To my sister, Rachel
ACKNOWLEDGMENTS

I owe a huge debt of gratitude first to my mentor and chair, Dr. Rob White. Although his knowledge was essential to the completion of this thesis, it was his support and encouragement that made all the difference. I thank him for his amusing strategies (read: “just harmlessly checking in” and “thesis update – do not panic”), sensitivity to my (many) idiosyncrasies, and support in times of personal crises big and small. I cannot imagine working with anyone else, and I sincerely appreciate all the time and energy he has devoted to my progress.

I would also like to thank my other committee member, Dr. Tanya Koropeckyj-Cox. She has consistently offered me great insights and advice on my thesis and more broadly, on my career. I thank her for her time and wisdom. Although she is not on my committee, I would also like to thank Dr. Barb Zsembik, whose door is always open for problems ranging from logistic to personal. I thank her for serving as a leader and role model, not just to me, but to the entire department. I also owe many thanks to my family, who tell me I am capable of all things and have given me the space and support to do whatever I wished for 24 years, even when I did not deserve it. Finally, I thank my closest friends. Without their friendship (and living room floor), I would not have made it this far. You know who you are, and you know that I thank you so very much for tolerating (and participating in) my hijinks. In other words: you grad, always have, and I have regular google (if anything), and magnetic chairs to thank for this thesis.
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<tr>
<td>CEX</td>
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The changing nature of work since the 1970s has been widely described as resulting in a more precarious workplace environment. Forty years of workplace changes have left workers facing increasing health insurance costs, eroding pension benefits, nonstandard work arrangements, and heightened risk of job loss. Growing evidence that individual earnings and household income became increasingly volatile over this period suggests that these changes may be another important source of uncertainty for households. While a large body of research addresses each of these different changes in the American workplace, there have been few efforts to present a unified approach to studying economic insecurity. This study develops a framework for examining trends in economic insecurity since the late 1970s. I present an aggregate measure of economic insecurity and document the trends in this measure using multiple panels from the Survey of Income and Program Participation. These changes point to widening socioeconomic gaps in family exposure to economic insecurity with potentially long lasting consequences for social mobility.
CHAPTER 1
ECONOMIC INSECURITY

Introduction

In the United States, the last several decades have been characterized by dramatic growth in economic inequality. Since the 1970s, income inequality among families with children grew by two thirds (Western, Bloome, and Percheski 2008) and the wage gap between those with a high school education and a college degree more than doubled (Autor 2014). Alongside growing economic inequality, Americans also experienced a pronounced rise in economic insecurity, evidenced by increasingly unstable earnings and incomes, more people filing for bankruptcy, spiking numbers of foreclosures, and higher levels of debt (Sullivan, Warren, and Westbrook 2000; Warren and Tyagi 2003; Hacker 2006; Gottschalk and Moffitt 2009).

Several causes have been identified as contributors to growing economic insecurity, including demographic changes in family structure, growing expenses for basic necessities such as housing and healthcare, decreased protection from the welfare state, and perhaps most prominently, changes in job quality. Indeed, popular accounts describe a “great risk shift,” wherein employers transfer growing shares of risk to employees by making health insurance less available and shifting from traditional pension plans to glorified savings accounts (Hacker 2006). Similarly, Kalleberg (2011) contends that along with this risk shift, job stability has decreased, leaving greater shares of workers facing growing levels of uncertainty.

These accounts describe a new employment narrative increasingly influenced by the market and characterized by greater precarity and far more individualism. Employer strategies in these new forms of employment are designed to minimize costs associated
with workers, leaving them with far greater risks at exactly the same time that these risks became more unmanageable. Although many contend that these new open employment relationships have led to greater insecurity for many Americans, there have been few efforts to measure this insecurity. Most studies have documented growing earnings and income instability, and some have developed aggregate measures of economic insecurity, however, none have linked these forms of insecurity to changes in the nature of work, which leaves our understanding of economic insecurity incomplete.

In order to fill this gap, I attempt to measure economic insecurity by developing the Economic Insecurity Index (EII), which accounts for features of employment that have been implicated in accounts of growing economic insecurity. I incorporate employer provided health insurance, pension plans, nonstandard arrangements, involuntary job loss, and unionization in order to examine trends in economic insecurity. Given that occupations vary in attributes of job quality, I also examine how the EII differs across occupational groups. This allows me to examine how features that vary across occupations may involve different levels of exposure to economic insecurity. Assessing the EII by occupation also provides insight into the relationship between occupation wide socioeconomic attributes and insecurity. This thesis proceeds in the following manner. In the remainder of Chapter one, I provide the motivation for the study of economic insecurity, describing the underlying theoretical motivation and evidence that insecurity affects families. In Chapter two, I describe prior conceptualizations of economic insecurity and outline why these measures insufficiently account for the scope of insecurity facing working families. Chapter three introduces the data, my method for
constructing the EII, and presents the main results. Chapter four concludes with a discussion of the study limitations and identifies the broader implications of the results.

**Economic Insecurity and Family Welfare**

Although many have focused on the causes and consequences of growing income inequality, there are several reasons why we should also be concerned over growing economic insecurity. For one, an important component of economic insecurity, income instability, is linked to growing income inequality. Studies of earnings instability measure the variance in individual income over time and show that widening gaps between incomes can be attributed to both growing inequality in permanent incomes and growing short term instability in incomes (Gottschalk and Moffitt 1994, 2009).

Widening gaps in permanent incomes, or long term income averages, point to factors that have longer lasting effects on incomes, such as skill biased technological change. However, growing short term instability, which includes fluctuations that often result in large losses, suggests that workers are facing more events that lead to earnings volatility, such as job losses or variability in working hours. Observed inequality reflects both widening in the gaps between permanent incomes and an increasing number of workers who are experiencing large income fluctuations form year to year. Moreover, the same mechanisms that have increased uncertainty and insecurity for families have also been linked to a variety of outcomes for workers and their families, which suggests that like income level, economic insecurity affects patterns of attainment. Although there is an absence of work examining aggregate measures of insecurity, analyses of various elements of insecurity, especially income instability, illustrate the challenges that economic insecurity creates for families.
A well-developed literature has described the association between economic resources and children’s development (Duncan et al. 1998; Berger, Paxson, and Waldfogel 2009; Duncan, Ziol-Guest, and Kalil 2010; Gennetian, Castells, and Morris 2010). Studies linking income to children’s outcomes generally rely on two complementary frameworks. The investment perspective highlights how a low income constrains parents’ ability to invest in resources that improve children’s well-being (Foster 2002). When parents do not have time, energy, or money to invest in activities and materials for children, they miss out on important opportunities to enhance their skills and well-being. At the same time, the family stress model describes the links between economic strain, parents’ mental health, and family interactions (Conger, Conger, and Martin 2010). This framework points out that economic hardship generates emotional distress among low income parents. An inability to cover basic expenses or shifts in spending result in higher levels of stress for parents, impacting their mental health and well-being. This stress is likely to spill over into family interactions, generating conflict between couples and affecting parenting behavior. Children in low income families are at a greater risk of harsh parenting and relationship dissolution as a result of this economic strain.

Research analyzing the effects of poverty confirms these links, illustrating how poor children have worse health, less school success, and lower labor market earnings in adulthood than their high income peers. However, many have suggested that simply analyzing income level is not sufficient for understanding how economic circumstances shape children’s life chances. A household’s economic context does not consist of its income level alone; rather, household economic circumstances are dynamic and fluid,
unfolding as a result of unpredictable life circumstances. A person who is in poverty at one point may not be there next month or next year. Indeed, in the United States, most families who fall into poverty will not stay there forever. Instead, many find themselves moving into and out of poverty across their life course as a result of different events. Deep and persistent poverty is much less common than poverty spells, as about half of those who enter poverty only remain there for about a year and three quarters experience poverty spells lasting less than four years (Cellini, McKernan, and Ratcliffe 2008). This suggests that children’s development and eventual attainment are not merely the result of having an income below a particular level, but also how much it varies. Of course income losses that trigger a poverty spell are one of the more dramatic consequences of income fluctuations, however, a family does not necessarily have to fall below the poverty line for income instability to result in economic insecurity. Drops in income result in economic insecurity when families lack the resources to smooth them, which likely includes those with extremely low incomes, but it also includes those with incomes slightly above the poverty line who lack sufficient wealth as well. As such, even though households with high incomes experience considerable income volatility (Acs, Loprest, and Nichols 2009), they also have more resources at their disposal to offset these fluctuations. In response to an economic shock, they may draw upon savings or access credit. In contrast, families with lower incomes lack the resources to set aside savings and generally have access to riskier forms of credit such as payday loans.

For instance, in a sample of Americans in 2009, only half reported that they would certainly or probably be able to come up with 2,000 dollars for an unexpected
need in a month (Lusardi, Schneider, and Tufano 2011). Among those with incomes less than 20,000, this figure decreases to less than one quarter, and for those making between 20,000 and 30,000, less than one third are certainly or probably able to cope. In contrast, about two thirds of respondents with incomes between 60,000 and 70,000, and three quarters of those making between 75,000 and 100,000, report that they would likely be able to cope with an emergency requiring 2,000 dollars. In order to manage this type of financial crisis, about a quarter of Americans would resort to high cost credit methods such as auto title loans, payday loans, or pawn shops; however, this figure rises to nearly half (44 percent) among those without bank accounts, who are disproportionately represented by those with low incomes and little education (Lusardi 2011).

