How Much Debt Is Too Much?

Defining Benchmarks for Manageable Student Debt

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Introduction

From the earliest days of student loan programs, observers have worried that repayment would impose too heavy a burden on young people leaving school. Although assessing the empirical dimensions of the hardship created by student loan repayment has proved far more difficult than expressing concern over its existence, few observers doubt that some students are experiencing real difficulties. Anecdotal evidence of hardship is readily available and surveys have revealed that while student debt rarely has a significant impact on the lifestyles of borrowers in repayment, nontrivial proportions of former students feel burdened by student loan repayment. The fact that average loan burdens are manageable does not diminish the problems facing the minority of students who devote high percentages of their incomes to debt repayment in order to meet their obligations.[1]

Many discussions of student loan repayment focus on those students for whom repayment is a problem and conclude that the reliance on debt to finance postsecondary education is excessive. However, from both a pragmatic perspective and a logical perspective, a more appropriate approach is to develop different benchmarks for students in different circumstances in order to differentiate between those students whose repayment requirements are excessive and those for whom debt burdens are manageable.

Our goal is to establish a range of empirically derived thresholds for manageable student debt. One purpose for such thresholds is to provide good advice to students as they make decisions about financing their postsecondary educations. Another purpose is to inform the design of loan forgiveness and debt management programs intended to relieve excessive debt burdens.[2] Given these goals, our sense of what the word "manageable" means is quite different from what lenders have in mind. We focus not on the risk of default, but on levels of debt that will not unduly constrain the life choices facing former students.

Lenders determine the maximum amount that they are willing to offer loan applicants on the basis of extensive analysis of loan histories, an analysis that is typically translated into statistical models of default probabilities. The maximum they are willing to lend is the amount that keeps the potential borrower's predicted default probability just below whatever level has been chosen by the lender. Critically, there is no notion of manageability beyond the probability of default.

Lender definitions of excessive debt burden focus on default or delinquency, not on subjective feelings of burden or on the sacrifices required to meet payment obligations. For example, the authors of a lender-sponsored review of a number of government-sponsored reports on overindebtedness limited "overindebtedness" to situations involving actual default or persistent delinquency (Oxera, 2004, p. i–ii):

> "…overindebtedness is defined as those households or individuals who are in arrears on a structural basis. This conceptual definition has two important aspects. First, it includes only those households that are in arrears *on a structural basis*—households that are temporarily in arrears and/or households that are able but not willing to meet their commitments should be excluded. Second, in theory, every individual who has credit runs the risk of falling behind with payments; however, the definition includes only those people who are at a *significant* risk of getting into arrears (emphasis in the original)."

Borrowers, however, are likely to define a manageable debt as one that allows them to maintain a standard of living not dramatically different from others with similar incomes and qualifications. While it is inevitable that debt repayment will displace some amount of consumption or savings, it is the extent of this displacement that will define debt burden. From the students' perspective, that burden may be perceived as unmanageable long before default is unavoidable.

In the sections that follow, we discuss several alternative measures of what might constitute a manageable debt from the borrowers' perspective. Before doing so, however, we briefly summarize the life-cycle model, a simple theoretical framework that economists have long used to analyze borrowing and spending decisions; this framework can inform the creation of particular thresholds. In the next section, we discuss an existing threshold that is often cited but that turns out, upon inspection, to have questionable relevance. The following two sections then present and discuss thresholds arising from objective criteria and from subjective indicators drawn from survey data. The concluding section brings together our thoughts on the central question: how much debt is too much?

[1] As background, we note that even though student debt levels have increased quite dramatically in recent years in the United States, average monthly payments as a percentage of income have been relatively stable. The contrast in these two trends can be attributed to a combination of rising earnings, declining interest rates, and increased use of extended repayment options. Studies of loan repayment in the United States in 1997 and 2002 revealed that while average total undergraduate debt increased by 66 percent, to $18,900, average monthly payments increased by only 13 percent over these five years. The mean ratio of payments to income actually declined from 11 percent to 9 percent because borrower earnings also increased significantly (Baum and O'Malley, 2003, p. 27).

[2] The Canadian government, for example, has a program called Interest Relief that allows eligible borrowers to suspend student loan repayment for up to 54 months. Eligibility is based on gross income, family size, and the size of the outstanding student loan debt. In addition to forbearance and deferment plans, the United States has an income-contingent repayment option for government-funded Stafford Loans that is designed to prevent undue debt burden.

The Life-Cycle Model

The life-cycle model was pioneered by Modigliani and Brumberg (1954), and Friedman (1957), and has since been developed and extended by many others. The model has a simple but often overlooked premise. Individuals base their consumption decisions not only on their current income but also on their expected future income or "permanent" income. Borrowing is a mechanism for smoothing consumption over time, allowing long-term planned consumption levels to be established even when current income is insufficient to support that standard of living.[3] In general, the life-cycle model implies that young people will likely consume at higher levels than their current income seems to justify.

This model is clearly relevant to the analysis of student loan borrowers. One of the major goals of student loan programs is to allow young people to borrow in anticipation of future income. Student loans finance investments in human capital that the borrowers hope will yield positive returns over the rest of their lives. Because the loans originate early in the borrowers' lives, most of those who are repaying their student loans are relatively young. Not only will they have borrowed from student loan programs, but they will likely have borrowed to buy cars and houses, all in anticipation of rising income.[4]

The life-cycle model does not imply that excessive debt burden is rare. Individual borrowing and consumption decisions are based on expected future income and these expectations, even if well-informed, may not come to pass. Investments in postsecondary education are risky. Not all who begin a degree program will graduate and not all graduates will find remunerative jobs. Unanticipated changes in health status, in the demand for various kinds of workers, or in family situations can intervene to upset even the most carefully planned life. The medical student who is injured in a traffic accident and can never work as a doctor, the mechanical engineer whose potential employers relocate production to China, the law student who finds that there are more lawyers than well-paid legal jobs—all may find themselves with heavy student loan repayments and without the income they expected to use to make the payments.

