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Debt and College Students' Life Transitions: The Effect of Educational Debt on Career Choice in America

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This study reviewed the literature to investigate the impact of student loans on career choices, in order to provide implications for policy makers and researchers with respect to student loan policy. For this purpose, empirical studies in peer reviewed journals since 1985 were analyzed. This review explored the results of empirical studies regarding the relationship between debt and career choice in three areas: 1) general career choice, 2) specialty choice in particular fields such as law and medical school, and 3) the decision to pursue an advanced degree. The results suggest that educational debt generally has no clear negative effect on career choice. Nonetheless, the possibility that educational debt could decrease social equality and generate market distortion was suggested. Finally, this article discussed five main factors in need of more thorough investigation: 1) new data sets, 2) psychological variables associated with career choice, 3) methods, 4) a specific group, such as minorities, lower class families, and women, and 5) the characteristics of loan programs.

Key Words: *Student loans, educational debt, job decision, specialty choice, the decision to pursue an advanced degree*

Over the past twenty years, federal student financial aid policy in America has experienced a paradigm shift from a grant to a loan-based approach (Hearn, 2001; Simons, 2008). This change resulted in a significant increase in education debt for students and their families. As of 2012, the outstanding educational debts have exceeded 1 trillion dollars according to the Consumer Financial Protection Bureau's estimation. Moreover, student loan balances surpassed credit debt beginning in 2012 (The Federal Reserve Bank of New York, 2012). On average, graduates borrowed \$26,600 after their graduation in 2011 (the Institute for College Access & Success, 2011).

Despite this high level of educational debt, a large contingent of students continues to be willing to enter college, invest in their educational growth, and obtain higher degrees. These students seem to believe that a college degree will enhance their career choices enough to outweigh threatening amounts of debt. According to a study (Baum & O'Malley, 2003) that analyzed the National Student Loan Survey (NASLS), 59% of

students perceived their loans to be worthwhile investments for career opportunities; 72% likewise thought the loans were worth the cost due to the opportunity for personal growth through education. Also, 70% of participants said that loans were extremely important in allowing them to pursue postsecondary education at all. That is, students are likely to treat their education as an investment worth going into debt to pay for because they believe that the benefits of loans outweigh their debt burdens.

Recently, however, concerns regarding the negative effects of debt on college students' life transitions after graduation have been raised (Baum, 2003; Heller, 2008; Price, 2004). In the 2002 NASLS, 17% of students reported that student loans significantly changed their career plans, up from 11% in 1987. Also their perception toward benefits of loans outweighing the disadvantages decreased from 74% in 1991 to 59% in 2002 (Baum & O'Malley, 2003). Such changes show that debt burdens could potentially constrain students' career options. Although student loan programs increase access to higher education, they may force students to choose high-paying jobs when they graduate from college and forego their dream jobs (Minicozzi, 2005; Rothstein & Rouse, 2011). Indebtedness may also deter students from entering lower-paying public service sector jobs and from pursuing graduate programs, since further studies may require additional debt (Chambers, 1992; Colquitt, Zeh, Killian, & Cultice, 1996; Rosenthal, Marquette, & Diamond, 1996; Woodworth, Chang, Helmer, Lang, & Klimberg, 2000).

As educational debt burden in higher education has been steadily increased since the 1980s, a number of studies have been conducted in the context of career choice. Unfortunately, the literature related to the effect of loans on students' transition after college has not been synthetically reviewed. Studies related to the effect of debt on students in higher education has been mainly conducted in three streams; 1) students' access to higher institutions, 2) students' success in college, such as persistence, dropout, and academic performance, and 3) students' life after graduation, such as their entrance to labor markets and their loan default situations. Recently, among these issues above, scholars reviewed a wide range of literature about the loan effect on access and success in higher education, and literature analyzing loan default (see Dowd, 2008; Gross, Cekic, Hossler, & Hillman, 2009). Dowd (2008) thoroughly examined previous studies about the impact of loans on student enrollment, including factors related to students' life during college. Gross et al. (2009) reviewed the predictors of student loan default, such as the demographics of students, the characteristics of institutions they attend, their college experiences, and the types of loans, to understand the present loan default issues. However, although the concern for the effect of debt on career choices has grown in recent years, the study which reviews previous results has not been conducted yet.

Therefore, in order to provide implications for policy makers and researchers with respect to student loan policy, it is important to examine how education debt affects students' career choices after graduation through a synthesis of previous extensive studies. This study was conducted to review the literature in order to investigate the impact of student

loans on career choices. It explores the results of empirical studies regarding the relationship between debt and career choice in three areas: 1) general career choice, 2) specialty choice in particular fields such as law and medical school, and 3) the decision to pursue an advanced degree. This review concludes by providing discussion for future study.

