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# Debt, Cohabitation, and Marital Timing in Young Adulthood

## Abstract

This study examines the role of debt, both credit card debt and education loans, on union formation decisions in young adulthood. Economic theory posits that given the negligible size of credit card debt and education loan debt held in young adulthood to an individual's lifetime earnings transitional timing decisions should be impacted very little if at all by present debt holdings. Data are from the 1997 NLSY cohort, which follows approximately 6,700 youth from early adulthood through their late 20s. Youth who transition from singlehood into their first cohabitation are compared to those who enter directly into marriage, utilizing a discrete-time hazard model framework. I examine both debt level and relative debt to earnings as key determinants for transitioning. The sample population studied, young adults born in the early 1980s, is especially well suited for this analysis as they are coming of age during a period of expansive credit markets and increased college attendance. They have also come of age during a period where cohabitation has become normative and a growing socioeconomic divide in who marries has become increasingly evident. Preliminary results suggest that the accumulation of credit card debt is far less of a barrier to those entering into cohabiting unions than marital ones; education loan debt negatively impacts the entrance into marital unions, but only for women. The results also suggest women whose credit debt exceeds their predicted earnings are least likely to transition into marriage. My results suggest that both male and female economic resources matter for union transitions in young adulthood. Transitioning to first marriage is positively associated with greater educational attainment for both men and women, but women are more likely to pay a penalty for their education loan debt.

## Introduction

Numerous studies have documented the importance of financial stability as a predictor of marriage (Oppenheimer, Kalmijn, & Kim, 1997; Sassler & Goldscheider, 2004; Sweeney, 2002). Previous research on the relationship between economic resources and relationship timing has mainly focused on employment, earnings, and educational attainment as proxies for economic resources (Gibson-Davis, 2009; Clarkberg, 1999; Oppenheimer, Kalmijn, & Lim, 1997). The rise in personal debt in US households (Draut & Silva, 2004) and the normalization of cohabitation especially in early and young adulthood over the past 30 years (Sassler, 2010; Amato et al.,

2008), however, requires revisiting this relationship in light of these changing relationship and financial landscapes.

This paper examines the impact of debt holdings on transitioning to first union, cohabitation and marriage, in emerging adulthood with a particular focus on two differing types of credit obligations, unsecured debt (e.g. credit cards, bank loans) and education loans. For young adults, credit card debt is held in the highest percentages among young adults while education loan debt comprises the largest share of total debt held (Rothstein & Rouse, 2011). Most young adults lack financial resources upon reaching the age of majority, but require them in order to progress to what were once considered conventional markers of adulthood, such as long-term careers, marriage, and homeownership (Furstenberg et al., 2004; Rindfuss, 1991). The utilization of credit markets in young adulthood is not only necessary, but expected. Based on extant research that suggest the economic and financial requirements for cohabitation and marriage may not necessarily be congruent (Arnett, 2004; Sassler & McNally, 2004; Clarkberg, 1999), and markers of "good fortune" are what's now needed to procure a transition to marriage (Sassler & Goldschieder, 2004), combined with the lengthening of the transition to adulthood period (Furstenberg et al., 2004), the increase in debt amount held by young adults, and expressed difficulties recent youth adult cohorts have had with transiting to full economic and financial independence (Arnett, 2004), it is important to study how debt holdings impact both the type of first union and timing to first union formation in young adulthood.

This paper contributes to the marital timing and economic resources literature by examining a new mechanism of measuring current and future financial status and stability, personal debt. Economic theory on life cycle consumption and savings behavior posits that early adulthood is the period in which individuals would be most likely to borrow heavily relative to

their predicted lifetime earnings, amassing a large debt load to be paid down in later life stages (Baek & Hong, 2004; Ando & Modigliani, 1963). This consumption smoothing behavior is aided by the existence of credit markets. It is for this reason that access to and acquisition of credit obligations should spike post-adolescence. Coincidentally, young adulthood is also the period in the life course when most individuals first have independent contact with credit markets and assume the role of a debtor (Chiteji, 2007; Shim, et. al, 2009). It is surprising that the literature on initial access to and utilization of credit markets by young adults is so scarce. These early financial behaviors, practices, and beliefs about credit and debt may have economic consequences that reverberate throughout other stages in the life course (Baek & Hong, 2004). No study to my knowledge[1]has explored the role that debt plays as a factor on transitioning to coresidential relationships, especially at early points in the life course. Understanding the influence of debt on behavior in young adulthood is important not only because it is highly correlated with other economic resources required to assess an individual's financial health, but also, because debt behaviors to tend to vary over the life course (Baek & Hong, 2004), and acquiring large debt loads has consequences that impact future savings and borrowing decisions. The inability to borrow can preclude one from acquiring wealth and making future financial investments (Athreya, 2001). Additionally, recent work highlights the growing socio-economic divide of marriage in the U.S., with economically disadvantaged populations more likely to delay marriage, cohabit, and experience marital disruption and relationship churning (Goldstein & Kenney, 2001; Cherlin, 2004; Gibson, Edin, & McLanahan, 2005; Qian, 1998). Debt holdings

[1] The Chiteji (2007) working paper included marriage but was excluded from the published article; the analysis also focused on an older age cohort, 25-34. And, Dew & Price (2010) examined consumer debt on transitioning to marriage amongst currently cohabiting couples.

may have disproportionate impacts on relationship transitions depending on a young adult's relative economic position (Dwyer, McCloud, & Hodson, 2011).

In this study I follow approximately 6,700 youth from the 1997 cohort of the National Longitudinal Study from early adulthood through their late twenties, and compare youth who transition from singlehood into their first cohabitation to those who transition to first marriage using a discrete-time, hazard model framework. I examine both debt level and relative debt to income as key determinants for transitioning along with measures of educational status and labor force attachment. The sample population studied, young adults born in the early 1980s, is especially well suited for this analysis as they come of age during the late 1990s and early 2000s, a period of expansive credit markets, increased college attendance, and readily available credit. They are also aging into a demographic shift in which the normalization of cohabitation coexists with the growing socio-economic divide of marriage.

**Economic resources and union formation**

The importance of economic resources on union formation and marital timing is well-documented in the literature. Economic theories on marital formation tend to be based on gender specialization and comparative advantages in either household or labor market production (Becker, 1981; Oppenheimer, 1997). Given that men have had a comparative advantage in the labor market and women in the household, scholars theorized that male economic resources mattered more for union formation and women with a comparative advantage in the labor market would be least likely to marry (Goldscheider & Waite, 1986; Becker, 1981). Both the proxies used for economic resources and the findings have been pretty consistent across the literature. Men's educational attainment is positively associated with marriage (Clarkberg, 1999;

Oppenheimer, et al., 1997; Sassler & Goldscheider, 2004; Sweeney, 2002; Xie et. al, 2003; Goldscheider & Waite, 1986; Qian & Preston, 1993; Goldstein & Kenney, 2001), as is their current earnings (Clarkberg, 1999, Mare & Winship, 1991; Macdonald & Rindfuss, 1981; Sweeney, 2002), employment status (Oppenheimer et al. 1997; Sassler & Goldscheider, 2004; , work experience (Clarkberg, 1999; Oppenheimer et al, 1997), even their earnings potential (Xie et al., 2003). The relationship for women, however, has not been as stable. Recent evidence suggest that no longer do only men's resources matter, but both male and female economic resources are important for marital formation in more recent cohorts (Sweeney, 2002). And contrary to theory, empirical studies on micro-level data consistently found that women's earnings were not negatively associated with union formation, and better educated women and women with full-time employment prospects were more likely to transition to marriage (Sassler & Schoen, 1999; Sassler & Goldscheider, 2004; Qian & Preston, 1993; Lichter et al, 1992; Goldscheider & Waite, 1986).

While the theory of marital formation addressed the question of whose economic resources mattered for marriage, it could not explain when a marriage would take place, or the rising age at first marriage in the U.S. Early studies showed that men enrolled in post-secondary programs were less likely to marry early (Hogan, 1978), but that accumulated schooling and high educational attainment increased the probability of marriage (Thornton, Axinn, & Teachman, 1995).Over the last three decades the median age at first marriage rose for American women from 23.9 in 1990 to 26.1 by 2010 and from 26.1 to 27.5 for men over the same period (U.S. Census Bureau, 2011). Young adults are increasingly choosing to delay marriage, and those who do marry young, tend to be concentrated, on average, within highly selective groups (e.g. disadvantaged background, religious conservatives, low educational attainment, see Uecker &

Stokes, 2008). Rather than marrying and building income and wealth together, young adults, especially those with secondary degrees are choosing to delay marriage until they are financially established, or rather achieved the degree, the career, and high wages, for example (Cherlin, 2009).

Oppenheimer (1998) argued that trends in marital union behavior, in particular, those divided among socio-economic lines could better be explained by job search models and with theories on assortative mating; young adults would wait until their economic situation is more stable in order to marry. Therefore, one should following young men's labor force attachments to understand marital timing behavior (Oppenheimer, et al., 1997). Empirical tests using career stability trajectories as a proxy for economic stability reinforced these hypotheses, finding men whose careers were the most stable were more likely to marry (Oppenheimer, et al., 1997). Low-skilled men have had an especially difficult time finding and maintaining employment with both jobs and wages in low-skill sectors remaining stagnant and declining relative to high skilled employment (Juhn, Murphy, & Pierce, 1993), they are also the least likely to marry (Sassler & Miller, 2010).