The model does, however, suggest that evaluations of student debt levels that focus only on borrowers' financial status while in school or in the first years after entry into the labor force may lead to underestimates of reasonable levels of borrowing for education. First, even if former students recently out of school have higher debt burdens than the average person (averaging across all age groups), this does not necessarily imply that they are overburdened. They may have quite rationally decided to incur debt in order to smooth consumption. Second, indicators that are not age-specific may inappropriately lump together individuals at different stages of their life cycle who should be expected to have different capabilities and willingness to bear debt.

The 8 Percent Rule

For many years, analyses of student debt have relied on the idea that students should not devote more than 8 percent of their gross income to repayment of student loans.[5] For example, Scherschel (1998, p. 6) wrote:

> "Lenders typically recommend that the monthly student loan installments not exceed 8 percent of the borrower's pre-tax income in order to ensure that borrowers have sufficient funds available to cover taxes, car payments, rent or mortgage payments, and household expenses."

A number of other studies have also accepted the 8 percent rule, either explicitly or implicitly. The Illinois Student Assistance Commission (2001) noted that the literature includes guidelines ranging from 5 percent to 15 percent of gross income, but accepted 8 percent as the consensus standard. King and Bannon (2002, p. 3) and Allen and Vaillancourt (2004, p. 19) noted the existence of the 8 percent rule but did not comment on its validity. The Government Accountability Office, on the other hand, cited 10 percent of first year income as the generally agreed upon standard (GAO, 2003).

In some cases, the 8 percent cutoff has been used to calculate the number of students with unmanageable debt burdens (King and Bannon, 2002 and Heller, 2001). Harrast (2004) studied excess student loan debt, defining excess as an amount that generates payments exceeding 8 percent of gross income. He cited King and Frishberg (2001) as the source of this standard and they, in turn, cited Scherschel (1998, p. 6). Scherschel asserts that the 8 percent rule is derived from underwriting standards limiting monthly housing payments to 25–29 percent of monthly income and total monthly debt-service payments to 36–41 percent of income. Typical values for these ratios are 28 percent and 36 percent, so that the proportion of gross income that can be set aside for all other nonmortgage credit commitments is 8 percent. The U.S. Department of Housing and Urban Development standards for mortgages specify 29 percent on payments for housing and 41 percent on all debt payments combined. The guidelines set by the influential

[3] A hypothetical example is a relatively low-paid young medical intern who borrows to buy a luxury vehicle knowing that her current low income will soon be replaced by a much higher one.
[4] See pages 3–4 for a discussion of the other debts carried by former students who are repaying their student loans.
[5] See Greiner (1996) for a detailed summary of efforts up to 1996 to define manageable debt.

Federal National Mortgage Association (Fannie Mae) are 33 percent and 41 percent.

While we have not found documentary evidence to verify the origin of the 8 percent rule, it seems clear that it arose from mortgage underwriting standards. Although the advent of sophisticated credit scoring algorithms and the expansion of subprime mortgage markets have lessened their importance, the two ratios mentioned in the last paragraph still play an important part in lender decisions about whether or not to underwrite a mortgage. The first is the "front-end" ratio of required mortgage payments (including principal, interest, taxes, and insurance) to current gross income. The second is the "back-end" ratio of total credit commitments to gross income. According to one researcher, the values of the front-end and back-end ratios are derived from "experience, intuition and 'gut feelings' in the short run and, it is hoped, from careful research on default experience in the long run" (Guttentag, 1992).

The shortcomings of the 8 percent rule as a justifiable benchmark for manageable student loan payments are apparent:

(1) Because the ratios are based on mortgage default experience, they help the lender determine the maximum that an applicant can borrow without creating an excessive default risk. They do not reflect any notion of what is "affordable"; they determine what you *can* borrow rather than what you *should* borrow. Said differently, the 8 percent rule is a lenders' benchmark, as discussed in the last section;

(2) Underwriting guidelines are now far more diverse than they once were. Credit scores play a crucial role and often influence decisions that would have once been based on traditional front-end and back-end ratios. That is, even if it were true that the difference between the front-end and back-end ratios was a reasonable benchmark for manageable debt, the allowable difference now varies much more than it once did;

(3) Even if we were to accept the logic of using the difference between the front-end and back-end ratios as legitimate, 8 percent is the proportion of income available for all other credit commitments, including car loans and unpaid credit card balances;

(4) The 8 percent rule implies that one percentage can apply to all borrowers. Individuals with higher incomes, however, might reasonably devote higher proportions of their incomes to debt service;

(5) To the extent that they are grounded in empirical analysis, the ratios reflect the default experience of all homeowners, not the experience of young people who have recently left school. The life-cycle model suggests that the ability and willingness of young people to maintain any given debt-service ratio is greater than that of older cohorts. The front-end and back-end ratios, based on current income, do not take into account the higher future income of some borrowers and especially of student loan borrowers.

In sum, we believe that using the difference between the front-end and back-end ratios historically used for mortgage qualification as a benchmark for manageable student loan borrowing has no particular merit or justification. This is not to say that 8 percent is an unreasonable number. Some of the problems listed above suggest that higher limits might be appropriate, while others suggest the opposite. It is simply to say that any benchmark needs stronger justification than has thus far been forthcoming.

Nonetheless, the front-end and back-end ratios do highlight the importance of considering other debt, rather than attempting to evaluate education debt in isolation. Discussions of appropriate student debt levels frequently ignore the other debts that former students are likely to incur. As shown in Table 1, however, a third of the respondents to the 2002 *National Student Loan Survey* reported paying $1,000 a month or more for car payments, credit cards, and other personal loans combined.[6] Only 15 percent of borrowers reported paying less than $250 per month on debts other than student loans and housing costs.