Method

In order to focus the analysis on rigorous studies, this literature review targeted empirical studies in peer-reviewed journals, such as the fields of education, economics, sociology, medicine, and law. ERIC, JSTOR, ProQuest databases, and Google Scholar were used to search for related articles. First, studies which contained the keywords “student loans” and “educational debt,” were chosen. As a next step, searches including the words “career” or “occupational choice,” “job decision,” and “graduation” were considered. This project excluded unpublished dissertations, conference papers, and reports to increase academic rigor. Also, it excluded resources that did not cover directly educational debt issues at the stage after college graduation. After two steps, it begins with 70 articles. At last, 24 articles conducted between 1985 and 2011 were identified for inclusion. Studies using qualitative methods could not be found to meet the criteria above. Additionally, in this review to explore causal relationship between debt and career choice, qualitative research is beyond the scope of this study. Thus, all studies included in this review and that met the criteria above used quantitative methods. Appendix A presents information of these 24 articles.

The Effect of Debt on Career Choice

In this section, the effect of educational debt on career choice was explored in the following three areas: 1) general career choice, 2) specialty choice in particular fields such as law and medical school, and 3) the decision to pursue an advanced degree.

General Career Choice

Some researchers have explored how accumulated undergraduate indebtedness affects the level of income in general occupational fields, although the overall number of studies is limited (Minicozzi, 2005; Price, 2004; Rothstein & Rouse, 2011). One group found that students who have indebtedness are likely to choose high-salary jobs more than low-paid jobs related to public service sectors, even in different samples (Minicozzi, 2005; Rothstein & Rouse, 2011). This propensity is related to students’ debt aversion and the possibility of credit constraints after college life.

Minicozzi (2005) analyzed the career choice of 1,006 men in public and private 2- and 4-year postsecondary institutions, by using national data sets in the 1987 National Postsecondary Student Aid Survey. He found that men with larger debt preferred to take a higher income job than those with less debt, even after when controlling for race, job tenure, and school ranking. Moreover, men tended to sacrifice high-wage income growth to try to quickly decrease debt. As a result, they took jobs with initial high incomes, but low growth rates.

A more recent study conducted by Rothstein & Rouse (2011) also supported this finding. This study is noteworthy in terms of showing the effect of debt on income by using an experimental research design, even though its student samples (total number 8,641) are drawn from just one highly selective university. Since 1998, this targeted university, one of the most selective and expensive colleges in America, has gradually implemented “the No-Loan policy” to reduce tuition burdens of students who are qualified but need financial aid. Using this unique condition, researchers could draw more accurate results by comparing the student cohort receiving financial aid from the “No-Loan policy” to students with loans, using a difference-in-differences (DID) analysis. As a result, students with larger debt are likely to take higher paying jobs immediately after graduation.

Minicozzi and Rothstein & Rouse found the same evidence of debt effect on students’ income, but they approached these findings from different perspectives. They both claim that the burden of educational debt results in students’ preference for high-income jobs in order to avoid borrowing constraints after graduation; thus debt may distort graduates’ job decisions. With respect to this distortion, Minicozzi (2005) raises a question about the efficiency of the loan policy, which could deter students from pursuing occupations associated with their original aspirations. On the other hand, Rothstein & Rouse (2011) claim that this result does not indicate market failure. They suggest that although student loans would saddle students with a debt repayment burden after their graduation it could be the ideal policy because education debt is just a small part of their lifetime earnings.

Not all studies found that higher debt results in higher average earnings. Unlike the two studies above, another study proposed the contrary effect of debt on students’ short-term income, by using student samples of the 1994 and 1997 cohorts in the Baccalaureate & Beyond Longitudinal Survey of 1992-1993 (Price, 2004). Price found that students with an educational debt burden above 8% of their pre-tax monthly incomes are more likely to earn lower average salaries than their peers with debt below 8%. This difference is significant even after controlling for race, ethnicity, economic status, and gender. In addition, students from disadvantaged backgrounds, such as low-income families, as well as Black and Hispanic students, are more likely to face excessive educational debt burdens after college. As a result, their debt burdens make it difficult for them to benefit from their investment in education, at least in terms of making their financial investment translate into high enough salaries after graduation to make the investment worthwhile, compared to White students.

With regard to these inconsistent results in income effect, a closer look is needed at several points. First, a majority of students may have the propensity to look for high-paying jobs today, irrespective of their debt amount. This tendency might be related to the first group’s finding, noting that students with large debt tend to take high-income jobs.

Second, sampling bias should be considered. Student samples taken from the highly selective university from Rothstein & Rouse’s study (2011) may

have enjoyed an ability to take jobs with higher salaries than participants from less competitive colleges; thus this advantage may overestimate the statistical effects of debt on income. Minicozzi (2005) analyzed national data sets, but he only included 1,006 men in 2 and 4-year colleges. The author excluded women, who may have more complicated career decision mechanisms than men as a result of marriage and childbirth. In this sense, it is noteworthy that the study including both men and women, taken from national sample data, shows the results converse to those found by Minicozzi (Price, 2004). Accordingly, gender differences in the effect of debt on job decision mechanisms need further investigation.