For those with low incomes, these constraints translate into greater economic hardship, which means these families face greater insecurity. They may have to shift patterns of consumption, go without necessities, or borrow at extremely high rates in order to make ends meet. For instance, Mills and Amick (2010) show that low income families are much more likely to face difficulty covering basic expenses, have their utilities shut off, forgo medical care, and even experience food insecurity as a result of income instability. In their sample, families who possessed even modest liquid assets of about two thousand dollars were significantly less likely to experience economic hardship than those who had no liquid assets. Unfortunately, 70 percent of those in the lowest income quintile had zero liquid assets. This suggests that the effects of income instability are concentrated among those without the resources to manage them, which
means it should be analyzed in conjunction with income level in order to understand how it results in economic insecurity.

**The Consequences of Different Forms of Economic Insecurity**

Research explicitly investigating the links between income instability and children’s outcomes is notably lacking, however, there is some evidence that income volatility is bad for children, particularly those at the lower end of the income distribution and especially when the volatility results in a loss. For instance, among three to five year olds, more years in which a family experienced a 30 percent or greater loss of income was positively associated with maternal depression, which increased harsher parenting behaviors, which in turn was a predictor of low achievement scores and externalizing behavior among children (Yeung, Linver, and Brooks-Gunn 2002). For adolescents, more income changes, especially those resulting in losses of a third or more, were associated with lower levels of school engagement (Gennetian et al. 2015). Additionally, for children in the lowest income quintile, higher income volatility predicts a greater likelihood of suspension or expulsion. Greater income variability among children even predicts a lower likelihood of post-secondary education by the age of 25 after controlling for permanent income, but only among children in the middle of the income distribution (Hardy 2014).

Despite the limited evidence documenting how income instability impacts children’s outcomes, research exploring the consequences of specific destabilizing events, such as a job loss, more consistently highlight how instability impacts the lives of families. Those who experience an involuntary job loss report worse mental health, including greater depression and more anxiety, as well as poorer physical health, including lower self-rated health, higher mortality, and more cardiovascular disease
(Gallo et al. 2004; Burgard, Brand, and House 2007; Brand, Levy, and Gallo 2008; Strully 2009). Additionally, Charles and Stephens (2004) show that those who experience a job loss are at a greater risk of divorce, even relative to those who experience an income shock of a similar size resulting from a partner becoming disabled.

Among children, the indirect effects of parental job loss increase the probability of grade repetition and suspension or expulsion (Kalil and Ziol-Guest 2008; Kalil and Wightman 2011) and these effects appear to be worse for children of lower socioeconomic status. For instance, Stevens and Schaller (2011) also show that job losses increase the probability of grade repetition but they add that the effects are largest among those whose parents have only a high school education or less. Coelli (2011) likewise shows that that effects of job loss are greatest among those children whose parents have low education in his examination of post-secondary attendance. Finally, Oreopoulos, Page, and Stevens (2008) explore the intergenerational consequences of job loss and find that earnings of men whose fathers were displaced were nearly 10 percent lower than otherwise similar men whose fathers did not experience a job loss. Their results were primarily driven by those whose family incomes were in the bottom quartile.

Although job losses result in a substantial income fluctuation, many suggest that their impacts are so great because their consequences extend beyond the immediate and large loss of income. Those who lose their jobs are not just losing a stream of income; the economic effects also extend to a loss of health insurance, pension plan, and a sense of stability and control over their economic prospects, in addition to the
psychological effects of losing a societal role and source of identity (Brand 2015). Indeed, job losses represent much more than a large income fluctuation, as they highlight that economic insecurity may come from a variety of sources.

Given the explosion of medical costs in recent decades, a loss of health insurance may have devastating economic consequences for families. These consequences may be as mild as minor financial setbacks due to medical expenses or in extreme cases, even bankruptcy resulting from huge healthcare costs. Even among those with health insurance, the financial burden of healthcare has increased considerably. Just between 2001 and 2009, the share of working age households whose healthcare expenses were more than 10 percent of their income jumped from just over a third to nearly half (Blumberg et al. 2014). This financial burden has left increasing numbers of Americans facing considerable debt. Indeed, among a sample of bankruptcy filers in 2001, about half cited a medical reason for their bankruptcy (Himmelstein et al. 2005). About 40 percent of these filers experienced a lapse in health insurance in the two years leading up to their bankruptcy. Moreover, many cited considerable hardship resulting from their growing debt. About a fifth went without food, around a third went without electricity, nearly 40 percent lost phone service, and about a fifth had to move. They also cited trouble affording further care as two thirds went without medical care and nearly half failed to fill prescriptions. Although it is clear that health insurance does not mean families are without risk, it is also clear that health insurance offers some protection in the face of increasing costs.

In addition to a loss of health insurance coverage, many workers who lose their jobs also lose their pension plans. For those workers in jobs with traditional pension
plans based on age, tenure, and salary, vesting takes several years. Workers may not have reached the requirements for eligibility when they lose their job. Moreover, even if they have reached eligibility, benefits are generally based on the highest earnings at the job; which means that losing their job involuntarily will likely result in lower benefits than if they had remained employed at the same firm. For workers who have 401(k) or a similar retirement investment account, unemployment may result in lost contributions and interest over time. Additionally, the loss of income following a job loss may force workers to draw down their retirement savings in the short run, diminishing the resources available for the future. Indeed, many Americans report using retirement savings when faced with economic hardship, even when it means paying a penalty (Lusardi et al. 2011). Moreover, among older workers, Chan and Stevens (1999) find that those who experience a displacement accumulate fewer resources throughout the year and have fewer assets than those who are not displaced. They also find some evidence that displaced workers postpone retirement as a result of the displacement.

Even when displaced workers are reemployed, the jobs they obtain following the loss are of worse quality than their original jobs. For instance, Brand (2006) shows that less educated workers in blue collar and manufacturing jobs experience significant declines in employer sponsored benefits, including health insurance and pension plans, following job displacements, illustrating that one does not need to lose a job in order to experience these different forms of insecurity. Indeed, recent accounts of labor market polarization, in which employment growth is primarily concentrated in high wage jobs that require college degrees and low wage jobs that require few skills (Autor and Dorn 2013) indicates that growing shares of workers are losing decent paying middle wage
jobs that require relatively lower levels of education, only to find that the only jobs available are those that pay significantly less than their previous jobs.

This evidence of an increase in “bad” jobs is underscored by what many believe is an increased reliance on nonstandard work, which is another form of insecurity that affects families. Empirical evidence has offered much support for the notion that nonstandard work is bad for family processes. Presser (2000) shows that newly married men with children are six times more likely to divorce when they work nights. Similarly, when married women with children work nights, they are three times more likely to divorce. Night work has also been shown to increase marital conflict and likelihood of separation and divorce (Davis et al. 2008). Further, the effects of nonstandard schedules reach children. For instance, in a sample of dual earner families, children with parents (either one or both) who worked evenings, nights, or weekends had a higher likelihood of difficulties such as hyperactivity, physical aggression, emotional anxiety, and separation anxiety among younger children between two and three, and hyperactivity, physical aggression, property offenses, indirect aggression, and emotional anxiety among older children aged four to eleven (Strazdins et al. 2004). Further, the same data indicate that compared to parents who worked standard schedules, parents working nonstandard schedules were at a greater risk of poorer family interactions, depression, and hostile parenting (Strazdins et al. 2006).

This suggests that employment, which once functioned as an important buffer between the unpredictability of daily life and family insecurity, has increasingly become a source of economic insecurity in the lives of Americans. In the past, employment functioned as a vehicle to economic security by providing stable jobs with access to
health insurance to protect workers and their families against injury and illness and offering retirement plans to ensure security in the future. However, as work grows more precarious and employers increasingly shift the burdens of health and retirement onto workers, many of the features that introduce economic insecurity into the lives of Americans are tied to their jobs.

Despite the evidence that these job attributes create hardship for the lives they touch, there has not yet been any effort to measure how employment has increased levels of economic insecurity. Indeed, even descriptions of the effects of economic insecurity focus primarily on particular attributes of economic insecurity, such as a job loss or an income fluctuation, rather than acknowledging the multidimensional nature of economic insecurity. In the next chapter, I outline what we currently know about trends in economic insecurity and describe why these trends are insufficient. I then introduce attributes that should be included in measures of insecurity in order to introduce my measure of economic insecurity.
Despite evidence that changes in the workplace expose workers to greater uncertainty about their economic circumstances, there have been few attempts to derive an aggregate measure of economic insecurity. Arguments describing changes in job quality point to the widespread shift from closed employment relationships characterized by a strong union presence and an implicit psychological contract guaranteeing stability in return for loyalty as the source of growing uncertainty and insecurity in the lives of workers and their families (Kalleberg 2011). These new open relationships have a greater market influence, which means that employers treat workers as costs to be minimized. This has led to declining job stability and growing precariousness. Workers are increasingly under the threat of layoffs due to strategies designed to maximize profits and employers have started to use nonstandard arrangements in order to employ workers on an as needed basis, rather than a permanent and fixed relationship. An additional component of these new employment relationships is the shift of certain risks from employers to employees. Whereas in the past, the traditional employment relationship implicitly promised health insurance and retirement benefits, employers in new arrangements have made these less available in an effort to maximize profits.