The significance of these high levels of noneducation debt becomes even clearer when the monthly payments on different forms of debt are compared in Table 2. The reality that student loans constitute a relatively small fraction of the total debt burden of former students, even in the early

Table 1

Monthly Payments on Debt Other Than Education and Housing for Borrowers and Their Spouses, 2002

	Percent of Borrowers	*Cumulative Percent*
Less than $250	14.8	14.8
$251–$500	18.1	32.8
$501–$800	17.8	50.6
$801–$1,000	12.0	62.7
$1,001–$1,500	13.5	76.2
$1,501–$2,000	8.9	85.1
$2,001–$2,500	6.5	91.7
More than $2,500	8.3	100

Source: Baum and O'Malley, 2003

[6] The National Student Loan Survey is based on the responses of 1280 borrowers whose loans were held by Nellie Mae, a prominent U.S. student loan agency. The age distribution of the respondents was: 25 percent 24 or younger, 41 percent 25–30, 12 percent 31–35 and 22 percent > 35. About half had a spouse or partner, 33 percent had children, and 29 percent owned homes.

Table 2

Monthly Payments on Education and Other Debt, 2002

	Monthly Payments	
	Mean	*Median*
Undergraduate debt	$182	$156
Total education debt	$261	$200
Noneducation debt excluding housing	$1,070	$650
Total noneducation debt	$1,400	$1,000

Source: Baum and O'Malley, 2003

years of repayment, significantly complicates the task of defining appropriate student loan debt burdens.

One advantage of the 8 percent rule is that it is an objective indicator that can be calculated (or at least estimated) for each borrower. Subjective indicators, which measure how borrowers themselves feel about their debt burden, are also relevant. In the next two sections, we discuss each kind of indicator in turn.

Objective Indicators

Overindebtedness

The European literature on overindebtedness in general provides a useful context for our more narrowly focused discussion of education debt. The term "overindebtedness" is sometimes used in Europe as a synonym for what North Americans would call insolvency, the inability to meet one's debt payments as they come due. However, it is widely recognized that the term can also apply to those who are meeting their debt payments but who are doing so only with great difficulty.

A good starting point for reviewing overindebtedness research is the 2002 analysis of an overindebtedness survey commissioned by the UK Department of Trade and Industry (UK DTI, 2002). This report, written in part by Elaine Kempson of the University of Bristol, seems to be the source of several of the most-often cited quantitative measures of overindebtedness. These measures are of clear relevance to establishing a priori benchmarks for manageable student loan burden. If, given the range of likely future income, the student loan repayments by themselves would create a situation where benchmarks for overindebtedness would be exceeded, then the associated levels of borrowing are almost certainly unmanageable.

The Kempson report was commissioned by a UK overindebtedness task force in 2000 and was based on a 2001 survey of a representative sample of UK households. The survey distinguished between household commitments and other credit commitments. Household commitments consist of mortgage payments, rent, property taxes, and utility bills. Credit commitments refer to the level of outstanding consumer borrowing, not including mortgages.

Based on the survey, and on conversations with experts, Kempson proposed two measures of overindebtedness that used debt-service ratios:

- spending more than 25 percent of gross income on credit commitments; and
- spending more than 50 percent of gross income on credit commitments and household commitments.

In the 2001 survey, 5 percent of UK households were above the first threshold and 6 percent were above the second. No formal justification was given for choosing the specific numerical values for these debt-service ratios.[7]

Typical student debt-service ratios are well within the limits suggested above, even allowing for noneducation debt. Allen and Vaillancourt (2004) calculate debt-service ratios for Canadian former students who graduated from two-year and four-year postsecondary programs in the class of 2000. They report (pp. 19–20) a median debt-service ratio reflecting only student loan repayments of 6 percent for graduates of two-year programs and 8 percent for bachelor's degree graduates.[8] These ratios refer only to former students who had borrowed from student loan programs, who had not gone on to further education after graduating in 2000, and who still had outstanding balances two years after leaving school.[9]

In the American context, Baum and O'Malley (2003) analyze similar debt-service ratios. They report medians of about 6 percent for undergraduate borrowers and 8 percent for undergraduate and graduate borrowers combined. Roughly 45 percent of undergraduate borrowers had debt-service ratios over 8 percent, as did 54 percent of graduate school borrowers. As these data suggest, it is for the fraction of borrowers who incur unusually high levels of student debt relative to their incomes that benchmarks are particularly important, not for more typical borrowers.

Expenditure Data

Aggregate expenditure information is the basis for another approach to deriving appropriate debt-service ratios. The idea is to estimate what level of student loan debt is "affordable" by looking at average expenditures by various age, income, and education groups. The general method is to subtract average expenditures on essential items such as housing, food, clothing, and transportation from either average income or average consumption. The

[7] Instead of providing a rationale, Kempson wrote (UK DTI, 2002, p. 39): "… we are not saying that a household is only overindebted if their spending is above these levels. It is merely an analytic tool that accords with common sense views of experts on consumer borrowing."
[8] The Allen and Vaillancourt (2004, p. 20) measurements have actual debt payments, which may exceed minimum required payments, in the numerator of the debt-service ratios. The same is true for the Baum and O'Malley estimates in the next paragraph.
[9] About 20 percent of Canadians repay all of their student loan debt within two years of graduation.

remainder might be termed "discretionary income" or "other consumption," the monetary value of which might be deemed available for student loan repayments. Daniere (1969), Horch (1978, 1984), and Hansen and Rhodes (1988) all took similar approaches.

Using estimates for 1960 from the Bureau of Labor Statistics (BLS), Daniere (1969) determined that consumption expenditures comprised 90 percent of after-tax income. Arbitrarily, he decided that one-quarter of the remaining income should be reserved for emergencies. He then assumed that the other 7.5 percent of after-tax income was available for student loan repayment, a figure that Daniere translated into 6.4 percent of pre-tax income.

