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Nicholas W. Hillman

University of Wisconsin - Madison, sonrisa1122@gmail.com

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Borrowing and Repaying Federal Student Loans

By Nicholas W. Hillman

This essay synthesizes the most recent and rigorous research on student loan debt. It focuses on basic questions about who borrows, how much, and whether debt affects behaviors. Answers to these questions are necessary for informing federal student loan policymaking, yet the research findings are surprisingly mixed because of poor data quality, research design challenges, and the growing heterogeneity of borrowers. This ambiguity makes federal policymaking difficult when questions about the benefits and burdens of student loan debt are left unanswered. By synthesizing the current research, this essay helps answer some of these questions while calling attention to others.

Keywords: *student loan, college affordability, federal student aid*

With the reauthorization of the Higher Education Act of 1965 (HEA) on the horizon, policy advocates may turn to the growing body of student loan research examining who borrows, how much, and whether debt affects students' behaviors to help anticipate how policy changes might affect students. Unfortunately, this research often draws mixed or inconclusive conclusions, making evidence-based policymaking a challenge because we do not have a nuanced or consistent portrait of student loan borrowing in America. As a result, federal student loan policymaking is likely to arrive at "solutions" that, at best, misdiagnose the nature of the loan "problem" or, at worst, leave the root problem unresolved.

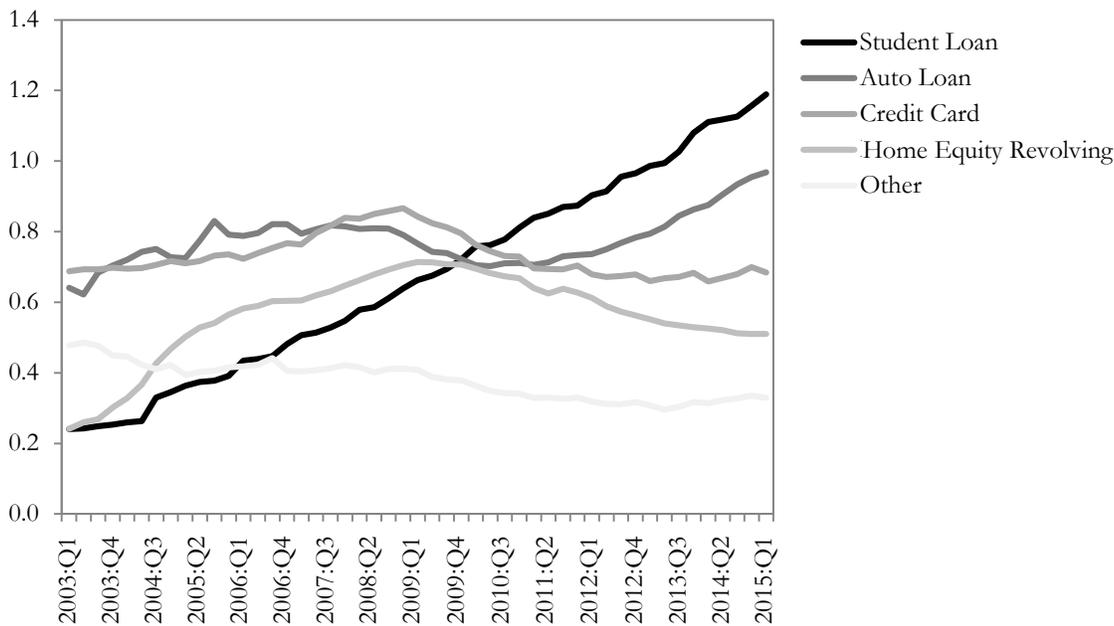
This essay reviews student loan research and examines these challenges, beginning with basic questions about why debt is rising and the challenges researchers face when conducting research in this area. It follows with a synthesis of the most recent and rigorous research on borrowing and repaying loans (focusing on undergraduate students unless otherwise noted) and concludes with a brief discussion of what the future might hold for federal student loan research and policy.

Why is Debt Rising?

Four key changes help us understand why debt has risen so quickly in recent years. First, federal aid policies expanded loan eligibility and shifted from grants to loans (Heller, 2011). Second, more students are participating in college; enrollments have grown by 5 million over the past decade, largely among for-profit colleges (U.S. Department of Education, 2013a). For-profit colleges enroll only 10% of the nation's college students, yet they disburse nearly 20% of all federal student loan dollars (Jaquette & Hillman, 2015). Third, states have divested public support and shifted the financial burden onto students via higher tuition charges (GAO, 2014). And fourth, median family incomes have fallen each year since 2005, making it more difficult for students to pay the rising price of college out of savings or work income (U.S. Census Bureau, 2015).

