having been arrested or in the foster care system were not significant).

The existing literature on youth homelessness may provide some insight into why the experience of homelessness could be particularly challenging for young people. As Gaetz and O'Grady (2002) argue, based on their study of homeless youth in Toronto, Canada, "many homeless youth adopt flexible economic strategies... [and their] money making decisions are limited by the background features of this population and their situationally defined lifestyle characteristics and networks of social and cultural relationships" (p. 435). In other words, because experiencing homelessness is an experience of extreme social isolation or hardship, it may increase the necessity of taking a semi or extremely precarious job.

Lastly, the variables for previous work experience and the tract-level unemployment rate were significant for the comparison between the least and semi precarious groups, but not for the comparison between the least and extremely precarious groups. This was surprising, because it might be expected that there would be more (in number) significant differences between the groups that are the most different from each other. It would be interesting for future studies to use a different method, or different data, to create a precarious employment measure for young people, and to see if they uncovered similar findings.

Assessing Changes in Precarious Employment Over Time

In addition to creating a multi-dimensional measure of precarious employment, this study sought to create a variable that would capture change in precarious employment over two points in time. Assessing a change in precarious employment variable allowed for an analysis of the factors associated with increasing precarity (in other words, worsening job quality) over time.

Multiple variables were found to be significantly associated with increasing precarity from Wave III to IV: age, gender, race/ethnicity, educational change, previous work experience, and highest level of education in the household. However, of these, only change in educational attainment and previous work experience were found to have a consistent relationship with change in precarious employment across each of the comparisons (of different changes in precarity). Change (representing an increase) in educational attainment was associated with a reduced likelihood of increasing precarity over time, which fits with previous studies that have highlighted the importance of education for access to decent work. However, somewhat surprisingly, previous work experience was associated with an increased likelihood of increasing precarity over time. It's unclear why this might be—perhaps entering employment at a young

age could be viewed as coming from a need to generate income for one's family, and this financial need affects a person's access to, and choices about, employment over time.

Interpreting the findings for the variables that were only significant for some of the comparisons is even more complex. Similar to the findings for the first research question, findings for the second research question highlight the complexity of the ways in which various sociodemographic factors such as age, gender, and race/ethnicity were related to changes in precarious employment. In contrast, the finding around the highest level of education in the household was more consistent: compared to those who lived in a household where the highest level of education was less than a high school diploma, those who lived in households where the highest level of education was either a vocational certificate or an associate's degree, or a bachelor's degree or more, were less likely to move into greater precarity over time (versus no change or moving away from precarity). In other words, education mattered—both in terms of the study participant's level of education, and the study participant's parents' levels of education.

It was interesting to note that none of the "barrier to employment" variables were significant. One explanation for why these factors, and others, were not significant could be attributed to the way that the change in precarious employment variable was created. This variable captured change over time, and not the overall level of precarity that the person was at during Wave III, or during Wave IV. Therefore, these factors may have contributed to the person remaining precarious at both points in time, which would have been assessed as "no change."

Role of Job-Training

This study also contributed to our understanding of the association between participation in a common employment-based intervention for young people—job-training—and change in

precarious employment over time. Somewhat surprisingly, findings indicated that participation in job-training was not significantly associated with a change in precarious employment over time.

As with the previous findings, there are various ways to interpret this finding. First, perhaps job-training programs and policies prioritize helping young people to find and obtain training or employment, rather than helping them to obtain non-precarious employment, in particular. Another explanation for why participation in job-training was not significantly associated with change in precariousness over time may be that those who would have benefited most from job-training may not have participated in it. There is some evidence of this from prior studies of federally-funded job-training programs (for example, see Heckman & Smith, 2004).

Alternatively, it may be that the job-training variable used in this study combined many different types of programs and program models, which could have combined the effects of programs that were more and less effective and thus led to a non-significant result. Recent studies of youth job-training programs (for instance, see Bloom & Miller, 2018) that compare the effects of youth job-training programs are beginning to uncover differences in the effects of participation, based on program model. Similarly, this study did not seek to disentangle differential effects of job-training for various populations (as suggested or tried by researchers such as Davis & Heller, 2017; Kluve et al., 2016; Moore et al., 2017), which may have also contributed to the lack of significance for participation in job-training.

Changes in Precarious Employment and Changes in Health

This study aimed to address the current gap in knowledge regarding the relationship between changes in precarious employment and changes in self-rated general health, mental health, and behavioral health among emerging adults. Somewhat surprisingly, based on the

previous literature on employment and health, findings indicated that precarious employment was not significantly associated with any of the variables representing changes in health. Two models were tested to assess the relationship between precarious employment and each of the health measures: the first model included individual, educational, and family variables, as well as changes in precarious employment, and the second model included individual, educational, and family variables, as well as the variable representing change in precarious employment, and dummy variables representing semi and extremely precarious employment at Wave III.

There are several explanations for this finding. It may be that the relationship between precarious employment and health only appears as workers age (Burgard & Lin, 2013; Quinlan, Mayhew, & Bohle, 2001), and therefore, this relationship may not be significant in emerging adulthood. The social determinants of health literature, reviewed in an earlier chapter, suggests that employment appears to be related to health in various ways, including through wages and through employment relations. Perhaps during emerging adulthood, young people are able to find additional stability through family members, such as parents, that may not be available to them later in the life course. This may help to mitigate some of the potentially negative health consequences of being in precarious employment during that time. Alternatively, this finding may be attributable to the coding of both the change in precarious employment variable and the change in health variables, in that they were created to capture change, but may not provide much insight into other ways that job quality and health may be related. In addition, as this study used self-rated health measures, there may have been issues related to under-reporting, particularly among low-income or otherwise disadvantaged populations, as has been found in previous studies (for example, see Vingilis, Wade, & Adlaf, 1998). Lastly, it may be that the timing of data collection may have contributed to the lack of significance. In other words, it may

be necessary to have data from more regular intervals, or from a longer period time, in order for there to be a significant relationship between change in precarious employment and change in health.

