

Strategies to Test for Private Student Loan Discrimination

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ABSTRACT

Little is known about private student loan discrimination, in contrast to the relatively developed research on discrimination in other credit markets such as mortgages and credit cards. The private student lending market can play a key role in responding to changes in the policy or economic environment, and many students and their families turn to the private loan market in order to cover financial need that is unmet by publicly funded programs. This paper includes a review of strategies used to measure discrimination in other credit contexts and a consideration of the applicability of such techniques for use in testing for differential outcomes in the private student loan market. The aim of the paper is to connect extant credit market discrimination literature and models to private student loans and to suggest possible avenues for future inquiry into the topic. Although fair lending analyses from other contexts provide lessons for measuring discrimination in educational credit markets, there is a need for better data and a more developed understanding of decision making in educational credit markets.

INTRODUCTION

Scant research attention has been given to questions about whether members of minority racial and ethnic groups face discrimination in their private student loan experiences. This is in contrast to relatively large literatures focused on discriminatory experiences in other credit markets, such as mortgages and credit cards (e.g., Cohen-Cole 2011; Courchane 2007), and on credit constraints in human capital investment decisions (e.g., Lochner and Monge-Naranjo 2011). This paper includes a review of strategies used to measure discrimination in other credit contexts and a consideration of the applicability of such techniques

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for use in the private educational credit market. Limitations of available student loan data inhibit the implementation of many of these analyses; therefore, the aim of the paper is to conceptually connect credit market discrimination literature and models to private student loans and to suggest possible avenues for future inquiry into the topic.

Students and their families can borrow educational loans in three broad categories: federal programs, state- and institution- sponsored programs, and private lender programs. Federal loan programs typically have more favorable terms than private lender loans. Loan approval and interest rate in federal programs do not vary with expected default risk as long as borrowers attend an eligible institution. Federal loan programs are subsidized, such that credit is offered at lower rates than can generally be obtained from private lenders, and some programs have extra benefits, such as the ability to postpone payments and interest accrual during times of enrollment or hardship. Loans from private lenders comprise a smaller share of the more than \$110 billion total student loan market than federal student loan programs (Baum and Payea 2012); however, the current and historical levels of private student loan borrowing suggest that student experiences in the private loan market nonetheless warrant attention. Private student loan debt comprises approximately 15% of total outstanding educational debt, with students estimated to be borrowing \$6–8 billion from this sector annually in recent years (Baum and Payea 2012; Consumer Financial Protection Bureau [CFPB] 2012b). At its recent peak in the 2007–08 school year, private sector loans comprised as much as 24% of the market, reaching almost \$23 billion borrowed (Baum and Payea 2012). Additionally, over 15% of undergraduates and almost 11% of graduate students borrowed private loan money in recent years (CFPB 2012b).

Even at lower levels than in the past, private lenders can play a key role in responding to changes in the policy or economic environment. For example, Lochner and Monge-Naranjo (2011) demonstrate how the private lending market expands or contracts in response to changes in federal student loan programs. The CFPB (2012b) stressed the significant role of private student loans in student financing decisions as a basis for fair lending regulatory attention, explaining that, “the availability of [federal] loans is statutorily limited, and they do not cover the full cost of attendance at many schools. Accordingly, [private student loans] can be an important tool in the education finance toolbox” (2012b, 85). Because costs at some postsecondary institutions exceed available aid offered by federal programs, many students and their families turn to the private loan market in order to cover unmet financial need. Therefore, discrimination in the private credit market may be particularly harmful for those students with the least available financial resources.

Private student loans are not exclusively used as a companion to federal loans, moreover, as not all private student loan borrowers also borrow from federal programs. Estimates indicate that over 12% of undergraduate private student loan borrowers did not apply for federal aid, and another 11% applied for federal aid but did not obtain a federal loan (CPF 2012b). Also, hundreds of community colleges opt out of federal student loan programs, a decision that leaves private loans as the only borrowing option for these students; a recent estimate indicates that approximately 9% of public community college students nationally do not have access to federal student loan programs (Hillman and Jaquette 2014; Institute for College Access and Success 2011).

Furthermore, until regulatory changes enacted in mid 2010, private lenders were the predominant channel used to deliver for federal student loan disbursements. During its last year (2009–10), the Federal Family Education Loan Program (FFELP) program comprised more than half of total federal loan program disbursements (Baum and Payea 2012). The federal government set loan terms under FFELP. However, the private lender originated the loan to the student, such that many students—even those who did not obtain private education loans—interacted with private lenders in order to obtain federal educational credit. In this way, an understanding of how private lenders market to and interact with borrowers is needed to understand the experience of student borrowers over the past decade.¹

Discriminatory experiences in private educational credit markets can impede discriminated students' access to higher education. This is because student loan discrimination can raise educational costs, either by limiting the amount of credit available to students or because of relatively high interest rates paid on educational credit. Following human capital theory and a life-cycle model of education and consumption, raising the contemporaneous cost of postsecondary education for a given individual decreases the likelihood she will undertake postsecondary education, holding all else equal. Therefore, if students from minority racial and ethnic groups face tighter credit constraints because of discrimination, these students will be less likely to reap the benefits associated with postsecondary education. Research provides evidence that college yields private returns to the average student, such as increased labor market earnings and economic mobility (e.g., Card 1999; Haveman and Smeeding 2006), and also results in benefits

1. Regulatory changes in 2010 eliminated FFELP, such that most federal student loan programs have since only been available directly from the government. It's worth noting, however, that there are threats to the political viability of the government as the only provider of federal educational credit. For example, the Republican platform in the 2012 election cycle (available at www.gop.com/wp-content/uploads/2012/08/2012GOPPlatform.pdf) voiced strong support for increasing private lender participation in educational credit markets, allowing the possibility that we may see a return of private lenders to a role as a principal student loan provider in the future.

to society, including lower crime rates, increased charitable giving, and more productive communities (e.g., Moretti 2004; Wolfe and Haveman 2003).

To provide a bridge between student loans and consumer credit discrimination theories and literature, first provided is a brief definitional discussion of discrimination in student loan markets and a framework for understanding the decisions of private student loan lenders. The subsequent sections include a review of statistical models commonly used to test for discrimination in other credit markets and considerations for the implementation of these models in a student loan context. A discussion of future directions for research concludes the paper.