Due to these changes, the amount of outstanding student loan debt has more than tripled over the past decade and is now the largest source of consumer credit, second only to home mortgages (see Figure 1).

Nicholas Hillman is assistant professor of educational leadership & policy analysis for the Department of Educational Leadership and Policy Analysis of the University of Wisconsin-Madison.

Figure 1. U.S. Composition of Outstanding Debt Balances (in trillions)

Source: Household Debt and Credit Report, *Federal Reserve Bank of New York*, 2015.

The average borrower carries approximately \$27,000 in loans, though the median is much lower at \$14,000 (Federal Reserve Bank of New York, 2015). Due to this growth, a record one in five households now carry student loan debt (Fry, 2012). While the returns continue to remain strong and the value of a college education typically warrants the investment, media outlets routinely refer to the “student debt crisis” or “student loan bubble” that has yet to be substantiated by academic research (Avery & Turner, 2012). Academic research has certainly identified problem areas, but many of these persisted long before today’s calls of crisis.

Challenges for Student Loan Research

Basic questions about federal student loan debt—i.e., who borrows, how much, and how debt affects behaviors—are surprisingly scarce in the academic literature. One reason is because the policy environment is complicated, consisting of loans originated under programs that no longer exist (e.g., the Federal Family Education Loan Program), rules that apply to certain loans but not others (e.g., subsidized versus unsubsidized), and borrowing limits that differ depending on the type of loan (e.g., Federal PLUS versus Federal Direct Loans) and level of student (e.g., undergraduate versus graduate). Studies must be in tune with these policy nuances and be up to speed with the latest policy developments; otherwise, the results lose policy relevance very quickly.

Additionally, researchers have poor access to high-quality and timely loan data. Most research relies on national surveys sponsored by the National Center for Education Statistics (NCES), that take several years to collect, verify, and report the data. While NCES surveys connect with official loan data from the U.S. Department of Education’s National Student Loan Data System (NSLDS), researchers often use other surveys (e.g., Survey of Consumer Finance and National Longitudinal Survey of Youth) that rely on self-reported data. Self-reported data is highly problematic because one in eight borrowers do not know they

have a loan and, when they do know, they underestimate their debt by 25% (Andruska, Hogarth, Fletcher, Forbes, & Wohlgenuth, 2014; Brown, Haughwout, Lee, & Van Der Klaauw, 2014).

Finally, it is difficult to disentangle correlation from causation in student loan research. Since all borrowers self-select into the aid system (i.e., they are not randomly assigned loans), researchers must account for this if they want to draw causal inference. Failing to address self-selection threatens the internal validity of the research, which can be overcome, or at least addressed, through experimental or quasi-experimental designs that make use of instrumental variables, fixed effects, and regression discontinuity to approximate experiments (Angrist & Pischke, 2009). Correlational studies are common but do not address self-selection, so users of this research should not misinterpret correlation for causation.

Who Borrows Student Loans?

A fundamental question about the distribution of debt—who borrows?—has attracted a surprisingly small amount of attention in academic research. Using the National Postsecondary Student Aid Survey (NPSAS), Table 1 shows that 40% of undergraduates borrowed federal loans in 2012 (NCES, 2013). With more undergraduates relying on debt to finance their education, it is not surprising to see that the profile of “who” borrows has also changed. Much of this change is due to federal policies like the Middle Income Student Assistance Act of 1978 and the 1992 HEA reauthorization that expanded aid eligibility for middle and upper-income families (Heller, 2011). As shown in Figure 2, low-income students have historically relied on debt, although more students from moderate to high-income families are now taking out loans (Chen & Wiederspan, 2014; Hart & Mustafa, 2008; Houle, 2014a; Wei, Li, Berkner, & Carroll, 2004).