Although all workers have been exposed to growing precariousness, like income instability, whether or not it results in economic insecurity depends on a variety of factors. In particular, workers with greater education at the top of the income distribution are much less vulnerable to these new open employment relationships. Because they have skills that are valued by employers, educated workers have much better labor market prospects, which means that growing instability may also entail increasing
opportunities for career advancement (Kalleberg 2011). The greater wealth of high income workers also provides a resource that they may draw upon during job transitions. Moreover, declining health and insurance and retirement benefits have been concentrated among those in low income jobs (Kalleberg, Reskin, and Hudson 2000). Additionally, because these features of insecurity and their effects appear to be concentrated in low wage jobs, the growth in low wage service jobs (Autor 2010; Autor and Dorn 2013) suggests that any gap in exposure to economic insecurity between socioeconomic groups may be growing.

**Current Measures**

There is a long record of studies of poverty, unemployment and earnings that characterize families with few economic resources as living in fragile economic circumstances. With only a few recent exceptions, these studies historically emphasized instability in earnings over time. These studies vary in whether they account for individual or household earnings, household wealth and other circumstances that present additional demands on family budgets.

**Earnings Instability**

Early work documenting trends in income instability began with Gottschalk and Moffitt’s (1994) decomposition of earnings inequality into permanent and transitory components. They argued that between a third and half of the growing inequality in incomes was due to increasing short-term fluctuations, or instability, in earnings between the 1970s and 1980s. This early work inspired a literature devoted to the measurement of earnings instability and marked a shift in understandings of income inequality and economic instability. Subsequent work on earnings instability confirmed that it has increased in the decades since the 1970s, even as the measurement of
earnings instability has changed. Gottschalk and Moffitt (1994) simply averaged individual incomes across several years and analyzed the average variance of those deviations for their measure of instability. However, some have pointed out that this measure may mask actual year to year variability related to the labor market or include systematic earnings growth (Haider 2001). For this reason, some of the later work on earnings instability use more sophisticated techniques that attempt to separate out deviations unrelated to instability.

For instance, replicating Gottschalk and Moffitt (1994), Cameron and Tracy (1998) found that male earnings instability increased consistently through the early 1980s prior to stabilizing through 1996. Their results also indicate that the growth in male earnings instability is primarily due to increases in large income gains and losses, as most workers experience relatively small fluctuations or even stable earnings. Similarly, Haider (2001) builds on the earlier model of earnings instability allowing him to separate the effects of lifetime earnings growth, and found increases in male earnings instability between 1968 and 1992, with most of the increase in volatility occurring in the 1970s. Extending their earlier analyses, Gottschalk and Moffitt (2009) conclude that male earnings instability doubled from the 1970s through 2004, with most of the growth occurring in the late 1970s and early 1980s.

More recent studies have come to similar conclusions regarding the instability of men’s earnings. Shin and Solon’s (2011) analysis of the standard deviation of changes in earnings revealed positive trends in earnings instability during the 1970s and after 1998, with no clear trend during the 1980s and early 1990s. Shin (2012) likewise finds evidence of a positive trends in male earnings instability throughout the late 1990s using
the same measure. Finally, Jensen and Shore (2015) also find evidence of increasing average earnings volatility between 1968 and 2009, but they attribute this growth to increasing instability among those with the most volatile earnings. That is, the vast majority of individuals are not experiencing increasing volatility, rather, it is those with the most earnings volatility who are experiencing growing instability. These results suggest that there is an emerging source of inequality in men’s exposure to volatile earnings.

Although the broad trend in male earnings volatility suggests that economic insecurity has increased, this trend does not provide sufficient evidence to conclude the economic insecurity has increased. Growing volatility is not synonymous with increasing risk for a variety of reasons. For one, these studies account for any fluctuations in earnings. Earnings may fluctuate for several reasons, including those that leave families insecure, but also those that do not. For example, these measures include both gains and losses, and give them equal weight in considerations of insecurity. They would treat an annual bonus as insecurity just like a job loss. Moreover, while earnings instability will capture insecurity that results from employment events that affect earnings, such as a job loss or schedule irregularities resulting from nonstandard arrangements, it cannot distinguish these fluctuations from those that are voluntary and anticipated.

Someone may have a decline in earnings because they exited the labor market to care for a family member or they may have a loss of similar magnitude resulting from a layoff. Usually when a worker voluntarily exits the labor force, the income fluctuation is anticipated and can therefore be smoothed through saving, borrowing, or changes in consumption. However, when a worker involuntarily loses a job, they are unable to
anticipate the income shock and prepare in the same way. While direction of income fluctuations and whether or not they were anticipated may not be as relevant for overall trends in income dynamics, they are important for understanding trends in economic insecurity because neither voluntary losses nor gains translate into increasing risk. Additionally, insecurity resulting from attributes that do not affect earnings patterns, including being uninsured or lacking a pension plan are completely overlooked by measures of earnings instability.

Finally, given the large increase of women in the labor force and the number of dual earner households since the 1970s, the earnings of a household (and their stability) depend on much more than the earnings of a male head. In fact, studies that have incorporated women’s earnings into analyses have found that earnings instability has decreased among women (Dynan, Elmendorf, and Sichel 2012) in contrast to the overall trend among working age men. Given that households typically pool resources, the relative stability of women’s earnings may offset volatility of men’s earnings. As such, many argue that the unit of analysis in studies examining economic instability should be the household rather than the individual worker (Western et al. 2012).

**Household Income Instability**

In contrast to studies examining earnings instability, studies examining household income instability include earnings from all household members in addition to other sources of income, including government transfers. Trends in the variance of resources available to households provide a better understanding of the evolution of economic instability because changes in risk coincide more with shifts in these resources rather than labor market earnings alone, which speak more to labor market
dynamics. The large majority of studies on household income volatility have found positive trends.

Hacker and Jacobs (2008) find that the variance of log income, or household income volatility (including earnings of all household members, asset income, and transfer income) doubled between 1969 and 2004, specifically noting large growth prior to 1985 and during the 2000s. In a similar manner, Gosselin and Zimmerman (2008) also examine the variance of log income and estimate that average household income volatility gradually increased 118 percent between 1970 and 1998 across the income distribution, but grew more rapidly for the 75th percentile after the mid-1980s. Other studies have come to similar conclusions, including Dynan and colleagues (2012) who estimate that the standard deviation of percent changes in household income increased by about 30 percent between the 1970s and 2000s. Although they find evidence that levels of household income volatility remained relatively constant throughout the 2000s (until the Great Recession), they maintain that it increased consistently from the 1970s through the 1990s.

While the overall trend of household income volatility is generally increasing, the components of household income have exhibited varying trends. Many studies argue that the primary driver of positive trends in household income instability is the increasing instability of male earnings (Dynan et al. 2012; Gosselin and Zimmerman 2008; Hacker and Jacobs 2008). Given that men’s earnings are often the largest component of household income, their increasing volatility has not been smoothed by the declining instability of women’s earnings. An additional source of volatility in household income comes from the increasing volatility of transfer income, which includes cash benefits
received from the government. Although the purpose of transfer income, which includes welfare, was traditionally to improve economic well-being by smoothing income shocks, in recent years this stream of resources has also been more volatile. It is estimated that the volatility of transfer income increased by 23 percent between the 1970s and 2010, contributing to increasing income instability rather than protecting against it (Dynan et al. 2012).

Trends in the measures of household income volatility closely resemble measures of earnings instability. However, unlike studies of earnings instability, studies of household income volatility incorporate more resources available to a household, which has grown in importance with the rise of dual earner households since the 1970s. Women’s earnings have grown increasingly important to the security of a household. Moreover, it is clear from these studies that government resources designed to buffer against insecurity have become more uncertain in recent years. This only increases the importance of understanding how other economic circumstances, namely employment, may influence insecurity. However, like studies of earnings instability, studies of household income volatility do not distinguish between gains losses. They are also similarly unable to distinguish between voluntary tradeoffs and involuntary instability. Additionally, they still neglect forms of insecurity that do not affect income. While these studies do improve on evidence of earnings instability by including multiple sources of income, they leave out many important attributes of insecurity.

**Large Losses of Income**

Although both measures of earnings and household income volatility treat any income fluctuations as instability, some have pointed out that an important feature of insecurity includes the idea that people are much more sensitive to economic losses
than gains, even when the gains are of similar magnitude. That is, the psychological and behavioral effects of losses are much greater than those of gains. In order to incorporate this notion, some studies have examined trends in the prevalence of large losses of income, rather than trends in variability. These estimates are related to studies of poverty dynamics, which assess the likelihood of entering poverty and the duration of poverty spells. However, importantly, studies of large income losses do not only examine losses that place families below a particular threshold. Instead, they examine losses of large magnitude relative to income, acknowledging that income drops may induce hardship even when they do not trigger poverty as defined by a particular income level.

Hacker and Jacobs (2008) employ a fairly high threshold, estimating the share of workers who lose half or more of their income across two years, a drop that is nearly certain to induce hardship. They estimate that the share of Americans experiencing losses of this magnitude has more than doubled from about 4 percent in the 1970s to almost 10 percent by the early 2000s. Gosselin and Zimmerman (2008) offer a similar analysis of the risk of a 50 percent or greater drop in income and they find a similar increase from about 5 percent to around 8 percent between 1974 and 2003. They also estimate the relationship between these drops in income and the risk of potentially destabilizing events, finding that people in the 1990s were less likely to experience a trigger event, but more likely to experience a loss of half their income or more at the same time as the event.

