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# Understanding Loan Use and Debt Burden Among Low-income and Minority Students at a Large Urban Community College

By Maria Luna-Torres, Lyle McKinney, Catherine Horn, and Sara Jones

*This study examined a sample of community college students from a diverse, large urban community college system in Texas. To gain a deeper understanding about the effects of background characteristics on student borrowing behaviors and enrollment outcomes, the study employed descriptive statistics and regression techniques to examine two separate samples of students consisting of 1) loan recipients and 2) non-loan recipients. Chen's heterogeneous research model served as the conceptual framework in the selection of predictors of interest and outcome variables. This study primarily focused on the relationship between borrowing and enrollment outcomes of low-income and racially/ethnically diverse students. Results show that students taking on debt at Metropolitan Community College (a pseudonym) are primarily female, Black, over the age of 20, low-income, and not academically prepared. While race/ethnicity did not significantly influence cumulative debt amount, race/ethnicity did account for significant differences in the likelihood of completion or transfer for both loan recipients and non-loan recipients.*

**Keywords:** *student debt, community college students, persistence, loan default*

According to the Federal Reserve Bank of New York (2017), education loan debt is only surpassed by mortgage debt, with education debt accounting for \$1.36 trillion in outstanding loan balances. Furthermore, between 1996 and 2016, the amount of federal student loans awarded to undergraduate students almost doubled, from \$30 billion to \$58 billion (College Board, 2017). By their fourth year in college, 64.3% of students in the United States have borrowed a federal student loan (U.S. Department of Education, National Center for Education Statistics [NCES], 2014). Increases in student loan use are a growing concern for the nation, especially when the delinquency rate on student loans has doubled in the last 10 years. As of the third quarter of 2017, more than 10% of all education loans were 90 days or more past due (Federal Reserve Bank of New York, 2017). Student loans can affect consumers' future financial capability to contribute toward a stronger economy.

An aspect of student loan use that merits attention is the effect federal student loans are having on the nation's most vulnerable postsecondary student population—community college students. Students entering

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community college are the least academically prepared, have the greatest financial need, and are predisposed to higher default rates (Campbell & Hillman, 2015; Complete College America, 2012; The Institute for College Access and Success, 2014b). The prevalence of defaults among the community college population is especially disconcerting because these students have the lowest college completion rate (Bound, Lovenheim, & Turner, 2010). Data from the U.S. Department of Education, National Center for Education Statistics (NCES; n.d.) shows that less than 50% of all students who start at community college complete a degree or certificate within eight years after enrollment. Non-completion of a degree significantly increases a student's likelihood of student loan default (Gladieux & Perna, 2005; Nguyen, 2012). Data suggests that the lower completion rate may be a function of the fact that more than 50% of today's community college students require remedial coursework when they enter community college (Complete College America, 2012; NCES 2014). Ironically, the community college student population is at greatest risk of academic failure and resulting financial distress, yet it is the population that would benefit most from earning a higher education given their challenging economic and social circumstances.

Seventeen percent of community college students use federal student loans to pay for college (Radwin, Wine, Siegel, & Bryan, 2013). While the majority of community college students do not borrow, and those who do borrow take low amounts of debt (TICAS, 2014b), the greatest proportion of the defaults come from the lower debt amounts taken by community college students (Campbell & Hillman, 2015). These low debt amounts drastically increase when students end up in a default status, jeopardizing their social and financial well-being (Douglas-Gabriel, 2017). Further, the most recent cohort default rate data show that community college students entering repayment in 2012 defaulted on federal student loans at a rate of 19.1% within three years of entering repayment (U.S. Department of Education, Federal Student Aid [FSA], 2016a). This cohort default rate is higher in comparison to other institutional sectors, including the for-profit sector, and higher than the national average of 11.8% (FSA, 2016a). Thus, the rate at which community college students default is of great concern considering that more than half of them are not completing a degree or certificate in a timely manner (NCES, 2016). Consequently, student borrowers can find themselves in an economically vulnerable situation as they are not yet able to reap the employability rewards of having earned a credential or degree.

Community college students are primarily older, low-income students from underrepresented ethnic minority groups and oftentimes have family commitments and work obligations they must attend to while they go to school (Bryant, 2001; Choy, 2002). Eighty-two percent of full-time students at community colleges rely on financial aid to help pay for their education, and 2% of them are able to meet their financial need with grants (The Institute for College Access & Success, 2014). The remaining need is typically covered by a combination of student loans and employment. Students have come to rely on federal student loans in part because of the scarcity of more favorable types of aid being offered, such as grants (Creusere, Fletcher, Klepfer & Norman, 2015; Dowd & Coury, 2006; McKinney, Mukherjee, Wade, Shefman & Breed, 2015). Keeping student debt levels manageable is a challenge for these students, as they must decide between working more hours or taking fewer classes. Thus, for students who borrow, their decision stems more from necessity rather than choice (McKinney et al., 2015).

Acquiring burdensome debt levels can further exacerbate students' financial circumstances and preclude them from realizing the benefits of higher education, particularly achieving upward social mobility. Students who enroll but do not complete may find themselves in a worse financial situation in the end, having incurred debt but achieved no degree. Borrowing to pay for college can be a wise decision when examined carefully, but the crux of the issue is that the most academically and financially deficient students are not reaping the benefits of their investment in higher education. Providing sufficient financial and academic support to help this vulnerable population succeed becomes a struggle for the institutions that serve them. Community colleges continue to strive to maintain open access while simultaneously searching for solutions to improve enrollment outcomes.

## Purpose

In light of a strained economy and restricted federal and state budgets, demonstrating the value of postsecondary education becomes a challenge for all sectors of higher education, as prospective students take into consideration the likelihood of obtaining a job after graduation. The challenge is greater for the community college sector considering that the low-income student population they serve must sacrifice a larger proportion of their limited resources to pay for college. Also, examining student loan use at community colleges has become more important as the nation turns its attention to this sector of higher education as a way to increase the number of college graduates in the country. In 2009, former President Obama challenged the education sector to raise the number of community college completers “by 5 million graduates by 2020” (The White House, Office of the Press Secretary, 2009). As the nation turns to community colleges for more graduates, institutions are challenged to ensure students have access to an affordable education that will lead to greater job opportunities and financial stability.

While much of the research on student borrowing focuses on four-year institutions, there has been growing interest in examining loan use among community college students (Campbell & Hillman, 2015; Cofer & Somers, 2010; McKinney & Burrige, 2015). The limited research on community college student borrowing lacks clear results on the effects of federal student loans on enrollment outcomes (Cofers & Somers, 2001, 2010; Dowd & Coury, 2006; King, 2003; Mendoza, Mendez, & Malcolm, 2009). A study examining student background characteristics, including ethnicity, socioeconomic status, and borrowing behaviors affecting student success, can help college administrators address the nation’s demand for raising the number of community college graduates. With a deeper understanding of the students borrowing to attend community colleges, institutions of higher education and policymakers can more efficiently work toward creating policies that give students access to a higher education system with the necessary infrastructure for successful completion. Students would then have a greater chance of realizing a positive return on their investment.

Furthermore, a study that takes an institutional perspective (versus a national view) from a large urban community college can greatly contribute to the literature for this sector of higher education. Results from the present study complement findings from previous studies that do not account for regional differences and institutional student demographics. Toward that end, this study explores the background characteristics, borrowing behaviors, and enrollment outcomes of federal student loan borrowers attending a large, diverse urban community college system in Texas.