Overall, this study contributed new insight into the factors associated with precarious employment and changes in precarious employment in emerging adults. It also provided data on the relationship between changes in precarious employment and changes in health. Findings from these analyses suggest areas for consideration by policymakers and practitioners, as described in the next section of this chapter.

Implications for Policy and Practice

As mentioned in the Introduction to this dissertation, precarious employment is on the rise in the United States. Although more research is needed, findings from this study provide some initial evidence that precarity, as well as changes in precarity, tend to be associated with particular individual, educational, and household characteristics. This finding suggests that there is a critical need for a range of policy and practice interventions to promote more equitable employment outcomes. This section reviews some of the implications from this study's findings for policy and practice.

Implications for National Policy

Findings from this study suggest that there is differential access to less or non-precarious work for young people in the United States. At the national level, there are various policy options that could be developed and implemented to protect workers from entering precarious work, and from moving into greater precarity over time.

One national-level strategy could be to draft legislation to make work less precarious. This could be done by targeting some of the dimensions of precarious work identified by this

study, such as by raising the national minimum wage or by improving access to healthcare, regardless of employment status. Alternatively, or in addition, policymakers could choose to create legislation to protect workers from the insecurity during employment transitions due to losing a job, taking leave after the birth of a child, or changing occupations. This strategy has been suggested by scholars such as Kalleberg and Vallas (2018).

Another strategy could be to develop national legislation to create non-precarious job opportunities. For example, the federal government could once again take an active role in job creation, as it did through the New Deal programs such as the Works Progress Administration and the Civilian Conservation Corps. This strategy was recently brought to national attention by Representative Alexandria Ocasio-Cortez and Senator Edward Markey, who have promoted a "Green New Deal" that would generate jobs aimed at environmental sustainability. These jobs would pay above the minimum wage, and provide economic security for workers. In this way, the government would not just focus on creating jobs in general, but on creating "good" or non-precarious jobs.

Findings from this study also support the need for additional efforts to ensure access to education and training. One strategy could be to put resources toward improving the high school graduation rate, as suggested by scholars such as Glatt & Wunnava (2016). Another strategy could be to ensure that schools are offering the skills and training needed to obtain decent work within the current labor market (Scarpetta, Sonnet, & Manfredi, 2010). Policymakers could also improve the targeting of employment-based interventions toward populations that have the highest likelihood of entering precarious employment, such as young people who have experienced homelessness. While there has been some effort in this regard, there is a need for a

better understanding of whether the young people who have the highest likelihood of not obtaining employment, or of entering precarious work, are participating in these programs.

In addition, this study provides evidence to support the argument that there is a need for additional resources to be allocated to the enforcement of current labor standards. Weil (2011) has described the trend toward the use of secondary sources of labor, or contract workers, by large employers such as Apple and Amazon. The workers in these "fissured workplaces" are vulnerable to violations of labor standards by employers, and may also be considered to be in precarious employment if they lack job security, access to employer-provided benefits, and/or if they earn low wages or have an irregular work schedule. Findings from this study and others suggest that younger people may be vulnerable to working in workplaces such as these, and could benefit from an increased effort to enforce current labor standards.

Implications for State and Local Policy

Findings from this study also point to the importance of strategies aimed at reducing precarious employment at the state and local level. There are many innovative strategies taking place at the state and local level currently, which could be expected to have an effect on the number of young people in precarious employment. For example, in several cities, such as San Francisco and New York City, "fair workweek" legislation has been passed that has created protections for certain groups of workers, to require employers to create predictable work schedules for workers. Legislation such as this may help to reduce the precariousness associated with jobs in certain industries, such as fast food and retail. Efforts are also underway to reduce the impact of certain experiences considered to be "barriers to employment" (which may also be considered barriers to less precarious or non-precarious employment). One such effort is the "Ban the Box" campaign that has led to the passage of fair hiring legislation in 34 states and over

150 cities and counties (Avery, 2019). Additional organizing efforts are underway to improve employment in particular occupations, such as home health care work and domestic work (Boris & Klein, 2006; Poo, 2011). Overall, these efforts may point to additional areas for consideration for policymakers interested in addressing the increasing numbers of young people in precarious work, which can be implemented at the state and local level—and eventually, potentially at the national level.

Implications for Social Work Practice

Given that employment opportunities are not equally distributed, there is a need for increased attention to the issue of how to ensure that all young people have access to decent work, within the context of social work practice. Some of the strategies that could be adopted by organizations are similar to strategies that could be taken at the policy level, such as modifying programs to specifically target those most vulnerable to entering precarious employment. For example, job-training programs may wish to offer somewhat different services to participants according to their age. Alternatively, programs that focus on a particular population, such as young people with a particular "barrier to employment" such as juvenile justice experience, could modify their curricula to incorporate information on how to prepare for and obtain a non- (or less) precarious job.

In addition, findings from this study point to the need for practitioners who work with young people to consider not only how to help the person get their first job, or their next job, but rather to consider what the person's employment might look like over time. Practitioners may wish to focus their efforts helping young people to identify and enter a career pathway that could be expected to provide opportunities for non- or less precarious work. This may require a larger shift in program design, such an increase in the length of time that young people can remain as

participants in programs, in order to ensure that there is enough time for young people to explore their career options, and to obtain some of the resources or training they might need to be successful.

Overall, findings from this study highlight the importance of helping all young people access and remain in decent, non-precarious work. Policymakers and practitioners may wish to consider a range of strategies, in light of the complexity of the problem. If developed and implemented effectively, these strategies may be expected to lead to improvement, not only in terms of the first employment opportunity, but employment opportunities over time, for young people.

Directions for Future Research

While this study contributed new insight into the assessment of precarious employment and health in emerging adults, much remains to be learned. In particular, there is a need for more data on precarious employment, for more longitudinal studies using these data, and for more research on the relationship between precarious employment and health.