In addition, changes in loan policy and students' debt level status may influence the effect of debt on income level (Heller, 2001; Minicozzi, 2005; Price, 2004). The impact of debt after the introduction of an income contingent loan policy of 1993 still remains unexplored. Current radically increasing debt amounts also could intensify market distortion regarding career choice. Therefore, this changing environment around loan situations needs further investigation.

Specialty Choice in Particular Fields Such as Law and Medical School

In specific fields, such as law and medicine, studies regarding the effect of debt on career choices have focused on the possibility that debt will influence students to choose high-paying jobs instead of low-paying public service jobs (Bazzoli, 1985; Chambers, 1992; Colquitt, Zeh, Killian, & Cultice, 1996; Field, 2006; Frank & Feinglass, 1999; Kassebaum, Szenas, & Schuchert, 1996; Kornhauser & Revesz, 1995; McGill, 2006; Miller & Crittenden, 2008; Pathman, Konrad, King, Spaulding, & others, 2008; Rosenthal, Marquette, & Diamond, 1996; Spar, Pryor, & Simon, 1993; Woodworth, Chang, Helmer, Lang, & Klimberg, 2000). In medical fields, the U.S. has faced a shortage of primary care physicians, such as general practitioners, general internal medicine practitioners, and family physicians (Bodenheimer & Pham, 2010; Rabinowitz, Diamond, Markham, & Paynter, 2001). Primary care services are in demand for general social welfare, especially in rural areas, but they are less attractive to students because of low income and poor quality of work life. Like in the medical fields, a strong legal workforce in public interest organizations, government agencies, or courts is necessary to provide legal services for disadvantaged populations. The expensive tuition of law and medical schools tends to incur a high level of indebtedness for students and discourage them to enter public sectors with low-income jobs. Therefore, it is an important issue for these professional fields whether loan programs effectively create social returns to attract participation in public service jobs or whether loan programs deter students from entering these sectors.

One group has reported that indebtedness has no significant influence on students' career decisions to enter the public interest sectors (Bazzoli, 1985; Frank & Feinglass, 1999; Kassebaum, Szenas, & Schuchert, 1996; Kornhauser & Revesz, 1995; McGill, 2006; Spar, Pryor, & Simon, 1993). Other determinants are more significantly related to career choice rather than debt status, such as grades, tuition levels, preferences in a nonprofit

career, rank of schools, and the salary gap among professions (Chambers, 1992; Kornhauser & Revesz, 1995; MacGill, 2006). These studies suggest that students' perceptions about their ability to take jobs in competitive private areas or their personal devotion to social work are more important predictors in career choice.

On the other hand, some researchers have found a significant negative effect of debt on students' job decisions to enter public interest sectors. Students with a high level of debt are more likely to choose high-paying jobs than a particular less well-paying specialty: for example, family practices with low income levels in medical fields, or public interest work in legal fields (Chambers, 1992; Rosenthal, Marquette, & Diamond, 1996; Woodworth, Chang, Helmer, Lang, & Klimberg, 2000; Colquitt, Zeh, Killian, & Cultice, 1996). Debt burdens could drive students away from the family practice specialty, after controlling for related independent factors, such as first-year preference for family practice and income expectation (Rosenthal et al., 1996). This result is related to the propensity that students want to settle their high level of debt by choosing a specialty with high income. Therefore, it is possible that the level of educational debt could decrease the supply of the workforce in public interest sector.

It appears this influence of debt on career choice differs by racial groups (Bazzoli, 1985). With respect to race difference, for example, Bazzoli (1985) found that the high level of debt from subsidized sources, Guaranteed Student Loans (GSL), National Direct Student Loans (NDSL), and Health Professions Student Loans (HPSL), increases the probability of choosing primary care specialties for non-whites, although the coefficient is small. However, the probability of this effect is not significant for whites. The reason for this different choice along lines of race remains unanswered in the above article. The African-American and Hispanic graduates tend to experience more difficulty paying off loans than their White peers (Chambers, 1992). Based on such tendencies, the pressure from subsidized loan programs while paying interest on loans during the residency training may differently influence career decisions according to race. It is possible that non-whites choose a primary care specialty with its shorter residency period to avoid repayment burdens during their residency.

Psychological and socio-cultural factors also seem to influence students' decision to serve public interest sectors. Some researchers point out that students' preference in non-profit public services are positively associated with entrance to these sectors (Kornhauser & Revesz, 1995; Rosenthal et al., 1996). In this point, it is also noteworthy to refer one study about students' behavior after they have made their job decisions. In this survey, family physicians and pediatricians with greater debt, within the same specialty group, reported treating more uninsured patients than those with less debt (Pathman, Konrad, King, Spaulding, & others, 2008). A possible explanation is that doctors coming from low-income families with a lot of debt tend to understand uninsured patients situations and are more likely to have compassion for them. These studies provide an important clue that students' interest about social work, backgrounds, and experiences might affect the relationship between debt and career choice.