DEFINING DISCRIMINATION IN STUDENT LOAN MARKETS

Though similar on many dimensions, legal and social science definitions of discrimination are not always congruous. Generally, civil rights laws in the United States attempt to protect against behaviors that disadvantage member of certain groups, frequently termed “protected classes” (Yinger 1998).² From a legal perspective, discrimination in credit markets is typically broadly classified as either disparate treatment or adverse impact. In a student loan context, disparate treatment would result from discrimination in the process of obtaining a loan and involves actions and policies that explicitly consider protected characteristics, such as race or ethnicity, in decisions to lend or in setting terms and conditions. Though not a necessary condition, disparate treatment is often associated with prejudicial discrimination against minorities (Becker 1971). Prejudicial discrimination under Becker’s theory is not profit maximizing behavior for firms, because the lender forfeits income in return for doing business with the borrowers it irrationally prefers. As such, economic theory predicts that lenders practicing prejudicial discrimination will be at a competitive disadvantage because they deny applications from minority lenders with expected positive profits. Because offending actors are theoretically punished in the market, this rationale leads some to call into question the need for governmental bodies to enact anti-discrimination regulation. In the educational credit market, however, there are reasons to believe that competition may not drive out discrimination. For example, because of limited consumer information, student loan borrowers are likely to be unaware whether their experiences differ from others and may have difficulty judging relative prices offered by lenders.

2. For ease of discussion purposes in this paper, protected classes are discussed in the context of members of minority races and ethnicities, with non-Hispanic white (“NHW”) borrowers as the comparator group. Discussion could be extended to discrimination based on other protected classes, such as by sex or religion.

Adverse impact, alternatively, results from the use of ostensibly race-neutral policies and criteria that are correlated with demographic characteristics, such that certain groups end up with differential outcomes. Whereas prohibiting disparate treatment attempts to prevent the application of different rules to members of protected and majority classes, proscribing adverse impact can be thought of as ensuring that rules are not constructed to favor one group over another (regardless of intent). An example from educational credit markets is the consideration of institution-level loan default rates in loan approval decisions. A lender that uses information on the institutional default rate to make decisions may be relying on race-neutral criterion, yet this practice may nonetheless disadvantage minority students if institution-level default rates and the proportion of minority students are positively correlated. Based largely on a labor market context, adverse impact can be considered illegal if the offenders' policies do not have a business necessity or if less discriminatory alternatives are available but not used (Equal Employment Opportunity Commission 2010). The legal standing of adverse impact claims in credit markets, however, is less clear.³ Nonetheless, the CFPB has proactively affirmed its intent to investigate, supervise, and penalize lenders for disparate impact violations (CFPB 2012a).

Arrow (1973) and Phelps (1972) developed early statistical discrimination models for understanding discrimination that is not based on negative feelings towards another group. Statistical discrimination arises when lenders judge individuals based on known or perceived group characteristics. In the economics literature, statistical discrimination is often considered "rational" discrimination, wherein lenders attempt to disburse funds in a manner that maximizes expected profit. Because acquiring information on the true risk of each borrower's default is costly, lenders may instead rely upon group-level indicators of profitability. This behavior will be detrimental to minority borrowers if indicators of profitability for loans to minority borrowers are negative or if signals are noisier, and therefore riskier and costlier, relative to the majority group. The challenge with regulating adverse impact thus becomes apparent: attempts to protect traditionally disadvantaged borrowers can increase costs for lenders and may limit supply of credit in the market. Initiatives to strengthen regulatory supervision related to adverse impact therefore reflect the judgment that the costs to lenders (and to borrowers, to the extent costs are passed on to consumers) do not outweigh the benefits accrued by protecting minority borrowers under such regulation.

3. See arguments related to *Gallagher v. Magner*, 619 F.3d 823 (8th Cir. 2010).

FRAMEWORK FOR PRIVATE STUDENT LOAN
TRANSACTIONS

Following methods originally developed for labor market research, a common strategy to test for discrimination in credit markets is to use a framework in which heterogeneity in an observed outcome by race/ethnicity that is not explained by relevant economic factors is interpreted as potential evidence of discrimination (e.g., Cain 1986; Yinger 1998). Therefore, it is useful to first discuss the economic relationship between private lenders and student borrowers. The majority of student loans in the private student loan market are originated by financial institutions (the focus of this discussion), with a smaller share comprised by the activity of non-profit lenders and institutional lenders (CFPB 2012b).

In student loan transactions, lenders provide borrowers money for educational expenses in return for a future stream of repayments. In order to determine whether to extend credit and at what level to set the price of the loan (the interest rate and associated fees), lenders must consider revenue earned on the loan; expected costs associated with default; and capital, information, and processing costs (Barro 1976; Barth, Gotur, Manage, and Yezer 1983). A lender will approve and originate the loan if expected profit on the loan meets or exceeds the profit required by the lender. Required profitability depends on the return on capital desired by the lender, the opportunity costs of funds, and lender preferences. Required profitability might also be influenced by public policy. For example, recent regulatory changes allow education loans to be considered in Community Reinvestment Act (CRA) reviews, which may encourage lenders to lower their required profitability on student loans originated to residents of certain communities in an effort to obtain credit under this act (discussed in more detail later).

Expected profitability is equal to the expected value of the revenue associated with the transaction, net of capital, processing, information, and other transaction costs. Expected revenue includes the amount the lender expects to receive if the borrower repays or defaults on the loan, weighted by the probability of repayment and default (one minus the probability of repayment). The probability of repayment is a function of the loan amount, the interest rate, the loan terms, and borrower characteristics such as the credit profile. If the borrower repays the loan, revenue depends on the loan amount and the price (e.g., interest rate) charged to the borrower. Revenue in the event of default includes any amount the lender expects to recover, such as garnished wages or the value of any collateral placed against the debt, net of transaction costs. As discussed in more detail later, educational credit is often not secured by collateral; therefore, recovery associated with student loan defaults can be expected to be relatively

low.⁴ It follows that the minimum price (e.g., interest rate) lenders need in order for expected revenue to meet required revenue will depend on the probability of repayment, loan amount, expected recovery in the event of default, cost of capital, and transaction costs. Evidence suggests that many private lenders use risk-based pricing for student loans, in which prices vary with measures of borrowers' default risk (CFPB 2012b).

Discrimination can play a role in lenders' decisions to approve or price the loan. Consider if a lender takes into account any of a variety of factors associated with borrowers' minority status in the transaction, such as the borrower's identification in a minority racial or ethnic group, the demographic makeup of the applicant's neighborhood, or the student body composition of postsecondary institution attended. In the case of prejudicial discrimination, negative regard for minority borrowers would result in lenders having a higher required profitability for minority borrowers to be approved for a loan than for non-minority borrowers, even after taking into account relevant economic factors that affect probability of default. As a result, lenders that practice prejudicial discrimination will not offer loans to otherwise financially profitable minority borrowers.

Alternatively, if average transaction costs, such as the cost of acquiring information on the risk of borrower default or loan processing costs associated with repairing credit history are higher for minority than for non-Hispanic white (NHW) borrowers, expected profitability on the loan will be lower, potentially leading to higher rates of application denial or higher charged prices for minority borrowers. Consistent with theories of statistical discrimination, moreover, if group-level indicators of the probability of minority default are negative relative to those of NHW or signals are noisier, then lenders' calculations of expected profitability for minority borrowers will be lower under most conditions.