One major contribution of this study was its development of a multi-dimensional measure of precarious employment, which could be linked with health measures found within the same dataset. It would be useful, however, for future research to be undertaken that would capture each of the dimensions of precarious employment (as described by Rodgers, 1989), more directly. For example, researchers might wish to gather data on job security based on questions similar to one of the questions from the May 2017 Contingent Worker Supplement for the Current Population Survey conducted by the U.S. Census Bureau (BLS, 2018). They were:

1. Some people are in temporary jobs that last for a limited time or until the completion of a project. Is your job temporary?
2. Provided the economy does not change and your job performance is adequate, can you continue to work for your current employer as long as you wish?

These questions would allow researchers to assess job security directly. Similarly, questions about access to employer-provided benefits, wages, and work schedule could be asked with the purpose of creating a precarious employment variable. It would also be useful to data to be gathered more frequently (for instance, every year or every two years), in order to have more data points to work with. Lastly, future research that uses data gathered after the recent economic recession could help to shed light on young people's experiences in the current labor market.

In addition, researchers have called for additional data on workplace activities, that could help to expand researchers' current understanding of precarious employment. For example, future research could assess the "control that people have over their work activities and the associated intrinsic rewards, as well as some indicators of work intensity" (Kalleberg, 2012, p. 434). There is also a need for additional research on the relationship between school and work for young people, particularly in light of the finding from the U.S. Bureau of Labor Statistics that "young contingent workers (16- to 24-year-olds) were much more likely than their noncontingent counterparts to be enrolled in school (62 percent and 36 percent, respectively)." (BLS 2018, p. 3). This research has begun to be undertaken by researchers (such as Scarpetta, Sonnet, & Manfredi, 2010) but there is a need for additional research, in order to assess how enrollment in school might affect young people's experiences of precarious employment. It will be important for researchers to assess, for example, whether being in school protects young people (due to access to resources, such as health insurance) or not. Working while still enrolled in school may also have other benefits for young people that were not captured in this study, particularly in the realm of vocational development (Zimmer-Gembeck & Mortimer, 2006), that may have future benefits that were not captured in this study.

Along a similar line, there is a need for additional research to better understand the relationship between participation in employment-based interventions, such as job-training programs, and job quality following participation in the program. This research could be quantitative and large-scale, for example, and could assess differences in job quality by individual-level factors, such as previous work experience. Alternatively, qualitative studies could be undertaken to better understand young people's experiences seeking, obtaining, and remaining in employment following their participation in a job-training program.

Lastly, future research might continue to investigate whether there is a connection between precarious employment and health in emerging adults. Researchers might consider delving more deeply into the relationship between employment and health for young people, with a particular focus on some of the aspects of identity and experience that were significantly related to access to non- (or less) precarious employment, such as gender, race, and barriers to employment. Future research could also consider different ways of assessing quality of employment over time, which might include creating precarious employment trajectories (i.e., whether the person moved into precarious employment, moved out of precarious employment, remained stuck in precarious employment, or never entered precarious employment) or thinking about other ways to assess job quality over time. There is also a need for more research on job quality and other measures of health not included in this study, such as marijuana use.

APPENDICES

APPENDIX A. Calculating Job Insecurity

Probability of Employed Workers Who Worked During Survey Week Also Being in Alternative Work Arrangements

(Percent of Each Characteristic)	CPS Feb-1995	CPS Feb-2005	RAND Oct/Nov-2015	
			Weighted	Alt. Weight
Occupation:				
Management	10.7	11.9	12.1	10.7
Business and Financial Operations	9.2	13.2	16.1	14.5
Computer and Mathematical	14.9	11.7	22.8	21.6
Architecture and Engineering	7.2	11.0	10.8	9.9
Life, Physical, and Social Science	11.6	11.7	10.8	9.8
Community and Social Service	3.2	4.7	23.5	23
Legal	15.0	11.2	20.8	19.2
Education, Training, and Library	7.2	7.6	20.4	19.3
Arts, Design, Entertainment, Sports, and Media	28.8	31.2	40.2	37.1
Healthcare Practitioners and Technical	8.7	8.5	13.7	12.6
Healthcare Support	8.6	10.9	19.0	17.9
Protective Service	9.1	7.5	15.5	15.5
Food Preparation and Serving Related	2.8	3.0	12.1	11.3
Building and Grounds Cleaning and Maintenance	15.0	17.2	16.7	15.2
Personal Care and Service	22.6	22.5	46.1	42.1
Sales and Related	11.6	11.3	19.7	17.9
Office and Administrative Support	5.1	4.5	7.6 7	0.2
Farming, Fishing, and Forestry	14.7	11.1	64.2	59
Construction and Extraction	26.9	24.8	27.2	24.4
Installation, Maintenance, and Repair	9.1	10.7	13.9	12.4
Production	5.4	5.4	11.3	10.1
Transportation and Material Moving	9.4	10.0	19.2	18.2

Reprinted from: Katz, L. F., & Krueger, A. B. (2016). *The rise and nature of alternative work arrangements in the United States, 1995-2015* (No. w22667). National Bureau of Economic Research, p. 23.

For this dissertation, job insecurity was measured using study participants' occupational codes. The first two digits of each six-digit occupational code was matched to the occupations listed by Katz and Krueger (above), which each had a probability of employed workers who worked during survey week also being in alternative work arrangements, determined based on the 2005 Current Population Survey (CPS).

APPENDIX B.

Table 6. Levels of the individual precarity components across the precarious employment groups at Wave III (Unweighted N=6,981, Weighted N=10,672,100)

Continuous variables	Overall	Mean Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Job Insecurity	11.04	9.08	8.67	25.27
Wages	~$13,500	~$22,500	~$12,500	~$18,500

Categorical Variables	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Employer-Provided Health Insurance				
Yes	0.50	0.80	0.34	0.36
Irregular Work Schedule				
Yes	0.07	0.07	0.07	0.09

Job insecurity ranged from 3.0 to 31.2. For more information on the creation of the job insecurity variable, see Appendix A.