In addition, the different types of loan programs could influence career choice (Field, 2006; Miller & Crittenden, 2008; Woodworth et al., 2000). Recently, various loan programs provide 'forgiveness' options to remit debt when students choose to enter social work areas. Debt forgiveness in student loan programs is one of the policies to increase the supply in public sectors. Indeed, a forgiveness policy could encourage students to serve rural areas or enter the primary care specialty (Miller & Crittenden, 2008; Woodworth et al., 2000). Furthermore, psychological intervention in loan programs could lead students to choose social work areas (Field, 2006). Interestingly, despite the same amount of total debt and when given the opportunity to take advantage of a forgiveness policy, students are more likely to choose jobs related to public interest when they more psychologically face the debt burdens from differently designed loan programs. These studies show that career choices for social contribution could be encouraged through various policy designs, providing forgiveness when students enter public interest sectors, as well as using psychological intervention to students.

Decision to Pursue an Advanced Degree

Some students might choose to pursue advanced degrees instead of entering the job market right after graduation. Researchers have paid attention to whether undergraduate debt increases or decreases the probability of enrollment in graduate and professional schools (Baum & Saunders, 1998; Fox, 1992; Heller, 2008; Millett, 2003; Monks, 2001; Schapiro, O'Malley, & Litten, 1991; Weiler, 1991, 1994). The results are, however, inconsistent.

First, a majority of studies found that the level of debt has no significant effect on enrollment in post-baccalaureate schools (Baum & Saunders, 1998; Heller, 2008; Monks, 2001; Schapiro et al., 1991; Weiler, 1991, 1994). The level of debt may have a different effect on the decision to attend a highly selective university or another less competitive college. It is possible that students in prestigious universities are willing to enter graduate schools because such prestigious institutions provide other future career opportunities to them, such as a professor or a researcher, compared to their peers in other colleges. These studies, however, generally achieved the same results, which showed no relationship between debt and post-baccalaureate decision, using student samples from high prestige universities and national data sets.

Rather than debt level, higher grades and majors in a pure field, for example, humanity, natural science, or non-applied social science, are strong determinants of pursuing an advanced degree (Millett, 2003; Schapiro et al., 1991; Weiler, 1994). Most prominently, undergraduate GPA is a powerful indicator of students' decision to enroll in graduate school. Therefore, it appears that students who pursue a doctoral degree consider their ability and interest rather than their debt level. Students also may believe that doctoral degrees will help them gain more money in the future, despite forgone income, irrespective of debt. In addition, in the case of doctorate programs, more financial aid is available than in other types of postsecondary degree programs; thus the level of debt may not be a

significant and strong determinant of decision of enrollment compared to other factors.

However, some researchers showed evidence that educational debt negatively affects students' plans to apply to graduate or professional school (Millett, 2003; Weiler, 1994). Even though educational debt amount and actual enrollment in graduate school has no relationship, students with high debt may be less likely to expect to apply to advanced school. A study using the Baccalaureate and Beyond Longitudinal Study of 1992-1993 found that a high level of debt decreases the odds that students will apply to graduate school (Millett, 2003). Weiler (1994) carried out a thorough study to analyze students' decision-making process about graduate school attendance, using the dataset, High School and Beyond 1984 and 1986. Interestingly, Weiler found that the *expected additional debt* for post-baccalaureate degree decreases students' expectation to apply to graduate school, but no relationship exists between actual amounts of debt and graduate school enrollment. These studies provide an important clue for the reason why other studies failed to capture the significant relationship between debt amount and graduate school enrollment. Based on this finding (Millett, 2003; Weiler, 1994), students with high levels of debt seem to abandon their aspirations to post-baccalaureate education due to additional expected debt. Therefore, studies which explored the relationship between 'actual' debt and 'actual' enrollment might not find the significant effect of debt on students' decision to graduate school.

On the other hand, indebtedness is more likely to support students' decisions to attend doctoral programs. One study showed a very unique result. Fox (1992), using national data of 1987, reported a positive relationship between debt and enrollment in graduate schools. One possible explanation is that doctoral programs provide various grant opportunities to attract students who have aspirations for future study despite their undergraduate debt. It is also possible that, by entering graduate schools, students with a high level of debt want to gain a longer grace period for repayment. This study, however, presents only a statistical relationship revealed on the surface; it did not investigate why this result was drawn from the survey.

The effect of debt differs by attitudes about foregone income. Foregone income has a significant negative effect on students' decisions to pursue master's degrees, but has no effect on doctoral program attendance (Fox, 1992; Weiler, 1991). According to this result, unlike master's students, doctoral students do not seem concerned about levels of debt and immediate foregone income. These findings are related to psychological variables, which have the possibility to mediate the relationships between amounts of debt and career decisions, as mentioned in the above section, "in specific fields."