In general young adults tend to express similar sentiments with regards to perceptions of readiness for marriage (Gerson, 2007; Sassler & Schoen, 1999; Clarkberg, Stolzberg, & Waite, 1995). These include the desire to be financially established and economically stable by securing a career first, some savings, and decreasing their outstanding debt (Cherlin, 2009; Manning, Longmore, & Giordano, 2007; Arnett, 2004). Transitions into marriage and cohabitation, however, have not occurred uniformly across the population. Young adults with college degrees, from households with more resources such as having older parents and parents with advanced degrees, tend to be more likely to successfully transition to marriage, both single to marriage and

cohabitation to marriage (McLanahan & Percheski, 2008; Schwartz & Mare, 2005; McLanahan, 2004; Axinn & Thornton, 1992). College graduates and young adults from high income households are also less likely to cohabit, more likely to delay fertility and view cohabitation as a precursor to marriage (Sassler & Miller, 2010). Given that individuals tends to sort in the marriage market based on similar characteristics, such age, race, and education, coupled with the increasing important of female economic resources, the socio-economic divide of the marriage market is even wider (Schwartz & Mare, 2005; Qian, 1998; Qian & Preston, 1993; South, 1991).

Scholars have also argued that changes in marital patterns are also partially attributable to the normalization of cohabitation (Oppenheimer, 1997). A growing proportion of young adults are opting to live with a significant other prior to or without marrying during their early adulthood years (Sassler, 2010; Amato et al., 2008). Between 1995 and 2002, the percentage of women aged 19 to 24 who reported being currently in a cohabiting relationship grew from 30 to 43% and 3% for 25 to 29 year olds (Kennedy & Bumpass, 2008). Recent estimates from the National Longitudinal Study of Adolescent Health indicate that the majority of women (59%) could expect to cohabit by age 24 (Sassler & Joyner, 2011). First cohabitation experiences amongst young adults are often short-lived, with a small chance of transitioning into marriage (Lichter, Qian, & Mellott, 2006; Brown, 2000).

Similar proxies for economic resources used to predict marital formation and marital timing have also been used to examine transitions into cohabitation. Studies based on data from the 1970s, 1980s, and early 1990s found education either uncorrelated or negatively associated with transitions into cohabitation (Thornton, Axinn, & Teachman, 1995; Clarkberg, 1999), and labor market earnings and earnings potential were either not significant or positively associated with cohabitation for both men and women (Xie et al., 2003; Clarkberg 1999). These finding

suggest that the economic underpinnings for cohabitation were different for the formation of a cohabitation versus marriage, and were impacting not only when individuals would enter one, but also who (Sassler & Goldscheider, 2004; Clarkberg, 1999).

The same socio-economic divisions that are present in marriage also exist within cohabitation. Not only are young adults with college degrees more likely to successfully transition to marriage, if they cohabit, those unions are more likely to be precursors to marriage, with a higher probability of transitioning rather than dissolving (Lichter, Qian, & Mellott, 2006). College graduates and young adults from high income households are also less likely to cohabit, more likely to delay fertility and view cohabitation as a precursor to marriage (Sassler & Miller, 2010).

Cohabitation can be viewed as an economically attractive living arrangement since couples often benefit from the advantages of a shared living space, such as economies of scale without bearing the legal and social costs of marriage. Interviews with cohabiting individuals and couples in major urban areas find that respondents view the arrangement as more economical than maintaining two separate residences (Sassler, 2004), and close to a third of adults cited finances as a main factor in the decision to live together (Taylor, 2010). Research on resource allocation finds that while a majority of couples pool their income and hold joint bank accounts (Heimdal & Houseknecht, 2003; Treas, 1999), married couples pool income and manage resources jointly, whereas cohabiters are more likely to have independent money management systems and split resources (Brines & Joyner, 1999). For example, cohabiters are more likely to maintain separate bank accounts, which have been shown to be negatively associated with relationship quality (Addo & Sassler, 2010).

Scholars argue that the lack of "enforceable trust" that comes with a formal commitment keeps cohabiters from acquiring the social status and societal benefits (especially for men, for whom historical labor market economic resources mattered more) of marriage (Cherlin, 1991; 2004). This distinction, formal versus informal recognition, can affect the criteria (e.g. financial and economic support) individuals assign to entering a cohabiting versus marital arrangement (Smock, Manning, & Porter, 2004) and the relative importance of selecting a cohabiting partner versus a marital partner. Additionally, the benefits of shared living do not appear to accrue equally to men and women. Despite the rise of cohabitation, the marriage premium continues to persist for men (Cohen, 2002). This distinction between marriage and cohabitation may prevent cohabiters from investing in relationship-specific capital, such as having children, but can also serve to shape the decision to enter into shared living without marriage. Not to mention, both qualitative and quantitative studies have shown that a majority of pregnancies in cohabitation are unintended (Finer & Henshaw, 2006; Sassler, Miller, & Favinger, 2009).

**Changing Financial Landscapes in Young Adulthood**

The recent Great Recession increased interest in understanding the effect of credit markets on individual decision-making. Prior to the great recession, most Americans experienced almost thirty years of unprecedented availability and access to both unsecured and secured credit markets (Dynan & Kohn, 2007; Lyons, 2003; Athreya, 2001). Many individuals, in particular those with little to no assets, such as the low-income, minorities, and young, who would have previously been shut out of these markets or found little benefit in participating (Weller, 2010; Mann, 2009), obtained credit as companies diversified their risks across households and offered more attractive products to increase their market share (Mann, 2009; Watkins, 2000). These improvements in financial innovation aided in increasing the debt of households who may have

already had access and increasing the population of those able to gain access (Dynan, 2009). Not only did access to credit improve, general attitudes towards holding debt became more favorable (Dwyer, McCloud, & Hodson, 2011; Chien & Devaney, 2001) and average debt holdings increased as households borrowed against the future to finance present consumption (Sun & Xiao, 2007; Bird, Hagstrom, & Wild, 1999).

Since the late 1980s, consumer policy advocates have increasingly become concerned with the degree of debt young adults manage to acquire in a very short period (Lyons, 2008; Manning, 2000). Alarm grew over the amount companies allowed these young, inexperienced consumers to borrow with little to no recourse for their ability to repay (Manning, 2000) especially when combined with the severe financial consequences with defaulting on these loans (Athreya, Tam & Young, 2009). Between 1992 to 2001 average credit debt holdings of 18 to 24 year olds increased 104% rising from $1,461 to $2,985. It increased 55% for 25 to 34 year olds over the same period, compared to 38% for all households (Draut & Silva, 2004). The increase from 1983 to 2001 was even greater, a staggering 252% for 25 to 34 years olds (Chiteji, 2007). Increases in debt holdings, however, are not just limited to the consumer debt market.

With more young adults entering college, taking longer to finish, and increasing college tuition costs (Fitzpatrick & Turner, 2007; Bound, Lovenheim, & Turner, 2007), the population of young adults with education loan debt has increased. Recent estimates suggest that close to sixty-six percent of undergraduates received some form of financial aid in 2007-2008 (NCES, 2010). Thirty-eight percent of this aid was received in the form of loans, averaging $7,100. Postsecondary schooling would be an unattainable goal for many without receiving some form of financial aid or grant assistance (Fitzpatrick & Turner, 2007; Carneiro & Heckman, 2002; Kane, 1996; Keane & Wolpin, 2001). And, while there are several funding options (e.g. pell grants,

student loans) available for low-income students and tax incentives programs (e.g. tuition tax credits, 529 plans) for those coming from middle to higher income households to assist with paying for college, the majority are loan based, having replaced the dominance of grant aid offered throughout the middle to late twentieth century (Fitzpatrick & Turner, 2007). According to the National Center for Education Statistics, thirty-four percent of undergraduates held federal loans in 2007 (averaging $5,000; $3,400 subsidized and $3,200 un subsidized), compared with twenty-seven percent who received Pell grants ($2,600). The average college graduate left school with approximately $23,000 worth of debt in college loans in 2008, whereas in 1996 the average debt was $17,000, a 35% increase (Hinze-Pifer & Fry, 2010). This replacement of grant assistance with financial aid in the form of student loans means more young adults entering their adult years with debt, a significant amount of debt, which can take years to pay down. Increases in outstanding student loan debt not only increased in size, but also over a relatively short time period.

Several scholars have been quick to highlight that in spite of all the tuition assistance, college enrollment is still an expensive undertaking for most individuals. Additional fees such as room and board, books, and health insurance can add up. And both qualitative research and survey data of young college students indicate that a majority relies on credit cards to supplement costs (Lyons, 2008; Draut & Silva, 2004; Dynarski, 2002). As of 2008, only two percent of undergraduates had no credit history, and half held at least four credit cards (Sallie Mae, 2009). And one in four students report using credit cards to finance their education (Draut & Silva, 2004). Recent work on the continued college enrollment decision has also shown that students rank high financial difficulties related to college costs associated with staying enrolled (Stinebrickner & Stinebrickner, 2008). Consumer debt coupled with educational loans

accumulated while in school appear to be setting many young adults up for a life in debt with the potential to impact subsequent phases of the life course such as labor market earnings, homeownership, and potentially family formation, the focus of this study (Minicozzi, 2006; Haurin, Hendershott, & Wachter, 2007; Baek & Hong, 2004).