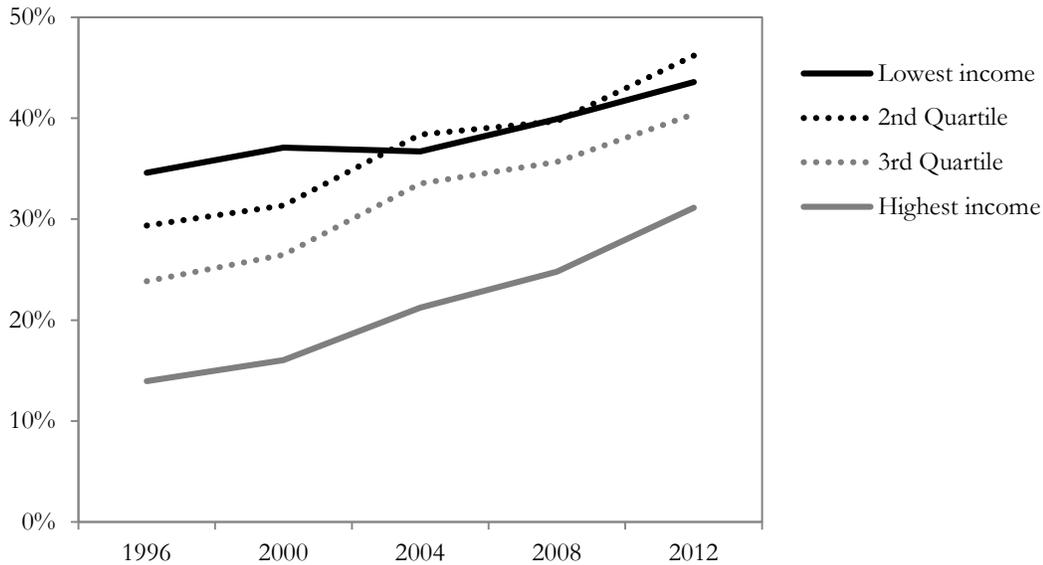
Even after accounting for family income, racial/ethnic background is systematically related to borrowing behaviors. This is due in large part to structural inequalities in the labor market and great racial disparities in wealth accumulation, where Black and Hispanic students tend to have the greatest financial need when paying for college (Oliver & Shapiro, 2006; Long & Riley, 2007). However, this does not mean Black and Hispanic students borrow at the highest rates—in fact, researchers are untangling the reasons why Black students borrow more (Elliott & Friedline, 2013; Houle, 2014b; Jackson & Reynolds, 2013) while Hispanic students often borrow less (Burdman, 2005; Cunningham & Santiago, 2008; Gross, Torres, & Zerquera, 2013). There are large research gaps regarding how Asian, Native American, and many other racial/ethnic groups engage with student loans (see Figure 3).

Table 1. Percent of Undergraduate Students Borrowing Title IV Loans (excluding PLUS), by Sector

	Total	Public		Nonprofit		For-profit	
		2 yr	4 yr	2 yr	4 yr	2 yr	4 yr
1996	25%	6%	38%	20%	48%	58%	51%
2000	28%	6%	40%	23%	51%	75%	73%
2004	33%	10%	44%	35%	54%	76%	76%
2008	35%	11%	43%	42%	56%	77%	81%
2012	40%	17%	48%	47%	60%	67%	73%

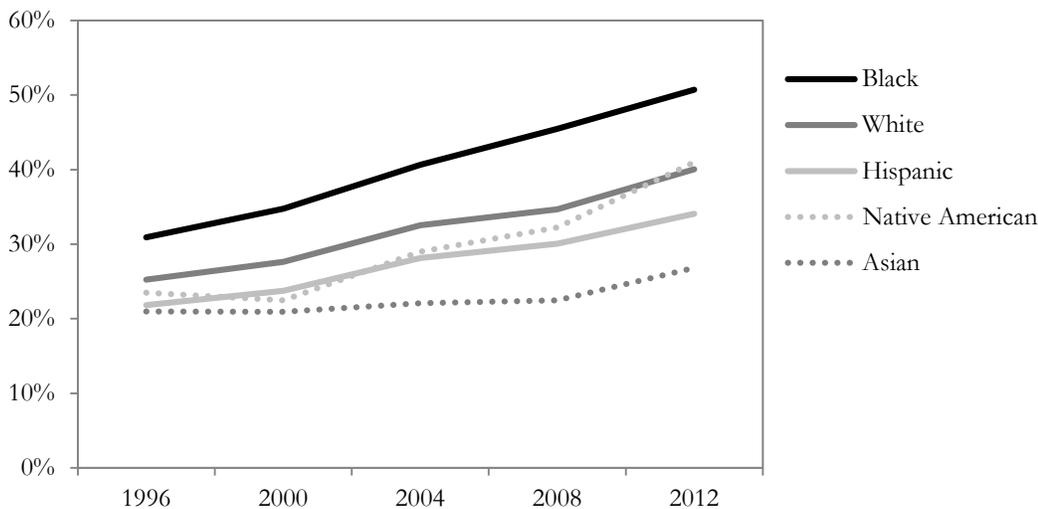
Source: NCES National Postsecondary Student Aid Survey using the variable “T4LNAMT1.”