The calculation of the probability of default may also be affected by consideration of minority status. For example, evidence indicates that certain minority group borrowers have lower average credit scores than do NHW borrowers in some credit markets (Bostic, Calem, and Wachter 2005; Cohen-Cole 2011). As a result of this measure indicating increased risk of default, minority borrowers may be charged higher prices or denied at a higher rate than NHW borrowers even when lenders use race-neutral criteria on which to make approval decisions or set prices. This is an example of adverse impact for which the legal basis in credit markets is still under debate.

It is worth noting that minorities may face discrimination in other aspects of their lives—such as in the labor market, housing, or access to social services—that could contribute to minority student loan borrowers having relatively

4. Lender remedies moderate this collection risk, as discussed later.

inferior incomes, wealth, or credit histories. Perceptions of discrimination among minority students may also affect college decisions and outcomes (e.g., Nora and Cabrera 1996). All of these factors potentially negatively affect student loan outcomes, but these processes would typically transpire outside of the student loan transaction.

The distinguishing characteristics of educational credit make lenders' estimation of expected profit challenging. Most prominently, educational loans are typically not secured by physical collateral, and student borrowers typically have relatively thin credit score profiles. Additionally, lenders must predict borrowers' future, not present, ability to repay debt obligations based on an uncertain education production function.

Though it can lower credit risk in a transaction, student loans are not characteristically secured by collateral. This is in contrast with consumer credit that places the purchased physical asset, such as a house or car, as collateral against outstanding debt. (But it is similar along this dimension to unsecured personal loans such as credit card debt.) Consider an automotive loan, in which extended credit is typically secured by a lien on the vehicle. Should a borrower default on payments, the lender can sell off the vehicle and close the loan. If a student loan borrower defaults on payments, however, the lender cannot take ownership of or sell off the asset obtained in the transaction (the educational credential or increased skills). Because of this and because costs to recover delinquent payments can be substantial, expected recovery in the event of default of a student loan is expected to be relatively low compared to a secured loan.

Student loan lenders are not without remedies for default. A key similarity of both private loans (since 2005) and federally guaranteed loans (since 1976) is that these loans typically cannot be expunged through borrower bankruptcy, except in cases of undue hardship.⁵ This makes the expected recovery of borrowed moneys in student loan transactions higher than for other types of unsecured personal loans such as credit cards. A primary motivation for nondischargeability of student loan debt was due to concerns that students would be less likely to attempt to repay loans if they could simply declare bankruptcy with little penalty (Pardo and Lacey 2009). Proponents argue that without these provisions, student loan costs would increase for all borrowers, and that educational credit would not be available to the neediest students (Cole 2012). Opponents contend, however, that the inability of struggling borrowers to financially rebuild after declaring bankruptcy harms those students who had

5. There are other remedies available to some private student lenders dating back to 1985. Originators of federally guaranteed student loans have further creditor protections beyond just nondischargeability; failure to repay federal student loans can result in wage garnishment, having tax refunds seized to pay for outstanding balances, and other penalties.

the most difficulty judging their need for credit in the first place (Collinge 2009). Also, the inability for borrowers to expunge student loan debt payments through bankruptcy could result in an overextension of credit by lenders beyond what may be otherwise efficiently provided.

Another distinguishing factor of the education credit market is that student loan borrowers often have very little credit history. Lenders typically only extend unsecured personal loans to borrowers with a robust credit profile, or, in its absence, charge relatively high interest rates to cover the uncertain default risk. Many students have not established their creditworthiness through repayment of other types of loans or been responsible for recurring payments such as rent, telephone, or utilities that can be used as an alternative to traditional credit scores. Therefore, the ability for private lenders to calculate probability of default without prior signals of creditworthiness becomes even more difficult, increasing credit risk. Additionally, the lack of credit history increases information costs associated with pricing and evaluating the loan. This issue is particularly problematic in a student loan transaction when considering that student loan credit is extended not on present ability to repay. Instead, lenders must forecast future ability to repay after students undergo further education and consequently have higher, though uncertain, expected earnings potential.

Because probability of default is more difficult to estimate, there is less expected recovery in the event of default, and information costs are higher, the expected profitability is lower for a student loan than for a loan secured with a collateralized assets and full borrower credit history, with all other terms equal. Because of the lack of collateral and credit history, private lenders are increasingly requiring cosigners on student loans in recent years, though evidence indicates that underwriting standards were less strict during the mid 2000s (CFPB 2012b). The cosigner typically assumes responsibility of repayment, and can sometimes be removed once the student has successfully established a record of loan repayment. This requirement, however, adds another potential barrier to student loan borrowers: finding a cosigner with adequate credit history, income, and assets willing to assume responsibility for the loan. This may be difficult for students from low-income and low-wealth backgrounds and, because of the correlation between some minority groups and socioeconomic status, may particularly disadvantage minority students.

The difficulty posed by student borrowers in estimating expected profitability also poses challenges when regulating the private educational credit market. Without the ability for credit scores to predict default risk for many student borrowers, a number of researchers have attempted to identify correlates of student loan default (see Gross, Cekic, Hossler, and Hillman 2009 for a review). Some of the primary factors that extant research finds to be associated with

default, such as minority race/ethnicity group status (e.g., Dynarski 1994; Greene 1989) or low-income background (e.g., Christman 2000; Knapp and Seaks 1992), are the same groups targeted by policy for expansion of postsecondary education. Moreover, there is a complicated relationship between student outcomes, student backgrounds, and institutions (Belfield 2013; Darolia 2014; Deming, Goldin, and Katz 2012). The relative riskiness of student borrowers, furthermore, may lead lenders to have pronounced sensitivity to the presence of any credit derogatories or be more apt to rely upon group-level indicators of profitability, such as postsecondary institution attended or neighborhood of residence.

DISCRIMINATION TESTING STRATEGIES

A number of empirical strategies are commonly used in other credit contexts to test for discrimination based on individual- or group-level characteristics. This section includes a conceptual review of these strategies with a discussion of their applicability to private educational credit markets. First discussed are tests for discrimination based on individual characteristics, such as race or ethnicity, in loan approval decisions (whether someone gets approved for a loan) or loan terms (typically the price charged for credit). As part of this, included are approaches to examine outcomes at the origination of a potentially discriminatory loan process as well as performance outcomes that can be observed only after some borrowers default. Next, discrimination on group-level characteristics is considered, specifically where student loan borrowers attend school or the community in which they live.

The empirical strategies for examining individual- or group-level discrimination commonly use two modeling approaches: linear ordinary least squares (OLS) regression, used to identify factors related to continuous outcomes such as the loan price, and logistic models for binary outcomes such as loan denial. Within these frameworks, researchers can typically interpret parameter estimates in order to infer discrimination. But the following section also discusses an alternative approach for identifying discrimination based on examining residuals.

Discrimination in Loan Approval and Terms

Among the most commonly studied areas of discrimination in consumer credit research are differentials in loan approval, terms, or conditions based on minority group status (e.g., Ladd 1998; Yinger 1998). Here, tests for these differences based on application rejection, loan pricing, and loan default equations are discussed. It

should be noted that empirical testing based on the statistical models discussed in this section rely on borrower-level data conditional on loan application and, for tests based on loan pricing, conditional on origination.