APPENDIX C.

Table 7. Estimated means and predicted probabilities by group

	Wave 3			Wave 4		
	Least Precarious	Semi Precarious	Extremely Precarious	Least Precarious	Semi Precarious	Extremely Precarious
Job Insecurity	8.39	9.30	24.98	7.85	8.32	25.51
Wages	1.49	4.25	2.50	3.09	7.45	6.06
Lack of Employer-Provided Health Insurance[1]	0.70	0.24	0.70	0.81	0.23	0.65
Irregular Work Schedule[1]	0.09	0.07	0.11	0.11	0.08	0.15

1= predicted probabilities for the categorical variables

APPENDIX D.

Table 8. Descriptive information for independent variables (Unweighted N=6,981, Weighted N=10,672,000)

	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Unweighted	6,981	2,636	3,480	865
Weighted	10,672,100	3,830,149	5,424,014	1,417,937
Percentage	1.00	0.35	0.51	0.13
		Mean		
Continuous variables	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Age at Wave III	22.26	22.81	21.88	22.24
	(-0.11)	(0.08)	(0.12)	(0.14)
Tract-Level Unemployment Rate at Wave III	0.06	0.06	0.07	0.06
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
		Percentage		
Categorical variables	Overall	Least Precarious Group	Semi Precarious Group	Extremely Precarious Group
Gender				
Male	0.55	0.59	0.47	0.7
	(0.01)	(0.01)	(0.01)	(0.02)
Female	0.45	0.41	0.53	0.3
	(0.01)	(0.01)	(0.01)	(0.02)
Race				
Asian or Pacific Islander (Non-Hispanic)	0.03	0.04	0.03	0.01
	(0.01)	(0.01)	(0.01)	(<0.01)
Black (Non-Hispanic)	0.13	0.11	0.14	0.11
	(0.02)	(0.02)	(0.02)	(0.02)
Hispanic or Latino	0.13	0.13	0.13	0.11

	(0.03)	(0.02)	(0.02)	(0.02)
Other (Non-Hispanic)	0.03	0.03	0.03	0.03
	(<0.01)	(<0.01)	(0.01)	(0.01)
White (Non-Hispanic)	0.69	0.69	0.67	0.74
	(0.03)	(0.04)	(0.03)	(0.03)
Study participant's level of education				
Less than high school	0.1	0.06	0.12	0.14
	(0.01)	(0.01)	(0.01)	(0.01)
High school diploma or GED	0.68	0.67	0.68	0.71
	(0.01)	(0.02)	(0.02)	(0.02)
Vocational Certificate or Associate's degree	0.07	0.08	0.06	0.05
	(0.01)	(0.01)	(0.01)	(0.01)
Bachelor's degree	0.14	0.16	0.13	0.1
	(0.01)	(0.02)	(0.01)	(0.02)
Master's degree	0.01	0.01	0.01	<0.01
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
PhD/JD/MD	<0.01	0.01	0.01	<0.01
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Ever in foster care				
No	0.98	0.99	0.98	0.99
	(<0.01)	(<0.01)	(0.01)	(<0.01)
Yes	0.02	0.01	0.02	0.01
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Ever arrested				
No	0.87	0.88	0.88	0.81
	(0.01)	(0.01)	(0.01)	(0.02)
Yes	0.13	0.12	0.12	0.19
	(0.01)	(0.01)	(0.01)	(0.02)
Ever experienced homelessness				
No	0.96	0.97	0.95	0.94
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Yes	0.04	0.03	0.05	0.06
	(<0.01)	(<0.01)	(0.01)	(<0.01)

Previous work experience				
No	0.34	0.27	0.39	0.31
	(0.01)	(0.02)	(0.02)	(0.03)
Yes	0.66	0.73	0.61	0.69
	(0.01)	(0.02)	(0.02)	(0.03)
Highest level of education in the household				
Less than high school	0.14	0.13	0.15	0.14
	(0.01)	(0.02)	(0.01)	(0.02)
High school diploma or GED	0.35	0.35	0.35	0.35
	(0.01)	(0.02)	(0.02)	(0.02)
Vocational Certificate or Associate's degree	0.21	0.21	0.21	0.24
	(0.01)	(0.01)	(0.01)	(0.02)
Bachelor's degree or more	0.3	0.32	0.29	0.26
	(0.02)	(0.02)	(0.03)	(0.02)
Participated in job training				
No	0.97	0.98	0.97	0.97
	(<0.01)	(<0.01)	(0.01)	(<0.01)
Yes	0.03	0.02	0.03	0.03
	(<0.01)	(<0.01)	(0.01)	(<0.01)

APPENDIX E.

Table 9. Multinomial logistic regression results for RQ1 (Unweighted N=6,981, Weighted N=10,672,000)