Horch (1978) introduced a variant of this kind of analysis using the *U.S. Consumer Expenditure Survey* (CES). Rather than assuming that the difference between after-tax income and consumption was available for student loan repayment, Horch assumed that dollars spent on "other consumption" expenditures were available for student loan repayment. Horch arbitrarily defined "other consumption" as the sum of CES average expenditures on entertainment, reading, education, tobacco, alcoholic beverages, and miscellaneous expenditures. Differentiating among those living at the Low, Intermediate, and Higher Budget levels in 1967, Horch estimated that "other consumption" comprised 5.75 percent, 7.2 percent, and 9.0 percent of the total consumption expenditures for these three groups, respectively. In other words, his approach suggests that income-sensitive benchmarks for manageable debt levels might be appropriate.

Hansen and Rhodes (1988) prefer other, less arbitrary definitions of manageable burden but they nonetheless updated the Horch percentages using 1983 CES data. Hansen and Rhodes calculated "other consumption" expenditures as the ratio of the sum of expenditures in categories similar to those used by Horch to average before-tax income. They also calculated another set of percentages by adding the CES "cash contributions" category to the numerator, on the assumption that the funds used for charitable donations could also be available for student loan repayment. When cash contributions are included, Hansen and Rhodes arrive at percentages that range between 9.9 percent and 11.5 percent of income (Hansen and Rhodes, Table 2, p. 105).

As Hansen and Rhodes note (p. 103), there is weak theoretical rationale for this type of calculation. Any attempt to draw a line between discretionary and nondiscretionary expenditures is fraught with difficulty. For example, classifying all housing and clothing expenditures as essential and reading or education expenditures as discretionary is arguable at best. Nonetheless, there is a certain appeal to basing the benchmarks on actual expenditure data. We have therefore updated the Horch-Hansen-Rhodes calculations using 2003 data from the *Consumer Expenditure Survey*. Table 3 compares our calculations to those of Hansen and Rhodes. If we look at "all consumer units," the benchmark has

Table 3

Average Expenditures on "Discretionary" Consumption Items, 1982–1983 and 2003

	Hansen and Rhodes 1982–1983	*Calculations from 2003 CES*		*Hansen and Rhodes 1982–1983*	*Calculations from 2003 CES*
All Consumer Units			***Consumer Units with Reference Person Ages 25–34***		
Average before-tax income	$22,702	$51,128	Average before-tax income	$23,835	$50,389
Components of "other consumption"			Components of "other consumption"		
Entertainment	$870	$2,060	Entertainment	$977	$1,958
Reading	127	127	Reading	121	99
Education	274	783	Education	180	684
Tobacco and smoking supplies	205	290	Tobacco and smoking supplies	198	285
Alcoholic beverages	285	391	Alcoholic beverages	358	446
Miscellaneous	270	1,370	Miscellaneous	244	532
Total other consumption	$2,031	$5,021	Total other consumption	$2,078	$4,004
Total other consumption including cash contributions	$2,607	$6,391	Total other consumption including cash contributions	$2,371	$4,758
Other consumption/ before-tax income	**8.9%**	**9.8%**	**Other consumption/ before-tax income**	**8.7%**	**7.9%**
Other consumption including cash contributions/before-tax income	**11.5%**	**12.5%**	**Other consumption including cash contributions/before-tax income**	**9.9%**	**9.4%**

Column 1: Hansen and Rhodes, 1988. Column 2: U.S. Bureau of Labor Statistics (2003); calculations by the authors.

edged upward by about one percentage point. However, if we focus on the 25- to 34-year-old age group, which is most likely to be repaying student loans, the benchmark has edged downward by less than one percentage point.

Earnings and Consumption Premiums

Graduates from colleges and universities earn more, on average, than individuals with lower levels of educational attainment. Some of the earnings differences between individuals with different levels of education may be attributable to other factors, because educational credentials are correlated with socioeconomic status and other personal characteristics. However, careful statistical analyses indicate that differences in median earnings do not measurably overstate the financial return to higher education (Ashenfelter et al., 1999; Card, 1999; Deschenes, 2001).

Hartman (1971) argued that graduates should be willing to make student loan repayments in the amount by which their postschool earnings exceed those of high school graduates. His logic was that if the students had been unable to borrow, their earnings would have been no higher than those of high school graduates. Using data from the late 1960s, Hartman concluded that four-year degree recipients should be willing to make annual payments of 15 percent of the average starting salary, since that is the amount by which the graduates' average salary exceeded high school graduates' starting salary.

In Table 4, we have updated the Hartman approach. Line (1) of Table 4 shows the median earnings in 2003 of full-time, full-year U.S. workers for high school graduates, associate degree (A.A.) holders, and bachelor's degree recipients (B.A.) between the ages of 25 and 34.[10] Lines (2) and (3) show the difference in median earnings between each category of degree holders and high school graduates, in dollars, and as a percentage of the earnings of the degree holders, respectively. If we think of the difference in median earnings as an earnings premium, then 17 percent of the earnings of male A.A. recipients and 35 percent of the earnings of male B.A. recipients represent an earnings premium relative to high school graduates. For women, the premiums are smaller in dollar terms but slightly larger in percentage terms—19 percent and 37 percent. The earnings premiums in 2003 are considerably higher than those reported by Hartman, reflecting the now higher rate of return to postsecondary education.

Focusing on the entire earnings premium, whatever its magnitude, ignores the direct cost of college and forgone earnings during the college years, as well as the increased tax obligations accompanying the higher earnings. It also suggests the arguable idea that college graduates should not experience any increased standard of living until they have paid off their student loans.