Testing for Discrimination Based on Application Rejection and Loan Pricing.

As mentioned previously, researchers frequently use a testing strategy in which, after controlling for available economic reasons that explain variation in the expected profitability, unexplained heterogeneity in the outcome by race/ethnicity can be interpreted as potential evidence of discrimination. To follow a similar procedure in private student loan markets, researchers can estimate an outcome, such as annual percentage rate (APR) or denial, for individual i as a function of minority status and factors that affect decisions to set terms or approve the loan:

$$y_i = \beta M_i + \eta X_i + \varepsilon_i \quad (1)$$

Here X includes observable borrower and loan characteristics that affect outcome y and also subsumes the constant term. M is a vector of binary indicators for minority group membership, where NHW race/ethnicity is typically the omitted base group (i.e., a NHW borrower would have $M = 0$ for all minority group indicators in the model). β and η are estimated parameter vectors, and ε includes both the idiosyncratic error term and unobserved factors.

The dependent variable y can include continuous outcomes such as APR, such that equation 1 can be estimated using OLS.⁶ If minority status is independent of unobserved factors in ε , conditional on covariates in X , then the parameter β provides an unbiased estimate of the difference in outcomes for members of the minority group as compared to NHWs. For example, in a loan pricing equation, it provides an estimate of how much more in loan price, on average, minority borrowers pay than NHW borrowers, holding available economic factors in X equal (i.e., $E[y|M = 1, X] - E[y|M = 0, X] = (\beta(1) + \eta X) - (\beta(0) + \eta X) = \beta$). Here, the parameter β provides an indication of differences by minority status in the outcome, but does not inform the researcher whether this is evidence of disparate treatment or adverse impact.

Equation 1 can also be used to estimate a discrete choice dependent variable such as student loan denial (e.g., where y equals 1 if the loan was denied and 0 if approved) using a logistic regression:

$$P(y_i = 1 | M_i, X_i) = \Lambda(\beta M_i + \eta X_i + \varepsilon_i) \quad (2)$$

6. Because APR is typically not negative, a risk with using OLS is that estimates could be biased or create out-of-range predictions. Nonetheless, OLS is commonly used in analyses of APR, in part because APRs are rarely close to zero and infrequently take on extreme values. Researchers might consider the use of other models, such as a Tobit, depending on the distribution of their data.

Here, $\Lambda(\cdot)$ is the logistic function, $\Lambda(\beta M_i + \eta X_i + \varepsilon_i) = \frac{e^{\beta M_i + \eta X_i + \varepsilon_i}}{1 + e^{\beta M_i + \eta X_i + \varepsilon_i}}$, and the estimated parameter of interest can be straightforwardly converted to a more easily interpreted odds ratio. Interpretation of results therefore can be used to differences between the odds of student loan denial for members of the minority group as compared to the odds of denial for the favored group, controlling for available economic factors in X .

Another approach in the measurement of the mean loan outcomes between two groups has similarities to the Blinder-Oaxaca (Blinder 1973; Oaxaca 1973) decomposition commonly used in labor economics. Using interest rates as an example, researchers first estimate interest rate using equation 1 without the minority borrower indicator, using only data on NHW borrowers. Next, interest rate for all borrowers is predicted by fitting the resulting model to the total sample (i.e., $\hat{y}_i = \hat{\eta} X_i$, where \hat{y} is the fitted value and $\hat{\eta}$ are estimated parameters). The minority borrowers' fitted values provide a conceptual estimate of their expected interest rates had they been subject to the same considerations of factors in X as NHW borrowers.

To provide a test for discrimination in the sample under this approach, researchers can compare the residuals ($\hat{\varepsilon}_i = y_i - \hat{y}_i$) of the minority borrowers to those of the favored class. By implication of OLS estimation, the sum of residuals for the favored class is equal to zero as long as the equation includes a constant term, $\sum_{i=1}^n \hat{\varepsilon}_i^{M=0} = 0$. Therefore, if the sum of residuals for minority borrowers (or similarly the average residual per minority borrower, $\frac{\sum_{i=1}^n \hat{\varepsilon}_i^{M=1}}{n}$) is greater than zero, this can serve as evidence of differences in outcomes between groups in student loan markets, conditional on observable factors. Models based on this approach can also be used with a binary dependent variable such as loan denials. In this case, after estimating the logistic regression including only members of the favored class, fitted values are calculated as $\hat{y}_i = \frac{e^{\eta X_i}}{1 + e^{\eta X_i}}$.

A number of challenges complicate researchers' ability to draw casual inference from the strategies discussed previously based on non-experimental data. A serious concern is omitted variable bias, in which the effect of unobserved factors is included in the error term. Omitted variable bias is problematic because unobserved factors, loan terms, and applicant characteristics are typically correlated, leading to bias in the estimate of discrimination (Yezer 2010). This bias can work in either direction, theoretically, but minority borrowers often have unfavorable distributions of unobserved factors (e.g., less wealth, lower income, and poorer credit on average), leading to false positives of discrimination (Yezer 2010). Omitted variable bias may be particularly problematic in models of student loan discrimination, as the determinants of student loan default are difficult to ascertain and there is little available credit history on which to judge borrowers. The lack of theory to guide student loan default may also cause issues

with misspecification of the functional form of the denial or terms equations.

In addition, some researchers call attention to the concern of bias because of included or diverting variables (e.g., Killingsworth 1993). This type of bias takes place if equations “improperly” include variables that are themselves affected by discrimination or are not plausibly justified business practices. At issue is the judgment of which factors should be appropriately included. Often the business necessity of the factor to the outcome is used to determine whether a variable is legitimately included (Yinger 1998), but judging business necessity itself can be difficult. Another problem with included variable bias is the potentially endogenous relationship between actions and choices of the borrowers and borrower characteristics. In such a case, independent variables included in the equation may be endogenously determined in the model (Yezer 2010; Yinger 1998).

Studies that have empirically analyzed fair lending in student markets and data available for research appear scarce. Edelberg (2007) presents some evidence from the Survey of Consumer Finances (SCF) data available from the Federal Reserve Board. Using three waves from the same survey,⁷ Table 1 includes results from an example application of equation 1: estimations of private student loan interest rates with controls for some limited economic factors available in the data. Here X includes income-to-loan amount, SCF wave (2001, 2004, or 2007),

Table 1. Estimations of Private Loan Interest Rate in Basis Points

African American/black	68.18*** (19.73)
Hispanic/Latino	-21.14 (29.89)
Other race/ethnicity	49.01 (44.72)
Income-to-loan amount	0.05 (0.16)
Constant	619.91*** (141.58)
Observations	1,153
Adjusted R-squared	0.240

Notes: Base group for race/ethnicity indicators is non-Hispanic white, controls for SCF wave and origination year. Income-to-loan amount in constant 2010 dollars based on the Consumer Price Index. Standard errors included in parentheses.