1Destabilizing events included divorce, widowhood, birth of a child, major unemployment of head of household, decline in wife’s work hours, loss of work hours due to illness, or loss of work hours due to retirement or disability in their analysis.
Whereas it is unclear whether growing volatility reflects growing insecurity because measures treat both gains and losses as instability, large losses provide a better picture of growing risk because they acknowledge that gains do not threaten hardship like drops. Moreover, although some income losses may be voluntary and anticipated, the evidence that destabilizing events such as unemployment are increasingly accompanied by large drops in income makes it much harder to argue that growing volatility does not at least in part reflect growing insecurity. Nevertheless, measures that assess only changes in income still overlook other components of insecurity, especially those that may smooth fluctuations in income.

**Financial Fragility**

Accounting for these additional dimensions, some studies use a distinct, yet related measure of insecurity that draws upon understandings regarding the smoothing capacity of wealth for families facing insecurity. Under this conceptualization, insecure families are those that lack assets or savings that may provide a buffer against economic hardship. For example, Lusardi et al. (2011) consider the prevalence of financially fragile households, which includes those that are unable to come up with 2,000 dollars in a month. Their findings that nearly half of all respondents cannot manage an expense of this magnitude suggests that a nontrivial proportion of Americans are insecure because they lack savings or assets that provide significant protection against insecurity. They also find evidence that this ability is stratified by income level, with those making the most money most able to manage a large unanticipated expense. Among those making less than 20,000 dollars a year, more than three quarters indicated that they would definitely or probably not be able to come up with the necessary money in case of an emergency, which stands in stark contrast to
the quarter of respondents making between 75,000 and 99,000 dollars a year who indicated the same. This figure remained largely unchanged by 2015, when 46 percent of adults indicated that they could not manage or would have to sell some of their possessions to afford an expense requiring even 400 dollars (Larrimore et al. 2015). Among these respondents without cash or a functional equivalent, 38 percent of people indicated that they would use a credit card and pay off the expense over time, about a third responded that they would simply not be able to pay for the expense.

**Rank, Hirschl, and Foster's Measure of Insecurity**

Although data on financial fragility offers a separate dimension of economic insecurity, the evidence that economic insecurity is a multifaceted concept suggests that neither measures that emphasize instability alone nor measures that emphasize wealth alone are sufficient for understanding the true extent of economic insecurity. Indeed, while Rank, Hirschl, and Foster (2014) find that about 38 percent of Americans will have used welfare at least once by the age of 40, 47 percent will have been in poverty, and 55 percent will have experienced a bout of unemployment through their household head, 70 percent of Americans will experience any one or more of these dimensions of insecurity by age 40. By age 60, this increases to nearly 80 percent. Moreover, they examine the prevalence of asset poverty, or families with a level of assets below what would be necessary to sustain them for three months in the absence of income, and they find that among those born between 1965 and 1969, the risk of asset poverty by the age of 50-54 was about 67 percent, a figure similar to younger cohorts at lower ages. This indicates that economic insecurity incorporates a variety of dimensions that are growing features of the American experience. Measures that examine them individually are potentially overlooking many experiences of insecurity.
The Economic Security Index

Recent efforts to define a comprehensive measure of economic insecurity began with Hacker et al.'s (2014) Economic Security Index (ESI). Similar to measures of earnings instability, the ESI examines changes in levels of income, and like many studies examining household income volatility, the ESI only examines income losses, rather than total variation. However, unlike studies using earnings instability or household income volatility, the ESI also accounts for income losses due to out of pocket medical expenses, which arguably represents one of the larger risks to economic security. More specifically, the ESI estimates the proportion of people who lose 25 percent or more of their available household income across two years, due to either income instability or out of pocket medical expenses, and lack sufficient wealth to smooth the loss. The ESI is an individual measure based on the household’s experience, which means that all preretirement age individuals are included in estimates. Although their estimates are largely imputed based on characteristics from another data source, the ESI’s inclusion of wealth is still a large strength relative to other measures of instability because, to the extent that wealth buffers instability in income and a household’s ability to cover large unexpected expenses, a household may not experience the same degree of hardship due to income losses and certain spending obligations. As such, measures of instability that fail to incorporate wealth may be overestimating levels of instability. Another important aspect of the ESI is that it is adjusted for debt service, which means that available income is reduced by debt prior to calculating the ESI for those families who have more debt than wealth. Finally, the ESI is also adjusted for household size and excludes those transitioning to retirement.
Unfortunately, no existing dataset currently contains all the necessary information to construct an analyze changes in the ESI. As such, the analyses using the ESI relied on four datasets, the CPS, the SIPP, the PSID, and the Consumer Expenditure Survey (CEX). These analyses indicate that economic insecurity, which affected about 14.3 percent of Americans in 1986, affected 20.2 percent of Americans in 2010. Among the different components of the ESI, the positive trend can largely be attributed to growing shares of people who experience 25 percent declines in household income, however, medical expenses and debt increased as well. Evidence also indicates that the level of income loss has increased, with the median loss growing from 43 percent of income in 1986 to 47 percent of income in 2010.

Although the ESI has considerable strengths relative to most other measures of economic insecurity, there are also considerable weaknesses. First, although the inclusion of out of pocket medical expenses represents an important aspect of economic insecurity and a considerable strength of the ESI, data on medical expenses is not readily available in most datasets. In their analysis, they use both the CEX and the SIPP to account for medical expenses. They first estimate the association between medical spending and individual level characteristics using the CEX, creating different distributions of expenses that vary according to income and age. Next, they randomly draw values of medical expenses from these distributions and assign them to households with the same demographic characteristics in the SIPP. Values of medical expenditures in the SIPP can then vary based on changes in household composition and income.
Another component of the index that is difficult to find in many datasets is wealth. In their ESI calculations, the authors used multiple datasets in order to maximize year coverage; the CPS goes back further than the SIPP, but the SIPP includes more of the measures necessary for the index. Because a measure of wealth is available in the SIPP, any calculations using the SIPP as their primary data source are using direct data. However, there is no measure of wealth in the CPS, so ESI calculations from CPS data utilize imputed values of wealth based on characteristics from the SIPP. The authors base their imputed values of wealth on asset income, total income, age, and race, arguing that total income and wealth are highly correlated. They also note that age is predictive of wealth, even when you control for income, as is race even when controlling for both income and age.

While the ESI certainly represents an improvement on measures that ignore sources of instability other than those that impact streams of incoming income, it remains that these values are only predictions of medical expenses and wealth rather than true experiences. Furthermore, as the authors note, the effect of out of pocket medical expenses is constrained because it fails to account for the relationship between health insurance and out of pocket costs. As they point out, health insurance buffers the effects of large out of pocket expenses and rates of health insurance coverage declined across their sample period. So despite its incorporation of the risk of large expenses, it is still insufficient for understanding the risk of greater economic hardship. And like all the other measures, their measure of income drops cannot distinguish involuntary instability from voluntary decisions, and it still ignores other important components of insecurity, particularly retirement.
Other Components of Economic Insecurity

Increasing fluctuations in earnings and income represent one important component of economic insecurity. Insomuch as income fluctuations, especially large and unanticipated losses, leave people unprotected against hardship, their growth indicates that economic insecurity is growing. However, there are several reasons why these measures remain insufficient. For one, many accounts of growing insecurity argue that changes in the nature of work have led to this growing insecurity, but these measures are unable to capture all of these changes. For example, trends in earnings and income instability neglect to account for being uninsured or not saving for retirement. And while they may be able to account for growing instability resulting from events such as involuntary job losses, they are unable to distinguish this instability from other income fluctuations.

Indeed, Kalleberg (2011) describes a new employment narrative resulting from the growth of market mediated, or open, employment relationships. He argues that broader economic forces such as globalization, deregulation, and ideological shifts contributed to a greater market influence in employment relations and claims that these new relations are increasingly characterized by a break in traditional psychological contracts between employers and employees, which were characterized by an implicit promise of stability and security in return for loyalty. Additionally, these new employment relations are defined by a weakening of the social contract between business and unions, which offered a collective form of protection for workers. These dimensions of open employment relationships imply that employment is leaving growing shares of workers more insecure, as employers utilize different strategies to increase flexibility on the part of workers and fixed costs for benefits have largely been shifted to employees.
There is a great deal of evidence from a variety of individual indicators that employment is making people more insecure. One cost that employers have minimized include those associated with offering benefits to workers. For example, it is no secret that employer provided health insurance, the primary way by which most Americans obtain insurance, has declined considerably in recent years. Since 1979, the overall share of employees covered by health insurance plans through their employers has dropped from about 70 percent to around half (Mishel et al. 2012). Those with the lowest wages experienced the greatest decline, dropping from about 40 percent in 1979 to a fifth in 2010, although those in the middle and at the top also declined from three quarters to about two thirds, and 90 to three quarters, respectively.