Base category: Least precarious group

	Semi Precarious Group				Extremely Precarious Group			
	Coef.	SE	P	RRR	Coef.	SE	P	RRR
Age at Wave III	-0.31	0.03	<0.01	0.73	-0.16	0.04	0.00	0.85
Gender								
Female	0.47	0.07	0.00	1.59	-0.40	0.11	<0.01	0.67
Race								
Asian or Pacific Islander (Non-Hispanic)	-0.04	0.19	0.82	0.96	-1.02	0.36	<0.01	0.36
Black (Non-Hispanic)	0.17	0.12	0.16	1.19	-0.10	0.16	0.52	0.90
Hispanic or Latino	-0.17	0.16	0.30	0.84	-0.31	0.15	0.05	0.74
Other (Non-Hispanic)	-0.28	0.25	0.27	0.76	-0.33	0.33	0.31	0.72
Study participant's level of education								
High school diploma or GED	-0.46	0.15	<0.01	0.63	-0.64	0.20	<0.01	0.53
Vocational Certificate or Associate's degree	-0.53	0.21	0.01	0.59	-1.02	0.30	<0.01	0.36
Bachelor's degree or more	-0.34	0.20	0.09	0.71	-0.88	0.28	<0.01	0.42
Master's degree	-0.21	0.43	0.62	0.81	-2.38	1.01	0.02	0.09
PhD/JD/MD	-0.35	0.57	0.54	0.70	-1.88	0.84	0.03	0.15
Ever in foster care								
Yes	0.38	0.34	0.27	1.46	-0.11	0.45	0.82	0.90
Ever arrested								
Yes	0.06	0.12	0.64	1.06	0.32	0.17	0.06	1.38
Ever experienced homelessness								
Yes	0.50	0.18	<0.01	1.64	0.55	0.24	0.02	1.73

Previous work experience								
Yes	-0.29	0.10	<0.01	0.75	-0.14	0.14	0.32	0.87
Highest level of education in the household								
High school diploma or GED	-0.18	0.14	0.22	0.84	-0.13	0.22	0.57	0.88
Vocational Certificate or Associate's degree	-0.07	0.16	0.67	0.93	0.13	0.21	0.54	1.14
Bachelor's degree or more	-0.09	0.15	0.57	0.92	-0.16	0.26	0.54	0.86
Unemployment rate at Wave III	2.95	0.91	<0.01	19.20	0.06	1.01	0.95	1.06

APPENDIX F.

Table 10. Descriptive information for additional variables for RQ2 and RQ3 (Unweighted N=3,594, Weighted N=6,495,508)

	Overall	Moved 2 levels away from precarity	Moved 1 level away from precarity	No change	Moved 1 level into precarity	Moved 2 levels into precarity
Unweighted	3,594	216	1114	1761	431	108
Weighted	6,495,508	389,730	2,013,607	3,182,799	779,461	194,865
Percentage	1	0.06	0.31	0.49	0.12	0.03

Continuous variables	Overall	Moved 2 levels away from precarity	Moved 1 level away from precarity	No change	Moved 1 level into precarity	Moved 2 levels into precarity
Change in unemployment rate (Wave IV-III)	0.01	0.02	0.01	0.01	0.02	0.01

Categorical variables	Overall	Moved 2 levels away from precarity	Moved 1 level away from precarity	No change	Moved 1 level into precarity	Moved 2 levels into precarity
Participation in training						
No	0.97	0.96	0.97	0.98	0.97	0.99
Yes	0.03	0.04	0.03	0.02	0.03	<0.01
Change in educational attainment (Wave III&IV)						
No	0.81	0.80	0.76	0.83	0.86	0.82
Yes	0.19	0.20	0.24	0.17	0.14	0.18

APPENDIX G.

Table 11. Descriptive information for health variables for RQ3 (unweighted)

Continuous variables	N	Mean
Change in depression	3,570	-0.51
Categorical variables	N	Percentage
Change in self-rated general health	3,594	
Got Worse		0.43
Stayed the Same		0.42
Got Better		0.14
Change in smoking	2,306	
Got Worse		0.09
Stayed the Same		0.75
Got Better		0.16
Change in binge drinking	2,302	
Got Worse		0.09
Stayed the Same		0.64
Got Better		0.27

REFERENCES

Abrams, L. S., & Hyun, A. (2009). Mapping a process of negotiated identity among incarcerated male juvenile offenders. *Youth & Society*, *41*(1), 26-52.

Ahonen, E. Q., Fujishiro, K., Cunningham, T., & Flynn, M. (2018). Work as an inclusive part of population health inequities research and prevention. *American Journal of Public Health*, *108*(3), 306–311.

Anker, R. (1997). Theories of occupational segregation by sex: An overview. *International Labour Review*, *136*(3), 315-39.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*(5), 469.

Arnett, J. J., Žukauskienė, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18–29 years: Implications for mental health. *The Lancet Psychiatry*, *1*(7), 569-576.

Avery, B. (2019). Ban the Box: U.S. Cities, Counties, and States Adopt Fair Hiring Policies. Retrieved from: https://www.nelp.org/publication/ban-the-box-fair-chance-hiring-state-and-local-guide/

Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (2013). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Psychology Press.

Bell, D. N. & Blanchflower, D. G. (2009). *Youth Unemployment: Déjà Vu.* Stirling Economics Discussion Paper 2010-04.

Benach, J., & Muntaner, C. (2007). Precarious employment and health: Developing a research agenda. *Journal of Epidemiology & Community Health*, *61*(4), 276-277.

Benach, J., Vives, A., Amable, M., Vanroelen, C., Tarafa, G., & Muntaner, C. (2014). Precarious employment: Understanding an emerging social determinant of health. *Annual Review of Public Health, 35*, 229-253.

Benach, J., Vives, A., Tarafa, G., Delclos, C., & Muntaner, C. (2016). What should we know about precarious employment and health in 2025? Framing the agenda for the next decade of research. *International Journal of Epidemiology*, *45*(1), 232-238.

Boris, E., & Klein, J. (2006). Organizing home care: low-waged workers in the welfare state. *Politics & Society*, *34*(1), 81-108.

Breslin, F. C., & Smith, P. M. (2013). Risk factors for nonfatal work injury for young workers: A review of two relevant literatures. In *Health and safety of young workers–Proceedings of a US and Canadian series of symposia. DHHS (NIOSH) Publication* (No. 2013-144, pp. 80-104).