***Significant at 1%.

Source: Survey of Consumer Finances, 2001, 2004, and 2007 waves.

7. The SCF is a survey of financial activity of households conducted every three years. Data used in the analysis include three survey waves of data from 2001, 2004, and 2007. Race/ethnicity of the borrower is based on the race/ethnicity of the head of the household. Income and loan amounts are used in constant 2010 dollars based on the Consumer Price Index.

and year of origination. The inclusion of many other economic factors that affect interest rate would be needed to avoid biased estimates of the minority indicator coefficient, but are not available in the data.

The outcomes of interest are the coefficient on the race/ethnicity indicators. Results indicate that African American/black borrowers pay about 68 basis points (0.0068) more on average than do non-Hispanic white borrowers, while the point estimate for Hispanic and Latino borrowers is negative, but not statistically significant. The coefficient for other races/ethnicities is also positive, but imprecisely estimated. Because of data limitations, these results cannot be used to conclusively infer discrimination in private student loan markets. These results, however, do suggest that experiences and outcomes for minority borrowers in student loan markets might be different than those of NHWs.

Though subject to criticism, testing for differences in application rejection and loan pricing is perhaps the simplest way in which researchers can consider discrimination in educational credit markets. The threats to the validity of the estimations, however, highlight the need for detailed data to be used in fair lending studies. There is little publicly available data available to researchers to examine discrimination in student loan markets, and the use of incomplete data may lead researchers to false indications of discrimination or prevent researchers from ascribing causality to observed findings.

Testing for Discrimination Based on Loan Default. Instead of focusing on differences between races/ethnicities at the origination of a potentially discriminatory loan process, some researchers have instead examined performance outcomes. The idea behind such studies is that if minorities are being discriminated against in loan approval decisions, then observation of subsequent repayment behavior should reveal that minority borrowers are defaulting less, on average, than NHW borrowers. Berkovec, Canner, Gabriel, and Hannan (1996a, 1996b) present early studies on this topic in relation to mortgage markets. According to this approach, if minority borrowers are found to be defaulting at higher rates than NHWs, then the hypothesis that minorities were discriminated against in the loan approval process is rejected. Because this type of testing will identify behavior that does not reflect rational profit-maximizing activity, it is most relevant in potentially identifying prejudicial discrimination.

The viability of conclusions from loan performance discrimination studies has been questioned by many researchers. A primary criticism is that studies are subject to omitted variable bias: lack of accounting for credit history or other factors that can affect loan approval may lead to erroneous inferences. Other researchers find that this type of testing is biased against finding discrimination,

and that although one might expect the marginal minority borrower to be better qualified than the marginal NHW borrower (and therefore be less likely to default) when the lender is a prejudicial discriminator, the same cannot be expected for the average borrowers of both racial/ethnic groups (Galster 1996; Ross 1996).

Quigley (1996) uses a simple graph to illustrate the latter point, with a stylized presented version in Figure 1. Here the dotted and solid lines represent the distribution of creditworthiness of NHW and minority households respectively. The relative positions of the lines reflect research that generally indicates that minority households often have a poorer average credit profile than NHW households. Here, CR is the lender-determined level of creditworthiness for approving a loan application, such that if a lender will accept an application from an individual i , where creditworthiness $CR_i > CR$. CR_M^* and CR_W^* are the average probability of repayment of loans issued by the lender to minority and NHW borrowers respectively. Because the distribution of creditworthiness for the minority group is to the left of the distribution of the NHW group, using a common underwriting standard, CR , will result in $CR_M^* < CR_W^*$. The argument that Quigley and others make is that findings from this type of loan performance studies simply reflect the underlying distribution of creditworthiness of the different groups of borrowers.

Loan default studies may be particularly problematic in a student loan context. There is a lack of comprehensive understanding of the determinants of

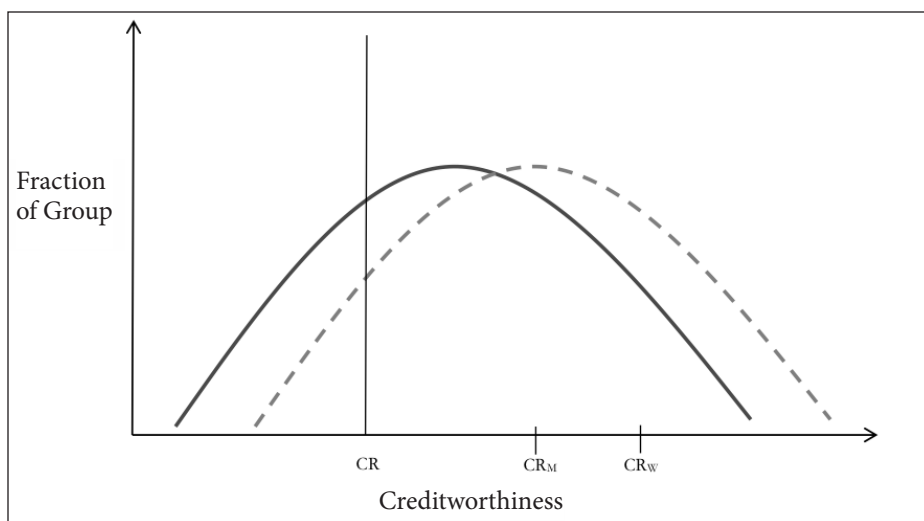


Figure 1. Distribution of Creditworthiness of Two Hypothetical Borrower Groups

Source: Adapted from Quigley, John M. 1996. "Mortgage Performance and Housing Market Discrimination." *Cityscape* 2(1): 59–64.

student loan default across races/ethnicities and, as a result, trying to interpret differences in default as evidence for or against discrimination will prove difficult. Also, understanding of the mechanisms through which students access private student lenders remains underdeveloped, and these decisions may be heavily influenced by other forces such as the postsecondary institution. These theoretical concerns, coupled with criticisms of the methodological approach, suggest that loan default studies may not be the most effective manner with which to test discrimination in educational credit markets under currently available information.

School Targeting and Reverse School Targeting

In addition to discrimination based on individual characteristics, some students may face barriers to credit based on the institution they attend. The Higher Education Act of 1965 (HEA) and subsequent amendments prohibit discrimination in educational credit markets on the basis of race, national origin, religion, sex, marital status, age, and disability status. It is conspicuously silent, however, about discrimination based on postsecondary-institution-level indicators of default risk, such as the student loan default rate of past students or graduation rates. Legislation was proposed in 2008, but never passed, in response to concerns about school targeting to explicitly prevent lenders from discriminating against borrowers who would be otherwise eligible but for their choice of educational institution. Until they were removed as originators of federally subsidized loans in 2010, private lenders could legally discriminate based on school-specific factors for federally subsidized loans and can still do so for private loans. Media articles have highlighted the issue of lenders selectively choosing where they will lend educational credit, but the extent of the practice is unclear. For example, a 2008 media report cited anecdotal evidence that two-year colleges were having difficulty attracting lenders to their schools and that major lenders were among those that have tightened student loan credit by dropping certain schools (Glater 2008). The CFPB (2012b) reports that some lenders only accept applications from students at postsecondary institutions with student default rates below some specified threshold, with thresholds ranging from 6% to 20%, depending on the lender.