Figure 2. Percent of Undergraduate Students Borrowing Title IV Loans (excluding PLUS), by Income



Source: NCES National Postsecondary Student Aid Survey using the variable “T4LNAMT1.”

Figure 3. Percent of Undergraduate Students Borrowing Title IV Loans (excluding PLUS), by Race/Ethnicity



Source: NCES National Postsecondary Student Aid Survey using the variable “T4LNAMT1.”

Even when students have financial need, not all are willing to borrow. There may be cultural or personal preferences where students will only borrow as a last resort—debt aversion keeps students from borrowing (Burdman, 2005; Callender & Jackson, 2005). And some students would borrow if they simply had more information and knew what they could receive—students unknowingly leave money on the table (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012; Castleman & Page, 2014; Dynarski & Scott-Clayton, 2013). Still

others argue that students exercise “self-constraint” by not borrowing even when they could (Cadena & Keys, 2013). Regardless of why students do not borrow, the lack of financial resources puts extra pressure on students. They work more hours, sacrifice other financial priorities, or simply do not enroll if the financial barriers are perceived to be too high (Perna, 2008; Tierney & Venegas, 2009).

How Much Do Students Borrow?

When students borrow federal loans, there are limits on how much they can take out. Aggregate Direct Loan borrowing is capped at \$31,000 for dependent students, \$57,500 for undergraduate independent students, and \$138,500 for graduate/professional students. Federal policy not only places caps on the *aggregate* amount students can borrow, they also cap the *annual* amount students can take out, where a first-year student’s maximum loan is about 25% lower than a fourth-year student’s maximum. Notably, these limits are only for Direct Subsidized Loans and Direct Unsubsidized Loans, since independent students can borrow beyond these limits via Federal Direct PLUS loans (to meet their cost of attendance), or via private loans, credit cards, family loans, and a number of other non-federal loans not explored in this paper.

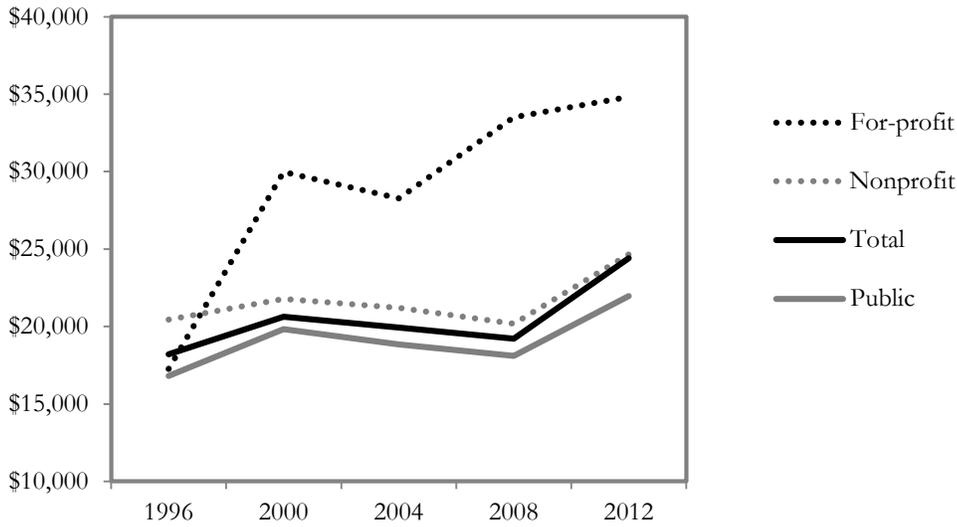
Borrowing limits result in a close relationship between program length and debt burdens, where those who stay enrolled the longest tend to carry the most debt (DesJardins, Ahlburg, & McCall, 2002; Harrast, 2004). Borrowers who began but did not complete a bachelor’s degree typically carry one-third the amount of debt in comparison to their peers who earn the degree. The most recent data shows non-completers carry \$9,900 in debt, far lower than graduating seniors (U.S. Department of Education, 2013b). Regardless of whether a student graduates, debt is still concentrated in the hands of lower-income and racial/ethnic minority students. This trend has persisted since the early 1990s, where Pell Grant recipients have historically taken on greater debt burdens than non-recipients (Woo, 2013; King & Bannon, 2002). Even after controlling for academic and demographic backgrounds, these patterns persist (Chen & Wiederspan, 2014; Woo, 2013).