Identifying student background characteristics and borrowing behaviors that influence rising debt amounts could help administrators curb excessive borrowing and address student persistence barriers. Therefore, this study examined the following research questions:

1. What are the characteristics of federal student borrowers, compared to non-borrowers, at a large, urban community college system?
  - a. Are there significant differences in borrowing as a function of a student’s income status, ethnicity, and academic preparedness?
2. What is the relationship between borrowers’ income status, ethnicity, academic preparedness, and enrollment outcomes, and their cumulative level of federal loan debt?
3. To what extent does income status, ethnicity, and academic preparation affect the likelihood borrowers will drop out before earning a credential and/or transferring to a four-year institution?

## Literature Review

This study presents existing research related to student borrowing at community colleges. In an effort to better understand the demographic and academic factors that might influence a student borrower's enrollment outcomes, the first section covers prior studies that have begun to illustrate the current profile and academic preparedness of community college student borrowers. The second section examines results from existing research about the impact of federal loans on student persistence and enrollment outcomes.

### Student Borrower Characteristics

**Ethnicity.** Recent studies provide some insight into the characteristics of student borrowers. Chen (2008) pointed to ethnicity as having a role in student loan use patterns and behaviors. In terms of ethnicity, in an analysis of the National Postsecondary Student Aid Study (NPSAS) 1996-2012, researchers found that federal student loan borrowers across institutional sectors, including community college, are primarily Black. In comparison to Hispanics, Whites, and Asians, Blacks are more likely to borrow (Goldrick-Rab, Kelchen, & Houle, 2014). Further, the 2012 National Financial Capability Study (NFCS), commissioned in collaboration with the U.S. Treasury Department, provided a glimpse into the racial composition of student loan users. Based on a nationally representative sample of approximately 25,000 adults over the age of 20, the NFCS showed that the largest percentage of adults holding education loan debt were Black (Ratcliffe & McKernan, 2013). While the aforementioned studies offer some insight into the ethnicity of borrowers, more research that examines student borrowing at community colleges and across ethnically and socioeconomically diverse student populations is needed.

**Dependent versus independent.** Regarding the dependency status of loan borrowers, recent literature does provide a preview into community college students. Dependency status as defined by federal financial aid guidelines affects borrower loan limits. Campbell and Hillman (2015) examined the FY 2011 student loan cohort-level data for an entire system of community colleges in Iowa using the National Student Loan Data System. Results from that study indicated that the majority of the federal student borrowers in the sample were independent students—60.6% independent versus 38.3% dependent. Additionally, results revealed that of students who borrowed more than \$20,000, 96% were independent students compared to only 3.6% dependent students. Overall, dependent students were mostly represented in the lower debt amounts with 45% of them borrowing less than \$5,000. This finding is not surprising, as the federal loan limits for independent students are much greater than for dependent students (FSA, 2016c).

**Academic preparedness.** More than 50% of students entering community college require remedial coursework (Complete College America, 2012; Pretlow & Wathington, 2013). Since taking developmental coursework lengthens time to degree, completion outcomes for student borrowers taking developmental courses are not promising (Bailey, 2008). Studies suggest students who take developmental courses are less likely to complete their degree than those who do not need to take developmental courses. According to the National Center for Education Statistics (2014), less than 35% of students taking two or more developmental education courses completed their program of study.

In regard to student loan use, limited research is available on the borrowing patterns specific to students taking developmental courses. Developmental education students accumulate debt and expend financial aid eligibility while not earning credits toward a degree (Bailey, 2008). One recent study using a nationally representative sample suggested students who took developmental education courses borrowed at the same rate as students who did not take developmental education courses (Fernandez, Barone, & Klepfer, 2014). Additionally, average cumulative federal debt load for students who took developmental education courses was similar to students who did not take developmental education courses (Fernandez, Barone, & Klepfer, 2014). Since developmental education students are less likely to complete a degree than students who are

not required to take developmental coursework, the amount of debt developmental education students take is of concern. The debt burden could diminish their opportunities to ever reach financial stability, since their job opportunities will be limited if they do not complete a degree.

To build on the limited research about the college readiness of student borrowers, our study provides insight at the institutional level and examines whether institutions with diverse student populations display the same trends as the findings suggested by Fernandez et al.'s (2014) national analysis.

### **Impact of Borrowing on Student Persistence and Enrollment Outcomes**

Leaving community college with debt prior to earning a credential affects students' financial well-being. As demonstrated by the literature (Gladieux & Perna, 2005; Nguyen, 2012), students must complete their program of study to maximize employment opportunities and realize repayment success. Otherwise, students will find themselves overburdened with debt but without a degree. Therefore, increased borrowing is a growing concern for community colleges. Considering their low completion rate and high share of defaults, many community colleges have opted out of participating in the Federal Direct Loan Program to avoid sanctions imposed for excessive institutional cohort default rates (Cochrane & Szabo-Kubitz, 2014). Of the 1,100 community colleges, 233 are not currently participating in the federal student loan program (Cochrane & Szabo-Kubitz, 2016). These nonparticipating institutions leave students no choice but to resort to private loans, which lack many of the protections offered by federally backed student loans.

Studies conducted by The Institute for College Access and Success (2014a) demonstrated that federal student loans can serve as a viable option and mechanism for expanding college access for members of underrepresented populations who may not otherwise be able to attend college. Federal student loans are the most favorable type of debt for paying for college (FSA, 2016b, TICAS, 2014a). However, further research is necessary to determine whether borrowing actually helps students progress in their college journey.

Early studies on student persistence at community colleges showed that tuition costs influenced the effect of borrowing on persistence. Using a sample of 18- to 22-year-old community college students from NPSAS 1987, St. John and Starkey (1994) studied the effects of tuition costs and financial aid, including federal loans and grants, on persistence. They found that federal loans did not have an effect on persistence, while grants had a negative association, meaning that as the grant amount increased, persistence decreased. Taking a sample from the same database and year, Hippensteel (1996) studied community college students over the age of 23 and found that federal loans had a negative association with persistence, but the significant effect disappeared when tuition costs were taken into account. Authors attributed the negative association to the loans and grants not making up for increases in tuition costs. Additionally, considering that St. John and Starkey's and Hippensteel's studies are based on student samples of two distinct age groups, they may suggest that federal student loans influence age groups differently.

Dowd and Coury (2006) studied community college students within a five-year timeframe and looked at the effects of federal loans on both persistence and attainment of an associate degree. In reviewing the Beginning Postsecondary Student Longitudinal Study (BPS) 1990-1994, they found federal student loans had a negative effect on persistence, and no form of financial aid, inclusive of loans, had an effect on associate degree attainment. The authors suggested that the negative effect on persistence could be due to borrowers' perceptions that their academic deficiencies limited their prospects for a positive return on their investment, making them more likely to drop out of college. King (2003) examined a nationally representative sample from the BPS 1995-1998 consisting of undergraduate students starting college in Fall 1995, including community college students. King found that federal student loans can have a positive effect on persistence in instances where the loan affords students the opportunity to reduce their work hours and

attend college full-time. Mendoza, Mendez, and Malcolm (2009) examined a longitudinal, student-level dataset dating from 2002-2004 of full-time, first-and second-year students from Oklahoma's community colleges. They studied the effects of different combinations of financial aid inclusive of Pell Grants, Stafford Loans and state aid, on persistence. The results showed student loans in combination with other aid had a positive effect on the persistence of community college students, and the effect was moderated by ethnicity and income.