Bureau of Labor Statistics (BLS). (2005). Contingent and alternative employment arrangements, February 2005. Retrieved from: https://www.bls.gov/news.release/pdf/conemp.pdf

Bureau of Labor Statistics (BLS). (2010). Employment and Unemployment Among Youth—Summer 2010. Retrieved from: https://www.bls.gov/news.release/archives/youth_08272010.pdf

Bureau of Labor Statistics (BLS). (2017). Labor force participation rates projected to decline over the next decade. Retrieved from: https://www.bls.gov/opub/ted/2017/labor-force-participation-rates-projected-to-decline-in-the-coming-decade.htm

Bureau of Labor Statistics (BLS). (2018). Labor force statistics from the Current Population Survey. Retrieved from: https://www.bls.gov/cps/cpsaat03.htm

Burgard, S. A., Brand, J. E., & House, J. S. (2009). Perceived job insecurity and worker health in the United States. *Social Science & Medicine*, *69*(5), 777-785.

Burgard, S. A., & Lin, K. Y. (2013). Bad jobs, bad health? How work and working conditions contribute to health disparities. *American Behavioral Scientist*, *57*(8), 1105-1127.

Campbell, I., & Price, R. (2016). Precarious work and precarious workers: Towards an improved conceptualisation. *The Economic and Labour Relations Review*, *27*(3), 314-332.

Carpenter, C., & Dobkin, C. (2009). The effect of alcohol consumption on mortality: regression discontinuity evidence from the minimum drinking age. *American Economic Journal: Applied Economics*, *1*(1), 164-82.

Castillo, D., & Lewko, J. (2013). Youth employment and the health and safety issues of young workers in the US and Canada: An overview. In *Health and safety of young workers–Proceedings of a US and Canadian series of symposia. DHHS (NIOSH) Publication* (No. 2013-144, pp. 4-25).

Centers for Disease Control and Prevention (CDC). (2010). Occupational Injuries and Deaths Among Younger Workers --- United States, 1998—2007. Retrieved from: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5915a2.htm

Cerulo, K. A. (1997). Identity construction: New issues, new directions. *Annual review of Sociology*, *23*(1), 385-409.

Chen, P., & Chantala, K. (2014). Guidelines for analyzing Add Health data. Carolina Population Center, University of North Carolina at Chapel Hill, 1-53.

Cohen, P., Kasen, S., Chen, H., Hartmark, C., & Gordon, K. (2003). Variations in patterns of developmental transitions in the emerging adulthood period. *Developmental Psychology*, *39*(4), 657-669.

Crépon, B., & Van den Berg, G. J. (2016). Active labor market policies. *Annual Review of Economics*, *8*, 521-546.

Davis, J., & Heller, S. B. (2017). *Rethinking the Benefits of Youth Employment Programs: The Heterogeneous Effects of Summer Jobs* (No. w23443). National Bureau of Economic Research.

DeSalvo, K. B., Bloser, N., Reynolds, K., He, J., & Muntner, P. (2006). Mortality prediction with a single general self-rated health question. *Journal of General Internal Medicine*, 21(3), 267-275.

Dunn, E. C., McLaughlin, K. A., Slopen, N., Rosand, J., & Smoller, J. W. (2013). Developmental timing of child maltreatment and symptoms of depression and suicidal ideation in young adulthood: results from the National Longitudinal Study of Adolescent Health. *Depression and Anxiety*, *30*(10), 955-964.

Elder, G. H. (1974). *Children of the Great Depression: Social Change in Life Experience*. Chicago: University of Chicago Press.

England, P., Farkas, G., Kilbourne, B. S., & Dou, T. (1988). Explaining occupational sex segregation and wages: Findings from a model with fixed effects. *American Sociological Review*, 544-558.

Erikson, E. H. (1950). *Childhood and society.* New York: Norton.

Eriksson, I., Undén, A. L., & Elofsson, S. (2001). Self-rated health. Comparisons between three different measures. Results from a population study. *International Journal of Epidemiology*, *30*(2), 326-333.

Ezzati, M., & Lopez, A. D. (2003). Estimates of global mortality attributable to smoking in 2000. *The Lancet*, *362*(9387), 847-852.

Fernandes-Alcantara, A. L. (2015). *Vulnerable Youth: Employment and Job Training Programs*. Washington, DC: Congressional Research Service.

Fernandes-Alcantara, A. L. (2018). *Youth and the Labor Force: Background and Trends.* Washington, DC: Congressional Research Service.

Friedland, D. S., & Price, R. H. (2003). Underemployment: Consequences for the health and well-being of workers. *American Journal of Community Psychology*, *32*(1-2), 33-45.

Glatt, J., & Wunnava, P. V. (2016). *Help Not Wanted: The Dismal Science of Youth Unemployment's Scarring Effect.* IZA Discussion Paper No. 10069.

Goldsmith, A. H., Veum, J. R., & Darity Jr, W. (1997). Unemployment, joblessness, psychological well-being and self-esteem: Theory and evidence. *The Journal of Socio-Economics*, *26*(2), 133-158.

Graham, H. (Ed.) (2000). *Understanding Health Inequalities*. Buckingham: Open University Press.

Harris, K. M. (2013). The Add Health Study: Design and accomplishments. *Chapel Hill: Carolina Population Center, University of North Carolina at Chapel Hill*.

Heckman, J. J., & Smith, J. A. (2004). The determinants of participation in a social program: Evidence from a prototypical job training program. *Journal of Labor Economics*, *22*(2), 243-298.

Heinrich, C. J., & Holzer, H. J. (2011). Improving education and employment for disadvantaged young men: Proven and promising strategies. *The Annals of the American Academy of Political and Social Science*, *635*(1), 163-191.

Holzer, H. J., & LaLonde, R. J. (1999). *Job change and job stability among less-skilled young workers*. Institute for Research on Poverty, University of Wisconsin-Madison.

Hout, M. (2019). The Employment Patterns of Young Adults, 1989–2014. In Chancer, L. S., Sanchez-Jankowski, M., & Trost, C. (Eds.) *Youth, Jobs, and the Future: Problems and Prospects* (19-34). New York, NY: Oxford University Press.