Not surprisingly, bachelor’s degree recipients often carry higher debts than non-completers simply because they enrolled for a longer period of time. Figure 4 shows average undergraduate debts for bachelor’s degree recipients, where debts of public and nonprofit college graduates remained relatively flat leading up to the Great Recession. In fact, there was a modest decline in their debts during the early 2000s, a time marked by economic growth and greater state investment in public higher education (GAO, 2014). When these students pursue graduate-level education, they incur even more debt, particularly among those pursuing law (JD), medical (MD), and other professional degrees (Belasco, Trivette, & Webber, 2014).

Figure 5 shows the average debt burden among graduating seniors of different racial/ethnic groups. Interestingly, researchers have found opposite patterns from those mentioned above: Some have found that Black borrowers carry lower debt burdens than White borrowers (Alon, 2007; Chen & Wiederspan, 2014), while others have found that Hispanic students borrow the most (Harrast, 2004). Still others have gone as far as to say race matters “very little” when explaining debt burdens (Akers & Chingos, 2014, p. 11). These results are likely driven by external validity limitations (Alon, 2007; Harrast, 2004), omitted variable bias (Chen & Wiederspan, 2014), and measurement error from self-reported loan data (Akers & Chingos, 2014; Houle, 2014b). Nevertheless, they help us consider the heterogeneity that exists among borrowers and the ways data and methodological limitations can shape research findings.

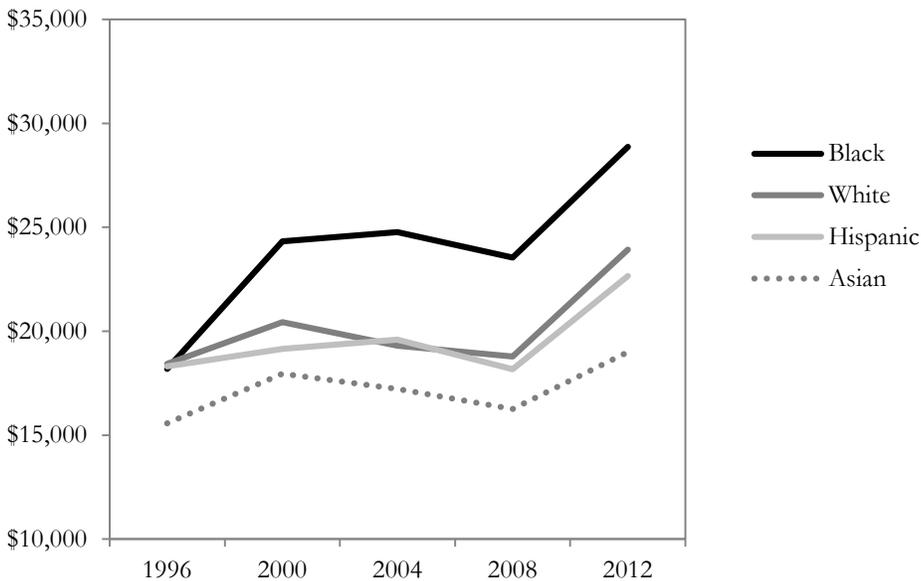
Nearly all debt research focuses on student-level data, and for good reason. However, there is a gap with respect to institutional and structural factors shaping aggregate debt levels. What are colleges doing to reduce debt burdens? How do state financial aid policies exacerbate the reliance on loans? To what extent do universities vary according to debt levels? How reliant are colleges on student loans as revenue?

Figure 4. Average Cumulative Federal Loan Debt Among Graduating Seniors (excluding PLUS), by Sector



Source: NCES National Postsecondary Student Aid Survey using the variables “CUMUG1” (1996, 2000) and “FEDCUM1” (2004, 2008, 2012). Adjusted to Consumer Price Index 2012 dollars.