Studies also reveal that the effects of student loans on persistence can vary depending on debt amount and timing of borrowing. Cofers and Somers (2001) studied the NPSAS 1995–96 and 1992–93 to examine the effects of federal student loans on the persistence of community college students from the fall to spring semester. They found persistence was negatively associated with low levels of debt, but positively associated with higher levels of debt. Specifically, they found students who had incurred less than \$3,000 in debt were 5.1 percentage points less likely to persist than non-borrowers. In contrast, students with debt over \$7,000 were 16.4 percentage points more likely to persist than non-borrowers. The authors concluded that the higher persistence rates accompanied by the higher debt load could be due to students having invested a longer period of their time in college and being closer to completion. The lower debt amounts could be due to shorter enrollments by debt-averse students who were discouraged by the need to take on additional debt. This notion of the time period when a student borrows and the impact it has on decisions about continuing enrollment is a limitation that critics (Chen, 2008; Dowd & Coury, 2008) point out when interpreting results pertaining to loan effects on persistence. For instance, student decisions about continuing enrollment and borrowing could vary depending on financial aid received or resources available to them during that particular semester. Therefore, timing of student borrowing could account for the mixed results among the existing persistence studies.

The findings in the aforementioned studies are limited in that they do not account for differences in students' unobservable characteristics that may possibly explain the mixed results. One variable that often goes unstudied is self-selection bias. In an effort to address self-selection bias, a recent study by McKinney and Burrige (2015) applied propensity-scoring matching to a sample of associate degree program enrollees using the BPS 2004-2009 to examine the effects of federal loans on persistence. They found in the first year, as students' debt load increased, their persistence rates increased. After the second year, student persistence rates showed a negative association with increases in debt amount.

While there is no consensus on the effects of loans on community college student persistence, there is consensus in the literature regarding the positive relationship between student completion and repayment outcomes (Dynarski, 1994; Knapp & Seaks, 1990; Meyer, 1998; Nguyen, 2012; Woo, 2002). A recent report confirmed the importance of contextualizing federal loan use in terms of not only student persistence, but also repayment outcomes (Campbell and Hillman, 2015). Repayment outcomes provide insight into borrower characteristics and their relationship with ultimate financial outcomes. In examining student-level data representing 16 community colleges in Iowa, Campbell and Hillman (2015) found that nearly 90% of defaulters did not earn a credential. Additionally, they learned that half of the defaults occurred in loan amounts less than \$5,000. This finding aligns with Cofers and Somers's (2001) earlier findings that lower debt amounts are associated with lower persistence rates.

Overall, the existing literature on the persistence of student borrowers at community colleges is inconclusive and points to a need for further analysis of borrowing effects on enrollment outcomes and predictors of loan use. One aspect of persistence the literature does point to is that students who borrow and do not graduate are left in an undesirable financial position, as these students have higher rates of unemployment, lower median incomes, and greater chances of defaulting (Gladiuex & Perna, 2005; Nguyen, 2012).

## Conceptual Framework

Chen's (2008) heterogeneous research model on financial aid and student dropout in higher education served as the conceptual framework for the present study. While other models, such as Tinto's student attrition model, also aim to provide a framework for student dropout behavior, these models primarily address the social and academic factors affecting student departure for a more traditional-age student (Bean, 1981; Tinto, 1975). Guided by Chen's approach, in the present study we recognized the need to parcel out students' sociodemographic characteristics and unpack financial aid types to uncover their unique effects and potential impact on enrollment outcomes. Specifically, Chen (2008) suggested that when examining the effects of financial aid on student departure, socioeconomic and racial/ethnic diversity should be considered. To examine the effects of such influences, Chen recommended using an integrated approach that draws from economic theories as well as theoretical frameworks from other disciplines, including psychological, sociological, organizational and interactionist theories.

Drawing from these theories, Chen pointed to factors that can provide evidence toward understanding the reasons for student dropout behavior. These factors include student background characteristics, educational aspiration, pre-college preparation, financial factors, college experience, organizational effects, and time and interaction effects (Chen, 2008). In this context, the present study used background characteristics including age, gender, ethnicity and college readiness as its independent variables. We expected the differences across students attending community college might lead to unique effects on a student's enrollment outcomes, especially differences across racial/ethnic groups and socioeconomic status.

Furthermore, Chen cautioned against studying the effects of financial aid in general (versus specifically loans) on student persistence. Earlier models of student departure (Bean, 1981; Tinto, 1975) did not differentiate between the various types of financial aid and the potential unique effects that each may have on persistence. Within the loan context, Chen suggested considering socioeconomic differences in determining the influence of loans on persistence. She specifically offered the economic concepts of liquidity constraints, price elasticity, and debt aversion as possible explanations for the differences in the borrowing decisions that students of different economic backgrounds make.

These concepts could have a unique effect on enrollment outcomes. For instance, differences in liquidity constraints exist between low-income and high-income students. Chen explained that because low-income students have limited financial resources, they are more dependent on supplemental lines of credit, such as loans. Therefore, their enrollment decisions may be affected by the availability of loans and changes to the costs of borrowing, as opposed to a high-income student who may have access to other lines of credit or financial reserves beyond student loans. Also, Chen suggested that, considering their limited financial resources, low-income students would be more sensitive to tuition prices than high-income students. In turn, this higher price elasticity in low-income students could play a role in their enrollment decisions. Chen pointed to a student's comfort level with debt as another factor that could affect decisions regarding how much to borrow or whether to borrow at all. The literature does point to differences in borrower attitudes across ethnic groups (Cunningham & Santiago, 2008; Goldrick-Rab, Kelchen, & Houle, 2014) and how these differences could affect enrollment outcomes.

In summary, Chen's model was appropriate for this study considering the diverse student population at the community college. Also, Chen's framework helped pave the way toward a deeper understanding and a more direct approach for addressing departure behavior for student borrowers. Chen's framework lent itself to this study's primary objective of evaluating debt burden and enrollment outcomes in the context of background characteristics, pre-college preparation, and borrower behavior.



## Methodology

### Data Source and Sample

The data used in this study were derived from longitudinal student unit records of a large urban community college district in Texas. Metropolitan Community College (MCC - a pseudonym) is located in a large urban area in the state and serves more than 70,000 students annually. Representing diverse ethnic backgrounds, more than half of the student population are Hispanic or Black, and MCC students are primarily of low-socioeconomic status.

The dataset included six academic years of data for a cohort of students starting in Fall 2007 and tracked their enrollment through Summer 2013. We examined student transcripts and financial aid records for all first-time-in-college (FTIC) students belonging to any of the following ethnic groups: Black, Hispanic, White, and Asian. The full sample ( $n = 5,878$ ) was divided into two subsamples: (a) federal student loan recipients ( $n = 1,059$ ), and (b) students who did not take a federal student loan ( $n = 4,819$ ). Loan recipients included students who took a federal student loan at any time between the Fall 2007 and Summer 2013 terms.

### Variables

As suggested by Chen's (2008) framework, we categorized the independent variables for this study into background characteristics, educational aspiration, pre-college preparation, financial factors, and college experience. Table 1 presents the coding scheme for these variables, which include students' ethnicity, gender, age at the time of enrollment, pre-college credential, developmental coursework needs, enrollment intensity (e.g., full time, part time, less than half time), field of study, income status, receipt of student loan, cumulative GPA attainment of a degree or credential, and cumulative debt.

**Background characteristics.** We categorized the variable for ethnicity into four major ethnic groups: Black, Hispanic, White, and Asian. We used White as the reference group, considering that the literature shows that this group is more likely to have greater financial wealth and access to multiples lines of credit than other racial/ethnic groups (Goldrick-Rab, Kelchen, & Houle, 2014; Ratliffe & McKernan, 2013).