Previous research on the impact of early debt acquisition on later life outcomes, such as career choice, focused on specialized markets. Research on medical school debt and doctors choice of field specialty found that those finishing with larger debt loads choose specialized fields to a greater degree, i.e. fields with higher earnings potential (Rosenblatt & Andrilla, 2005; Colquitt, Zeh, Killian, & Cultrice, 1996). More recently, Minicozzi (2005) expanded her analysis to all college graduates and examined the labor market outcomes of education loan debt. The author estimated the effect of educational loan debt on wages post-degree and finds that in the short-term, college graduates with large student loan debt have a higher probability of accepting job offers with a higher starting salaries but minimal wage growth potential over a five-year period. Minicozzi argues that these results indicate the desire of young adults to rapidly pay off large student loan debt by accepting an attractive job with a high starting salary with minimal wage growth, and foregoing more lucrative career options with greater income potential over time. Rothstein and Rouse (2011) exploit an exogenous change in a university's financial aid policy on major selection, job choice after graduation, and subsequent alumni giving for a sample of college graduates. Their results from their quasi-experiment design suggest that large student debt loads increases the probability of selecting higher paying majors and careers, while also decreasing the likelihood of alumni gifting. The authors emphasize that their results provide evidence that it is the existence of these credit constraints that alters decision-making, as opposed to individuals being debt averse and wanting to pay off debt quickly. Although these two studies

draw different conclusions as to the potential mechanisms effecting the student's decisions, both indicate that large education loan debt can impact an individual's future, which is counter to economic theory that predicts it to have negligible effects.

More closely related to the current study is a 2006 review by Chiteji that uses panel data to examine debt on demographic transitions, transitioning to parenthood, marriage and homeownership for 25 to 34 year olds. The results indicate that measures of debt-- non-collateralized debt and mortgage debt-- do not significantly impact the transition to parenthood, marriage, or homeownership. All the point estimates are negative, indicating an inverse relationship between positive debt holdings and transitioning to these adulthood indicators; however, they never reach conventional levels of significance. Existing research on debt behavior in young adulthood, both credit card debt and education loans, focus largely on college students and college graduates. All of the descriptive studies on credit card use examine college student behavior with the exception of the Chiteji study, and the empirical studies centered on college graduates of four-year institutions, and that study does not examine cohabitation. Not all young adults attend college, however, and many who do start do not complete (57% of student who started a 4-year degree in 2001 completed in six years, 27.5% of 2-year students completed their associates in 150% of the time, NCES). Additionally, access and utilization of credit markets is not limited to the post-secondary school attending population (only 39.6% of 18-24 year olds enrolled in degree-granting institutions in 2008, NCES) leaving a proportion of the young adult population understudied. It is therefore important to examine the unenrolled population in addition to the college-goers and the graduates as they too are accessing credit markets and making decisions related to relationship.

*Debt as an economic resource in young adulthood*

In the consumer finance and financial planning literature outstanding debt amounts and financial ratios, such as debt to income, are used to assess an individual's financial well-being. Relative debt measures are indications of an individual's insolvency, or the lack of readily available and accessible financial funds. Coincidentally, many of the financial wellbeing measures do not take into account life-course stage and risk tolerance despite empirical evidence indicating that consumption, debt, and savings behavior is not constant over the life course (Greninger et al, 1996; Baek & Hong, 2004; Poterba & Samwick, 2001). Similar to other objective status measures such as income, total assets, and educational attainment, debt holdings like credit card debt and education loans can be used as an objective representation (financial indicator) of both present and future economic stability or as a signal of one or the other (Rutherford & Fox, 2010). Therefore, while debt values can independently assess an individual's financial state, they also work in tandem with other financial measures to provide an overall assessment of financial health.

There is a lot of variance in the type of debt that a person could assume. Credit card debt is not the same as debt acquired for investment purposes, such as educational investment or to purchase a house.[2] Access to credit card debt and bank loans are usually based on past employment and household income measures. Credit debt oftentimes carries large penalties in the form of high interest rates for a consumer who cannot or is unwilling to pay the full balance within a predetermined allotted period and repayment periods are often short (Baek & Hong, 2004). Credit card debt is also absolvable in the event of financial insolvency (e.g. bankruptcy)

[2] In the current analysis, the focus is on non-housing debt for two reasons, homeownership is essentially non-existent given the age group of the sample analyzed and the few homeowners who do exists have either transitioned to the first coresidential relationship or were assisted financially by family and friends to make the purchase.

in most states[3]. Education loans are inherently restricted to the secondary and post-secondary school attending population. Receipt can vary depending on the source (public versus private, subsidized versus unsubsidized), for example, federal loans are means-tested, and repayment is relegated until after school completion or school leaving. And unlike credit card debt and uncollateralized debts, education loans are deferrable but not absolvable in the event of financial uncertainty or insolvency.

Additionally, in the U.S. there exist federal and local policies that can influence individual behavior towards debt. There tax incentives to holding certain types of debts, for example, interest payments on education loans (and mortgages) are tax-deductible. And empirical evidence suggests that tax structure does influence individual portfolio behavior and incentivize individuals to hold one debt over another (Poterba, 2001). For married couples who reside in community property states[4] in the event of a divorce all debts incurred within the marriage, independent of the person who incurred the debt, becomes the responsibility of both individuals. If individuals are concerned about the amount of debt brought into the marriage by a potential mate, believe divorce is high probability event, or fear having to pay their partner's financial mistakes, this could also weigh in the cohabitation versus marital timing decision Stevenson (2007). Given that women fare financially worst post- divorce (Duncan & Hoffman, 1985), gender differences in union choice given debt levels should also result. Credit debt is easily accessible and average holdings are low compared with education loans; however, there are strong incentives to pay off faster. Whereas with education loans the total levels are high and

[3] Under U.S. Federal Chapter 7 Personal Bankruptcy Law
[4] Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington and Wisconsin, and Alaska* (opt-in state-spouses can agree to be jointly responsible for all debts)

incentives are low to pay off quickly. Based on these differences, it is hypothesized that the two credit obligations will operate differing outcomes in the transition to first union decision.

There are at least two ways in which debt could directly impact union formation through individual decision-making. The first way is if an individual is constrained and cannot access credit to borrow (Cox & Jappelli, 1993). The second way is if the amount of debt held provides signals about an individual's financial wellbeing to the individual and to others which impacts their perceived readiness for cohabitation versus marriage. The latter is the mechanism tested in this study. Scholars believe that young adulthood should be a period in which individuals should access credit markets to income smooth and use debt to essentially establish themselves for the future. It may be difficult to achieve other markers of adulthood without having secured independent financial means or established a record of financial stability. For example, a youth may get a job to pay down high-interest credit debt, but the job interferes with schooling. And if financial aid is not sufficient, individuals may use credit cards to help finance other areas in their life, such as paying bills or rent, or even to help extended family (Draut & Silvia, 2004). Accumulating debt can also be a hindrance to building one's savings (Bryant, 1990).

The ability to establish one's economic and financial independence is often cited as one of the key criteria for a successful transition (Arnett, 2004). Individual debt holdings can serve as a proxy for perceived financial readiness, providing a signal which market to enter, cohabitation versus marriage, and when. A significant debt load may act as a signal of financial unpreparedness and instability, making an individual an unattractive mate in the marriage market, but not in the cohabitation market. Youth holding a significant debt may fare better in the cohabitation market, for which entry is cheaper, and therefore choose to cohabit instead of marrying. Outstanding credit/banking debt is a sign of accessible current financial resources

(potentially financial independence) but is unattractive in the marriage market. Thus, making the youth low quality (unattractive) for the marriage market, but attractive for cohabitation for which financial (underpinnings) requirements are lower. Credit debt reduces the price of cohabitation indirectly by increasing the price of marriage. Education loans are considered an investment debt on what may be considered an appreciating asset. Youth holding non-zero education debt are potentially attractive partners in the marriage market given their expected future earnings potential (economic potential), however, they are also more like to delay marriage prioritizing career and financial stability (establishment) over marriage (Fry, 2010). Additionally, the structure of post-secondary enrollment (e.g. dormitory living, delayed or difficulties with full-time employment) may act as an indirect deterrent to union formation in early and young adulthood. Education loan debt indirectly deters cohabitation and marriage in young adulthood.

Attitudes related to the socio-economic preparedness for marriage and the rise of cohabitation can also influence the willingness to accept the risk-sharing burden of future labor income risk. Therefore, it is hypothesized that the formation of a union occurs in the presence of non-zero debt holdings if there has been a consensus to share assets for marriage or not share assets for cohabitation (Schmidt, 2008). When the young adult enters the market with a debt load, they either find a partner who is willing to take on the current debt burden or not. Marriages will be more likely when an individual has found a partner willing to assume their current debt relative to their future labor earnings risk. Clarkberg, Stolzenberg, & Waite (1995) argue and find evidence in support of the idea that positive attitudes towards making money, especially by men, would decrease the likelihood of transitioning into marriage given the pooling of resources associated with marriage coupled with the fact that men tended to outearn women in the labor force. Extending these assumptions to debt holdings, individuals will be more willing to

enter marriage, or risk-share, in the presence of education loans where the expected future return on the debt holders is positive and large. Credit card debt, alternatively, is a signal of current instability and present financial independence, but not an indicator of future financial stability or success. Individuals are less willing to share a negative financial asset.

**The Current Study**

To summarize, the current study draws from two literatures, the role of economic resources on union formation and the impact of debt on later life transitions. The main research question of interest is whether holding outstanding credit debt and education loan debt impacts the probability of transitioning to first coresidential union and the type of union selected. The analysis examines these relationship within the context of the educational and economic markers that have previously been shown to effect union formation and relationship timing decisions.