An alternative approach is to examine the consumption expenditures associated with the higher earnings levels, reported in line (4). Lines (5) and (6) of Table 4 report the dollar amounts by which our estimates of average total expenditures of degree holders exceeded the average expenditures of high school graduates.[11] These might be considered consumption premiums. On average, households with the incomes typical of associate degree holders between the ages of 25 and 34 working full-time spent from 10 percent to 12 percent of their incomes on expenditures over and above the expenditures of households with the median income of similar high

Table 4

Income and Consumption Premiums for 25- to 34-Year-Old Full-Time, Full-Year Workers by Educational Attainment, 2003

	Male			*Female*		
	HS	***A.A.***	***B.A.***	***HS***	***A.A.***	***B.A.***
(1) Median earnings	$30,329	$36,505	$46,539	$24,391	$30,174	$38,688
(2) Earnings premium relative to HS		$6,176	$16,210		$5,783	$14,297
(3) Earnings premium as a percent of income		17%	35%		19%	37%
(4) Average expenditures at line (1) income	$29,812	$33,563	$39,445	$26,224	$29,717	$34,891
(5) Consumption premium		$3,751	$9,634		$3,493	$8,666
(6) Consumption premium as a percent of income		10%	21%		12%	22%

Note: Average expenditures in row (4) are the average of: a) average expenditures for single individuals of any age with the income levels in row (1) and b) average expenditures of households of any size with reference person between the ages of 25 and 34 and with the income levels in row (1).
Source: Earnings: U.S. Census Bureau, 2005; Consumption: U.S. Bureau of Labor Statistics, 2003; calculations by the authors.

[10] In addition to the fact that higher levels of education are associated with higher earnings for full-time workers, graduates are more likely than nongraduates to be in the labor force and to be employed. Basing the calculation on all individuals in the age range would increase the overall earnings premium.
[11] See the notes to Table 4 for an explanation of how average expenditures were calculated.

school graduates. Households with the median income of this group of bachelor's degree recipients spent from 21 percent to 22 percent of their incomes on expenditures over and above the expenditures of households with the incomes typical of similar high school graduates.

It is important to note that while individuals with higher levels of educational attainment have higher average earnings, there is considerable variation in earnings within each group. That is, even though median earnings are higher, many of those with postsecondary qualifications earn less than the average in the next lowest category. However, average earnings premiums provide a reasonable approach to manageable debt-service ratios for typical borrowers. These calculations suggest that typical bachelor's degree recipients would have to postpone all improvements in their standard of living until their student loans were paid off if they were required to devote as much as 20 percent of their income to repayment. The same would be true of typical associate degree recipients required to devote as much as 10 percent of income to education debt repayment.

Inferences from Need-Analysis Methodologies

Financial aid need-analysis methodology is designed to estimate reasonable contributions to educational expenditures for families and students. Financial aid professionals and economists have devoted considerable energy to consideration of the factors that differentiate parents of dependent students, and to a lesser extent, independent students, in terms of their ability to pay college expenses. These are not precise calculations and the system is probably better at ranking people according to ability to pay than at determining exactly how much they can reasonably be expected to pay. Nonetheless, the logic of the need-analysis system and the expected contributions arising from it provide another way of thinking about how much former students can afford to pay toward education debt in the years following college.[12]

What can we learn from need analysis about how much former students can afford to pay out of their current incomes for debt repayment? Former students who are in the labor market and are paying back their loans are more similar, in several ways, to parents of dependent students than they are to students themselves. For current students, paying for education is expected to be the clear priority, claiming a high percentage of both assets and income beyond basic necessities. For parents of dependent students, on the other hand, need analysis assumes that there are many competing demands for funds. Like parents, former students are likely to have a variety of additional responsibilities. Whereas students are expected to contribute 25 percent of their assets to education expenses in a given year, parents are expected to contribute a maximum of 5 percent of those assets exceeding protection allowances.[13] Students are expected to contribute 70 percent of their discretionary income, whereas the assessment rates for parents range from 22 percent to 46 percent on income exceeding protection allowances.

The expected contributions of parents of dependent students are a function of income level, assets, family size, and number of children in college. Because recent graduates are unlikely to have significant assets, it seems reasonable to examine only contributions from income for the purpose of determining appropriate debt repayment levels. Table 5 shows estimates, based on Institutional Methodology, of expected contributions for single people as a percentage of pre-tax income.[14]

Table 5

Estimated Expected Contributions from Income Based on Institutional Methodology Need Analysis, 2005

Income	*Percent of Income*
$10,000	0%
$15,000	0%
$20,000	3%
$25,000	5%
$30,000	7%
$35,000	8%
$40,000	9%
$45,000	10%
$50,000	11%
$55,000	11%
$60,000	12%
$65,000	13%
$70,000	13%
$75,000	14%
$80,000	15%

Source: College Board, Institutional Methodology

[12] The most reliable existing need-analysis system is the College Board's Institutional Methodology (IM). The other widely used formula in the United States is the Federal Methodology, legislated by Congress as the required basis for the allocation of federal student aid. However, there is general consensus that this formula leads to an eligibility index rather than a true measure of capacity to pay. Therefore, references to need analysis in the discussion that follows are based on the IM.

[13] In the need-analysis methodology, some income and assets are protected, in the sense that only resources above certain allowances generate expected contributions. Allowances against income include amounts for basic expenditures out of which no discretionary consumption is possible and for taxes paid. Allowances against assets include amounts for emergencies and for education savings.

[14] The smallest family size for parents of dependent students is two, but equivalency scales allow adjustment of the calculation for single individuals.

It is important to note that these contribution-to-income ratios emerge from a complicated formula and are not direct estimates of the appropriate percentage of income people at different levels should be able to spend on education. However, the results are very visible to both financial aid professionals and families. Adjustments to the formula are likely to occur if there is a general sense that families at one point or another on the income distribution are being treated too generously or asked to contribute too much.