To the extent that students at certain schools are associated with higher probability of default, the consideration of school in loan approval and marketing decisions might be viewed as justified from a business perspective, especially considering the paucity of factors on which lenders have to judge borrower creditworthiness. However, data suggest that schools with higher default rates also have a higher proportion of minority students. As a result, the consideration

of school-level default rates in lending decisions may lead to minority students having less access to student loans.

Publicly available data from the Department of Education (ED) is used to illustrate this relationship. The ED publishes federal student loan default rates for student cohorts at postsecondary institutions that are eligible to disburse such loan programs (called “cohort default rates [CDRs]”).⁸ These two-year CDRs provide a measure of the percentage of students who default on their federal student loan obligations (originated by private lenders or the federal government) within approximately two years after starting repayment. Figure 2 includes a simple comparison of these data, averaged over three recent student borrower cohorts (FY 2008, FY 2009, and FY 2009), with institutional-level 2012 minority student body composition from the ED’s Integrated Postsecondary Education Data System (IPEDS).

Figure 2 plots the average percentage of student bodies that identify as minority race/ethnicity against school CDRs. There is an evident positive relationship

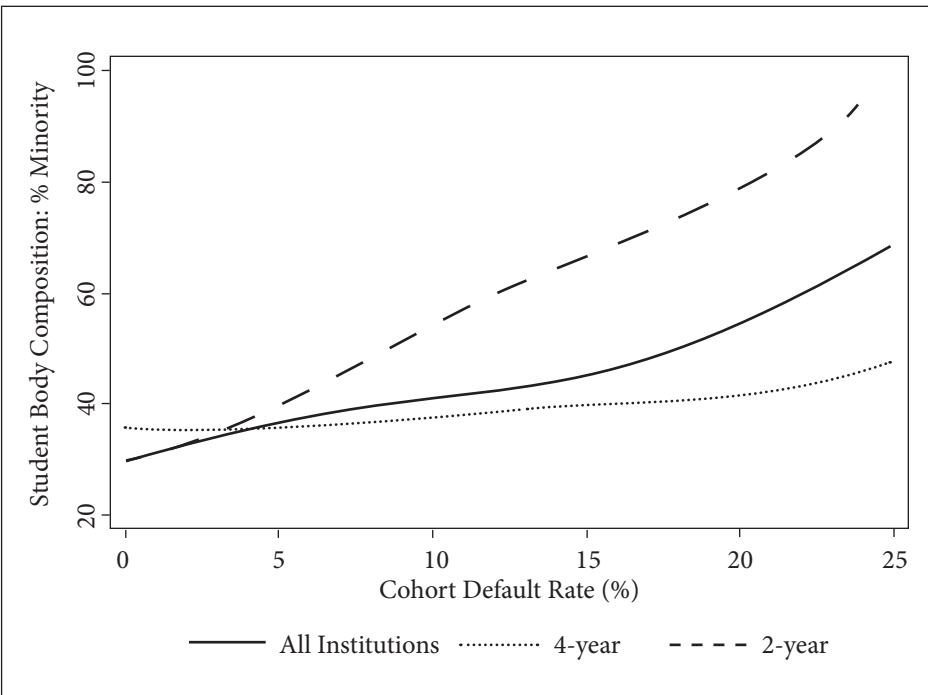


Figure 2. Student Body Composition: Percentage Minority and Cohort Default Rate

Source: Based on data from <http://nces.ed.gov/ipeds>. 2011–12 IPEDS and two-year cohort default rate data averaged over FY 2008, FY 2009, and FY 2010. Lines represent locally weighted linear regressions for the average minority percentage in one point CDR bins. Includes four-year institutions (N = 1,699) and two-year institutions (N = 1,612) with published CDRs in all three years.

8. Available at www2.ed.gov/offices/OSFAP/defaultmanagement/cdr.html.

between percentage minority and CDRs, indicating that the proportion of minority students at schools is larger at schools with higher CDRs. Given this, if CDR is used in decisions of where and under what terms private credit is offered at certain schools, schools with student bodies with large proportions of minority students would likely be negatively affected on average. Because the line is steeper for two-year institutions than for four-year institutions, students at these schools might be particularly at risk. Whether private lenders should be able to target specific schools for marketing is a difficult question for policy. The strategy may result in minority students having less access to educational credit. On the other hand, it is reasonable to question whether public policy should promote access to schools where students do not repay loans at sufficient rates.

The consideration of school-level indicators of default risk can affect not just loan approval, but also loan pricing. There have been allegations that lenders “reverse targeted” certain schools, intentionally attempting to originate high priced loans at schools with a large proportion of minority students. In 2007, two borrowers filed a class action lawsuit against the lender Sallie Mae in the U.S. District Court of Connecticut for taking school default rate into account for loan pricing.⁹ A 2011 lawsuit alleged that a Virginia for-profit college engaged in reverse redlining by encouraging students to take out large and burdensome debt amounts while offering an inferior education.¹⁰ The complaint alleges that the school specifically targeted African American students and students from low-income communities.

Lenders that consider higher school loan default rates to be indicative of higher default risk might therefore charge higher interest rates at schools with higher CDRs. Because evidence indicates that schools with higher CDRs also have higher proportions of minority students (see Figure 2) these considerations may result in a discriminatory impact for minority students. Therefore, in addition to concerns about access to student loans for students who attend certain schools, there is also concern that these students may be targeted with rates and terms that may be particularly burdensome for some students.

To more formally test for school targeting, researchers can use an estimation strategy similar to equation 1. Instead of using an indicator for being part of a minority group as the key variable of interest, researchers could use a continuous measure of the percentage of minority students at the students’ institution or a categorical indicator for a specific level of minority student composition. School-level CDRs could be added to the right hand side of the equation, depending on

9. Class Action Complaint, *Rodriguez et al. v. Sallie Mae Corporation*, No. 3:07-cv-01866 (D.Connecticut Dec. 18, 2007).

10. First Amended Class Action Complaint, *Morgan et al. v. Richmond School of Health and Technology*, No. 1:11-cv-01066-GK (D.D.C. Aug. 3, 2011).

one's view of the appropriateness of this measure as an indicator of individual borrower creditworthiness. Interpretation of the coefficient associated with this variable could serve as an indicator of potential disparate treatment, though these estimations would be subject to many of the same data challenges and threats to validity discussed in prior sections.