Conceptually, young adults may or may not hold debt. The type and amount of debt held matters for a youth's attractiveness (quality) in the respective relationship market. It is assumed that young men and women begin adulthood looking to enter the relationship market and find suitable partners. In young adulthood, debt represents both current and future economic resources, i.e. financial stability. Young adults are rational decision-makers; they borrow debt today, based on expected future income, to meet current consumption and educational needs. The type and amount of debt (the current economic state) is observable, as is whether the youth forms a union; we are, however, not able to observe an individual's and others perception of their financial readiness.

For the purposes of this analysis, cohabitation and marriage are modeled as competing choices. An individual not only chooses to enter a union but must also decide the type of union, cohabitation or a marriage, versus remaining single. Their ability to transition to a union will

depend on the relationship between an individual's perceived financial readiness and her debt holdings, observable and unobservable characteristics, where financial readiness is potentially a function of the two debt parameters, credit/bank loan and education loan debt, a vector of observed education and labor market characteristics, additional characteristics such as family background and demographics and unobservable factors. Given the negligible size of credit debt and education loan debt held in young adulthood to an individual's lifetime earnings, economic theory of consumption and savings hypothesizes that transitional timing decisions should be impacted very little if at all by present debt holdings (Rothstein & Rouse, 2011; Ando & Modigliani, 1963).

It is hypothesized that (1) the probability of forming a union in young adulthood will increase with credit debt and decrease with education loan debt. (2) The probability of cohabitation (relative to staying single) is expected to increase with credit debt and decrease with education loan debt. (3) The probability of marriage (relative to staying single) decreases with credit debt and increases with education loan debt.

## Method

### Sample and Data

The National Longitudinal Study of Youth 1997 (NLSY97) is an annual study following a representative sample of youth living in the U.S. who were 12 to 16 years old as of December 31, 1996. The original cohort is comprised of two subsamples, the baseline sample and a supplemental oversample of Black and Hispanic youth also born during the same years. After eleven rounds of data collection, 83% of the original youth were interviewed as of the most recently released wave (2009). The NLSY97 extensively questions youth on their labor market

experiences, educational, familial, and relationship backgrounds. The survey also ascertains information on wages, income, and educational debt every survey year. The survey year after their eighteenth birthday,[5],youth are first asked asset and debt-related questions, and upon reaching their twentieth and twenty-fifth birthdays respondents were asked to complete an assets module containing extensive questioning of all financial and non-financial asset holdings, assets values, and outstanding debts. My sample follows youth starting in the first survey wave after completing the age twenty assets module through the most recent survey year. The panel nature of the data allows me to follow the youth from one to eight years after the age twenty assessment interview.

Two sample restrictions were imposed on the data. As previously mentioned, any youth who already transitioned to a first cohabitation or first marriage prior to the age 20 asset module are not included in the analysis. Imposing this restriction excludes 1,132 women and 614 men from the final analysis. It also increases the average age of first cohabitation from 20.89 to 22.65 and first marriage from 22.49 to 23.61 for women, and from 21.93 to 23.02 and first marriage from 23.42 to 23.96 for men. Including youth with previous coresidential experience would increase the difficulty of separating out whether the age 20 debt (financial resources) state is independent from their previous relationship experience. And secondly, any youth missing complete union history and who did not complete two consecutive interviews during the study period, i.e. missed two years, and experienced a union transition were also removed. Multiple imputation is applied to maintain maximum sample size for those missing information on independent variables. The final sample follows 3,025 women and 3,744 men, who contributed 14,681 and 19,373 person-years, respectively to the analysis.

[5] Youth who are classified in the survey as independent (are married) prior to their 18th birthday are also eligible for the assets section

**Cohabitation and Marriage**

The main dependent variables are the union transitions include transitioning from a single state into first cohabitation or first marriage. Cohabitation is defined in the NLSY97 as a sexual relationship in which an individual resides with a person of the opposite sex with a minimum stay of at least one month, and respondents are asked to each survey round their current marital status and to provide dates, month and year, of first cohabitation and first marriage.

**Debt Measures**

For the credit debt holdings at age twenty, the variable is coded based on responses to the following question: "Do [you/you or your spouse/partner] have any other debts that you CURRENTLY OWE MONEY ON that we have not already talked about? (Examples include store bills, credit cards, loans obtained through a bank or credit union, margin loans through a stock broker, and other installment loans. Include credit cards only if the respondent carries a balance." If the youth responds in the affirmative, they were then asked to provide total or estimated amounts. The median value is assigned to those youth, who choose to only enter in a range, (i.e., $0-$1000, assigned a value of $500). The outstanding debt values do not include debt from any mortgages or vehicle loans. Information on educational loans was asked every survey year (by semester) for youth currently enrolled in any type of secondary or advanced degree program after high school.

The education loan variable is created using a summated yearly figure of all the currently outstanding loans taken out for educational study. Youth are asked to provide values on all outstanding government subsidized loans and private loans. The focus of this study is government and private loans. The education loan debt variable is generated from the question:

"Other than assistance you received from relatives and friends, how much did you borrow in government subsidized loans or other types of loans while you attended this school/institution?" and "How much is still owed on (this/these) loan(s)?" Similar to the credit debt variable, the outstanding education loans value is computed at the time of the age 20 and age 25 assets module, and remains constant over the study period. Due a large concentration of zeros for both debt measures, the variables are logged in all analyses.

**Education and Labor Market Characteristics**

The youth's current educational attainment is categorized into less than a high school degree, high school degree, some college, and bachelors or more. Current enrollment status is disaggregated between two and four-year programs, with unenrolled as the reference group. Due to small cell size, any young adults who report still being enrolled in K-12 are grouped with the unenrolled and those enrolled in professional degree or post-secondary programs with the four-year group. Labor market controls include a measure of the youth's logged annual earnings[6] . This is a predicted earnings measure estimated from the young adults hourly wage earnings if they worked full-time year round. Covariates used in the estimation equation include age and highest grade completed and their quadratics, a measure of overall aptitude using the results from the asvab[7] test, race, and current health status. The measure was predicted using all available waves of the young adult pre and post transition. Predicted earnings are estimated separately for

[6] Previous studies argue that using a permanent income measure is incorrect on a young sample, and instead predicted earnings is better given the high volatility of earnings income during this stage of the life course (Haurin, Hendershott, & Wachter,1996; Whittington & Peters, 1996) .
[7] Armed Forces Vocational Aptitude Battery; respondents completed the assessment of arithmetic reasoning, mathematics knowledge, paragraph comprehension, and word knowledge in 1997

males and females.[8] Additionally, measures of current employment status include indicators for fulltime work, having worked thirty or more weeks and at least 30 hours per week in the previous year. All education and labor market controls are time-varying.

**Additional Controls**

Additional controls included in the models consists of family background, demographic measures, educational attainment, and labor force attachment characteristics, all factors expected to impact union formation and timing. Controls for family background consist of the mother and father's education as of 1997, whether the youth resided in a rural area at age 12, a variable equal to one if the youth lived with both biological parents from birth through age fourteen, and an indicator equal to one is the parental respondent reported negative net wealth in the 1997 survey. Given that cohabitation and marital timing has been shown to vary by race and ethnicity, in addition to sex, in young adulthood (Addo, 2011; Amato et al., 2008), the sample is categorized into four racial and ethnic categories, non-Hispanic white (reference group), non-Hispanic black, Hispanic, and a small, but notable, percentage of individuals identifying as mixed race. All these covariates are considered exogenous to the youth's relationship type and timing decision and are time-invariant across the study period. All models control for whether the youth currently resides in rural area, birth year, age, and its quadratic.

**Descriptive Statistics**

Table 1 presents the means and standard errors for the debt variables and covariates included in the full model by debt holdings for both women and men. At the top of are the

[8] Earlier models included job tenure measured in weeks for the most recent job and the cumulative number of weeks spent in the labor force since age 14 as additional measures of economic stability, however, they did not change any of the substantive results so they were removed in the final runs.

proportion of youth who transition to cohabitation or marriage prior to age 25 by debt holdings. Consistent with prior research, both men and women transition to first cohabitation to a larger extent than directly to marriage in early adulthood. Women who hold non-zero credit debt transition to both unions at a greater rate than those without, whereas those with education loan cohabit and marry at lower rates.

Women with credit debt also hold more education loans, but the value of the loans is not statistically different than women without credit debt. With regards to family background, young women with no credit debt tend come from households with married parents at age 14 and have fathers with more education. They are more likely to hold high school degrees, be enrolled in two-degree programs, and be currently employed fulltime. Women with education debt also have more credit debt; their parents have more education than women without education loans, and are non-Hispanic. They are currently enrolled in either a two or four degree programs, have fewer children, and are not working full-time to the same degree. Female debt holders are more likely to report negative net worth and have access to some form of banking account.

Similar to women, male credit holders transition to both unions at higher rate that those without debt and men with education loans to a lesser degree than men with no loans. Male credit holders also have less education loans, on average, that those without. The patterns for the additional covariates are pretty similar to women, with the exception of demographic characteristics, which indicates that black men are less likely to have both credit debt and education loans and that the concentration of education loan holders do not reside in the South.

As previously mentioned in the empirical specification section, the hazard rates estimate the probability a young adult transitions into a cohabitation or marriage at a particular age.

Figure 1 plots the hazard rates of transitioning to cohabitation, and marriage by age and gender. At every age, both men and women have a greater hazard of cohabiting than marrying and women are more likely to both cohabit and marry at earlier ages. The hazard rates for marriage are low and exhibit a slow and steady increase over the study period, until the very end when they peak at age 29 for both women and men.