Among those who do have employer provided insurance, these figures mask considerable variation in quality of the plans. Data from a survey of establishments indicate that more plans are requiring premium contribution from employees (Dworak-Fisher, Gittleman, and Moehrle 2014). Among full time workers in 2012, 82 percent required employee contributions, up from 77 percent in 2003. This contrasts with the experience of part time workers, 78 percent of whom were required to contribute in 2003 and 86 percent of whom were required to contribute by 2012. Moreover, not only did more employers require contributions, the costs also increased. On average, the annual premium for both single and family plans more than doubled. Given the important role that health insurance plays in buffering people against illness and injury, measures that do not incorporate health insurance are leaving out an additional component of insecurity.
In addition to health insurance, employers have also reduced the availability of traditional pension plans. Similar to health insurance, retirement coverage is obtained primarily through employers. Following the trends in health insurance, employer sponsored pension coverage has also declined in the decades since the 1970s, from about half of working age adults in 1979, to around 43 percent in 2010 (Mishel et al. 2012). This overall trend contrasts sharply with coverage rates among low wage workers, who were the least likely to have pension coverage, at around 13.7 percent, and even middle wage workers, less than half whom had pension plans. A closer look at these trends reveals that employer sponsored retirement coverage actually increased in the period following the 1990s, despite the decreases in coverage across the overall period. However, this growth likely reflects the expanded use of defined contribution plans in place of defined benefit plans, which shift the risk of retirement from employers to employees.

Traditionally, employers offering retirement plans provided what are known as defined benefit plans. In these plans, benefits are generally determined by employee age, wage levels, and tenure. Benefits in these plans take the form of lifetime annuities; that is, employers guarantee a retirement wage based on preretirement income. In contrast to defined benefit retirement plans, defined contribution plans resemble tax exempt savings accounts that accumulate funds across an individual’s working years, often in the form of a 401(k). These plans are also tied to other investments, including company stocks. The share of private sector workers covered by defined benefit plans in 1980 was around 40 percent; this has declined rapidly, to less than 20 percent by 2004 (Mishel, Bernstein, and Shierholz 2009). This trend contrasts with the growth of
defined contribution plans, which covered less than 10 percent of private sector workers in 1980, but covered more than 30 percent of them by 2004. Because defined contribution plans place more risk onto workers by requiring voluntary contributions and fluctuating with market conditions, they make saving for retirement not only more difficult, but more risky as well. Given the almost nonexistent savings among lower income households, the shift from a guaranteed income in retirement to an income based on accumulated savings is an additional source of insecurity.

Another important component of new employment relations includes the growing instability of work. Perhaps figured most prominently in discussions of growing precariousness is employer’s increased reliance on nonstandard arrangements. Nonstandard work arrangements refer to any arrangement that departs from a job in which work is done for an employer in exchange for compensation, on a full time fixed schedule, at the employer’s location, under their control, and with the expectation of continued employment (Kalleberg et al. 2000). This means that nonstandard may refer to the type of contract, including part time, temporary, on call, or independent contracting; or, it may refer to the schedule, including evening/night, rotating, split, or irregular shifts. Nonstandard work arrangements afford greater flexibility for employers, who are able to decrease the size (and costs) of their permanent workforce by outsourcing many jobs to outside companies and employing workers as needed. Some argue that nonstandard arrangements result in greater flexibility for employees as well because they have greater control over their schedules and more job variety available under these arrangements. However, not all employees prefer to work in nonstandard arrangements and to the extent that these arrangements pay lower wages, offer fewer
benefits, and provide lower job security, they are more likely to be a form of insecurity rather than flexibility.

Although there is a lack of systematic and long term data on important components of job stability, some indicators provide evidence that work is more precarious. For instance, Presser (2003) analyzes data on nonstandard schedules, and estimates that around two fifths of employees worked evenings, nights, rotating, or weekend shifts as of 2003. She also shows that nonstandard schedules are highly concentrated in service occupations, where nearly 40 percent of respondents in 1997 worked either nonday or varying hours and about half work weekends. Although other broad occupational groups had high proportions of workers with nonstandard schedules, such as operators, fabricators, and laborers with nearly 30 percent, these occupations are on average paid more than most service occupations. For instance, the mean hourly wage adjusted for education and age among cashiers, the service occupation with the highest percentage of nonstandard schedules, was $7.24 for those working nonstandard schedules $6.75 for those working fixed day schedules. In contrast, among truck drivers, the occupation with the second highest percentage of nonstandard schedules, the mean hourly adjusted wage was $10.51 among nonstandard and $10.57 among fixed day. Although she is unable to analyze trends, Presser also points to broader changes that are likely to increase demand for nonstandard schedules in the future. For one, the service sector, where many jobs that require nonstandard schedules are concentrated, is growing. Additionally, demographic changes have increased the demand for around the clock services. For instance, the aging of the population demands more 24/7 medical care.
Schedules are not the only aspect of work that is declining in stability, there is also some indication that contracts are less secure as well. By the mid-1990s, about half of establishments relied on externalized or outsourced work (Kalleberg and Marsden 2005). CPS estimates indicate that between 1995 and 2005, the number of workers employed in independent contract arrangements increased from about 8 million to nearly 10 million (Kalleberg 2011). Although the number of on call, temporary, and contract firm employees did not increase significantly over this period, Kalleberg notes that these estimates are likely misleading given that increases were probably concentrated in the period prior to 1995. Moreover, he notes that because all workers, even permanent ones, have experienced increasing uncertainty, we have to consider other attributes that have increased levels of uncertainty for workers and their families, in addition to a potentially greater prevalence of alternative contract arrangements.

One of these estimates includes involuntary job loss. Like other measures of job stability, the lack of systematic long term data on involuntary job loss makes it difficult to estimate trends. However, Farber (2010) analyzes the Displaced Worker Supplement to the CPS between the 1970s and 2008, and while he finds no evidence of an increase in involuntary job loss, he does find that job tenure and the incidence of long term employment have declined substantially in the private sector. He concludes by noting that the survey is failing to capture different job changes that appear to be voluntary, even though they reflect broader economic shifts. For example, a worker who takes an offered buyout seems voluntary but actually reflects a type of worker displacement.

Given that each of these work attributes is related to family economic insecurity, and in fact, has consequences for workers and their families, measures of economic
insecurity that neglect to include them are overlooking considerable sources of economic insecurity. Even though measures of earnings and income instability may be able to capture the insecurity that results from erratic schedules or job instability, they ignore the protection offered by health insurance, defined benefit pension plans, and unions. Given that these attributes are often cited as causes of economic insecurity, and indeed the evidence suggests that they are, it is important that measures incorporate all of them in order to understand how economic insecurity, and possible inequalities in exposure to it, may be growing.
CHAPTER 3
DATA, METHODS, RESULTS

Assessing trends in insecurity requires an aggregate measure that can account for the many different sources of uncertainty outlined in Chapter Two. This chapter proposes an index of insecurity that accounts for five of the largest sources of family economic uncertainty in the workplace. This measure emphasizes influences on family insecurity originating in the workplace in order to study the effects of changes in the occupational composition of the economy on family insecurity. This approach places less emphasis on the household factors mitigating family uncertainty that are common in previous studies of household economic welfare. While household attributes like the number of different income earners, household aggregate wealth, and the level of household consumption are all critical influences on the certainty of household economic circumstances, these factors result from a complex set of interactions among household members that are closely related to individual labor supply and consumption decisions. To narrow this study’s focus to the implications of changes in the composition of the labor market over time, I limit the dimensions of my index to individual level factors directly tied to the workplace.

The EII is a composite measure that includes employer sponsored health insurance, defined benefit retirement plans, nonstandard schedules, involuntary job loss, and unionization in order to assess trends in economic insecurity resulting from workplace changes. Unlike measures of earnings and income instability, and indexes that emphasizes income losses, the EII is designed to assess how economic insecurity is increasingly tied to someone’s employment. Because many of the attributes that are cited as causes of insecurity vary across occupations, I also assess occupational
differences in the EII to see how potential gaps in exposure to economic insecurity may be widening as a result of employment polarization.

**The Survey of Income and Program Participation**

The data for the EII come from the Survey of Income and Program Participation (SIPP), a household survey consisting of repeated panels which each last between approximately two and four years. I begin with the 1990 panel and make use of the 1991, 1992, 1993, 1996, 2001, 2004, and 2008 panels, resulting in observations spanning 1990 through 2013. In each panel, data are collected in four month intervals (referred to as waves) and refer to the prior four months (reference months). Because the SIPP was designed to examine income and program participation, it includes a variety of questions about demographic information, income, assets, pension coverage, health insurance, and participation in federal and state social policy programs. Because the five components of the EII that is proposed in this study reflect characteristics of the workplace, I limit the sample to individuals who have worked at any time in any of the reference periods during the prior calendar year. The sample also excludes respondents who are exclusively self-employed and report full-time military service due to the large differences in workplace characteristics for these respondents. The resulting samples range from 18,679 to 48,834 before missing data.

The information is collected through both core questions, asked quarterly at all interviews, and topical module questions, appearing sporadically depending on the panel and wave. Because the SIPP is a multistage probability sample, the complex

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1 Earlier panels overlapped, with a new panel beginning each year. This was convenient because it allowed samples to be pooled. However, in 1996, the SIPP underwent a redesign under which panels no longer overlapped and sample sizes were increased.
design requires the use of weights. There are a variety of weights available, however, because I am estimating economic insecurity annually, I make use of the individual calendar year weights, which adjust for nonrandom attrition of people across years. In order to avoid transitions associated with new careers and education as well as transitions into retirement, I only include those between the ages of 22 and 64 in my sample.