International Labour Organization (ILO). (2017). World Employment and Social Outlook: Trends 2017. Geneva. Retrieved from: http://www.ilo.org/global/research/global-reports/weso/2017/lang--en/index.htm

Jung, Y., Oh, J., Huh, S., & Kawachi, I. (2013). The effects of employment conditions on smoking status and smoking intensity: The analysis of Korean Labor & Income Panel 8th–10th wave. *PloS One*, *8*(2), e57109.

Kaiser Family Foundation (2017). Key Facts About the Uninsured Population. Retrieved from: https://www.kff.org/uninsured/fact-sheet/key-facts-about-the-uninsured-population/

Kalleberg, A. L. (2009). Precarious work, insecure workers: Employment relations in transition. *American Sociological Review, 74*(1), 1-22.

Kalleberg, A. L. (2011). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s to 2000s.* New York, NY: Russell Sage.

Kalleberg, A. L., & Marsden, P. V. (2013). Changing work values in the United States, 1973–2006. *Social Science Research*, *42*(2), 255-270.

Kalleberg, A. L. (2014). *Measuring precarious work*. A Working Paper of the EINet Measurement Group.

Kalleberg, A. L., & Von Wachter, T. M. (2017). The U.S. labor market during and after the Great Recession: Continuities and transformations. *RSF: The Russell Sage Foundation Journal of the Social Sciences*. Retrieved from: https://www.rsfjournal.org/doi/full/10.7758/RSF.2017.3.3.01

Kalleberg, A. L., & Vallas, S. P. (2018). Probing precarious work: Theory, research, and politics. In A.L. Kalleberg & S. P. Vallas (Eds.), *Precarious work* (1-30). Emerald Publishing Limited.

Katz, L. F., & Krueger, A. B. (2016). *The rise and nature of alternative work arrangements in the United States, 1995-2015* (No. w22667). National Bureau of Economic Research.

King, C. T., & Heinrich, C. (2011). *How effective are workforce development programs? Implications for US workforce policies.* Working Paper, University of Texas at Austin.

Kivimäki, M., Vahtera, J., Virtanen, M., Elovainio, M., Pentti, J., & Ferrie, J. E. (2003). Temporary employment and risk of overall and cause-specific mortality. *American Journal of Epidemiology*, *158*(7), 663-668.

Kletzer, L. G., & Fairlie, R. (1999). *The Long-Term Costs of Job Displacement Among Young Workers*. Northwestern University/University of Chicago Joint Center for Poverty Research.

Kluve, J., Puerto, S., Robalino, D., Romero, J. M., Rother, F., Stoterau, J., Weidenkaff, F. & Witte, M. (2016): "Do Youth Employment Programs Improve Labor Market Outcomes? A Systematic Review," IZA Discussion Paper No. 10263. Retrieved from: https://www.econstor.eu/bitstream/10419/149137/1/877029024.pdf

Konadu, O. A. (2018, October 25). Decent work, the 'gig-economy' and the Ghanaian youth. *The B&FT Online*. Retrieved from: https://thebftonline.com/2018/features/decent-work-the-gig-economy-and-the-ghanaian-youth/

Kugler, A., Kugler, M., Saavedra, J., & Prada, L. O. H. (2015). *Long-term direct and spillover effects of job training: Experimental evidence from Colombia* (No. w21607). National Bureau of Economic Research.

Lahiri, S., Moure-Eraso, R., Flum, M., Tilly, C., Karasek, R., & Massawe, E. (2006). Employment Conditions as Social Determinants of Health Part I: The External Domain. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy, 16*(3), 267-288.

Lipscomb, H. J., Loomis, D., McDonald, M. A., Argue, R. A., & Wing, S. (2006). A conceptual model of work and health disparities in the United States. *International Journal of Health Services, 36*(1), 25-50.

Lundberg, O., & Manderbacka, K. (1996). Assessing reliability of a measure of self-rated health. *Scandinavian Journal of Social Medicine, 24*(3), 218-224.

Marmot, M. G., Rose, G., Shipley, M., & Hamilton, P. J. (1978). Employment grade and coronary heart disease in British civil servants. *Journal of Epidemiology & Community Health, 32*(4), 244-249.

Marmot, M. G., Shipley, M., & Rose, G. (1984). Inequalities in death—specific explanations of a general pattern? *The Lancet, 323*(8384), 1003-1006.

Marmot, M. G., Stansfeld, S., Patel, C., North, F., Head, J., White, I., Brunner, E., Feeney, A., & Smith, G. D. (1991). Health inequalities among British civil servants: the Whitehall II study. *The Lancet, 337*(8754), 1387-1393.

Marmot, M. (2005). Social determinants of health inequalities. *The Lancet, 365*(9464), 1099-1104.

McCutcheon, A. L. (1987). *Latent class analysis*. Newbury Park, CA: Sage Publications.

McKee-Ryan, F. M., & Harvey, J. (2011). "I have a job, but...": A review of underemployment. *Journal of Management, 37*(4), 962-996.

Miller, C., & Porter, K. E. (2007). Barriers to employment among out-of-school youth. *Children and Youth Services Review, 29*(5), 572-587.

Moore, T. H. M., Kapur, N., Hawton, K., Richards, A., Metcalfe, C., & Gunnell, D. (2017). Interventions to reduce the impact of unemployment and economic hardship on mental health in the general population: a systematic review. *Psychological Medicine, 47*(6), 1062-1084.

Mroz, T. A., & Savage, T. H. (2006). The long-term effects of youth unemployment. *Journal of Human Resources*, *41*(2), 259-293.

Muntaner, C., Borrell, C., Vanroelen, C., Chung, H., Benach, J., Kim, I. H., & Ng, E. (2010). Employment relations, social class and health: a review and analysis of conceptual and measurement alternatives. *Social Science & Medicine, 71*(12), 2130-2140.