There are two salient points about this table. First, incomes below about $20,000 generate zero contributions. This occurs because basic expenses are subtracted before assessment rates are applied to discretionary income. Families with very low incomes cannot reasonably be expected to diminish their already low consumption in order to pay for their children's education. A similar principle certainly applies to student loan repayment, although no such provision is built into mortgage-style student loan repayments.

A second characteristic of need analysis is that it expects families with higher incomes to contribute higher percentages of their incomes. Table 5 shows a contribution of 3 percent out of a $20,000 annual income, 8 percent out of a $35,000 income, 11 percent out of $50,000, and 15 percent out of $80,000. These ratios provide one perspective on appropriate expectations for debt-service ratios for borrowers in repayment. Given the above discussion of the life-cycle model, however, it is reasonable to suppose that relatively young former students should be able and willing to pay more (as a percentage of their income) than parents of college-age children. On the other hand, parents fund their contributions partially from savings and borrowing and these are not reasonable options for debt repayment.

Income-Contingent Repayment Loan Systems (ICRL)

The problem of excessive debt burden among former students can be largely avoided by the creation of an income-contingent repayment loan system. Such systems have existed in Australia since 1989 and in New Zealand since 1992; a full-blown ICRL system will come into force in England in 2006. In all three systems, students pay no tuition at the beginning of their studies; instead, they pay the fees after leaving school. Moreover, if their postschooling income is less than a threshold amount, no payments need be made.

ICRL systems solve several problems that have plagued the mortgage-style student loan systems in place in the United States and Canada. The major problem is the one under discussion here—mortgage-style loans have a fixed repayment period and therefore the size of the monthly payment is determined by the size of the loan. Students with very large loans will have very large monthly payments, regardless of their earnings. By contrast, ICRL systems gear payment amounts to income levels. There is little need for debt management programs aimed at former students because repayment rates are generally kept fairly low.

To be specific, the repayment rate for the New Zealand system is fixed at 10 percent of all income in excess of a threshold set at the income level below which individuals are eligible for welfare benefits. The repayment rate in the United Kingdom will be 9 percent of all income in excess of £15,000, which is about 75 percent of median full-time earnings. In Australia, the repayment rates and the income threshold have varied over the years. In the beginning, the threshold was set at median full-time earnings. The threshold was then reduced to a level closer to the Australian poverty line in the mid-1990s but was recently restored to a level closer to median earnings. For those above the threshold, the repayment rate is applied to all taxable income (as opposed to applying only to income above the threshold) and there are several different repayment rates, ranging from 4 percent to 8 percent, depending on the level of individual income.[15]

In the United States, there is an income-contingent repayment option in place for the government-financed Direct Student Loan program. As Table 6 indicates, under this system, annual payments are limited to 20 percent of net income (defined as the amount by which the borrower's income exceeds the federal poverty level for the relevant family size).

Table 6

Repayment Rates for U.S. Income-Contingent Repayment Plan (Family Size = 1)

Income	*Net Income**	*Maximum Payment*	*Payment As Percent of Income*
$10,000	$200	$40	0%
$20,000	$10,200	$2,040	10%
$30,000	$20,200	$4,040	13%
$40,000	$30,200	$6,040	15%
$50,000	$40,200	$8,040	16%
$60,000	$50,200	$10,040	17%
$70,000	$60,200	$12,040	17%
$80,000	$70,200	$14,040	18%

* Income in excess of the 2006 poverty level of $9,800

[15] The previous two paragraphs are based on information in Schwartz (2005).

Subjective Indicators

Measuring Subjective Burden Using Survey Data

We address three questions in this section. First, should student loan debt burden be measured subjectively, based on the perceptions of the debtors? Second, what is the available evidence on the extent of subjective burden felt by former students repaying their student loans? And third, what are the correlates of subjective debt burden?

As noted above, the focus on default probabilities to the exclusion of less dire repayment issues raises questions about the usefulness of lender-based standards for establishing reasonable debt levels for students. The responses of borrowers in repayment to questions about the difficulty they have making their payments, while indisputably subjective, can provide insight into the extent to which even those borrowers who remain in good standing may be carrying debt burdens that are too high.

After reviewing the whole range of objective and subjective definitions of overindebtedness, Betti et al. (2001, p. 2) settled on a subjective definition of overindebtedness for their work on behalf of the European Commission:

> "A person is overindebted if he or she considers that he or she has difficulties in repaying debts, whether consumer debt or a mortgage."

In their discussion of the criteria for developing a definition of overindebtedness, Betti et al. focus on the importance of going beyond the concept of "structural" problems, which are the basis for the Oxera formulation discussed in the first section. They also emphasize the reality that reasonable debt burdens vary depending on the borrower's age, income, assets, and other factors. In addition, while they acknowledge that there is no way to determine if the debtor is responding accurately when asked about debt burden on a survey, they write (Betti et al., 2001, p. 2):

> "We consider that when consumers say that they are facing difficulties in repaying loans, then this is generally the situation. Although it is difficult to be sure, there does not appear to be a substantial group of people who attempt to hide debt-related difficulties from official surveys and other information sources."

An advantage of this definition is its simplicity. A straightforward survey question such as "How would you characterize the level of difficulty that you have repaying your debts?" with possible answers "not a problem," "moderately troublesome," and "heavy burden" enables researchers to estimate the proportion of the relevant population that feels overindebted. A main disadvantage of such a measure is that it would be of limited usefulness as an eligibility criterion for a debt-management program. On a survey, the respondent has nothing to gain and nothing to lose by honestly reporting the burden created by debt repayment. That situation might change if there were a material benefit to be derived from reporting burden where none exists. In addition, subjective perceptions must be associated with objective levels of debt burden in order to lead to conclusions about how much debt is too much.

In the next subsection, we report on several surveys that asked questions related to the subjective burden created by student loans.