In constructing the index, I considered a variety of datasets. Although each had strengths and weaknesses relative to each other, the SIPP ultimately proved ideal for several reasons. First, the analysis of occupations limited my choices to datasets that contain both occupational codes and large enough sample sizes that occupations could be disaggregated into finer categories. This narrowed my sources to the CPS and the SIPP. After sifting through measures and examining their comparability over time, I ultimately selected the SIPP given its superior measure of job loss. Although many studies rely on the CPS for measures of job loss, this requires the use of the Displaced Worker Supplements, which appear only sporadically and face substantial comparability issues over time. More specifically, their job loss recall period changed from five years to three years beginning in 1994. The SIPP does not face the same comparability issues and distinguishes between a large number of reasons for job loss, making it a more ideal measure.

**Measures**

I devise the EII by aggregating several measures from the SIPP. To be sure, a simple sum ignores much of the complexity of economic insecurity as it is hard to argue that each of these factors should be given the same weight in a measure of insecurity. However, given that there is little theoretical guidance in weighting different attributes of
insecurity and current measures fail to incorporate any attributes of employment, this sum still improves on earlier measures and offers some indication of how changes in employment have introduced insecurity into the lives of Americans.

Although most measures have annual estimates for every year, measures of nonstandard work and pensions were part of topical modules. This means that their availability varies depending on the panel. Due to the availability of all measures I have EII estimates for the years 1993, 1997, 1998, 2005, 2009, and 2011. I incorporate five separate measures reflecting the key workplace related dimensions of insecurity discussed in Chapter three.

Job Loss

Unemployment is accounted for with an indicator of an individual’s involuntary job loss in a given calendar year. I construct this indicator based on responses to a question that asks individuals to indicate the “main reason he/she stopped working for [employer name].” This question is asked of all respondents whose job ended during the reference period. The available responses allow me to distinguish between involuntary and voluntary job losses. I code losses due to layoff, employer sold business, job was temporary and ended, slack work or business conditions, discharged/fired, and employer bankrupt as involuntary and all other reasons as voluntary. There are three reasons why the resulting measure may understate the yearly incidence of job loss. First, the exclusion criteria for asking the job loss question in the SIPP surveys eliminate

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2 I do not have estimates for the years 1995, 2000, and 2008 given that there are no calendar year weights available for these years.
3 15 reasons include: layoff; employer sold business; job was temporary and ended; quit to take another job; slack work or business conditions; unsatisfactory work arrangements; quit for some other reason; retirement or old age; childcare problems; other family/personal obligations; own illness; own injury; school/training; discharged/fired; and employer bankrupt.
contingent workers, a segment of the labor market known to experience greater employment precarity (Kalleberg 2009, 2011). Second, the measure does not distinguish between single and multiple job losses during the reference period. Although non-trivial shares of respondents report two and more job losses in a single year, these respondents are treated similarly to respondents with a single job loss. Third, there is a small degree of right censoring in the reference period for respondents' reports in each SIPP panel. While the resulting downward bias is mitigated by the use of the SIPP’s calendar year sample weights, the combination of any remaining bias and the measurement error described above likely account for modest net downward bias.

**Health Insurance**

The SIPP asks respondents several questions regarding health insurance that are used to construct a health insurance index ranging from zero to two. Consistent with the job loss indicator, a higher score indicates greater economic insecurity. Respondents reporting employer provided health insurance are treated as experiencing no insecurity due to health insurance. Reports indicating no health insurance are coded as two. I exclude those responses that indicate health insurance through military programs, including CHAMPUS, CHAMPVA, and military/VA healthcare. Cases indicating insurance coverage obtained through private or “other” sources are coded as one. Reports of health insurance coverage provided by a current or former employer or union are coded as zero. Because the universe for this question excludes those who are not the policy holder for their health insurance, I exclude anyone who is not the policyholder from the sample for the health insurance attribute.

Although these particular questions are actually measuring health insurance coverage, rather than health insurance availability, no nationally representative survey
provided adequate information about health insurance availability via employers over time. Also, to the extent that health insurance represents an important attribute of employment for most workers, not having health insurance is likely indicative of employers not offering it, employees being ineligible for available plans, or plans being too expensive. While ineligibility is a clear barrier to health insurance coverage through employers, I also argue that unaffordable health insurance represents an institutional barrier to obtaining health insurance that is similar to an employer not offering it. As such, I believe it is a reasonable proxy for availability.

**Unionization**

Unionization is a straightforward measure. The SIPP asked respondents if they were “a member of a union or employee association like a union” as long as they were employed during the reference period. If a person was a union member at any point in a given year, they received a zero for unionization. If they were not a union member at any point in the year, they received a one toward the EII.

**Nonstandard Work**

Although the SIPP does not ask questions about type of employment contract, questions regarding nonstandard schedules are available for all years except 1992, 1995, 2000, 2003, 2006-2008, and 2012-2013. Reports of one job, regardless of full time or part time, on a standard daytime schedule are treated as the least insecure employment arrangements and are coded as zero. Reports of more than one job that are both standard daytime jobs or one job that is a regular night shift, regular evening shift, or a rotating shift are coded as one. Rotating shifts included shifts that change regularly from days to evenings or nights, split shifts, irregular schedules that change
from day to day, or a category for other. Reports of more than one job in which either job is nonstandard are coded as two, and two jobs that are both nonstandard are coded as three.

**Pensions**

Pensions are coded on a score from zero to two. Respondents with a defined benefit plan receive a zero; those with a 401(k) or similar defined contribution plan receive a one; and those with neither available are coded as two. Changes in the question wording across panels complicated constructing this measure. In the earlier panels, respondents were asked if their employer had a retirement plan for any of its employees (excluding Social Security and Railroad Retirement). If they indicated no, they were asked if their employer offered a profit sharing plan or a stock plan. If they answered yes that there was a retirement plan available or no, they did not have a retirement plan available, but they did have a deferred profit or stock plan, they were asked if they were included in the employer’s retirement plan or profit/stock sharing plan. If they said yes, they were asked if the retirement benefits of the plan are determined by years of service and pay, by the amount of contributions to the plan, or other. Those who indicated that their plan was based on years of service and pay were coded as having a defined benefit plan and those who indicated that the plan was

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4 It could be argued that any regular schedule, including regular nights and evenings are not nonstandard given that they are fixed and predictable. However, I follow earlier research on nonstandard schedules, including Presser (2003), who finds that even fixed nonstandard schedules contribute to family conflict.

5 Obviously a profit or stock sharing plan is generally considered to be a defined contribution plan, however, I decided that employees are more likely to know what the plan does than what the plan is called.
based on the amount of contributions required or other were coded as a one, indicating that they have an employer contribution plan available.

Those who indicated that a retirement plan was available, but did not participate were asked if their employer offered a 401(k) or thrift plan. If they said yes, they were coded a having a defined contribution plan (one). If they said no, there coded as having a defined benefit plan (zero). Those who had a deferred profit or stock sharing plan but did not participate were also asked if there was a 401(k) or thrift and they were coded as having a defined contribution (one) either way. Those who indicated that there was no retirement plan, no deferred profit or stock sharing plan, and no 401(k)/thrift were coded as having neither defined benefit nor defined contribution (two).

The 1996-2008 panels were entirely consistent in their questions. They were first asked if there was a regular pension plan or other kind of retirement plan (including 401(k)s, 401(b)s, and deferred profit-sharing and stock plans) available for anyone at the organization. If they said no, they were coded as having no plan (two). If they indicated yes, they were asked if they were included in the plan. Those that said yes were asked if the plan’s benefits were based on a formula involving earnings and years on the job or if they were based on contributions made by them and their employer into an individual account. Those who said that their plan was based on earnings and years on the job were coded as defined benefit (zero) and those who indicated individual account plan were coded as defined contribution (one). If they said that there was a plan available but that they did not participate, they were asked if the pension plan is like a 401(k) where workers contribute and their contributions are tax deferred. Those
who said yes were coded defined contribution (one) and those who said no were coded defined benefit (zero).

**Occupations**

As part of their core interview, the SIPP asks respondents about their occupation. The coding scheme corresponds to the US Census Bureau's Occupational Coding scheme, which is based on the Standard Occupational Classification System (SOC). The SOC is the federal government’s system for grouping jobs with similar tasks. Occupations are organized according to five levels of aggregation including a summary group, major group, minor group, broad occupation, and detailed occupation. For example, the 2000 SOC contains six summary groups, which are further disaggregated into 23 major groups, 96 minor groups, 449 broad occupations, and 821 detailed occupations.

In order to account for changes in the composition of the economy, the Census Bureau periodically reevaluates this occupational classification system, adding codes for new occupations reflecting the array of new tasks required in emergent fields such as biotechnology, software development, and personal services. The Census Bureau's recodings may also entail removing existing codes to account for disappearing occupations such as typists. In order to make these codes comparable across these changes, it is necessary to use a crosswalk, which harmonizes occupation codes for analysis over time. This is typically done by aggregating more detailed occupations into groups of similar occupations.