In order to appropriately measure discrimination, researchers need information on the decisions of students to understand whether differences in prices, applications, or originations were due to lender actions or borrower choice. Additionally, researchers need to be able to effectively disentangle individual- versus school-level measures of default risk and also have sufficient measures of these factors. This is a challenging task, because research indicates that enrollment is not proportionally distributed across socioeconomic status and race/ethnicity (Bastedo and Jaquette 2011; Posselt, Jaquette, Bielby, and Bastedo 2012). Furthermore, the interconnectedness of student borrowing, student bodies, school characteristics, and school service areas has the potential to confound analyses. For example, the funding disadvantages faced by some urban community colleges could be a factor in poor student outcomes (Dowd 2004), and research has shown that rural community colleges have nearly double the rates of borrowing as do students in suburban and urban community colleges, that borrowing rates are correlated with school size, and that indirect costs such as the availability of public transportation can affect costs of and access to college (Hardy and Katsinas 2008; Katsinas and Hardy 2012). Therefore, while presently available data allow researchers to observe the relationship between school-level minority composition and some student loan outcomes, much more work is needed before being able to draw causal inference from such associations.

Redlining or Discrimination Based on Community Demographics

Finally, consider discrimination not based on individual- or school-level characteristics, but instead on the characteristics of one's community demographics, frequently termed "redlining." In a lending context, redlining can broadly be defined as the behavior of lenders that limits credit to certain neighborhoods without justification (e.g., Barth, Cordes, and Yezer 1979). In a student loan context, redlining would occur if private lenders market less or offer fewer student loans in areas with high proportions of minority residents without business rationales for such disparities. When lenders target high-minority communities with higher priced or inferior products, this practice is commonly referred to as "reverse redlining." There is little evidence on financial institutions' record providing education loans to low-income areas. However, beginning in 2008 as part of the Higher Education Opportunity Act of 2008

(HEOA), compliance with the Community Reinvestment Act can include low-cost education loans provided to low-income borrowers for lenders that originate a high volume of consumer loans.¹¹ Given this new focus, researchers and government regulators will soon need to start evaluating the relationship between student loan availability and neighborhood.

There are a number of ways student loan redlining could be tested in a fair lending context. A simple model is to estimate a given outcome, such as denial rate, average APR, or application volume (standardized by population or number of housing units) within a market as a function of the minority percentage of a geographic area and covariates:

$$y_g = \delta HighMinority_g + \gamma X_g + u_g \quad (3)$$

Here g indexes geographic community, frequently operationalized as Census Tract; *HighMinority* is an indicator for having greater than a certain percentage of population comprised of minority race or ethnicity, commonly 50% or 80%; X is a vector of loan economic characteristics and creditworthiness characteristics, such as average loan amounts, median income, and median credit scores of area residents; δ and γ are estimated parameter vectors; and u is the error term.

The term δ provides a measure of whether outcomes are different in high-minority tracts (as compared to low-minority tracts), conditional on available loan market, economic, and creditworthiness characteristics. Many of the previously discussed concerns about bias in examining discrimination in terms and approval also apply to models of redlining. Factors that could affect credit provision in an area may be unobserved or imperfectly measured. However, because CRA is largely outcome based, lenders might be held responsible for differential outcomes by regulators without regard to underlying causes.

Geographic proximity can be a factor in college matriculation decisions, particularly among socioeconomically disadvantaged students (e.g., Turley 2009), and some minority students may be particularly likely to attend school close to home (e.g., O'Connor 2010). For example, community colleges can provide access to education for proximate students and many have explicit missions to meet the educational needs of students in local service areas (e.g., Ayers 2002; Cohen, Brawer, and Kisker 2013). The Carnegie Foundation for the Advancement of Teaching reflects this focus through its identification of the geographic service areas of these institutions.¹² Therefore, student loan

11. Title VIII of the Housing and Community Development Act of 1977, better known as the Community Reinvestment Act (CRA), targets differential provision of credit to communities of different economic compositions. CRA encourages depository lenders to “meet the credit needs of their communities” by providing a comparable flow of funds to minority areas as they do to NHW neighborhoods. Lenders’ CRA performance is publicly evaluated regularly, and poor performance on CRA exams can result in delayed or prevented acquisitions, mergers, new charters, and branch openings.

12. See Carnegie Foundation for the Advancement of Teaching classification descriptions at <http://classifications.carnegiefoundation.org/descriptions>.

discrimination based on community demographics can be intertwined with school-level discrimination among institutions that primarily serve students who live locally.

DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

The intense recent policy and media attention focused on student lending, along with the relative popularity of discrimination studies in other contexts, highlights the dearth of extant work on discrimination in student loan markets. As such, there is ample opportunity for researchers to provide seminal evidence on questions regarding the existence, incidence, and extent of student loan discrimination. Though subject to potential threats to the validity of such approaches, this paper includes a discussion of some strategies used in credit discrimination testing that can be applied by fair lending researchers in a student loan context. A number of challenges, however, still hinder researchers' ability to undergo comprehensive fair lending studies in private educational credit markets.

The first barrier to empirically testing for discrimination in student loan markets is the need for more developed theories of decision making in educational credit markets. For example, there is a lack of understanding of the process through which student loan borrowers connect with private lenders. In the era of FFELP, students were often provided a menu of lenders by their school's financial office, and private lenders utilized postsecondary institutions as an important delivery channel.¹³ Since FFELP ended in 2010, however, we know less about how students connect with private lenders and how they choose among available options. Surveys suggest that many private lenders market directly to students, even if they later seek schools' help to certify costs, and private lender distribution for the growing certificate and continuing-student market in particular relies heavily on direct outreach to the student (CFPB 2012b). In addition to informing loan approval, pricing, and default models, this knowledge will be particularly important when considering alleged discrimination associated with school-level marketing and increased community-based regulatory attention under CRA.

Furthermore, the complicated and not well-understood relationship between school characteristics and observed borrowing, lending, and repayment behavior presents challenges when trying to isolate lender or borrower decisions and their effects. Research indicates that low-income students are more likely

13. Until 2008, many private lenders offered private loans as an auxiliary to federal loan programs to cover unfunded costs (CFPB 2012b). The close relationship between many private lenders and some institutions' financial aid offices led to a number of public investigations and increased regulation as part of HEOA.

to default on student loans (Gross, Cekic, Hossler, and Hillman 2009) and that low-income students are concentrated in certain types of schools, such as community colleges or those with less selective admissions (e.g., Davidson 2013; Steinberg, Piraino, and Haveman 2009). These are schools that often also serve large numbers of minority students, and there is a positive relationship between minority composition of the school and student loan default rates, as displayed in Figure 2.

Therefore, disentangling the relationship between institutional and individual determinants of default can have important implications for access to financial resources and access to college, with potentially significant consequences particularly for minority students. There are reports that some private student loan providers no longer lend to students at certain schools because of tightening credit standards (Glater 2008). Public policy decisions to increasingly scrutinize student loan performance rates may also result in reduced access for some students, because some students no longer have sufficient financial resources to attend the schools available to them (Darolia 2013) or because of school decisions to not participate in public loan programs (Hillman and Jaquette 2014). Variation in community colleges' geographic service areas, such as the classifications of the Carnegie Foundation for the Advancement of Teaching, may provide researchers an opportunity to better understand the relationship between student body served and student loan performance.