O'Leary, C. J., Straits, R. A., & Wandner, S. A. (2004). U.S. job training, participants and history. In C. J. O'Leary, R. A. Straits, & S. A. Wandner (Eds.), *Job training policy in the United States.* Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Osgood, D. W., Foster, E. M., Flanagan, C., & Ruth, G. R. (2005). Introduction: Why Focus on the Transition to Adulthood for Vulnerable Populations? In D. W. Osgood, E. M. Foster, C. Flanagan, & G. R. Ruth (Eds.), *The John D. and Catherine T. MacArthur Foundation Research Network on Transition to Adulthood. On your own without a net: The transition to adulthood for vulnerable populations* (pp. 1-26). Chicago, IL, US: University of Chicago Press.

Poo, A. J. (2011). A twenty-first century organizing model: Lessons from the New York domestic workers bill of rights campaign. In *New Labor Forum* (Vol. 20, No. 1, pp. 51-55). Los Angeles, CA: SAGE Publications.

Quesnel-Vallée, A., DeHaney, S., & Ciampi, A. (2010). Temporary work and depressive symptoms: a propensity score analysis. *Social Science & Medicine, 70*(12), 1982-1987.

Quinlan, M., Mayhew, C., & Bohle, P. (2001). The global expansion of precarious employment, work disorganization, and consequences for occupational health: a review of recent research. *International Journal of Health Services, 31*(2), 335-414.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement,* 1(3), 385-401

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., Tabor, J., Beuhring, T., Sieving, R. E., Shew, M., Ireland, M., Bearinger, L. H., & Udry, J. R. (1997). Protecting adolescents from harm. Findings from the National Longitudinal Study on Adolescent Health. *JAMA, 278(10),* 823-832.

Rodgers, G. (1989). Precarious work in Western Europe: The state of the debate. In Rodgers, G., & Rodgers, J. (Eds.) *Precarious jobs in labour market regulation: The growth of atypical employment in Western Europe*. International Labour Organisation.

Rogan, F. (2018, February 5). Gig economy is the mass exploitation of millennials. *The Irish Times.* Retrieved from: https://www.irishtimes.com/opinion/gig-economy-is-the-mass-exploitation-of-millennials-1.3379569

Rugulies, R., Aust, B., Burr, H., & Bültmann, U. (2008). Job insecurity, chances on the labour market and decline in self-rated health in a representative sample of the Danish workforce. *Journal of Epidemiology & Community Health*, *62*(3), 245-250.

Scarpetta, S., A. Sonnet and T. Manfredi (2010), "Rising Youth Unemployment During The Crisis: How to Prevent Negative Long-term Consequences on a Generation?", OECD Social, Employment and Migration Working Papers, No. 106, Retrieved from:

https://www.oecd-ilibrary.org/social-issues-migration-health/oecd-social-employment-and-migration-working-papers_1815199x?page=1

Siegrist, J., & Rödel, A. (2006). Work stress and health risk behavior. *Scandinavian Journal of Work, Environment & Health*, 473-481.

Spaulding, S., Lerman, R. I., Holzer, H. J., & Eyster, L. (2015). *Expanding economic opportunity for young men and boys of color through employment and training*. Urban Institute.

Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: a meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, *7*(3), 242-264.

Tsurugano, S., Inoue, M., & Yano, E. (2012). Precarious employment and health: analysis of the Comprehensive National Survey in Japan. *Industrial Health*, *50*(3), 223-235.

University of California, Los Angeles (UCLA) Statistical Consulting Group. (n.d.). Multinomial Logistic Regression, Stata Annotated Output. Retrieved from: https://stats.idre.ucla.edu/stata/output/multinomial-logistic-regression/

U.S. Bureau of Labor Statistics (BLS) (2018). Contingent and Alternative Employment Arrangements —May 2017. Retrieved from: https://www.bls.gov/news.release/pdf/conemp.pdf

Valois, R. F., Dunham, A. C., Jackson, K. L., & Waller, J. (1999). Association between employment and substance abuse behaviors among public high school adolescents. *Journal of Adolescent Health*, *25*(4), 256-263.

Vancea, M., & Utzet, M. (2017). How unemployment and precarious employment affect the health of young people: A scoping study on social determinants. *Scandinavian Journal of Public Health*, *45*(1), 73-84.

Vingilis, E., Wade, T. J., & Adlaf, E. (1998). What factors predict student self-rated physical health? *Journal of Adolescence, 21*(1), 83-97.

Virtanen, M., Kivimäki, M., Joensuu, M., Virtanen, P., Elovainio, M., & Vahtera, J. (2005). Temporary employment and health: A review. *International Journal of Epidemiology*, 34(3), 610-622.

Vosko, L. F. (2006). *Precarious employment: Towards an improved understanding of labour market insecurity*. Montreal and Kingston: McGill-Queen's University Press.

Vosko, L. F., MacDonald, M., & Campbell, I. (Eds.). (2009). *Gender and the contours of precarious employment*. Routledge.

Weil, D. (2011). Enforcing labor standards in fissured workplaces: The US experience. *Economic and Labor Relations Review, 22*(2), 33-54.

Williams, R. (2006). Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *The Stata Journal, 6*(1), 58-82.

Williams, R. (2018). GOLOGIT2: Stata module to estimate generalized logistic regression models for ordinal dependent variables. Retrieved from: https://econpapers.repec.org/software/bocbocode/s453401.htm

Windle, M., Mun, E. Y., & Windle, R. C. (2005). Adolescent-to-young adulthood heavy drinking trajectories and their prospective predictors. *Journal of Studies on Alcohol, 66*(3), 313-322.

Winefield, A. H. (1997). Introduction to the psychological effects of youth unemployment: international perspectives. *Journal of Adolescence, 3*(20), 237-241.

Zimmer-Gembeck, M. J., & Mortimer, J. T. (2006). Adolescent work, vocational development, and education. *Review of Educational Research, 76*(4), 537-566.