Also, we need to pay attention to the possibility that minorities, students from lower income families, and women are more vulnerable to the negative effect of debt on post-higher education attendance. African-American and Hispanic students tend to be more indebted than their White peers (Heller, 2008). This propensity could adversely influence their

decision pursuing post-baccalaureate programs. Weiler (1994) also points out that students from lower middle income families, who need loan programs more, are less likely to attend graduate schools. In addition, it is noteworthy that women with high debt are less likely to pursue an advanced degree, although the effect is quite small (Fox, 1992). This tendency might be related to women's different career path due to marriage or childbirth, as Minicozzi (2005) points out in the general income section.

Some researchers pay attention to the importance of students' perception about their own interests, abilities, or socioeconomic status, and information about the characteristics of loan packages or the way to manage debt (Baum & Saunders, 1998; Heller, 2008; Weiler, 1994). Such information might differently influence their choice to pursue graduate school. Especially, counseling which could provide information about loan programs and evaluate students' individual situations, could positively affect students' career decision. Yet, the studies presented here have shed little light on the impact of these variables.

Discussion

First, in general income choice, it is not easy to conclude that debt has a serious negative effect on a student's income after college based on the literature presented in this section. So far, previous studies have reached no consensus. According to their collective results, large debt amounts will push students to take high-paying as well as low-paying jobs. To accurately examine the impact of debt, invisible psychological mechanisms influencing students' decision-making regarding their careers should be investigated. At the same time, the possibility of different effects for different racial groups, gender, and loan policies as mentioned above should be examined. In other words, to evaluate the effectiveness of student loan policies, we need further investigation that focuses on factors such as psychological variables, race, gender, and changes in loan policy.

Second, the effect of educational debt on specialty choice among medical and law school students is inconsistent in the literature presented here. While some researchers found no relationship between debt and specialty choice, other researchers showed a negative effect from loans, discouraging students from public interest sectors. The impact of debt on career choice might differ by race, socio-cultural, psychological variables, and the characteristics of loan programs. Also, it is worthwhile to note that different policy designs can lead students to enter public interest sectors, resulting in increase of social workforce in medical and law fields.

Third, a majority of studies have shown no relationship between debt and students' decision to pursue an advanced degree. Nonetheless, some researchers have found the possibility that undergraduate educational debt could deter students from post-baccalaureate enrollment. To understand these inconsistent results, further investigation is needed about various variables as follows: student grades, the differences in majors, opportunities for financial aid in doctoral degrees, minority and disadvantaged groups, gender, and psychological variables, such as attitudes about foregone income, perception of interest, abilities, or socioeconomic status, as well as information related to loan programs.

To sum up, previous studies have not reached consensus about the effect of educational debt on career choice. In general, therefore, it is insufficient to conclude that educational debt negatively affects career choice, despite increasing concerns of policy makers. Even if debt and career choice have a statistically small significant relationship, other factors, such as high grades, personal interest, or work experiences, are much stronger determinants of career decision-making. Furthermore, some researchers found that well-designed loan programs could support students to pursue post-baccalaureate programs and enter public interest sectors. Moreover, with respect to the perception of indebtedness, a majority of students seem to manage their level of debt without having serious problems (Baum & O'Malley, 2003; Chambers, 1992). According to these findings, student loan programs could be an effective and attractive intervention for policy makers not only to increase educational and occupational opportunities for students but also to encourage specialists to enter public service sectors.

However, researchers and policy makers should be careful in interpreting this general result as clear proof that educational debts have no negative impact on students' life transition after graduation. Some researchers started to detect the possibility that educational debt from student loans could decrease social equality and generate market distortion (Chambers, 1992; Colquitt et al., 1996; Millett, 2003; Minicozzi, 2005; Price, 2004; Weiler, 1994; Woodworth et al., 2000). A number of problems still remain to be explored for evaluating the actual impact of loan policy on students' life after college today. Thus, in the next section, this article will present implication for further research and practice in more detail.

Implications for Future Studies

For further studies, this article points out five main factors in need of thorough investigation: 1) new data sets, 2) psychological variables associated with career choice, 3) methods, 4) a specific group, such as minorities, lower class families, and women, and 5) the characteristics of loan programs.

First, studies using new data sets are needed. Minicozzi (2005) said that income contingent loan programs after the Student Loan Reform Act of 1993 might mitigate the effect of debt on students' job choice related to market distortion as mentioned in the general income effect section. At this point, however, we need to pay attention to Johnstone (2009), noting that the effect of loan programs on students' behavior and career choice differs depending on the current economic conditions. Johnstone's study demonstrated that income contingent loans are less applicable under unstable employment situations, in which borrowers are highly likely to fail to hold long-term jobs. Indeed, in comparison to previous years when studies were performed, the U.S. has been faced with a huge economic crisis and unstable labor market conditions. Based on Johnstone's (2009) insight, there is a possibility that we might find different results if we analyzed sample data after the recent economic crisis, because most previous studies used data from surveys administered prior to 2000.