**Analytic Framework**

Similar to previous studies analyzing relationship transitions, in particular when the duration of the initial spell is taken into account, discrete-time duration or hazard rate models are estimated. This modeling technique is preferable in that it allows for both time varying and invariant regressors in the estimation. For binary dependent variables, such as transitioning into any union, logistic regression models are estimated and for the competing risks models, multinomial logistic regressions. To estimate the role of early debt holdings while controlling for the other covariates on transitioning to cohabitation and marriage in early adulthood, hazard function estimates are generated using maximum likelihood (Allison, 1984). Given the outcome can be one of two events, cohabitation or marriage, the hazard rates estimated here represent the conditional probability that a youth will transition out of singlehood into a coresidential union, given the other event has not occurred. Standard errors are clustered at the individual levels using the robust method (Huber, 1967), which assumes that observations are independent across individuals and not within.

The final dataset is arranged in a person-year format, with each young adult contributing an observation for each survey year they remain single until they transition to their first union, with all observations after transitioning are censored. It is possible that the union chosen in early

adulthood influences a youth's debt level and debt type. Therefore for this analysis only first unions are analyzed to prevent reverse casualty.

It is, however, possible that there are omitted characteristics influencing a young adult's debt behavior and relationship formation decision not included in the model. If this is so, then the estimated coefficients from the hazard model regressions as currently specified are correlated with the error term, i.e. biased. For example, survey evidence suggest that among college students, women, blacks, and black women hold credit cards debt in higher percentages than other demographic groups (Lyons, 2008). Black women are also a demographic group whose rates of cohabitation and marriage in young adulthood trail both whites and Hispanic women (Addo, 2011). Therefore, they may be some unobserved characteristic not included in the model that could potentially bias the credit debt coefficients towards zero for black women. To address this concern, sensitivity analyses are performed to attest to the robustness of the estimates. Additionally, predicted measures of credit debt and education loan debt are estimated and are used as instruments to replace the original debt levels. Family background and time invariant demographic characteristics from the full model are used as predictors in addition to whether the parents have a bank account and any outstanding credit debt of their own for the credit debt estimations, and whether the parent owns a home or holds a retirement funds for predicting the education loan.

**Multivariate Analysis**

In the interest of parsimony, the results for family background and demographic controls are not presented here. The estimated coefficients across all specifications reveal that black women are less like to transition to either union, Hispanic women have a lower probability of

cohabiting, and having a child is positively associated with transitioning into cohabitation. Maternal education positively impacts cohabitation, but paternal education is negatively related to cohabitation. For men, similar to the women black men are also less likely to transition to both unions, and Hispanic men less likely to cohabit. Being raised in a rural area increases the chances of marriage, and currently residing in a rural area decreases cohabitation. Men who report having a child are also more likely to cohabit and marry than remain single.

Table 2 presents the coefficient estimates for the logistic and multinomial competing risk models for the measures of financial and economic stability including educational attainment, current enrollment status, labor market characteristics, and the debt measures. Two models are presented, the first model includes all the controls from the full specification without the debt measures, and the second adds in the debt measures. Starting in the first column for women we see that prior to the addition of the debt measures, enrollment in any 2 or 4-year degree program is associated with a decreased chance of transitioning to a first union, while full-time employment increases the probability. With the addition of the debt measures, the chances of transiting to any union becomes weakly significant for women with bachelor degrees. Transitioning is positive and significantly related to holding credit debt; education loans debt is also positive, but not significant.

Moving across the columns to the competing risk models, interesting patterns emerge. In the first specification there appears to be a positive education gradient with regards to marriage, with the more education women more likely to transition into marriage, although those with some college have a slight advantage over the bachelor degree holders. Not only are they more likely to marry than stay single, they are also more likely to marry than cohabit. Current enrollment in a 2 and 4 year degree deters cohabitation, and 4 year college enrollment decreases

the probability of marriage. For the women in the sample, post-secondary enrollment decreases cohabitation and marriage for 4-year enrollees, but the likelihood of marriage increases with educational attainment. Additionally, women who report holding full-time jobs are also more likely to transition both union types. With the debt measures added to the model, (2) not the coefficients are not significantly altered from the first specification. The competing risks models reveal cohabitation as the preferred relationship choice for women with positive credit debt relative to remaining single and women with education loan debt are less likely to transition to a first marriage. In additional runs that flipped the reference category from unenrolled to 2-year enrollment, the estimates revealed that 4-year college enrollees are significantly less likely to transition to cohabitation and the unenrolled are more likely to cohabit than the junior college attendees. These results are robust to the addition of the debt measures.

For women, debt does appear to operate independently from the other measures of financial and economic stability with regards to transitioning. Women with debt, credit or education loans, are more likely to transition to cohabitation, whereas education loans are a deterrent to marriage. As hypothesized, credit debt is associated with transitioning to any union, not education loans. Credit increases the chances of first cohabitation, but does not decrease the likelihood of marriage as hypothesized. And the results for education loans for women are the complete opposite of what was hypothesized, with credit debt holdings increasing the chances of cohabiting and decreasing the likelihood of marriage.

For the men the educational predictors indicate that transitioning to a first union is positively correlated with educational attainment and current enrollment is negatively associated with transitioning. All of the labor force indicators of positive labor force attachment increase the probability of transitioning. Competing risks models indicate that marriage is positively related

to educational attainment and current enrollment only significantly deters cohabitation. Although not significant relative to remaining single, men enrolled in 4-year degree programs are more likely to transition to marriage over cohabitation. Similar to the women, relative to the 2-year college enrollees, the unenrolled are more likely to transition to first cohabitation and the 4-year enrollees less likely. Full-time employment is valued in both relationship markets, with positive and significant coefficients for both cohabitation and marriage relative to remaining single. Similar to the transitioning to any union model, the addition of the debt measures to the model do not significantly alter the relationships of the other measures of economic stability and earnings potential and the debt measures do not achieve any conventional measures of significance. Compared to women, however, there are several differences. Holding debt in either forms increased a women's chances of transitioning to cohabitation, this relationship is not strong for the men in the sample. And education loans do not decrease the probability of marriage for men, the coefficient is positive as hypothesized, although not significant.

*Relative Debt Earnings*

The results reported in Table 2 entered the debt measures in the model as their logged debt value. Table 3 presents the results when a ratio of debt to predicted earnings is added to the model. The coefficient on this additional variable represents the relationship between the magnitude of the debt to current wage earnings when holding the value of the debt and predicted wage earnings constant and controlling for all the other variables included in the full model. This particular specifications addresses the concern that the absolute value of the debt is not really what is assessed in the relationship market, but rather the relative debt holdings to an individual current and future earnings potential (as measured over the study period). Similar to the financial planning literature, individuals may utilize relative financial measures in addition to

absolute indicators. For women, transitioning to any union is decreasing in the education loan debt to predicted earnings measure, and in comparison to the full model (2) from Table 2 the credit debt measure is no longer significant with the addition of this ratio. The results from the competing risk models indicate that movements into marriage are significantly less likely for women whose credit debt exceed their earnings potential. So whereas the credit debt positively predicts a transition to marriage, when assessed relative to her predicted earnings, the impact is decreased.

For the male sample, we get an opposite relationship from the women, with the education loan to predicted earnings negatively associated with a first transition. The coefficient is only weakly significant, and in the competing risks models none of the coefficients on the ratios are significant despite the magnitude of the coefficients. The addition of the debt ratios for both women and men also does not significantly alter the size and significance of the other predictors of economic stability.

**Robustness-checks/Sensitivity Analysis**

A series of sensitivity analyses were performed to confirm the robustness of the relationships from Table 2. The first included a series of interaction models (see Appendix A for model estimates), that tested whether there exists a education loan and school enrollment effect or a college graduate and education loan effect, none were found for women or men.

Next, education loans received from family and friends and grants/scholarships received for education was substituted for the government and private loans debt value. Given these "gifts" are not constrained by interest rate structures or credit market constraints, especially the grants and scholarships, there should not influence the relationship decision in the same manner

as the government/private loan debt. The coefficient estimates from these runs are presented in Table 4. Interestingly, the estimates suggest “free” money is a potentially larger deterrent for transitioning, especially to marriage than education loans for women. For men, none of the substitute measures are significant, however, there does appear to be a quality difference with scholarship/grant recipients less likely to cohabit and more likely to marry. This is potentially an indicator of selection provided men with demonstrated academic (or athletic) ability are more likely to receive scholarships and grants, or poor who receive scholarships. And while these types of payments for college could be considered “free” money, there may be incentives attached to the receipt that may also be correlated with union formation. Therefore, the next robustness check is performed.

The third panel lists the coefficient estimates on the credit debt measure and a control for credit constrained into the full model specification. This is a proxy measure for any youth who reported having no bank accounts. The added controls strengthens the magnitude of the credit debt coefficient for both women and men, and for men who are potentially credit constrained they are more likely to transition into cohabitation. This suggest that both men with credit and men with no credit are more likely to transition to first cohabitation than stay single over the course of the study period.

**Discussion and Conclusion**

Results suggest that early union formation timing and transition type decisions are still very much related to educational and economic indicators especially within this recent cohort of young adults. With the addition of the credit and education loan debt, the analyses indicates that the accumulation of credit card debt is far less of a barrier to those entering into cohabiting

unions than marital ones and educational loan debt negatively impact the entrance into marital unions for females. The results also suggest women whose credit debt exceeds their predicted wage earnings are least likely to transition into marriage. Additionally, in accordance with previous studies that have examined schooling enrollment in the transition to marriage and found negative associations for men (Oppenheimer et al, 1997; Hogan, 1978), this study also finds a negative relationship for transitioning into both cohabitation and marriage for women and men. Transitioning to first marriage is positively related with educational attainment for both sexes, and relative to those without a high school degree, men with more education are more likely to marry than cohabit or stay single. These results are very much in line with Oppenheimer's theory on marital timing (1988) that current trends in the marriage market reflect labor market fluctuations, which has seen the rewards to high-skilled men increased disproportionately in size to the low-skill sector's wages. Not only are these men winning in the job market, but they are also winning in the marriage market. The returns for women should not be discounted, however, with transitioning to marriage also positively associated with greater educational attainment; although they are more likely to pay a penalty for their education loan debt, whereas the men do not.