The National Graduates Surveys in Canada

In Canada, the National Graduates Survey (NGS) has now questioned four cohorts of graduates (from all levels of postsecondary education) about their experience with student loan repayment. One of the NGS questions, asked of those in all four cohorts with outstanding student loan debt at the time of the survey interview, was "Have you had any difficulties in repaying all of your government student loans?" with possible answers of "yes," "no," and "haven't started repaying yet." As Table 7 shows, there was a clear increase in the proportion of former students who reported having difficulties in repaying their student loans for those graduating around the turn of the century. This increase occurred for both school types and both genders. In 2000, 27 percent of respondents reported having difficulty repaying, compared to 21 percent a decade earlier.

Table 7

Subjective Debt Burden in Canada

"Have you had any difficulties in repaying all of your government student loans?"

Year of Graduation	*1990*	*1995*	*2000*
	Percent Yes	*Percent Yes*	*Percent Yes*
Male			
Two-Year College	22	21	30
University	NA	17	24
Female			
Two-Year College	21	23	32
University	NA	22	24
Two-Year College and Universities Combined			
Male	22	19	27
Female	21	22	27
All	21	21	27

Sources: National Graduates Survey: 1990, 1995, and 2000 cohorts

National Student Loan Surveys in the United States

Over the period 1988–2003, Nellie Mae sponsored four National Student Loan Surveys. Each of the surveys asked a number of questions probing the attitudes of former students about the repayment process. The surveys asked respondents whether they agreed or disagreed (along a five-point continuum from strongly agree to strongly disagree) with the statement: "Since leaving school, my student loans have caused me more financial hardship than I had anticipated at the time I took out the loans." The surveys also asked borrowers to respond, along a five-point continuum from "not at all burdened" to "extremely burdened" to the question "To what extent do you feel burdened by your student loan payments?" Finally, the surveys asked borrowers if they would have borrowed less, more, or the same amount if they could do it again.

As with the NGS, there was a visible increase, over the four surveys, in the proportions feeling burdened (Table 8). The proportion feeling burdened increased from 50 percent to 55 percent from 1998 to 2003, and while the proportion who felt that loan repayment has caused them more hardship than they had anticipated declined slightly from 1998 to 2003, there was a substantial increase from 1991 to 1998. Perhaps most important, the percentage reporting that they would have borrowed less if they had it to do again rose in each of the last three surveys.

Summing responses to the three questions in Table 8 yields a simple burden index that ranges from a score of 3 (indicating little, if any, burden) to 15 (indicating the highest measured burden). The simple correlation between the burden index and the ratio of student loan payments to before-tax income is a statistically significant 0.25. A cross-tabulation of scores on this index with payment-to-income ratios indicates that those with ratios below 7 percent rarely expressed concern. Between 7 percent and 11 percent of income, borrowers began to express discomfort. Using more than 17 percent of income for student loan payments created a significantly higher burden than did lower payment ratios (Baum and O'Malley, 2003). While these findings cannot be interpreted as yielding precise guidelines, they do suggest that repayment will rarely be a problem if payments are below 7 percent of income and that few students would be well advised to exceed 17 percent.

The survey included former students of all ages and family structures, from a variety of school types and with a wide variety of debt obligations. In order to determine whether particular subgroups of borrowers were more likely than others to feel burdened by loan repayment, it is useful to estimate a multivariate regression to examine the correlation between the burden index and the student loan debt-service ratio, holding other borrower characteristics constant.

We estimated the coefficients of two ordinary least squares regressions of the burden index on a set of covariates including the debt-service ratio, the debt-service ratio squared, age, gender, number of children, total amount borrowed, parental education, an indicator for attending a private school, and indicators for having attended graduate school, for having a partner, and for having received a Pell Grant. In the first regression, we include age, but not the indicators for having a partner or the number of children to highlight the role of age in the life-cycle hypothesis. In the second regression we add in the indicator for having a partner and the variable for number of children. The coefficients are shown in Table 9 where columns (1) and (2) contain the coefficients for the first and second regressions, respectively.

Holding the other characteristics constant, there is a strong positive relationship between the burden index and the debt-service ratio. As the debt-service ratio increases, the burden of repayment increases as well but at a decreasing rate.[16] Interestingly, the total amount borrowed is positively correlated with perceived debt burden even when the debt-service ratio is held constant.

Table 8

Subjective Debt Burden in the United States				
National Student Loan Survey Data	***1988***	***1991***	***1998***	***2003***
"To what extent do you feel burdened by your student loan payments?" (Percent feeling burdened)	NA	NA	50	55
"Since leaving school, my student loans have caused me more financial hardship than I had anticipated at the time I took out the loans." (Percent agreeing)	27	25	36	34
"Think back to the time when you first started your education after high school. If you could begin again at that point in time, and taking into account your current experience, would you borrow: (1) much less; (2) a little less; (3) about the same; (4) a little more; (5) much more." (Percent reporting "much less" or "a little less")	NA	31	45	54

Source: Baum and O'Malley, 2003.

[16] The positive coefficient on debt burden and the negative and statistically significant coefficient on the debt burden squared indicates this relationship.

Table 9

Correlates of the Debt Burden Index Drawn from the 2002 NASLS

Variable	*Coefficient Estimate*	
Dependent variable: A self-reported index of debt burden with values ranging from 3 to 15 with higher values indicating higher burden.	***(1)***	***(2)***
Ratio of student loan repayments to pre-tax income	0.18**	0.19**
Ratio of student loan repayments to pre-tax income squared	-0.0029**	-0.0031**
Total amount of student loans outstanding ($000)	0.21**	0.22**
Age (years)	0.047**	0.024
Gender (1=female)	0.019	0.030
Partner (1=yes)		-0.25
Number of children		0.46**
Parental education less than high school	-0.28	-0.27
Private four-year college	-0.11	-0.16
Received Pell Grant	0.70**	0.64**
Attended graduate school	0.16	0.23
Constant	6.68**	7.24**
Number of observations	927	927
Adjusted R2	.15	.17

** Statistically significant at the .05 level

Another important finding, as reported in the Nellie Mae study, is that students who received a Pell Grant (and who were therefore likely to have come from low-income families) are more likely to feel burdened even holding loan size and debt-service ratio constant. Controlling for debt and income levels, most other student characteristics are not significant determinants of perceived debt burden. There is no measurable difference between students who attended public and private colleges and universities or between students who attended graduate school and those who did not. Neither gender nor parental education level is a significant correlate of subjective debt burden once other variables are held constant.