Moreover, increased debt amounts of students today might negatively impact career decisions more than in past decades. Heller (2001) and Minicozzi (2005) concerned in their research that fast increasing debt amount after the middle of 1990s could constrain students to choose career options not associated with their original aspirations. Therefore, a study using recent datasets which reflect current labor market conditions and increased debt level compared to the middle of 1990 should be conducted in order to investigate the effect of students' debt on their life after college graduation in current labor market and debt accumulation conditions.

Second, the psychological factors during college and after entering the labor market need further investigation. Based on previous studies, generally, it does not appear that students have difficulties getting jobs or pursuing their advanced degree, despite indebtedness. Several studies, however, suggest the possibility that the psychological pressure students feel under their debt burdens makes them forego their dream jobs or abandon desired career paths earlier than those with lower debt. For example, although students have the same amount of debt, their behavior related to career choice might differ by the degree of psychological burden they feel. In addition, other variables, such as perception of foregone income, socio-economic status, preference in career path, abilities (e.g., academic performance), and counseling intervention, also need to be included in future studies. These factors have the possibility to mediate the impact between debt status and career decision.

Third, this research area is understudied until now. Thus, more diverse research methods need to be attempted to examine these psychological and other variables above. First of all, until now, qualitative research has not been conducted in this area. This method should be used to find new variables and understand career decision processes under debt pressure in more detail, beyond the limitations of quantitative research. In addition, in previous studies, it is noteworthy that more precise regression analysis, using an experimental design, has been attempting to estimate more accurate relationships between debt effect and career choice. However, single equation regression modeling has limitations to describe complicated relationships between debt status and various variables related to career choice (Weiler, 1994). Therefore, other methods, such as Structure Equation Modeling, which can capture the mediating effect of psychological variables and students' ability and conduct path analysis of these variables, need to be utilized.

Fourth, in-depth studies should focus on the differential impact of loan debt on the career choices of women, minorities, and students from low-income families. Several studies reported that minorities are more likely to be influenced by the level of debt, but they did not explore this finding further (Bazzoli, 1985; Chambers, 1992; Fox, 1992; Heller, 2008; Price, 2004; Weiler, 1994). Women's diverse career paths caused by marriage and childbirth might differently influence the effect of educational debt on job decision. Minorities, such as Black and Hispanic, are more likely to pursue the career path to avoid accumulating additional debt compared to Whites

since they might share different cultural ideas about investment in education and relatively feel a more social disadvantage to get a job than Whites. Also students from low-income families who feel more difficulties to support their family might be constrained from pursuing an advanced degree or choosing their dream jobs. Thus, studies should be conducted to consider these groups' situations in more details.

Finally, the effect of debt on career choice should be compared to alternative financial aid options which do not require repayment, for example, fellowships, as well as research and teaching assistantships. In graduate schools, especially, various financial opportunities might positively support students' decision to pursue advanced degree despite a large amount of educational debt (Fox, 1992). Additionally, the effectiveness of current forgiveness policy related to career choice also needs further investigation. Studies have reported that debt forgiveness policy could encourage students to choose social service areas in law and medical sectors (Miller & Crittenden, 2008; Woodworth et al., 2000). Therefore, this positive effect of loan forgiveness policy regarding social contribution should be analyzed compared to previous loan programs.

Implications for Practitioners

This article could provide critical implications for policy makers in practice. There is a call for well-designed loan policy to create social returns, increase social equality, and reduce any potential adverse impact of debt on students' career choices. Especially, practitioners should further consider how vulnerable groups, such as African-Americans and Hispanics, students from lower-income families, and women, may be negatively affected by large amounts of debt. Researchers also need to pay attention to the various program options, such as additional grants and financial aid which can replace loans, as well as counseling programs during college which offer information about loans and the way to manage debt. For example, forgiveness policy or "no-loan policy (scholarship)" help students to avoid burdening debt loads and encourage them to enter social interest jobs. It also could increase social return.

The impact of educational debt on students' career decision is a timely issue in American higher education. This article reviewed the literature conducted within the last 25 years and provided critical implications in this area. It is apparent that unanswered questions still remain. More research should be conducted for further understanding about the effect of debt on career decision. Such investigation also will help policy makers develop more effective loan policy which students can enjoy return of investment in higher education.

Nexus: Connecting Research to Practice

- Underrepresented students (e.g., students of color, low-income students), are more likely to have high levels of educational debt. Practitioners should be mindful of this at their institutions and in their interactions with these students.
- Practitioners may want to be particularly attentive to helping underrepresented students manage their loan debt proactively, either through grants that help reduce total debt or through counseling that provides information about income driven repayment options.