There are a few different crosswalks available, and in constructing the index, I considered both Weeden (2002) and Dorn's (2013) crosswalks. However, I eventually decided that Dorn's was more appropriate for my aims. Weeden’s crosswalk was
developed to model occupational closure in order to assess class boundaries (Weeden and Grusky 2005). It is therefore based on occupational associations, licensing, and unions, which play an important role in the generation of institutionalized boundaries that exist between class groups as well as intraclass homogeneity. To the extent that one wishes to analyze class over time and how class matters for life chances, Weeden’s crosswalk provides a useful coding scheme. However, for the purposes of this thesis, class boundaries and life chances are much less relevant.

In contrast to Weeden’s scheme, Dorn’s scheme corresponds more closely to average wage and education level of occupations, which are important for understanding recent employment growth. Dorn’s scheme also matches the new occupation codes added in successive surveys with prior occupation codes based on the specific tasks demanded in those occupations. In a small number of cases where the occupations have no reasonable match, they are dropped from the analysis. Given that a primary aim of this thesis is to examine how the changing composition of the labor force contributes to growing economic insecurity, I ultimately selected Dorn’s scheme due to its careful attention to the changing composition of occupations over time.

Dorn’s scheme includes 330 individual occupations, and facilitates the matching of occupations back to 1950 into codes that roughly correspond to the 1990 Census codes. These finer occupations are aggregated into bigger groups based on average wages and education. The largest groups correspond to 6 summary occupations, including managers, professionals, technical, and sales occupations (as well as
firefighters and police), clerical and retail; service; operators; transportation and construction; and production. Most of the analyses are based on these groupings, however, I do offer some findings from a more disaggregated scheme of 15 occupation categories, which broadly correspond to executives, management and related, professionals, technical sales, financial sales, retail sales, clerical, firefighters and police, low skill service, mechanics, construction workers, mining, production, operators, and transportation.

Results

Overall Averages in the EII

The first graph in Figure 3-1 plots the EII from 1993 to 2011. The vertical bars indicate the 95 percent confidence intervals of the point estimates for each year. The figure shows a moderately high level of economic insecurity, ranging from 2.6 to 2.84 for an index with an absolute range between zero and nine. The EII shows a clear decline during the 1990s and subsequent upward turn by 2005. The minimal overlap in the confidence intervals between points indicates a statistically significant U-shaped trend during this period. The most notable feature in the trend is the sustained increase over the 2000s. Between the low of 2.6 in 1998 and the high in 2011, the EII increased by about 9 percent. Such an increase illustrates a clear departure from the economic circumstances of the 1990s amounting in growing economic insecurity.

Disaggregating the trend into its component parts illustrates the underlying factors contributing to the increase in the EII. The trend in health insurance suggests

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6 Although many categorize fire and police as service, they attributes of security including wages, benefits, stability, and unionization more closely match higher skill and wage occupations.
that people’s health insurance is sensitive to recessions, especially the most recent Great Recession (Figure 3-1). Fluctuations in the health insurance index closely correspond to the three recessions in the 1990s and 2000s with the largest increase following the 2008 recession. The similarly close correspondence between involuntary job loss and the three recessions suggests a large share of the trend in the health insurance index due to the loss of employer-sponsored health insurance. Similar to Farber (2005), I find that job loss follows a cyclical pattern, however his levels are larger. This is likely due to his use of a three year job loss period rather than one.

Nonstandard work offers some puzzling trends. Although there is no clear trend overall until around 1997, the prevalence of nonstandard work appears to drop fairly rapidly in the late 1990s and more slowly thereafter. Beginning in 2005, it remains fairly constant with the exception of the large increase following the Great Recession. Trends in pension plans are not surprising, exhibiting large increases throughout the 1990s and early 2000s, when it declines slightly and levels off. The trend in union coverage roughly follows previously published results using census data through 2001 (Western and Rosenfeld 2011). Although there is a nearly three percent increase in the rate of union coverage between 2000 and 2004, this measure is equally sensitive to employment status as the four other measures. For this reason, the large decline in unemployment following the end of the 2001 recession will manifest in an increase in union coverage to the extent that reentrants to the labor market find employment in union shop workplaces.

**Averages in the EII across Dorn’s 6 Occupation Groups**

While the overall average of the EII offers some evidence of a positive trend in economic insecurity, when we disaggregate it by occupation groups, we see that this
overall trend masks considerable heterogeneity in experiences of economic insecurity (Table 3-1 and Figure 3-2). Moreover, these differences in economic insecurity are clearly ranked according to wage and skill. Managers, professionals, and highly compensated sales occupations are the least insecure. Their trend in economic insecurity even displays a slight decline across the 1990s before leveling off. Their experience contrasts with that of operators, whose insecurity increases up until the late 2000s and consistently averages higher than managers and related occupations. Those in clerical and retail also have consistently higher insecurity than managers, but their insecurity largely follows the same pattern as operators. In contrast, those in transportation and construction start out at roughly the same level as clerical and retail workers, but their insecurity takes off in the late 1990s increasing by 14 percent, widening the gap with both clerical and retail as well as operators, whose insecurity increased by 8 and 7 percent respectively. In 1993, there was almost no difference in average EII for these three groups, but by 2011, the gap had increased by nearly a quarter of a point on the EII. By 2011, transportation and construction’s level of insecurity was much closer to that of production occupations, who start out significantly higher, at an average EII around 3 and increase by 8 percent between 1993 and 2011. Compared to the least insecure, managers and related, transportation and construction are about two thirds of a point higher on the EII and production are an entire point greater.

Service occupations stand apart from the five other occupation groups for both its EII level and trend. For all years, service occupations display an EII of between 3.72 and 4.05, 0.73 and 0.82 points higher than the next highest occupation group,
production. In 2011, the service EII is on average a quarter greater than production’s EII and about 80 percent greater than the least insecure occupation group, managers. While there is no evident trend in services insecurity over the 1990s and early 2000s, the last two point estimates indicate a marked widening in the gap in insecurity. The upswing in the EII for services amounts to an 11 percent increase from its low in 1998. Given the stable level of insecurity for managers, the rise in services insecurity increases the EII gap between these two groups by 22 percent, from 1.5 to 1.83.

What is driving the trend in economic insecurity? A disaggregation of each of the components by occupation gives us some indication. For health insurance (Figure 3-3), we see clear differences in the score across these groups, although all groups were more likely to lose their health insurance during the Great Recession. Service occupations are the least likely to have health insurance, which is in line with expectations regarding the nature of work in the service sector more broadly, and this is consistent across the entire period. Other groups follow a similar hierarchy as in the measure of the EII across occupations, but their trends are a little different for health insurance. Managers and related, while the least insecure, had little change in their health insurance score over this period. Operators are clearly more insecure than managers and professionals, and their health insurance coverage appears to be much more volatile and particularly sensitive to recessions. Clerical and retail occupations are slightly less volatile than operators, but in terms of health insurance, their insecurity still gradually increased through the mid-2000s, before increasingly more rapidly in the period during the Great Recession. Transportation and construction workers are slightly more sensitive to recessions than clerical and retail, however, their level of health
insurance insecurity is fairly comparable to clerical and retail until the period around the Great Recession, when the gap between them and production begins to close. Production has consistently higher health insurance scores than other occupations, aside from service occupations, who are the least likely to have employer provided health insurance across the entire sample period. Moreover, their health insurance score increases by nearly a quarter, particularly after the Great Recession.

In terms of involuntary job loss (Figure 3-4), we see that the trends mostly follow the same overall pattern across occupations, however there are some differences in the level of involuntary job loss across occupations. Again, managers and related are the least insecure. Their share of involuntary job loss peaked at about 5 percent during the Great Recession, which contrasts sharply with the most insecure group, production, whose lowest level of involuntary job loss was approximately equal to their highest. We also see considerable volatility in operators, transportation and construction, and production. These occupations are much more sensitive to recessions than other groups, with larger spikes during these periods. One interesting feature regarding the incidence of job loss across occupations is that service workers appear more secure, which is in contrast to the other attributes of insecurity.

Nonstandard work across occupations (Figure 3-5) offers a similar story, although the rank ordering has changed. Service occupations are the most likely to work a nonstandard schedule over this period, and like other occupations, the Great Recession resulted in many more people working nonstandard schedules or picking up second jobs. However, what is a little puzzling is that a slight decline is shared among all the occupation groups, even the service sector. Moreover, the confidence intervals
indicate that there are not substantial differences between occupations, aside from service. Another interesting finding is that, although they are consistently high on other attributes of insecurity, those in production appear to gain some security from having a standard work schedule. Unlike the other attributes, where they usually hovered closer to the top of the ranking of insecurity, there is little difference in the incidence of nonstandard schedules between them and managers, professionals, and technical sales workers in most years.

Retirement scores (Figure 3-6) do not exhibit any particularly surprising results. We see that all groups experience increasing retirement insecurity leading up to the 2000s, largely driven by the increased use of defined contribution retirement plans over this period. What is notable is that even though all groups experienced growing retirement insecurity, managers remain the least insecure, with a large gap between them and other occupations that grows wider in the late 2000s. Additionally, we see that the growing gap between clerical/retail and transportation/construction is in part driven by a growing gap in retirement plan security in the late 1990s. Service occupations are again the most insecure and the least likely to have a defined benefit pension plan.

Although union coverage (Figure 3-7) trends largely follow what is expected through the early 2000s, the sharp increase in the number of people covered by a union in management and related occupations, as well as operator occupations likely reflect the increases in employment in sectors of the labor market with union coverage as discussed above. An especially important part of this increase may also be due including firefighters and police offers included with managers and related, since both occupations experienced marked growth during the prison boom of the 1990s. Finally, it
is notable that groups that were least insecure across most attributes, managers and clerical/retail in particular, are equal or much closer to service occupations in terms of unionization.