In the first regression, age is positive and highly significant, indicating that younger people feel less burdened by their student loan debts, holding the debt ratio constant. In the second regression, the number of children present in the household emerges as significant, and age becomes insignificant. The more children there are in the household, the greater the subjective burden. The life-cycle model suggests that age should be positively correlated with burden. One reason for this suggested correlation is that older individuals have greater family responsibilities. Thus when the number of children is included in the model, age is not as important a determinant of subjective burden.

Summary and Conclusion

Our review of the various possible approaches to setting benchmarks for reasonable student debt levels makes it clear why the vague concept that monthly payments are manageable if they do not exceed 8 percent of income has prevailed for so long, despite its weak empirical basis. There can be no single percentage that answers the question of how much students can borrow without risking repayment difficulties. Those with higher incomes can afford to devote a higher proportion of their incomes to debt payment without sacrificing basic expenditures. As the life-cycle hypothesis suggests, younger people can carry higher debt-service ratios than those who are older or who have greater family obligations. The amount of education debt that will put an individual in financial jeopardy depends on the extent of their other debts, so the priority an individual places on education relative to housing and other forms of consumption is also relevant. Geographical differences in the cost of living are also important and of particular significance for public policy, students from low-income families seem likely to have greater difficulty than others managing any given debt burden.

Despite these complicating factors, it is important that some reliable benchmarks be developed both to guide students and to provide a sound basis for the development of loan forgiveness and income-sensitive repayment programs designed to ease the burden. Deriving one set of benchmarks from the data reported here clearly requires a subjective judgment. From our perspective, the findings of this study lead to the following principles from which we will suggest a set of benchmarks for maximum ratios of student loan payments to pre-tax income.

1) Borrowers with incomes below 150 percent of the poverty level ($14,700 for a single person and $19,800 for a household of two people in 2006) should not be expected to make loan payments.[17] Potential borrowers

[17] U.S. Department of Health and Human Services, http://aspe.hhs.gov/poverty/06poverty.shtml.

who expect to have low postschooling income should therefore be particularly careful about education borrowing. Students who end up with very low postschooling income should be allowed to suspend repayments and possibly have the interest on their outstanding balance subsidized.

2) The percentage of income that borrowers can reasonably be expected to devote to student debt repayment increases with income. Individuals with incomes near the median should not devote more than about 10 percent of their incomes to education debt repayment, and the payment-to-income ratio should never exceed 18 to 20 percent. While the choice of this upper limit for the ratio of student loan payments to pretax income is somewhat arbitrary, it emerges from the analysis of the earnings/consumption premium enjoyed by bachelor's degree recipients, from the financial aid need-analysis methodology, and from the NASLS relationship between subjective burden and observed debt-service ratios. Our suggestion is *not* that 20 percent of income is a reasonable debt-service ratio for typical borrowers. Rather, it is that there are virtually no circumstances under which higher debt-service ratios would be reasonable.

3) To develop the benchmarks set out in Table 10, we have applied an assessment rate of 20 percent to discretionary income, with discretionary income defined as income exceeding 150 percent of the poverty level for a single person. Similar tables could be constructed for larger households using the appropriate poverty levels. This framework yields a schedule of maximum payments with no repayment obligations at low income levels and debt-service ratios that increase with income, reach 10 percent at about $30,000—a typical starting salary for liberal arts college graduates—and never reach 20 percent. A borrower with earnings of $40,000 could support up to $36,640 of debt at an interest rate of 6.8 percent, the fixed rate for Stafford Loans as of July 1, 2006.

The maximum debt levels described in Table 10 should be used thoughtfully with modification for family size, geographical location, age, and family background.

Table 10

Proposed Maximum Debt-Service Ratios for Student Debt: Single Individuals, 2006

Income	*Income Above 150% of Poverty Line*	*Annual Payment (20%)*	*Payment/ Total Income*	*Total Debt Supported at 6.8% Interest Rate*
$10,000	$0	$0	0%	$0
$20,000	$5,300	$1,060	5%	$7,680
$30,000	$15,300	$3,060	10%	$22,160
$40,000	$25,300	$5,060	13%	$36,640
$50,000	$35,300	$7,060	14%	$51,120
$75,000	$60,300	$12,060	16%	$87,330
$100,000	$85,300	$17,060	17%	$123,540
$150,000	$135,300	$27,060	18%	$195,950

These benchmarks suggest that the median debt levels of almost $20,000 facing recent four-year college graduates are manageable for typical students. However, if debt levels continue to rise rapidly, increasing numbers of students could face serious difficulties. Individuals with higher than average earnings capacity can afford to carry significantly higher debt levels, so any problems will still be limited to a subset of borrowers. However, students whose postcollege earnings capacity is low, in addition to many students from low-income families, will require alternative student loan repayment mechanisms.

These benchmarks for manageable debt levels will be of limited value without improvements in student loan policies. Acknowledging that debt obligations should not exceed certain percentages of income is insufficient protection for students. Sound advice for students is important but does not, on its own, provide viable alternatives for financing education. Given the uncertainty of the return to individual investments in higher education, a combination of policy approaches is required. Well-designed loan forgiveness programs, income-contingent repayment plans consistent with manageable repayment levels, and provisions for discharging education loans in bankruptcy are all necessary components of an education financing system that protects students from excessive debt burdens.

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