This study presents evidence, similar to previous studies that economic resources do matter for relationship formation. And debt holdings, an increasing significant asset in many young adults' asset portfolios should be considered as a factor in union formation decisions during this point in the life course. As with any study there are few limitations. Debt is a stock quantity, meaning that it is measured at a specific point in time. It is difficult to ascertain from the questioning how long it took the young adult to accumulate the debt recorded at the time of the survey and how long it will take them to pay it off. Additionally, aside for my proxy variable

for being unbanked, I was not able to test for actual credit access, whether a youth was credit constrained as it is not explicitly asked until later interviews, so the results presented reflect credit utilization. There are also studies from the economics of education literature that suggest access to financial aid for post-secondary schooling is not a constraint for enrollment (Carneiro & Heckman, 2002; Stinebrickner & Stinebrickner, 2008).

Consumer advocates are not the only people concerned about the mounting debt households have accumulated over the last three decades. In 2005, Congress passed the Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) to make it more difficult for consumers to file bankruptcy after going concerns that households were using bankruptcy to get rid of large amounts of outstanding debt (White, 2007). More recently, in February 2009 during the midst of the great recession, the U.S. Congress passed the Credit Card Accountability Responsibility and Disclosure (CARD) Act to target the perceived predatory practices of credit companies. The new law outlined guidelines specifically aimed at young adults such as restricting credit access for persons under age 21 and requiring they have cosigners raise credit limits or proof of independent income.

While those policies were enacted at the federal level and targeted consumer credit debt, on a smaller scale there has also be action to taken to reduce the education loan burden in young adulthood. Not only in the credit market have there been changes directed at reducing the accumulation of a heavy debt burden. Specifically targeted at college-attendees, several private colleges and universities have switched the terms of their financial aid structures to reduce the loan burden of students and their families upon completion (Hardy, Synder, & Boccella, 2007;

Porter, 2007). There have also been several calls from policy groups, politicians[9], and young adults for the federal government to forgive outstanding student loan debt given the difficulty millennials have had securing employment since the recession, and many believe they are not getting the expected return from their investment economically. This study is effort to understand the implications of debt accumulation in young adults' relationship decisions. The last wave of data was gathered in 2009, so too early to assess the long-term cohabitation and marriage market impacts of the credit contractions, decreases in savings, high rates of unemployment and under-employment a majority of American households have had to endure as a result of the Great Recession. This is, however, the first recession this cohort of youth has had to live through in adulthood. It will be interesting to follow them through the next decade and compare their continued relationship progression now that they have aged into period of credit contractions from an expansionary one.

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[9] Rep. Hansen Clarke (D-MI) currently has an online petition to encourage U.S. congress and the President to forgive student loans as a means of economic stimulus; http://signon.org/sign/want-a-real-economic.fb1?source=s.fb&r_by=621372

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Table 1. Descriptive Statistics for Model Variables, by Debt Holdings and Sex

| | Women | | | | | | Men | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Credit Debt | | | Education Loan Debt | | | Credit Debt | | | Education Loan Debt | | |
| | Yes | No | | Yes | No | | Yes | No | | Yes | No | |
| Transition to Cohabitation | 0.170 | 0.094 | *** | 0.085 | 0.133 | *** | 0.119 | 0.070 | *** | 0.042 | 0.091 | *** |
| Transition to Marriage | 0.053 | 0.027 | *** | 0.023 | 0.041 | ** | 0.035 | 0.019 | *** | 0.004 | 0.027 | *** |
| **Credit/Bank Debt** | | | | | | | | | | | | |
| Holds Debt | 1.000 | -- | | 0.364 | 0.268 | *** | 1.000 | -- | | 0.224 | 0.228 | |
| Outstanding Value ($) | 2013.75 | -- | | 647.00 | 588.29 | | 2143.44 | -- | | 343.77 | 531.27 | |
| **Government/Private Loan Debt** | | | | | | | | | | | | |
| Hold education loan debt | 0.429 | 0.325 | *** | 1.000 | -- | | 0.232 | 0.237 | | 1.000 | -- | |
| Education Loan Debt ($) | 4625.40 | 3622.97 | | 11152.70 | -- | | 1870.37 | 2860.69 | ** | 11640.60 | -- | |
| Relative Debt Measures | | | | | | | | | | | | |
| Credit/bank Debt to Predicted Earnings | 0.751 | -- | | 0.279 | 0.201 | *** | 0.731 | -- | | 0.170 | 0.165 | |
| Government/Private Education Loan Debt to Predicted Earnings | 0.386 | 0.287 | *** | 0.946 | -- | | 0.202 | 0.196 | | 0.932 | -- | |
| **Family Background*** | | | | | | | | | | | | |
| Lived in South at 12 | 0.317 | 0.352 | * | 0.315 | 0.355 | ** | 0.305 | 0.345 | ** | 0.272 | 0.353 | *** |
| Lived in rural area at 12 | 0.251 | 0.252 | | 0.276 | 0.239 | * | 0.237 | 0.244 | | 0.248 | 0.241 | |
| Both parents married at 14 | 0.749 | 0.788 | ** | 0.786 | 0.771 | | 0.727 | 0.762 | * | 0.809 | 0.739 | *** |
| Maternal Education | 12.951 | 13.258 | | 13.574 | 12.960 | *** | 12.752 | 13.015 | ** | 13.823 | 12.723 | *** |
| Paternal Education | 12.963 | 13.309 | *** | 13.629 | 12.991 | *** | 12.702 | 12.984 | ** | 13.945 | 12.646 | *** |
| Negative Parental Net Worth in 1997 | 0.063 | 0.045 | | 0.041 | 0.055 | | 0.077 | 0.047 | *** | 0.047 | 0.056 | |
| **Demographic Characteristics*** | | | | | | | | | | | | |
| Black | 0.174 | 0.177 | | 0.164 | 0.182 | | 0.122 | 0.166 | *** | 0.125 | 0.164 | *** |
| Hispanic | 0.104 | 0.113 | | 0.077 | 0.127 | *** | 0.141 | 0.131 | | 0.078 | 0.149 | |
| Mixed Race | 0.012 | 0.014 | | 0.010 | 0.015 | | 0.010 | 0.013 | | 0.015 | 0.011 | |
| Lives in rural area | 0.208 | 0.251 | ** | 0.259 | 0.228 | * | 0.231 | 0.254 | | 0.241 | 0.250 | |
| Lives in the South | 0.324 | 0.353 | | 0.317 | 0.359 | ** | 0.316 | 0.350 | * | 0.265 | 0.363 | *** |
| **Education/Labor Market Characteristics*** | | | | | | | | | | | | |
| High School Degree | 0.883 | 0.854 | ** | 0.950 | 0.819 | *** | 0.818 | 0.767 | *** | 0.945 | 0.734 | *** |
| Some College | 0.023 | 0.019 | | 0.029 | 0.016 | ** | 0.016 | 0.012 | | 0.025 | 0.010 | *** |
| Bachelors or more | 0.009 | 0.007 | | 0.010 | 0.007 | | 0.005 | 0.004 | | 0.008 | 0.003 | * |
| Have a child | 0.122 | 0.138 | | 0.040 | 0.180 | *** | 0.062 | 0.051 | | 0.008 | 0.066 | *** |
| Enrolled in 2-year program | 0.223 | 0.166 | *** | 0.162 | 0.194 | ** | 0.190 | 0.143 | *** | 0.182 | 0.146 | ** |
| Enrolled in 4-year program | 0.447 | 0.496 | ** | 0.780 | 0.331 | *** | 0.258 | 0.331 | *** | 0.734 | 0.202 | *** |
| Predicted Annual Earnings (logged) | 8.904 | 8.880 | *** | 8.866 | 8.898 | *** | 9.075 | 9.037 | *** | 8.972 | 9.066 | *** |
| Full-time employment | 0.210 | 0.132 | *** | 0.073 | 0.197 | *** | 0.297 | 0.197 | *** | 0.116 | 0.248 | *** |
| **Additional Financial Characteristics** | | | | | | | | | | | | |
| Negative Net Worth at 20 | 0.202 | 0.057 | *** | 0.212 | 0.045 | *** | 0.134 | 0.032 | *** | 0.135 | 0.034 | *** |
| No checking/savings account at 20 | 0.000 | 0.353 | *** | 0.156 | 0.292 | *** | 0.000 | 0.431 | *** | 0.203 | 0.368 | *** |
| N | 895 | 2,130 | | 953 | 2,072 | | 820 | 2,924 | | 726 | 3,018 | |

*All Dollar Values in 2008; Measured at baseline; *** p<0.01, ** p<0.05, * p<0.10