Another major challenge to being able to conduct private student loan fair lending studies is the lack of available data that could suitably provide a robust depiction of student loan experiences across races and ethnicities. Ideal data used to test for discrimination in student lending would include information on outcomes, such as APR, interest rate, or fees charged and the lenders' underwriting decision for each loan application. It would need to be accompanied by a robust set of factors that the lenders considered when considering the default risk and costs associated with the loan, including delivery channel; loan amount; type of loan program; and measures of borrower creditworthiness, such as credit score, income, assets, and other debt. Without such data, risks would persist that observed outcomes could be due to borrower preferences or choices regarding student loans, debt, and paying for college.

A number of data sets produced by government agencies and other sources include survey responses from samples of postsecondary students. For example, the National Center for Education Statistics publishes data at the student level (such as Baccalaureate and Beyond, Beginning Postsecondary Students Longitudinal Study, National Postsecondary Student Aid Survey [NPSAS]) and at the institution level (such as IPEDS) that contain selected information on student demographics and financing. However, while some of these data provide

limited information on student loan activity, they are generally not useful in their current form for examining potential fair lending disparities in private student loan markets. In many cases, the information on student loans is limited to only federal student loan programs, outcomes such as interest rate paid are not available, or there is no accounting of the choices and options borrowers considered in education financing decisions.

Current surveys that are focused on how students pay for higher education, such as the NPSAS, could be augmented to include additional detail on student loans, as well as information on the options available to students and the choices they make. For example, questions could be asked about private loan interest rates and other terms, the number of lenders considered, how students connected with and decided on the lender, and measures of creditworthiness such as credit score or whether the student has previously declared bankruptcy. Though data would be subject to potential response bias, inclusion in a data set such as NPSAS would provide the advantage of also containing data on other types of higher education financing, such as college costs, grants obtained, or work behavior, as well as general educational context. Policy implications that derive from analysis of such data would be potentially relevant to the private lending sector associated with the target population (if records were representative), but would not be able to identify particular discriminatory lenders or bad actors.

An alternative which would make testing more akin to some fair lending studies in other contexts would be data collection at a lender level—for example, a record of all underwriting and pricing decisions made by a particular lender. Although a source for such data could be from private lenders themselves, fear of regulatory punishment would likely prevent such data access without legal compulsion. Implications from testing on this type of data could identify potential discriminatory actions by specific lenders but would leave researchers with a greater challenge in drawing broader market-wide inferences, and such data might lack more comprehensive data on higher education factors, such as attendance patterns, type of school, and costs.

Researchers concerned with educational credit market discrimination can look for lessons from fair lending analyses in other consumer credit markets, where such research is more prevalent and there is more access to full accounts of decisions made by lenders. For example, federal agencies collect data on mortgage applications received and processed by most lenders in the country as part of the Home Mortgage Disclosure Act (HMDA), with coverage estimated to include approximately 80% of the mortgage market each year (Avery, Brevoort, and Canner 2007). HMDA includes basic borrower and loan information, such as the borrowers' race and ethnicity, income, purpose of the loan, loan amount, and property type. The lack of fields in HMDA that are critical in underwriting

and pricing decisions, such as credit score or down payment, makes it insufficient by itself to clearly identify discrimination by lenders. As such, private data is typically required to gain a better accounting of unobserved fields that affect credit decisions and behavior. Nonetheless, HMDA serves as a valuable resource for researchers and regulators. For example, regulators can use it as part of high-level screening to determine that additional investigation may be needed.

The CFPB (2012b) suggests that the following data would need to be collected from lenders in order to conduct a “robust empirical investigation” on student loan fair lending: decisions regarding underwriting, pricing, and loan terms; the manuals, grids, and matrices used to price the loans; applicant credit characteristics, such as credit score and measures of existing debt; and applicant demographics. This type of data gathering is similar to, and actually goes beyond, HMDA data collection efforts. Collecting this type of data on student loans would be useful for research and consumer protection purposes. It would be accompanied, however, by considerable costs associated with data collection and maintenance by lenders in addition to data processing and analysis costs incurred by regulators. As this cost would likely be passed on to consumers, an unintended consequence could be an increase in the cost of credit to student borrowers. Increased compliance costs could also result in lenders exiting the student loan industry altogether, limiting private student loan supply. Therefore, initiatives by regulators to increase data collection requirements for student loans should consider the costs associated with such regulation and whether these costs will affect supply in the student loan market.

A policy change that will likely increase available data without forcing lenders to comply with a HMDA-style data collection is the previously discussed 2008 addition of consideration of low-cost educational credit in CRA exams. Starting with examination of data collection based on CRA compliance may ease data collection costs for lenders—should further requirements be put in place in the future—and also provide researchers a preliminary, though still incomplete, picture of the geographic distribution of student lending. The potential extent of such data collection is unclear, however, as many lenders will likely only produce these data if they originate a high volume of consumer and low-cost education loans. In addition, “low-cost” is yet to be well defined, and the consideration of only a subset of educational loans may limit scope.

In absence of comprehensive data sets, a potential avenue for future research is paired testing studies. Researchers studying labor markets, mortgage markets, and consumer goods purchases (e.g., Ayres and Siegelman 1995; Bertrand and Mullainathan 2004; Turner, Ross, Galster, and Yinger 2002) have used this method to test for discrimination. In these tests, pairs of minority and NHW borrowers (or resumes, applications, etc.) with nearly identical characteristics

are sent to the same lender to observe whether similarly situated borrowers of different races and ethnicities are subject to comparable treatment. Paired testing addresses some limitations of statistical analysis because typically unobserved characteristics in credit transactions can be assigned to testers, and detailed accounts of context and process can be captured by researchers. Paired testing is costly and administratively difficult, however. And because the experiment identifies differences in process, this type of testing is more useful for identifying disparate treatment than adverse impact.

Post-hoc audit studies that attempt to approximate paired testing by performing a detailed review of loan documents after the transaction is completed are another potential approach. Researchers can use matching techniques to identify similar minority and NHW borrowers and compare outcomes. Although still time intensive, costs of implementing these studies are lower than experimental paired testing because testers do not have to literally approximate the application process. However, other empirical challenges remain with this approach. Researchers would need to access a comprehensive set of loan documents and be able to identify the determinants of the lender and borrower decisions in the transactions. Researchers would also need to demonstrate that they can appropriately match borrowers based on available data and find a sufficient number of adequately similar pairs of borrowers.

In summary, inquiry into discrimination in private educational credit markets is needed because student loan discrimination can lead to impaired student access to higher education. Lessons from fair lending analyses in other credit contexts can provide a basis for future efforts. There is much work to be done, however, to develop better theories and data sources so that researchers can measure differences among student loan borrowers of different races/ethnicities and consequently determine whether students face discrimination in their student loan experiences.

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