Considering the wide range in ages represented in community college students, Leinbach and Jenkins (2008) recommend disaggregating this variable to distinguish between younger and older adults, as their family obligations could vary. Therefore, for purposes of the descriptive analysis, we divided the age variable into three separate categories consisting of students aged 19 or younger, students aged 20 to 24, and students aged 25 and older. For the regression analyses, age is examined as a continuous predictor variable.

**Pre-college preparation.** The independent variables pertaining to a student's pre-college preparation included two categorical variables. One variable identified whether the student earned a high school diploma or other type of credential before entering college, such as a GED. Students with a GED served as the reference group for this variable. We also examined a categorical variable that describes whether students were referred to any developmental coursework or were college-ready when they entered their first semester.

**Education aspiration.** We divided program of study into two categories: (a) students working toward an academic-type major that is geared toward students intending to transfer to a four-year university, or (b) students pursuing a shorter term vocational/technical-related certificate or degree that will prepare them for immediate entry into the workforce.

Table 1

*List of Variables and Coding Scheme*

Variable	Coding scheme
Race/ethnicity	White = Reference category, dummy coded
Black	
Asian	
Hispanic	
White	
Gender	1 = Male; 0 = Female
Age	Continuous measure for regression models; as of 2007, first semester
High school diploma/GED	1 = GED/other; 0 = High school diploma
Developmental courses	Students' referral status to any DevEd: 1 = No DevEd referral (college-ready); 0 = Referred to any DevEd
Full- or part-time	1 = 12 or more hours; 0 = less than 12 hours; as of first semester enrolled
Field of study	1 = Technical; 0 = Academic-related
Income status	Did student ever receive a Pell Grant? 1 = Yes; 0 = No
Loan recipient	Did student ever receive a federal student loan? 1 = Yes; 0 = No
Cumulative GPA	Continuous measure for regression models; as of last semester enrolled
Credential or transfer	Outcome variable: Did student complete credential or transfer to four-year institution? 1 = Yes; 0 = No
Disbursed balance	Outcome variable: Cumulative debt amount as of last semester enrolled; continuous measure

**Financial factors.** In addition to federal student loans, grant aid is another financial aid factor examined. The Pell Grant variable included students who had received a Pell Grant at any point in time while enrolled at MCC. The U.S. Department of Education Office of Federal Student Aid (FSA) recognizes Pell Grant recipients as the lowest income students based on their relatively low expected family contribution (EFC). EFC is a federal measure of a student's and family's financial strength and is used to determine a student's eligibility for federal student aid (FSA, 2015b). Therefore, we used whether a student received a Pell Grant as a proxy for income status. For purposes of this study, students who did not receive a Pell Grant were considered moderate- to high-income students, and Pell Grant recipients were considered low-income students.

**College experience.** The enrollment patterns of community college students tend to vary depending on a student's objectives (Voorhes & Zhou, 2000) and work obligations (King, 2003). Given the variance in enrollment intensity and its implications for financial aid, we divided the enrollment variable into two categories consisting of students enrolling part time (0 = less than 12 hours) or full time (1 = 12 or more hours) in their first semester.

Another measure that affects a student's college experience is academic performance. For purposes of the descriptive analysis, grade point average (GPA) is presented in three categories: below 2.0, between 2.0 and 3.0, or 3.0 or higher. Therefore, for the regression models, we analyzed GPA as a continuous measure representing students' cumulative grade point average as of the last semester of enrollment at MCC.

**Outcome variables.** The outcome variables of interest for the present study focus on understanding the financial and academic outcomes of loan recipients. Cumulative federal debt served as a dependent variable to assess the influence of the predictor variables on debt burden at the time the student dropped out, completed a degree, or transferred to a four-year university within the six-year timeframe of this study.

The second outcome of interest is understanding completion outcomes between loan recipients and non-loan recipients. Given the dichotomous nature of completion, we coded this dependent variable as 1 = yes, student earned a credential from MCC or transferred to a four-year institution, and 0 = no, student did not earn a credential from MCC or transfer to a four-year college within six years of enrollment.

## Data Analysis

We used descriptive statistics to examine the samples in the present study. Percentages and frequencies were used to illustrate proportional distributions of the predictor variables. A chi-squared test was applied to determine whether the proportional differences were significant among the full sample, subsample of loan recipients, and subsample of non-loan recipients. The predictor variables analyzed for each sample included background characteristics, educational aspiration, pre-college preparation, financial aid factors, and college experience.

In the next phase of the analysis, we applied multiple regression. As suggested by Meyers, Gamst, and Guarino (2013), multiple regression is an appropriate design when the research problem implies prediction and aims to uncover the dynamics between a combination of variables and a particular construct. Therefore, to understand whether a borrower's background characteristics, educational aspiration, pre-college preparation, financial factors, and/or college experience help predict the amount of a student's federal cumulative debt, we applied multiple regression to the loan-recipient subsample. The 10 predictor variables—gender, ethnicity, age, high school diploma/GED, developmental education/college-readiness, part-time/full-time attendance, major, Pell Grant recipient, cumulative GPA, and completion credential/transfer—were entered simultaneously into the analysis in order to understand the combined predictive power of the 10 independent variables on cumulative student debt (Meyer, Gamst, & Guarino, 2013).

Lastly, to determine how a borrower's background characteristics, educational aspiration, pre-college preparation, financial factors, and/or college experience influenced the likelihood of a student's enrollment outcome (e.g., 0 = student did not earn credential and/or transferred to 4-year institution, and 1 = student earned credential and/or transferred to 4-year institution), we applied logistic regression to both the loan and non-loan recipient subsamples. Logistic regression was appropriate for this analysis considering the outcome of interest is dichotomous in nature (Meyers, Gamst, & Guarino, 2013). Also, to assess the unique effects ethnicity and other background characteristics have on student departure, we applied a block-entry method (Chen, 2008).

## Results

### Descriptive Statistics

As illustrated in the first column of Table 2, the descriptive analysis shows the majority of the proportional differences in the independent variables across the subsamples were found to be statistically significant. Only two variables did not have statistically significant proportional differences between loan recipients and non-loan recipients: program of study and enrollment intensity.

**Background characteristics.** Results show that proportional differences based on whether the student was first-generation in college were somewhat similar for both groups. The proportion of loan recipients who were first-generation was 33.6%, which was only one percentage point lower than for non-loan recipients ( $\chi^2 = 8.2, p < .05$ ). In terms of gender, a greater percentage of females versus males were represented in both loan recipients and non-loan recipients (68% and 54% respectively;  $\chi^2 = 74.9, p < .001$ ). However, when comparing proportional differences between the two groups, females represented a higher percentage among loan recipients. When examining ethnicity, results show that Blacks represented the highest proportion (60%) among loan recipients, while Hispanics showed the greatest proportion (41%) among non-loan recipients ( $\chi^2 = 469.7, p < .001$ ). In regard to age, students in the lowest age-group category (e.g., 19 or younger) showed the highest proportion (40% and 57%) in both subsamples of loan recipients and non-loan recipients, respectively ( $\chi^2 = 158.2, p < .001$ ).

**Educational aspiration.** In terms of the program of study represented between loan recipients and non-loan recipients, results show very similar proportions in both groups. Thirty-six percent of the loan recipients (and 36% of non-loan recipients) represented majors that were academically related versus 63% of loan recipients (and 63% of non-loan recipients) belonging to majors that were vocationally/technically oriented. The proportional differences between the two groups were not statistically significant.

**Pre-college preparation.** Most students required developmental coursework versus being college-ready among both loan recipients and non-loan recipients ( $\chi^2 = 11.9, p < .001$ ). However, the proportion of students requiring developmental coursework was higher for loan recipients, with a percentage of 77% versus 72% for non-loan recipients. Additionally, the percentage of students entering the community college with a high school diploma versus a GED or other credential was highest among non-loan recipients ( $\chi^2 = 35.2, p < .001$ ). Among non-loan recipients, 91% of the students had completed a high school diploma, while only 9% had a GED or other credential. For loan recipients, 84% of the students completed a high school diploma while 16% earned a GED or other credential.