**Figure 1. Hazard Rates of Transitioning to First Cohabitation and First Marriage, by age**

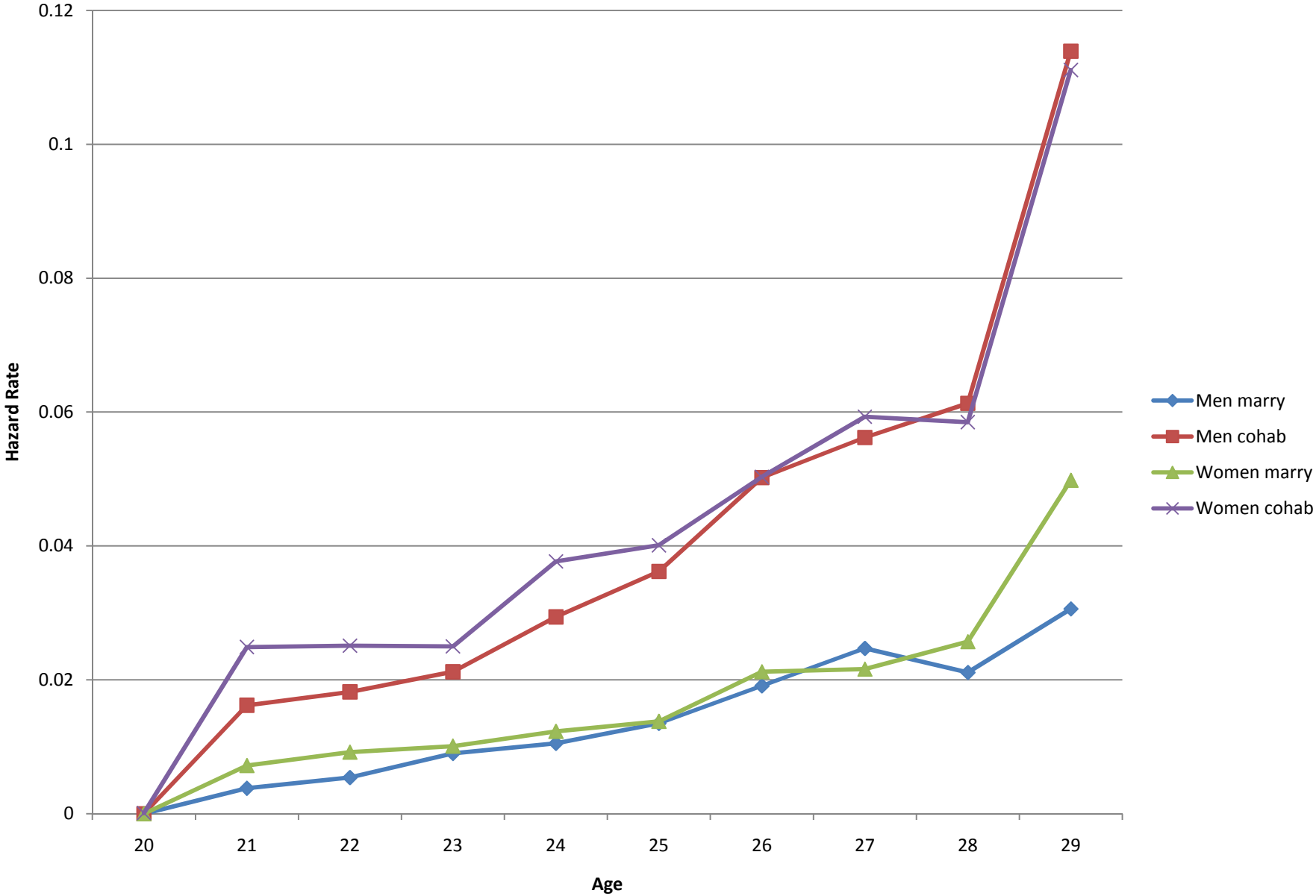

**Table 2. Logistic and Multinomial Regression Estimates of Transitioning to First Union**

| | Women | | | | | | Men | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Any Union | | Cohabitation | Marriage | Cohabitation | Marriage | Any Union | | Cohabitation | Marriage | Cohabitation | Marriage |
| | | | versus Remaining Single | | versus Remaining Single | | | | versus Remaining Single | | versus Remaining Single | |
| VARIABLES | (1) | (2) | (1) | | (2) | | (1) | (2) | (1) | | (2) | |
| **Educational Attainment(ref: High School)** | | | | | | | | | | | | |
| Less than High School | 0.029 | 0.040 | 0.166 | -0.673** | 0.186 | -0.694*** | -0.006 | -0.015 | 0.078 | -0.466** | 0.079 | -0.503** |
| | [0.099] | [0.100] | [0.105] | [0.229] | [0.106] | [0.228] | [0.077] | [0.077] | [0.085] | [0.164] | [0.085] | [0.163] |
| Some College | 0.256* | 0.266* | 0.085 | 0.726*** | 0.092 | 0.744*** | 0.135 | 0.153 | 0.031 | 0.410 | 0.021 | 0.487* |
| | [0.135] | [0.135] | [0.170] | [0.221] | [0.171] | [0.223] | [0.129] | [0.130] | [0.144] | [0.243] | [0.145] | [0.245] |
| Bachelors or more | 0.299*** | 0.345*** | 0.220** | 0.561** | 0.261** | 0.620*** | 0.250*** | 0.303*** | 0.148 | 0.513** | 0.155 | 0.685*** |
| | [0.085] | [0.087] | [0.089] | [0.194] | [0.091] | [0.206] | [0.086] | [0.089] | [0.103] | [0.170] | [0.107] | [0.177] |
| **Enrollment Status(ref: Unenrolled)** | | | | | | | | | | | | |
| Enrolled-2-year Program | -0.225** | -0.230** | -0.209* | -0.289 | -0.222** | -0.273 | -0.347*** | -0.338*** | -0.380*** | -0.233 | -0.384*** | -0.205 |
| | [0.089] | [0.090] | [0.100] | [0.174] | [0.100] | [0.174] | [0.095] | [0.096] | [0.106] | [0.198] | [0.106] | [0.199] |
| Enrolled-4-year Program | -0.558*** | -0.553*** | -0.563*** | -0.545*** | -0.581*** | -0.466*** | -0.614*** | -0.594*** | -0.751*** | -0.233 | -0.770*** | -0.133 |
| | [0.069] | [0.073] | [0.079] | [0.134] | [0.083] | [0.138] | [0.077] | [0.081] | [0.090] | [0.145] | [0.096] | [0.148] |
| **Labor Market Characteristics** | | | | | | | | | | | | |
| Predicted Wage Earnings | -0.042 | -0.048 | 0.009 | -0.177 | 0.006 | -0.19 | 0.430** | 0.432** | 0.421 | 0.507 | 0.428 | 0.485 |
| | [0.079] | [0.082] | [0.101] | [0.129] | [0.105] | [0.126] | [0.165] | [0.165] | [0.239] | [0.498] | [0.240] | [0.493] |
| Full-time Employment | 0.315*** | 0.294*** | 0.328*** | 0.270** | 0.307*** | 0.251** | 0.270*** | 0.269*** | 0.273*** | 0.256* | 0.273*** | 0.249* |
| | [0.062] | [0.063] | [0.070] | [0.116] | [0.070] | [0.116] | [0.053] | [0.054] | [0.059] | [0.111] | [0.059] | [0.111] |
| **Debt Measures** | | | | | | | | | | | | |
| Credit/bank Debt | | 0.035*** | | | 0.040*** | 0.019 | | 0.007 | | | 0.003 | 0.021 |
| | | [0.009] | | | [0.010] | [0.017] | | [0.009] | | | [0.010] | [0.018] |
| Government/Private Education Loan Debt | | 0.017 | | | 0.037** | -0.045* | | 0.021 | | | 0.024 | 0.011 |
| | | [0.012] | | | [0.013] | [0.022] | | [0.013] | | | [0.014] | [0.027] |
| Number of Person-Years | 14,671 | 14,671 | 14,671 | | 14,671 | | 19,360 | 19,360 | 19,360 | | 19,360 | |

Notes: Standard errors in brackets; Additional controls include race, ethnicitiy, maternal and paternal education, rural/urban at age 12, parent's marital status at 14, parent's net worth, current rural/urban area, have a child age, age squared, and birth year dummies; *** p<0.01, ** p<0.05, * p<0.10; underlines denote statistically signficant difference between cohabitation and marriage at p<0.05