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References

- Baum, S., & O'Malley, M. (2003). College on credit: How borrowers perceive their education debt. *Journal of Student Financial Aid*, 33(3), 7-19.
- Baum, S., & Saunders, D. (1998). Life After Debt: Results of the National Student Loan Survey. Selected Text from the Final Report. *Journal of Student Financial Aid*, 28(3), 7-23.
- Bazzoli, G. J. (1985). Does educational indebtedness affect physician specialty choice? *Journal of Health Economics*, 4(1), 1-19. doi:10.1016/0167-6296(85)90020-7
- Bodenheimer, T., & Pham, H. H. (2010). Primary care: current problems and proposed solutions. *Health Affairs*, 29(5), 799-805.
- Chambers, D. L. (1992). Burdens of Educational Loans: The Impacts of Debt on Job Choice and Standards of Living for Students at Nine American Law Schools, The. *J. Legal Educ.*, 42, 187.
- Colquitt, W. L., Zeh, M. C., Killian, C. D., & Cultice, J. M. (1996). Effect of debt on US medical school graduates' preferences for family medicine, general internal medicine, and general pediatrics. *Academic medicine: journal of the Association of American Medical Colleges*, 71(4), 399.
- Dowd, A. C. (2008). Dynamic interactions and intersubjectivity: Challenges to causal modeling in studies of college student debt. *Review of Educational Research*, 78(2), 232-259.
- Dwyer, R. E., McCloud, L., & Hodson, R. (2012). Debt and Graduation from American Universities. *Social Forces*, 90(4), 1133-1155.
- Field, E. (2006). *Educational debt burden and career choice: Evidence from a financial aid experiment at nyu law school*. National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w12282>
- Fox, M. (1992). Student debt and enrollment in graduate and professional school. *Applied economics*, 24(7), 669-677.
- Frank, E., & Feinglass, S. (1999). Student Loan Debt Does Not Predict Female Physicians' Choice of Primary Care Specialty. *Journal of general internal medicine*, 14(6), 347-350.
- Gross, J. P. K., Cekic, O., Hossler, D., & Hillman, N. (2009). What matters in student loan default: A review of the research literature. *Journal of Student Financial Aid*, 39(1), 19-29.
- Heller, D. E. (2008). The impact of student loans on college access. *The effectiveness of student aid policies: What the research tells us*, 39-68.
- Johnstone, D. B. (2009). Conventional Fixed-schedule versus Income Contingent Repayment Obligations: Is There a Best Loan Scheme? *Higher Education in Europe*, 34(2), 189-199.

- Kassebaum, D. G., Szenas, P. L., & Schuchert, M. K. (1996). Determinants of the generalist career intentions of 1995 graduating medical students. *Academic medicine: journal of the Association of American Medical Colleges*, 71(2), 198.
- Kim, D., & Otts, C. (2010). The Effect of Loans on Time to Doctorate Degree: Differences by Race/Ethnicity, Field of Study, and Institutional Characteristics. *Journal of Higher Education*, 81(1), 1-32.
- Kornhauser, L. A., & Revesz, R. L. (1995). Legal education and entry into the legal profession: The role of race, gender, and educational debt. *NYUL Rev.*, 70, 829.
- McGill, C. (2006). Educational Debt and Law Student Failure to Enter Public Service Careers: Bringing Empirical Data to Bear. *Law & Social Inquiry*, 31(3), 677-708.
- Miller, J. B., & Crittenden, R. A. (2008). The effects of payback and loan repayment programs on medical student career plans. *The Journal of Rural Health*, 17(3), 160-164.
- Millett, C. M. (2003). How Undergraduate Loan Debt Affects Application and Enrollment in Graduate or First Professional School. *The Journal of Higher Education*, 74(4), 386-427.
- Minicozzi, A. (2005). The short term effect of educational debt on job decisions. *Economics of Education Review*, 24(4), 417-430.
- Monks, J. (2001). Loan burdens and educational outcomes. *Economics of Education Review*, 20(6), 545-550. doi:10.1016/S0272-7757(00)00030-3
- Pathman, D. E., Konrad, T. R., King, T. S., Spaulding, C., & others. (2008). Medical training debt and service commitments: the rural consequences. *The Journal of Rural Health*, 16(3), 264-272.
- Price, D. V. (2004). Educational debt burden among student borrowers: An analysis of the Baccalaureate & Beyond panel, 1997 Follow-Up. *Research in Higher Education*, 45(7), 701-737.
- Rabinowitz, H. K., Diamond, J. J., Markham, F. W., & Paynter, N. P. (2001). Critical factors for designing programs to increase the supply and retention of rural primary care physicians. *JAMA: the journal of the American Medical Association*, 286(9), 1041-1048.
- Rosenthal, M. P., Marquette, P. A., & Diamond, J. J. (1996). Trends along the debt-income axis: implications for medical students' selections of family practice careers. *Academic Medicine*, 71(6), 675-7.
- Rothstein, J., & Rouse, C. E. (2011). Constrained after college: Student loans and early-career occupational choices. *Journal of Public Economics*, 95(1-2), 149-163. doi:10.1016/j.jpubeco.2010.09.015

Schapiro, M. O., O'Malley, M. P., & Litten, L. H. (1991). Progression to graduate school from the "Elite" colleges and universities. *Economics of Education Review*, 10(3), 227-244. doi:10.1016/0272-7757(91)90046-R

Simons, C. W. (2008). *Student Loans for Higher Education*. ERIC. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=ED501509>

Spar, I. L., Pryor, K. C., & Simon, W. (1993). Effect of debt level on the residency preferences of graduating medical students. *Academic Medicine*, 68(7), 570.