Figure 5. Average Cumulative Federal Loan Debt Among Graduating Seniors (excluding PLUS), by Race/Ethnicity



Source: NCES National Postsecondary Student Aid Survey using the variables “CUMUG1” (1996, 2000) and “FEDCUM1” (2004, 2008, 2012). Adjusted to Consumer Price Index 2012 dollars.

Monks (2014) finds that colleges with low levels of state and institutional financial aid are more likely to have high debt levels. Craig & Raisanen (2014) find that less-urban universities and those with greater selectivity and institutional wealth tend to have lower average debt burdens for their graduating class. Research in this area holds great promise since state and institutional policies and practices affect financial aid packages. To understand “how much” debt students carry, we need to also understand how colleges shape these outcomes.

Does Debt Affect Behaviors?

One of the most popular (and most difficult to answer) questions in student loan research asks how debt affects various behaviors. This literature is remarkably inconsistent. Some scholars conclude that credit constraints are not a problem; rather, student’s “ability” and family environment explain why they do not attend college (Cameron & Taber, 2004; Carneiro & Heckman, 2002; Keane, 2002). From this perspective, it is inefficient to distribute aid to “low-ability” students because they risk having high debt burdens and low future earnings (Eisenhauer, Heckman, & Mosso, 2015). Others find that loans neither positively nor negatively affect enrollment decisions, suggesting they have modest (if any) bearing on enrollment decisions (Alon, 2007; Monks, 2001; Johnson, 2013).

Still others find loans play a systematic role in enrollment behaviors, sometimes negatively and sometimes positively. Studies have found subsidized loans to have a *positive* relationship with enrollment, where those receiving loans were more likely to persist (Alon, 2007; Chen & DesJardins, 2010; Cofer & Somers, 2000; DesJardins et al., 2002; Singell, 2004). Without access to loans, students would have been more likely to drop out; therefore, removing credit constraints can help students invest in their educations. These positive benefits tend to be concentrated among students of color, where Black borrowers have been found to persist at higher rates than White borrowers (Jackson & Reynolds, 2013). However, studies also find *negative* relationships, where borrowing actually reduces the odds of attending or persisting in college (Dwyer, McCloud, & Hodson, 2012; Kim, 2007; Paulsen & St. John, 2002). These negative effects are typically concentrated among students of color, where debt is a stressor that encourages students to drop out.

Debt could work in either direction: either it removes credit constraints to help students persist or it introduces additional barriers to discourage degree completion. Methodologically, it is difficult to determine that debt (and not some other factor) caused any of these outcomes. Studies should, at a minimum, account for the non-linear effects of debt, where loans may be helpful up to a certain tipping point and then they become harmful (Dwyer et al., 2012; McKinney & Burrige, 2014). They should also make efforts to address endogeneity and self-selection, while being explicit about external validity concerns related to generalizability. Nevertheless, researchers and policymakers generally agree that reducing credit constraints will increase participation levels (Belley, Frenette, & Lochner, 2014; Brown, Scholz, & Seshadri, 2012).

Most of the research focuses on undergraduate borrowing, but a small body of literature has examined graduate school enrollment. Researchers have found that undergraduate debt discourages students from pursuing graduate school (Millett, 2003), particularly for public college students (Zhang, 2013) and high-debt STEM majors (Malcolm & Dowd, 2012). However, others find debt has no relationship or may actually encourage students to pursue graduate education (Kim & Eyerhmann, 2006). The negative effects are found in newer studies that have the benefit of employing stronger research designs, so the evidence points in their favor. Despite these mixed results, we should not rule out the plausibility that undergraduates who borrow could be willing to go even further into debt if they believe the returns to graduate education are sufficiently strong.

In addition to debt's effects on enrollment, researchers examine its effects on economic wellbeing. Some have argued student loan debt is preventing Millennials from purchasing homes (Bleemer, Brown, Lee, Klaauw, & Wilbert, 2014) or starting small businesses (Baum, 2015). Others conclude debt delays marriage and family formation (Addo, 2014; Nau, Dwyer, & Hodson, 2015), reduces net financial worth (Elliott & Nam, 2013), decreases the likelihood of donating to one's alma mater (Meer & Rosen, 2012), and is detrimental to mental health (Walsemann, Gee, & Gentile, 2015). While plausible, none of this evidence results from studies using strong enough research designs to draw causal inference. The strongest evidence comes from two studies, where researchers found removing loans induced students to choose "public interest" careers (Field, 2006; Rothstein & Rouse, 2011). Future research should continue this line of inquiry and design studies that draw causal inference.