**Table 3. Logistic and Multinomial Regression Estimates of Transitioning to First Union with Relative Debt Measures**

| | Women | | | Men | | |
|---|---|---|---|---|---|---|
| | **Any Union** | **Cohabitation** | **Marriage** | **Any Union** | **Cohabitation** | **Marriage** |
| | | versus Remaining Single | | | versus Remaining Single | |
| VARIABLES | | | | | | |
| Credit/bank Debt to Predicted Earnings | -0.488 | 2.047 | -8.807* | -3.252 | -3.378 | -2.703 |
| | [1.712] | [1.680] | [4.649] | [2.710] | [2.279] | [5.774] |
| Government/Private Education Loan Debt to Predicted Earnings | -1.449 | -4.140 | 8.680 | -10.321** | -9.813* | -12.164 |
| | [3.511] | [3.666] | [5.709] | [4.068] | [4.421] | [8.570] |
| Credit/bank Debt | 0.090 | -0.189 | 1.000* | 0.362 | 0.372 | 0.313 |
| | [0.189] | [0.186] | [0.513] | [0.293] | [0.247] | [0.625] |
| Government/Private Education Loan Debt | 0.178 | 0.496 | -1.002 | 1.153** | 1.101* | 1.343 |
| | [0.390] | [0.407] | [0.632] | [0.445] | [0.484] | [0.936] |
| Predicted Wage Earnings | -0.074 | -0.032 | -0.104 | 0.503** | 0.500* | 0.565 |
| | [0.079] | [0.101] | [0.140] | [0.195] | [0.208] | [0.369] |
| Enrollment Status(ref: Unenrolled) | | | | | | |
| Enrolled-2-year Program | 0.231** | 0.222** | 0.264 | 0.355*** | 0.404*** | 0.208 |
| | [0.090] | [0.100] | [0.175] | [0.095] | [0.105] | [0.198] |
| Enrolled-4-year Program | -0.320*** | -0.349*** | -0.222 | -0.262** | -0.390** | 0.065 |
| | [0.094] | [0.106] | [0.179] | [0.109] | [0.125] | [0.212] |
| Educational Attainment(ref: High School) | | | | | | |
| Less than High School Degree | 0.037 | 0.174 | -0.657** | 0.014 | 0.111 | -0.495** |
| | [0.103] | [0.109] | [0.230] | [0.078] | [0.081] | [0.175] |
| Some College | 0.260* | 0.098 | 0.695*** | 0.217 | 0.088 | 0.550* |
| | [0.134] | [0.157] | [0.225] | [0.141] | [0.162] | [0.243] |
| Bachelors or more | 0.354*** | 0.261** | 0.662*** | 0.268** | 0.11 | 0.682*** |
| | [0.089] | [0.100] | [0.171] | [0.092] | [0.116] | [0.163] |
| Full-time Employment | 0.293*** | 0.312*** | 0.225* | 0.266*** | 0.269*** | 0.248* |
| | [0.062] | [0.070] | [0.115] | [0.054] | [0.059] | [0.111] |
| R-squared | 0.131 | 0.144 | | 0.269 | 0.295 | |
| Number of Person-Years | 14,671 | 14,671 | | 19,360 | 19,360 | |

Notes: Standard errors in brackets; Additional controls include race/ethnicitiy, parent's education, rural/urban at age 12, parents marital status at 14, parents net worth, current rural/urban area, have a child; *** p<0.01, ** p<0.05, * p<0.10; underlines denote statistically signficant difference between cohabitation and marriage at p<0.05

**Table 4. Additional Models replacing Government/Private Debt with Loans from Family and Friends and Grants/Scholarships; Modeling Adding credit constraint proxy**

| | Women | | | Men | | |
|---|---|---|---|---|---|---|
| | **Any Union** | **Cohabitation** | **Marriage** | **Any Union** | **Cohabitation** | **Marriage** |
| | | versus Remaining Single | | | versus Remaining Single | |
| A. | | | | | | |
| Family/Friends Loan | -0.019 | -0.028 | 0.009 | 0.008 | 0.005 | 0.019 |
| | [0.015] | [0.017] | [0.028] | [0.018] | [0.020] | [0.042] |
| B. | | | | | | |
| Grants/Scholarships | -0.038* | -0.022 | -0.099*** | -0.016 | -0.03 | 0.021 |
| | [0.019] | [0.021] | [0.029] | [0.024] | [0.028] | [0.046] |
| C. | | | | | | |
| Credit/bank Debt | 0.040*** | 0.049*** | 0.009 | 0.013 | 0.014 | 0.011 |
| | [0.010] | [0.011] | [0.019] | [0.010] | [0.011] | [0.020] |
| No Bank Account | 0.102 | 0.192** | -0.227 | 0.114 | 0.197** | -0.229$^{+}$ |
| | [0.076] | [0.085] | [0.160] | [0.069] | [0.078] | [0.150] |
| | 14,671 | 14,671 | | 19,360 | 19,360 | |

Notes: Standard errors in brackets; Additional controls include race/ethnicitiy, parent's education, rural/urban at age 12, parents marital status at 14, parents net worth, current rural/urban area, have a child; *** p<0.01, ** p<0.05, * p<0.10;underlines denote statistically signficant difference between cohabitation and marriage at p<0.05

**Appendix A. Interaction Models of Education Loan Debt with Current Enrollment and College Graduate**

| | Women | | | | | | Men | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VARIABLES** | **Any Union** | **Any Union** | **Cohabitation** versus Remaining Single | **Marriage** versus Remaining Single | **Cohabitation** versus Remaining Single | **Marriage** versus Remaining Single | **Any Union** | **Any Union** | **Cohabitation** versus Remaining Single | **Marriage** versus Remaining Single | **Cohabitation** versus Remaining Single | **Marriage** versus Remaining Single |
| | **(1)** | **(2)** | **(1)** | | **(2)** | | **(1)** | **(2)** | **(1)** | | **(2)** | |
| Credit/bank Debt | 0.035*** | 0.035*** | 0.040*** | 0.020 | 0.040*** | 0.019 | 0.008 | 0.008 | 0.003 | 0.022 | 0.004 | 0.022 |
| | [0.009] | [0.009] | [0.010] | [0.017] | [0.010] | [0.017] | [0.009] | [0.009] | [0.010] | [0.018] | [0.010] | [0.018] |
| Government/Private Education Loan Debt | 0.022 | 0.016 | 0.041** | -0.038 | 0.037** | -0.052* | 0.018 | 0.031** | 0.019 | 0.009 | 0.033* | 0.020 |
| | [0.014] | [0.014] | [0.015] | [0.027] | [0.015] | [0.029] | [0.015] | [0.015] | [0.016] | [0.032] | [0.016] | [0.032] |
| Educational Attainment(ref: Less than High School) | | | | | | | | | | | | |
| High School Degree | 0.046 | 0.041 | 0.188* | -0.677*** | 0.184 | -0.685*** | 0.010 | 0.016 | 0.103 | -0.476** | 0.110 | -0.472** |
| | [0.100] | [0.100] | [0.105] | [0.227] | [0.105] | [0.228] | [0.076] | [0.076] | [0.084] | [0.163] | [0.084] | [0.163] |
| Some College | 0.252* | 0.264* | 0.076 | 0.735*** | 0.088 | 0.741*** | 0.154 | 0.137 | 0.015 | 0.532* | 0.003 | 0.488* |
| | [0.136] | [0.136] | [0.171] | [0.224] | [0.171] | [0.223] | [0.131] | [0.131] | [0.145] | [0.246] | [0.146] | [0.249] |
| Bachelors or more | 0.332*** | 0.334*** | 0.252** | 0.596*** | 0.259** | 0.566** | 0.267*** | 0.320*** | 0.115 | 0.672*** | 0.162 | 0.703*** |
| | [0.087] | [0.105] | [0.093] | [0.200] | [0.113] | [0.235] | [0.088] | [0.101] | [0.108] | [0.177] | [0.116] | [0.181] |
| Enrollment Status(ref: Unenrolled) | | | | | | | | | | | | |
| Enrolled-2-year Program | -0.275** | -0.233** | -0.279** | -0.273 | -0.226** | -0.267 | -0.358*** | -0.357*** | -0.451*** | -0.066 | -0.408*** | -0.205 |
| | [0.102] | [0.090] | [0.115] | [0.192] | [0.100] | [0.174] | [0.105] | [0.096] | [0.119] | [0.201] | [0.106] | [0.200] |
| Enrolled-4-year Program | -0.496*** | -0.551*** | -0.516*** | -0.438** | -0.576*** | -0.468*** | -0.664*** | -0.642*** | -0.834*** | -0.241 | -0.821*** | -0.157 |
| | [0.087] | [0.073] | [0.101] | [0.159] | [0.083] | [0.139] | [0.098] | [0.081] | [0.118] | [0.173] | [0.097] | [0.149] |
| Labor Market Characteristics | | | | | | | | | | | | |
| Predicted Wage Earnings | -0.042 | -0.042 | 0.012 | -0.188 | 0.012 | -0.186 | 0.532*** | 0.534*** | 0.528* | 0.569 | 0.529* | 0.572 |
| | [0.084] | [0.083] | [0.106] | [0.129] | [0.106] | [0.128] | [0.167] | [0.167] | [0.245] | [0.497] | [0.246] | [0.499] |
| Full-time Employment | 0.297*** | 0.297*** | 0.310*** | 0.253** | 0.309*** | 0.254** | 0.272*** | 0.272*** | 0.277*** | 0.251* | 0.275*** | 0.252* |
| | [0.063] | [0.063] | [0.070] | [0.116] | [0.070] | [0.116] | [0.054] | [0.054] | [0.059] | [0.111] | [0.059] | [0.111] |
| Interactions | | | | | | | | | | | | |
| 2-yr program X Education Loan | 0.017 | | 0.021 | -0.002 | | | 0.006 | | 0.029 | -0.241+ | | |
| | [0.023] | | [0.025] | [0.048] | | | [0.026] | | [0.027] | [0.128] | | |
| 4-yr program X Education Loan | -0.016 | | -0.015 | -0.015 | | | 0.012 | | 0.011 | 0.031 | | |
| | [0.015] | | [0.017] | [0.031] | | | [0.019] | | [0.022] | [0.036] | | |
| Bachelors X Education Loan | | 0.002 | | | 0.000 | 0.013 | | -0.021 | | | -0.020 | -0.015 |
| | | [0.017] | | | [0.018] | [0.034] | | [0.019] | | | [0.022] | [0.037] |
| Number of Person-Years | 14,671 | 14,671 | 14,671 | | 14,671 | | 19,360 | 19,360 | 19,360 | | 19,360 | |

Notes: Standard errors in brackets; Additional controls include race, ethnicity, parent's education, census and rural/urban at age 12, parent's marital status at 14, parent's net worth, current region and rural/urban area, have a child, net worth at 20, and holds bank account at 20; *** p<0.01, ** p<0.05, * p<0.10; + Significantly different from cohabitation at p<0.10