The Institute for College Access & Success (2011). Retrieved from : www.projectonstudentdebt.org

Weiler, W. C. (1991). The effect of undergraduate student loans on the decision to pursue postbaccalaureate study. *Educational Evaluation and Policy Analysis*, 13(3), 212-220.

Weiler, W. C. (1994). Expectations, undergraduate debt and the decision to attend graduate school: a simultaneous model of student choice. *Economics of Education Review*, 13(1), 29-41.

Woodworth, P. A., Chang, F. C., Helmer, S. D., Lang, N. P., & Klimberg, V. S. (2000). Debt and other influences on career choices among Surgical and primary care residents in a community-based hospital system. Commentary. *The American journal of surgery*, 180(6), 570-576.

Appendix A. Summary of Research

Article	Type ¹	R ²	Authors	Methods	Dataset	Description
1	G	P	Mimiccozzi (2005)	Regression	1,006 men, 2- and 4-year colleges of 1987 National Postsecondary Student Aid Survey	Students with high debt tend to get high income jobs
2	G	P	Rothstein & Rouse (2011)	A difference-in-differences analysis (experimental design)	8,641 students of a highly selective university with “no loan policy”	Students with larger debt are likely to take higher paying jobs
3	G	N	Price (2004)	Regression	1992-1993 Baccalaureate & Beyond Longitudinal Survey	Students with high debt are more likely to have lower average salaries
4	S	No	Bazzoli (1985)	Regression	1983 Survey of Resident Physicians	No significant effect on specialty choice
5	S	No	Frank & Feinglass (1999)	Randomized Regression	4,501 women Physicians	The same as above
6	S	No	Kassebaum et al.(1996)	Logistic Regression	1995 U.S. medical school graduates	The same as above
7	S	No	Kornhauser & Revesz (1995)	Regression	NYU and UMLS law school students	The same as above
8	S	No	McGill (2006)	Regression	Mixed four data: USNWR, ABA, NALP, and LFAP	The same as above
9	S	No	Spar et al. (1993)	Chi-square analysis	1,658 medical students graduating from six private medical schools in 1988, 1989, and 1990	The same as above
10	S	N	Chambers (1992)	Regression	Graduating class of 1989 at nine American law schools	Student with high debt tend to choose high-paying jobs than a particular less well-paying specialty (e.g, family practice, public interest work)
11	S	N	Rosenthal et al. (1996)	A binary logistic regression	1,350 graduates from 1987-1993 and 326 graduates from 1992-1993	The same as above
12	S	N	Woodworth et al. (2000)	Descriptive	Residents of University of Kansas School of Medicine Wichita	The same as above
13	S	N	Colquitt et al. (1996)			The same above

Appendix A. Summary of Research (continued)

Article	Type ¹	R ²	Authors	Methods	Dataset	Description
14	S	P	Pathman et al. (2008)	Descriptive	468 medical students graduating from 1988 and 1992	After entering job decision, students with high paying jobs tend to treat more uninsured patients than others
15	S	P	Miller & Crittenden (2008)	Descriptive	183 students entering from 1993-1997	A forgiveness policy could encourage students to serve rural areas
16	S	P	Field (2006)	Experiment	NYU Law school students	Well-designed loan policy encourages students to enter public interest sector
17	A	No	Baum & Sanders (1998)	Descriptive	1,280 of National Student Loan Survey	No significant effect on pursuing advanced degree
18	A	No	Heller (2008)	Descriptive	11,000 of Baccalaureate and Beyond Survey 1992-1993	The same as above
19	A	No	Monks (2001)	Probit analyses	12,225 from 27 colleges and universities	The same as above
20	A	No	Schapiro et al. (1991)	Regression	Graduating seniors made in 1982, 1984, and 1989 at the selective private institutions	The same as above
21	A	No	Weiler (1991)	Logit model	High School and Beyond Survey	The same as above
22	A	No	Weiler (1994)	Regression	1,724 from High School and Beyond Survey	The same as above
23	A	N	Millett (2003)	Regression	Baccalaureate and Beyond Longitudinal Study of 1992-93 college graduates	Debt negatively affects students' plans to apply to graduate or professional school
24	A	P	Fox (1992)		1985-1986 college graduates by U.S. Department of Education	Debt is more likely to support students' decisions to attend doctoral programs

Notes:

¹Type: G—General income choice, S—Specialty choice, A—Advanced degree.

²Relationship: No—No relationship, N—Negative, P—Positive.