**Financial aid factors.** When compared to non-loan recipients, a higher proportion of loan recipients had received all three types of financial aid, including Pell Grant, non-Pell Grant aid, and work-study, with 82%, 49% and 14% respectively. Also, 82% of loan recipients were Pell Grant recipients, compared to 38% of non-loan recipients ( $\chi^2 = 688.2, p < .001$ ).

**College experience.** The proportional differences for enrollment intensity were not statistically significant. However, results show a higher percentage of non-loan recipients were enrolled part-time (58%) versus the percentage (55%) of loan recipients.

In terms of cumulative GPA, the highest proportion of students fell between the 2.0 and 3.0 category for both groups, with 45% among loan recipients and 37% among non-loan recipients ( $\chi^2 = 27.9, p < .001$ ). In regard to academic outcomes, a greater percentage of students did not earn a credential versus earned a credential in both groups. However, results show the proportion of students completing a credential at the community college or transferring to a four-year institution is higher among loan-recipients versus non-loan recipients, with 43% and 36%, respectively ( $\chi^2 = 23, p < .001$ ).

Table 2

*Descriptive Statistics for Full and Restricted Samples of Loan Recipients and Non-Loan Recipients*

	Loan recipients ( <i>n</i> = 1,059)		Non-loan recipients ( <i>n</i> = 4,819)		Full sample ( <i>n</i> = 5,878)		Chi-squared statistic
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	
Background characteristics							
<i>First generation</i>							
Yes	356	33.6%	1,667	34.6%	2,023	34.4%	8.2*
No	522	49.3%	2,492	51.7%	3,014	51.3%	
<i>Gender</i>							
Female	718	67.8%	2,585	53.6%	3,303	56.2%	74.9**
Male	338	31.9%	2,230	46.3%	2,568	43.7%	
<i>Ethnicity</i>							
Black	637	60.2%	1,252	26.0%	1,889	32.1%	469.7**
Hispanic	205	19.4%	1,984	41.2%	2,189	37.2%	
White	131	12.4%	963	20.0%	1,094	18.6%	
Asian	86	8.1%	620	12.9%	706	12.0%	
<i>Age in 2007</i>							
19 or younger	420	39.7%	2,753	57.2%	3,173	54.0%	158.2**
20-24	270	25.5%	1,173	24.4%	1,443	24.6%	
25 or older	369	34.8%	890	18.5%	1,259	21.4%	
Educational aspiration							
<i>Program of study</i>							
Academic	381	36.0%	1,746	36.2%	2,177	36.2%	
Vocational/technical	669	63.2%	3,035	63.0%	3,704	63.0%	
Pre-college preparation							
<i>Required developmental coursework</i>							
Yes	817	77.1%	3,467	71.9%	4,284	72.9%	11.9**
No	242	22.9%	1,352	28.1%	1,594	27.1%	

	Loan recipients ( <i>n</i> = 1,059)		Non-loan recipients ( <i>n</i> = 4,819)		Full sample ( <i>n</i> = 5,878)		Chi-squared statistic
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	
<i>Pre-college credential</i>							
High school diploma	894	84.4%	4,366	90.6%	5,260	89.5%	35.2**
GED/other	165	15.6%	453	9.4%	618	10.5%	
Financial factors							
<i>Financial aid ever received</i>							
Pell Grant							
No	186	17.6%	2,985	61.9%	3,171	53.9%	688.2**
Yes	873	82.4%	1,834	38.1%	2,707	46.1%	
Grant aid (non-Pell)							
No	542	51.2%	3,896	80.8%	4,438	75.5%	413.1**
Yes	517	48.8%	923	19.2%	1,440	24.5%	
Work-study							
No	911	86.0%	4,567	94.8%	5,478	93.2%	104.7**
Yes	148	14.0%	252	5.2%	400	6.8%	
College experience							
<i>Enrollment first semester</i>							
Part time	581	54.9%	2,764	57.4%	3,345	56.9%	
Full time	478	45.1%	2,055	42.6%	2,533	43.1%	
<i>Cumulative college GPA</i>							
Less than 2.0	297	28.0%	1,505	31.2%	1,802	30.7%	27.9**
2.0 – 2.99	481	45.4%	1,774	36.8%	2,255	38.4%	
3.0 – 4.0	281	26.5%	1,540	32.0%	1,821	31.0%	
<i>Attainment through Summer 2013</i>							
Did not earn credential	600	56.7%	3,109	64.5%	3,709	63.1%	23.03**
Earned credential or transferred	459	43.3%	1,710	35.5%	2,169	36.9%	

\**p* ≤ .05. \*\**p* < .001.

We conducted a descriptive analysis of the outcome variable and independent variables. Results for the outcome variable reveal a cumulative debt amount for all borrowers ranging between \$39 and \$43,690. The median cumulative debt amount was \$4,852, and the mean was \$7,497 with a standard deviation of \$6,971. A *t*-test of average cumulative debt amount between borrowers who completed/transferred, and borrowers who dropped out produced a statistically significant mean difference of \$1,157 ( $p < .01$ ). Borrowers who dropped out had an average cumulative debt amount of \$6,988 and completers showed an average of \$8,145.

## Regression Analysis

**Multiple regression for loan recipients.** To determine whether there was a relationship between the predictor variables and a student's cumulative debt level, we applied a multiple regression analysis to the loan recipient sample. The 10 predictors entered simultaneously into the analysis included: gender, ethnicity, age, high school diploma/GED, developmental education, part-time/full-time attendance, major, Pell Grant recipient, cumulative GPA, credential completed/transferred to 4-year institution. The results indicate that the model predicting the cumulative debt amount was statistically significant [ $F(12) = 13.6, p < .001$ ]. The 10 predictors explained 13.9% of the variance in cumulative debt amount.

Multiple regression coefficients for all predictors appear in Table 3. Gender ( $B = -1070.29, p < .02$ ) and student attempted hours in the first semester ( $B = -987.64, p < .018$ ) were both significant and negatively related to cumulative debt. Males had lower average cumulative debt amounts than females, and students who attended full time in their first semester of college had lower cumulative debt amounts in comparison to part-timers. Age ( $B = 195, p < .001$ ), Pell Grant recipients ( $B = 2350, p < .001$ ) and cumulative GPA ( $B = 1263.68, p < .001$ ) were significant and positively related to cumulative debt amount. For every one-year increase in age, cumulative student debt increased by \$195. Further, Pell Grant recipients had higher cumulative debt amounts versus non-Pell Grant recipients. Pell Grant recipients incurred \$2,350 more in debt than non-Pell Grant recipients. In terms of the relationship between academic performance and debt, the results indicated that for every GPA unit increase, cumulative student debt increased by \$1,264.

**Logistic regression for loan recipient's sample.** Logistic regression was applied to the loan recipient sample to assess the likelihood of a student's enrollment outcomes. The overall model was statistically significant ( $\chi^2 = 218.4, p < .001$ ). Including the additional six predictors improved the viability of the model, as there was a statistically significant decrease in the -2-log likelihood between the initial model and the overall model. Further, the Nagelkerke pseudo *R*-squared resulted in .25, which was used as one measure for assessing the viability of the model. The Hosmer and Lemeshow Test was anomalous in that it resulted in a significant chi-squared, suggesting model unviability. Further, the model correctly classified 70% of the cases.