**Further Disaggregation**

Further disaggregation of the 6 occupation summary groups into 15 groups reveals some important heterogeneity in occupations. We see that the gap between low skill service occupations and the other 14 occupations grows much larger (Figure 3-8). Beginning in the late 1990s, this gap begins to widen throughout the remainder of the period. In 1998, at their lowest, low skill service occupations average 1.59 points higher than fire and police. By 2011, this gap has grown to 3.4 points. This contrasts with the gaps between the most and least insecure in the aggregated groups, which were 1.5 in 1998 and 1.83 in 2011. We also see how disaggregation makes a difference when we consider how the EII has grown or declined over the period; prior to disaggregating, the least insecure group’s EII decreased by about 2.64 percent, while service experienced an increase of about 11.26 percent. By 2011, the difference is even greater, as firefighters and police experience an over 18 percent decrease, compared to the 11 percent increase of service occupations.

**Summary**

The EII displays an increase over the 2000s that conceals marked differences across occupation groups with varying levels of mean income. Across the components of the EII, we see clear differences the experience of insecurity. Moreover, not all of these attributes display the same hierarchy. In the EII (Figure 3-2), we see that service is most insecure, followed by production, transportation/construction, clerical/retail, operators, and finally management and related with the greatest level of security. In
contrast, production experiences the most job insecurity, with the highest level of involuntary job losses. Service occupations, which are almost always the most insecure fall to third in terms of involuntary job loss. Additionally, we see little difference in exposure to nonstandard schedules among all groups except service, despite much wider gaps between these groups in the EII. The differences across these attributes illustrate the importance of accounting for different components of insecurity. Although the EII displays sizeable gaps between all occupation groups, we see that the gaps between service and all other groups are the largest. When we further disaggregate, these gaps only become wider, offering evidence that occupations are becoming more polarized not only in terms of wages, but also with regards to insecurity.
Attribute Means Across Years

Note: Health insurance score and retirement score range 0-2, nonstandard work score ranges 0-3, and Economic Insecurity Index ranges 0-9.

Figure 3-1. Attribute Means Across Years.
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EII ranges from 0-9
Figure 3-2. Average EII Across 6 Occupations 1993 - 2011.
Figure 3-3. Average Health Insurance Score Across 6 Occupations 1990 - 2013.
Figure 3-4. Share of Involuntary Job Loss Across 6 Occupations 1990 - 2013.
Figure 3-5. Average Nonstandard Score Across 6 Occupations 1990 - 2012.
Figure 3-6. Average Retirement score Across 6 Occupations 1992 - 2012.
Figure 3-7. Share Without Union Coverage Across 6 Occupations 1990 - 2013.
Figure 3-8. Average EII Across 15 Occupations 1990 - 2011.
The sustained increase in economic inequality in the United States extends beyond the well-known large differences in economic resources such as income and wealth. Amidst a changing workplace environment, wherein more risk has been shifted from employers to employees, many contend that American workers and their families face greater insecurity resulting from a reduction in workplace benefits and job stability. In order to document this growing economic insecurity, studies have conceptualized economic insecurity in a variety of ways including earnings instability, income volatility, large income losses, and even financial fragility or asset poverty. All of these measures have offered important contributions to our understanding of economic insecurity, however, despite their valuable contributions, they fall short by focusing on individual attributes of insecurity. A household’s ability to manage a significant loss of income is surely mitigated (or exacerbated) by any additional savings or assets available for it to draw upon. Moreover, income and wealth, while certainly important, are not the only components of economic insecurity. This multidimensional nature of economic insecurity is underscored by Rank et al.’s (2014) estimates of the prevalence of economic insecurity, which assessed the risk of experiencing any form of insecurity at any point between the ages of 25 and 60. Their finding that about four fifths of people will experience some form of insecurity by the age of 60 illustrates that individual attributes of insecurity may underestimate true experiences.

As perhaps the best measure of insecurity thus far, the Economic Security Index (Hacker et al. 2014) accounts for this multidimensional nature of insecurity by incorporating a variety of features such as wealth and medical expenses into a measure
of income instability, and estimating the experience of insecurity at the individual level. However, despite a significant improvement over earlier measures, the ESI still neglects features of insecurity that are tied to work and may have implications for insecurity above and beyond their impacts on income. Although my measure of insecurity represents only an initial examination, I have presented an index that accounts for workplace features commonly overlooked by most measures. I argue that an index is uniquely suited to examine economic insecurity for a couple of reasons. For one, features of economic insecurity are more than additive. It is not yet clear how their effects compound, but it is clear that exposure to one attribute of insecurity changes how an individual or a household will experience other attributes. Given this, an index offers a tractable method for summarizing insecurity with data that is commonly available.

Using my index to analyze economic insecurity among workers in the SIPP reveals several important insights regarding the nature of economic insecurity. For one, the EII (Figure 3-2) illustrates that economic insecurity is not evenly distributed across all occupations. Although the inequality in exposure to economic insecurity is perhaps best represented by the difference between those in service occupations and those in managerial/professional occupations, we also see clear differences in economic insecurity among those in production and transportation/construction occupations, relative to operators and clerical/retail occupations. Moreover, these differences in insecurity correspond roughly to the average skill level of occupations. On average, the occupation group consisting of managers, professionals, technical, and sales can be expected to have a much higher level of education than the remaining five groups.
Conversely, service occupations have considerably lower average skills than the other occupations. These differences suggest that economic insecurity is an emerging axis of inequality, which has been overlooked by other studies of economic insecurity that analyze insecurity at the individual level. Analyzing economic insecurity across occupations provides an effective method for analyzing this inequality and understanding how it may compound other sources of disadvantage, including skill and wages.

An additional finding revealed by the EII is that economic insecurity appears to have increased modestly since the late 1990s (Figure 3-1). From its low in 1998 to its high in 2011, the overall EII increased by about 9 percent, much of which was driven by the growing insecurity of employer sponsored health insurance and pensions. Disaggregation of the EII illustrates that three occupation groups in particular contributed disproportionately to growing insecurity. Although all groups except managers/professionals experienced slight increases in insecurity, service, production, and transportation/construction saw the greatest increase in their levels of insecurity. This growth is evidence of an increasing gap between them and those with higher skills. In other words, the inequality in exposure to economic insecurity is growing larger. Service occupations, whose insecurity consistently ranks higher than all other groups, saw insecurity grow by 11 percent from its low in 1998 to its high in 2011. Production workers, whose insecurity ranks second to services, experiences an equally large 11 percent increase in insecurity and transportation and construction’s insecurity great by an even greater 14 percent.
The evidence that economic insecurity is most concentrated in occupations which have lower average skills, including those with a high school education or less, suggests that economic insecurity acts as an additional source of hardship among those who are already disadvantaged. Workers with low educational attainment are already at an incredible disadvantage in the labor market, as the returns to skills continue to grow. They also face lower rates of marriage among high levels of homogamy. To the extent that insecurity matters for different outcomes among individuals and families, then it represents an additional hindrance, among several others, to their social mobility, which is likely to intensify across the life course. In particular, increasing insecurity in the form of pensions and retirement plans as employers shift the risk of retirement onto workers will leave many workers with diminishing labor market opportunities vulnerable to hardship in retirement. Moreover, insufficient federal government safety nets alongside this risk shift leaves workers facing greater risk in the absence of any buffer against loss. Although some states have worked to improve these programs by implementing their own safety nets, the adequacy of these programs vary considerably depending on the state. This leaves many workers taking on more risk with far fewer resources available when the risk leads to loss.

Although this analysis has offered substantial evidence that economic insecurity has grown, there are several limitations to this study. First, trends in employer provided health insurance not only indicate that availability has declined, they also suggest that costs have led to many workers who have insurance that offers only partial economic protection. Although my data do not allow me to include this in my measure of insecurity, underinsurance represents another avenue by which people experience
hardship resulting from medical expenses, which suggests that this is another facet of growing insecurity in employer provided health insurance. Moreover, because SIPP data do not have a measure for nonstandard contract arrangements, I was only able to include a measure of nonstandard schedules, which similarly biases estimates of insecurity downward. Additionally, because the necessary measures only extend back to 1990 (and the SIPP itself only began in 1984), it is hard to analyze long term growth in economic insecurity. Finally, the lack of calendar year weights for the years 1995, 2000, and 2008 is a regrettable constraint, especially in the case of 2008, with the occurrence of the Great Recession.

Despite these limitations, the EII still offers a useful framework for considering economic insecurity. There are numerous avenues for accounting for additional dimensions of household economic insecurity, including household attributes such as income sharing among co-residing partners and family wealth; temporal measures such as prior volatility in individual income; occupational measures such as the growth rate, job destruction rate, and the occupation mean wage growth rate. These attributes may be calculated with the currently available information in the SIPP. Future analyses may explore these additional dimensions using principal components analysis in order to reduce them into a smaller number of elements of economic insecurity. This analysis would also provide an indication of how economic insecurity clusters within occupations.
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Sara Moore is a graduate student in sociology. Her research interests include social stratification and inequality. She graduated with her MA from the University of Florida in the fall of 2016.