How Do Borrowers Repay Their Loans?

Considering the research gaps on basic questions about borrowing, the landscape of loan *repayment* is even less developed. In fact, the U.S. Department of Education did not publicly release data on loan repayment plans until only recently. Table 2 uses this data and shows the majority of borrowers (57%) repay on a standard 10-year "mortgage-style" repayment schedule. Approximately one in five borrowers participate in either a graduated/extended repayment plan or an income-driven plan, and these borrowers carry at least two-times more debt than those in standard repayment plans. Many important policy questions have yet to be asked and answered concerning student loan repayment. For example, we do not have a clear picture of how long it takes average borrowers to repay their loans, nor do we know how often students change their repayment plans from the standard 10-year plan to an income-driven plan. Similarly, we do not know the characteristics of students who opt into income-driven plans, nor do we know whether these alternative plans reduce students' chances of default or delinquency.

What little we know about repayment comes by two different generations of student loan default research. First-generation studies found default was a "preexisting condition" (Monteverde, 2000) and students' academic, demographic, and economic stations in life were the strongest predictors of default. Therefore, colleges should not be held accountable for serving students who are simply likely to default in the first place (Greene, 1989; Knapp & Seaks, 1992). Second-generation studies arrive at very different conclusions, likely due to improved data quality and research design, where dropping out, post-college unemployment, and attending a for-profit college are the strongest predictors of defaulting or having low

Table 2. Repayment Plans for Federal Direct Loans that Are in Repayment, Deferment, or Forbearance

	Number of borrowers (millions.)	Outstanding principal & interest (\$ billions)	Average debt
10-year standard	11.3	\$188.4	\$16,732
Graduated or 10+ years	4.2	\$139.5	\$33,057
Income-driven plans	3.5	\$173.8	\$50,231
Other	0.9	\$50.7	\$56,966
Total	19.8	\$552.4	\$27,857

Source: U.S. Department of Education, Office of Student Financial Aid, Student Loan Portfolio reports.

repayment rates (Belfield, 2013; Deming, Goldin, & Katz, 2012; Gladieux & Perna, 2005; Hillman, 2014). Second generation studies also examine institutional factors associated with cohort default rates (see, for example, Darolia, 2013) since this is one of the few regulatory instruments available for protecting students from predatory and low-quality colleges.

Implications for Federal Student Loan Policy

Historically, the primary goal of federal student loan policy has been to expand college access and choice. In many respects it has been successful since loans have helped millions of students invest in an education they may have otherwise forgone. Considering the vast economic returns to a college education, financing college on credit can be a worthwhile investment (Avery & Turner, 2012). However, when low-income students and students of color carry disproportionately large financial burdens, it creates inequities within the loan system that are difficult to address through policy change. We now have a loan system that is both beneficial and burdensome to students, and the research reviewed in this essay shows just how complicated it is to draw unequivocal answers to some of today's most fundamental policy questions.

Future reauthorizations will continue to be interested in fundamental questions about who borrows, how much, and how debt affects students. However, the rapid growth in debt is pushing the current reauthorization into new frontiers that have not previously been explored in depth. This makes it even more difficult for student loan research to answer important policy questions. We do not even have clear or consistent agreement on some of the fundamental questions, which makes it even more challenging to respond to new questions posed by policymakers. For example, in the current reauthorization, policymakers are seeking ways to insure students against the risks of borrowing. Income-driven repayment, underwriting, risk-sharing efforts, and informational interventions have already been proposed as “solutions” to help borrowers manage their debts upon leaving college.

When turning to the academic literature, data limitations and research designs make it nearly impossible to assess the merits of proposed policy solutions since the evidence base is small. It is hard enough to find consistent results with respect to fundamental questions about student loan debt—who borrows, how much, and how borrowing affects behaviors. To propose policy solutions that extend even further into these new frontiers (e.g., risk sharing, underwriting, etc.) seems a bit premature since we still know far too little about who borrows and why. The evidence base is simply not there for many of the proposed policy solutions surfacing in HEA reauthorizations, so my hope is that this essay helps researchers explore both the timeless and emerging student loan questions and can help build an evidence base for policymaking.

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