The strongest predictors of completion/transfer consisted of cumulative GPA, ethnicity, academic preparation, enrollment intensity, and Pell Grant recipient. As presented in Table 4, cumulative GPA was the strongest predictor, suggesting that for every one-point increase in GPA, the likelihood of completion/transfer was three times greater. In terms of ethnicity, the reference group (e.g., Whites) had the highest odds of completion. Asians had an odds ratio of .35, Blacks .58, and Hispanics .61. In examining academic preparation, we found students earning a high school diploma had higher odds of completion/transfer (1.64) than did students who had obtained a GED/other. Students who were referred to developmental education were less likely ( $OR = .58$ ) to complete/transfer than students who had not been referred to developmental coursework in their first semester.

Our review of the effects of enrollment intensity showed the odds ( $OR = 1.60$ ) for completion/transfer were greater for students attending full-time. Students taking 12 or more hours in their first semester were

Table 3

*Cumulative Student Debt: Multiple Regression Coefficients*

Predictor	$\beta$	<i>B</i>	<i>SE B</i>	<i>p</i>
Background characteristics				
Gender	-.072	-1070.3	441.0	.015*
Age	.218	195.1	28.4	.001**
Ethnicity (White as reference)				
Asian	-.032	-805.4	932.8	.388
Black	.067	961.7	667.0	.150
Hispanic	-.031	-566.6	760.4	.456
Education aspiration				
Field of study	-.018	-249.2	411.5	.545
Academic preparation				
DevEd	.017	288.2	496.7	.562
H.S. diploma	.025	477.4	588.1	.417
Income status				
Pell Grant recipient	.127	2350.3	560.0	.001**
College experience				
Full- or part-time	-.071	-987.6	418.5	.018*
Cumulative GPA	.163	1263.7	258.9	.001**
Earned credential/transfer	.048	673.8	452.8	.137

Note: *SE* = Standard error.

\* $p < .05$ . \*\* $p < .001$ .

more likely to complete than the part-timers. In terms of income status, low-income borrowers (e.g., Pell Grant recipients) were more likely ( $OR = 1.6$ ) to complete a degree or transfer to a four-year institution than non-Pell Grant recipients.

**Logistic regression for non-loan recipient's sample.** The overall model was statistically significant ( $\chi^2 = 1050.14, p < .001$ ). Including the additional six predictors to the model improved the prediction of completion/transfer for the non-borrower sample as the -2 log likelihood significantly decreased between the initial and overall model. Further, the Nagelkerke pseudo *R*-squared resulted in .27, which was used as one measure for assessing the viability of the model. The Hosmer and Lemeshow Test was also anomalous for the non-loan recipients sample in that it resulted in a significant chi-squared, suggesting model unviability. The model correctly classified 73% of the cases. Cumulative GPA and enrollment intensity were



Table 4

*Loan Recipients: Logistic Regression Predicting Likelihood of Completion or Transfer to Four-year University*

Predictor	B	Wald $\chi^2$	p	Odds ratio
Background characteristics				
Gender	.07	.23	.633	1.08
Age	-.02	4.08	.044*	.98
Ethnicity (White as reference)				
Asian	-1.06	10.68	.001**	.35
Black	-.54	5.51	.019*	.58
Hispanic	-.50	3.84	.050*	.61
Education aspiration				
Field of study	.25	2.98	.084	1.29
Academic preparation				
DevEd	-.54	10.14	.001**	.58
H.S. diploma	.49	5.56	.018*	1.64
Income status				
Pell Grant recipient	-.46	5.59	.018*	.63
College experience				
Full- or part-time	-.53	13.98	.001**	.59
Cumulative GPA	1.11	116.55	.000**	3.03

\* $p \leq .05$ . \*\* $p \leq .001$ .

among the strongest predictors. For every one-point increase in cumulative GPA, the likelihood of completion/transfer was 2.7 times greater. The odds of completion/transfer were lower ( $OR = .56$ ) for students attending part time. Therefore, students taking a full load of 12 or more hours in their first semester were more likely to complete/transfer than the part-time students.

As presented in Table 5, the coefficients of the predictors age, ethnicity, and college readiness, were statistically significant ( $p \leq .001$ ) in predicting the odds of completion/transfer. However, gender, high school credential, major, and Pell Grant recipient were not statistically significant coefficients. Similar to the loan recipients sample, the non-loan recipients sample showed younger students were less likely to graduate than older students. For every one-year increase in age, there was a .07 decrease in the log odds of completion/transfer. Compared to Whites, Blacks ( $OR = .70$ ) and Asians ( $OR = .72$ ) had lower odds, and Hispanics had higher odds ( $OR = 1.32$ ) of completion/transfer.

Table 5

*Non-loan Recipients: Logistic Regression Predicting Likelihood of Completion or Transfer to Four-year University*

Predictor	B	Wald $\chi^2$	p	Odds ratio
Background characteristics				
Gender	.12	2.86	.091	1.13
Age	-.07	125.78	.001**	.94
Ethnicity (White as reference)				
Asian	-.32	7.39	.007*	.72
Black	-.36	11.15	.001**	.70
Hispanic	.28	8.36	.004*	1.32
Education aspiration				
Field of study	-.02	.11	.746	.98
Academic preparation				
DevEd	-.32	16.65	.001**	.73
H.S. diploma	.18	1.83	.177	1.20
Income status				
Pell Grant recipient	.02	.10	.747*	1.02
College experience				
Full- or part-time	-.58	69.55	.000**	.56
Cumulative GPA	.99	531.23	.001**	2.69

\* $p \leq .01$ . \*\* $p \leq .001$ .

Regarding academic preparation, students who had been referred to developmental courses were less likely ( $OR = .73$ ) to complete than developmental education students. Unlike the loan-recipients sample, high school diploma did not have a significant effect on the likelihood of completion.

In summary, results show the relationship between the independent variables relating to ethnicity, precollege preparation, education aspiration, and enrollment outcomes was not statistically significant in predicting cumulative debt amount. However, the variables pertaining to college experience (e.g., GPA and full or part-time enrollment), background characteristics (e.g., age) and income status (e.g., Pell Grant recipients) had the strongest effect on students' cumulative debt amount. In terms of the effects of the predictor variables on completion/transfer, both loan recipients and non-loan recipients with higher GPAs showed a higher likelihood of completing a credential or transferring to a four-year university. Pell Grant receipt was only significant for the loan recipients and showed no effect on the likelihood of completion for non-loan recipients. Ethnicity played a significant role in the likelihood of completion for both subsamples

as well. Whites had the highest odds of completion/transfer among loan recipients. However, among non-loan recipients, the completion/transfer odds for Hispanics exceeded that of Whites.

## Discussion

Results from this study provide insight into the profile of students who are borrowing to attend community college. As suggested by Chen, parceling out background characteristics, pre-college preparation, financial factors, and college experience revealed unique differences between the subsamples. These differences made significant contributions to enrollment outcomes as well as cumulative debt incurred by students at MCC. Overall, students taking on debt in this large community college system are primarily students who are female, Black, and over the age of 20. These results are consistent with previous findings (Campbell & Hillman, 2015; Goldrick-Rab, Kelchen, & Houle, 2014) showing similar patterns in borrowers' ethnicity, age, and gender.

This study sheds some light on student borrowers' enrollment outcomes. The literature suggests that for fear of cohort default rate sanctions, community colleges have reconsidered their participation in the federal student loan program and some have even opted to cease offering federal student loans (TICAS, 2014a). However, this study points to significant differences in attainment between borrowers and non-borrowers. A greater proportion of loan recipients earned a credential or transferred to a four-year institution when compared to non-borrowers. While a seemingly insightful finding, this study does not account for self-selection bias. Therefore, enrollment outcomes could also be due to a borrower's unobserved characteristics or predispositions (e.g., student loan aversion), which are not accounted for in this study.

Nonetheless, this study's results counter institutional decisions to cease participation in the federal student loan program, as a greater proportion of borrowers benefitted from student loans by earning a credential. Furthermore, literature shows (Barnett, 2011; Gladioux & Perna, 2005; Nguyen, 2012) that completion reduces chances of defaulting. Thus, the results of this study can serve to prompt institutions to examine the enrollment outcomes of their student borrowers when making decisions about whether to participate in the federal student loan program.

### Effects of Ethnicity and Income Status on Cumulative Debt Amount

In terms of cumulative debt, results show that background characteristics and income status do influence the amount of debt students incur. Higher debt amounts are associated with being female, older, and starting out as a part-time student. The finding that older students have higher loan amounts aligns with Campbell and Hillman's (2015) findings that independent students (e.g., over the age of 23) accumulate larger debt amounts. This study also reveals a strong relationship between being a low-income, high-achieving student and having a higher cumulative debt amount. These results could be attributed to the notion of "under matching," where high-achieving, low-income students forgo attending more elite institutions for fear of not being able to afford the higher sticker price (Bowen, Chingos, & McPherson, 2009; Sherwin, 2012).

The influence of ethnicity on cumulative debt amount was not significant in this study. While the relationship was nonsignificant, the results do align with existing literature showing that, compared to Whites, Blacks borrow at higher levels (Goldrick-Rab, Kelchen, & Houle, 2014; Grinstein-Weiss et al., 2016), and Hispanics borrow lesser amounts (Cunningham & Santiago, 2008). Nonsignificant results in this study could be attributed to the fact that this study does not control for income status within ethnic groups, thus potentially masking ethnic differences in indebtedness levels. Recent literature has revealed that wealth

and income within ethnic groups plays a role in indebtedness levels across ethnic groups (Grinstein-Weiss et al., 2016).

### **Effects of Ethnicity, Income Status, and Academic Preparation on Enrollment Outcomes**

The average debt amount for all borrowers in this study is about \$7,496, which is a relatively low amount. This amount is below the average indebtedness level for the community college sector. However, lower loan amounts have been associated with lower persistence rates (Cofers & Somers, 2001) and consequently a higher predisposition to default (Campbell & Hillman, 2015). On the other hand, results for the differences in indebtedness levels between enrollment outcomes of borrowers (completers = \$8,745 versus non-completers = \$6,988) seem promising considering that completers have the higher debt amounts and are more likely to pay off these larger amounts. However, the lower debt amounts incurred by the non-completers can be troublesome considering the strong relationship between low debt amounts and default (Campbell & Hillman, 2015). Also, the results are consistent with prior research findings (Cofers & Somers, 2001; McKinney & Burrige, 2015) suggesting that higher debt amounts are associated with higher persistence rates and lower amounts are associated with lower persistence rates. Researchers (Cofers & Somers, 2001) propose that lower debt amounts are often a result of the brief enrollment of non-completers. Thus, the default on these small amounts is more a function of non-completion rather than the low debt amount.

While ethnicity did not significantly influence cumulative debt amount in this study, ethnicity did account for significant differences in the likelihood of completion/transfer for both loan users and non-loan users. Among borrowers, all three ethnic groups—Asians, Hispanics, and Blacks—were less likely to earn a credential or transfer to a four-year institution than Whites. Overall trends show the largest increases in completion of a degree or credential has occurred among students of color (Mullin, 2011). However, despite these promising trends, the attainment gap between students of color and Whites has not closed, according to the results of our study, suggesting that this remains a struggle.

Furthermore, the results vary when examining the effects of ethnicity among those who did not borrow. Asians and Blacks continue to have a lower likelihood of completion or transfer than Whites. However, when comparing the likelihood of completion/transfer between Hispanics and Whites, Hispanics were more likely to complete a credential or transfer to a four-year institution within the six-year timeframe of this study. While equity attainment gaps persist, our results align with trends that suggest the largest increases in completion of a degree or credential has occurred particularly among Hispanics as compared to Whites (Mullin, 2011). While the results are promising for reducing equity attainment gaps, Hispanics account for the largest proportion among completers of credentials below a bachelor's degree.

In regard to income status, this study supports the belief that borrowing can promote college access and completion for low-income students and allow them to realize the benefits of their financial investment. Pell Grant recipients who borrowed were slightly more likely to complete a credential or transfer to a four-year institution when compared to moderate- to higher-income students. These findings are congruent with previous results by Mendoza, Mendez, and Malcolm (2009), whose analysis also accounted for income differences among community college students and found those differences to have varying effects on a student's persistence.

On the other hand, the present study points to the imperative for low-income students to apply for financial aid. However, the literature suggests that many low-income students do not apply for financial aid, and not completing the FAFSA<sup>®</sup> reduces their odds of persistence (McKinney & Novak, 2015). Thus, students' prospects for degree completion at MCC are unfavorable, considering that loan recipients at this community college are primarily low-income students, who rely on all major sources of financial aid more

than their non-loan-recipient counterparts. Specifically, Pell Grant recipients comprised the greatest proportion of borrowers. Also, greater proportions of borrowers versus non-borrowers received grant aid (other than Pell) and work-study.

When examining the academic preparation of borrowers versus non-borrowers, this study confirms previous findings (Bailey, 2008; Fernandez, Barone, & Klepfer, 2014) regarding the vulnerability of loan use among students requiring developmental coursework. We found that students borrowing at this community college lack academic preparation and therefore are at risk of not completing a credential. The majority (77%) of borrowers required developmental education. Also, a greater proportion of borrowers versus non-borrowers entered college without having earned a high school diploma. These findings align with data trends showing that more than 50% of students entering community college require remedial coursework (Complete College America, 2012).

The prospects for the 77% of developmental education students in this study are not good considering existing research showing both developmental education students and college-ready students are borrowing at similar levels (Fernandez, Barone, & Klepfer, 2014); yet each is predisposed to different enrollment outcomes. The odds of completion/transfer were greatest for MCC students who were college-ready and had completed a high school diploma, versus students who had taken developmental coursework and earned a GED/other. A recent study, which also included a sample of students from a large community college system in Texas, found that borrowing did not significantly improve the likelihood of persistence or completion for developmental education students (McKinney, Novak & Hagedorn, 2016). As suggested by the literature, (Dynarski, 1994; Gladieux & Perna, 2005; Knapp & Seaks, 1990; Meyer, 1998; Nguyen, 2012), the troubling matter with these results is that completion is strongly associated with repayment success. Therefore, reduced chances of completion for academically underprepared students could place them on a pathway toward default.

## Limitations

While the findings presented in this study offer key insights into community college students and their enrollment outcomes, there are limitations to these findings. This study examined the enrollment outcomes of first-time college students over a period of six years. A large portion of students who enter the community college intend to transfer to a four-year institution to obtain a bachelor's degree. For purposes of this study, MCC students who transfer out and those who complete a credential at the community college are treated equally. Whether students who transferred out eventually completed a bachelor's degree is not certain. The results for the attainment variable could present an overestimation of degree completion.

Also, the analysis on the cumulative level of federal debt may present several limitations. The present study covers a timeframe of six years after initial enrollment. Results from this analysis should be interpreted in the context of this period. Cumulative federal loan amount does not account for those students taking more than six years to complete a degree or those dropping out after the sixth year. Also, the cumulative debt of students transferring to a four-year university cannot be accounted for in this study.

Another limitation to the analysis is the impact that timing of borrowing can have on enrollment outcome and cumulative debt levels. As suggested by Dowd (2008), student decisions to borrow are relevant to circumstances occurring in a given time (e.g., semester or year). Therefore, results from this study should be interpreted cautiously, as loan recipients in the present sample represent students taking a loan at any time during the six-year timeframe of the study.

## Implications for Policy and Practice

Findings from this study can be instructive for both practitioners and policymakers. From a practitioner's standpoint, it can be extremely helpful to institutional strategic planning to understand the background characteristics, pre-college preparation, and academic outcomes of the institution's most vulnerable student population. Knowing the factors that differentiate loan recipients who drop-out from those who complete a degree can help practitioners design appropriate and timely loan and academic counseling interventions. Such targeted interventions can be more cost-efficient and capacity-feasible in today's higher education environment of scarce resources.

Additionally, this study can provide insights when developing customized student debt plans that align with academic degree plans. For instance, in collaboration with both an academic and financial aid advisor, students can map out the loan amount needed per semester in their program of study depending on their course load and enrollment intensity. Individualized plans would also allow borrowing decisions to be based on academic preparation and progress. This customized plan would allow developmental education students, in particular, to make conscious decisions about appropriate borrowing amounts by taking into consideration their prospects for academic progress and expected completion date. Debt tolerances across racial/ethnic groups (Cunningham & Santiago, 2008) could be used to contextualize conversations with students regarding the flexibility of the loan amounts offered in their award letters. Oftentimes, loan-averse students choose not to borrow at all because they are unaware that they can take a loan amount that is lower than what appears on their award letter (McKinney et al., 2015).

Building on the student debt plan, career centers on campus could assist in adding a repayment component that projects monthly loan payments based on a student's loan balance and expected earnings for their program of study. By reviewing the student debt plan on an annual basis, such a tool would not only help students evaluate the value of their degree (Carnevale, Strohl, & Melton, 2011), but also help them be more intentional with loan amounts taken. This annual review process would be especially beneficial at times when students change from majors with higher expected earnings to lower paying majors. Building debt awareness in the context of academic progress and expected earnings can help students build a healthy debt-to-income ratio that can later afford them the opportunity to own a home and enjoy other benefits of financial well-being (Dynarski, 2016).

Additionally, from a policymaking perspective, results from this study and previous studies on community colleges can help build the case for reconsidering current federal loan counseling requirements in light of the academic vulnerability present among community college student borrowers. While students are required to fulfill loan counseling requirements prior to receiving their first federal loan, currently institutions cannot make it mandatory for students to attend loan counseling sessions as a condition of borrowing beyond their initial loan. Increasing the frequency of counseling would allow for information to be delivered in shorter doses. This would, in turn, help relieve students from feeling overwhelmed with the current densely packed, one-time loan counseling sessions (Fernandez, Fletcher, Klepfer & Webster, 2015). On the other hand, institutions would have more flexibility to align loan counseling concepts to the particular phase in college when the information is most relevant to the student (e.g., teaching students to calculate interest accrued on their loans when they are considering dropping below half-time vs. prior to obtaining the loan). Finally, institutions would have better leverage over students who enroll on a non-continuous basis by requiring them to complete counseling every time they reenroll.

The present study uncovers significant relationships between debt incurred, and borrower characteristics and enrollment outcomes. This study points to gender as a major factor in cumulative debt amount incurred. This finding warrants further research about the specific role that gender plays in cumulative debt amount, particularly with regard to individual ethnic groups. A qualitative study could help reveal reasons

males might be less inclined to borrow than females and whether those differences are sustained across ethnic groups. Additionally, to further delve into loan use among Pell Grant recipients, a study that examines the relationship between institutional policies (e.g., financial aid packaging, financial literacy, increased frequency of loan counseling) and students' borrowing patterns could provide further insight into the effects of loan use among low-income students.

## Conclusion

Enrolling at a community college with the intention to complete a degree or transfer to a four-year university is a path that can lead to an improved quality of life for low-income students. According to the College Board (2014), the 2011 poverty rate was 8% for all associate degree recipients and 11% for bachelor's degree recipients, whereas higher poverty rates (e.g., 42%) were found among individuals with no college degree. The premise of enrolling in community college to achieve upward mobility can certainly motivate students to take on additional academic responsibilities and even possibly influence their decision to borrow. The growing use of student loans among community college students is a rising concern, considering that community college students are especially susceptible to not completing a degree. Many community college students arrive on campus with deficient academic preparation and in dire financial need. This places them at risk of deeper financial distress after going to college, which is contrary to their expectations. As findings from this study suggest, community college borrowers are among the lowest income students attending higher education. Therefore, rather than denying them access to student loans, adopting strategies to help these vulnerable students avoid default and progress academically in a timely manner would improve their opportunities for realizing upward social mobility. As the nation contemplates alternatives, such as free community college, to alleviate growing concerns about college access and affordability, it is imperative that advocates look beyond tuition costs and explore the unique circumstances present in this sector's diverse student population.

### Nexus: Connecting Research to Practice

Understanding the background characteristics, pre-college preparation, and academic outcomes of community students can help practitioners and policymakers design appropriate and timely loan and academic counseling interventions that support enrollment, persistence, and program completion. A few policy and practice recommendations derived from this study's findings include the following:

- **Practitioners can design more effective, targeted, and timely loan and academic advising interventions.** Student services and advising support designed specifically for borrowers vulnerable to dropping out can strengthen persistence and thus improve chances for loan repayment (Gladieux & Perna, 2005; Nguyen, 2012). Also, knowing the differences in characteristics and conditions among loan recipients who drop out versus completers can help create more effective, cost-efficient, and capacity-feasible interventions.
- **Practitioners can develop customized student debt plans that align with degree plans and academic progress.** In consultation with both academic and financial aid advisors, students can identify the appropriate loan amounts needed per semester for the extent of their college years. Considering program of study, semester course load, and enrollment intensity would help students make more holistic borrowing decisions. For instance, developmental education students would be able to make conscious decisions about appropriate borrowing amounts by taking into consideration prospects for successful academic progress and completion of their degree.
- **Financial aid advisors can collaborate with career advisors to develop more relevant repayment information.** A debt plan that accounts for expected earnings upon program completion can inform current borrowers' decisions about appropriate debt levels and help them build a healthy debt-to-income ratio that will not preclude opportunities like future home ownership (Dynarski, 2016). Reviewing debt plans with students on an annual basis could help them reevaluate the value of their degree (Carnevale, Strohl, & Melton, 2011), and become more intentional with subsequent borrowing decisions, especially if they change majors.
- **Practitioners should consider contextualizing conversations regarding loan award offers for students with varying debt tolerances across racial/ethnic groups** (Cunningham & Santiago, 2008). These conversations would give students an opportunity to learn about the flexibility of the student loan amount they are offered in their award letter. Oftentimes, loan-averse students choose not to borrow at all because they are unaware that they can take a loan amount that is lower than what appears on their award letter (McKinney et al., 2015).
- **Policymakers and practitioners should consider advocating for regulatory changes to allow for increasing the frequency of student loan counseling.** Beyond required initial loan counseling, institutions currently cannot require that students attend loan counseling sessions as a condition of borrowing. Allowing institutions flexibility in the delivery of loan counseling could relieve students from feeling overwhelmed with the current densely packed, one-time loan counseling sessions (Fernandez, Fletcher, Klepfer & Webster, 2015). It would also give institutions more flexibility to align counseling on specific loan concepts to times when they are most relevant to the student's circumstances, such as when they drop below half time or reenroll after an absence.



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