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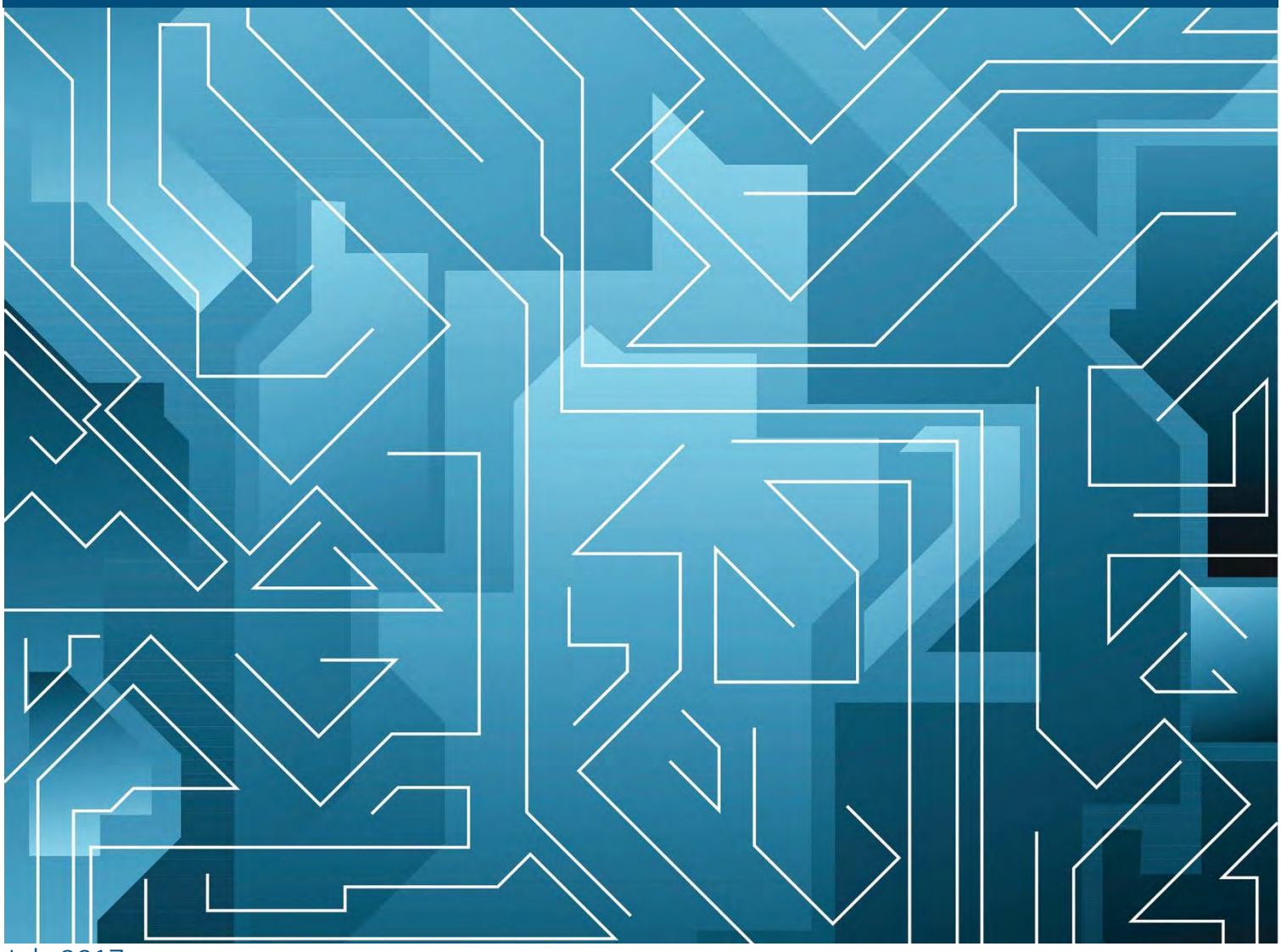
The Financial Impact of Student Debt on Working and Retired Americans



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The Financial Impact of Student Debt on Working and Retired Americans

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Section 1: Introduction and Summary [1]

1.1 Introduction

Student loans are much in the news. Both the popular and quality press have repeatedly remarked on the recent unsettlingly large increase in total student debt—from about $400 billion at end-2005, total federal government loans reached almost $1.3 trillion by end-2016. Much of the reportage is critical, often highly critical, of the federal government's student loan program. These articles often include personal and sometimes quite disturbing accounts of students who have been unable to find work or work commensurate with their qualifications shortly after graduating, and whose indebtedness has ballooned as a result.[2] One recent article in the *New York Times* (Carey, 2015) reported a troubling story of a woman who had borrowed for both undergraduate studies and graduate school, and who because of a series of personal misfortunes had accumulated a debt of over $400,000.[3]

Other commentaries or reports have taken the line that students are being saddled with a financial albatross that will weigh them down for the rest of their lives. In a related vein, some studies by academics or think tanks have found that student debt will inhibit the purchase of a house, or contributions to 401(k) or other retirement plans.[4] A recent study that was very critical of the student loan program stated that, "Today, just about everyone involved in the student loan industry makes money off students – the banks, private investors, even the federal government."[5]

The student loan program raises some thorny issues. Perhaps the most basic of these is the form that government assistance to students in higher education should take: should it be grants, loans or a mix of both? If loans are leading to excessive debt, perhaps the grant component of the program needs to be reinforced. The United States has a mixed system: grants from the federal government and universities themselves are a major source of finance, but so are loans. The line between grants and loans can be blurred by including a subsidy element in the loan, as is the case in the United States. Three additional but related issues are the role that should be played by means-testing (targeting of grants and loans to students from less well-off families), the appropriate response to students who become unable to service their debt, and the need for counseling, the provision of information or other initiatives to reduce the likelihood that a student ends up in the wrong program.

This study includes an analysis of student loans from another angle, namely, the significance of accumulated education debt for retirement security. This obviously important topic has not received the attention that other aspects of the student loan program have received, perhaps because the latter are seen as more pressing than the impact of education debt on income much later in life.[6] Nonetheless, and if the return on an investment in higher education is not considered, an increase in indebtedness during a person's working life can be expected to reduce the wealth he will have accumulated by the time he retires. Because a student's debt can grow very large, it is reasonable to ask if it can reduce economic well-being in later years.

The report has six sections, including this introduction and the summary that follows it, which comprise Section 1. Section 2 is a statistical analysis of the growth of education and personal debt since 1989, and is largely based on the Federal Reserve's triennial *Survey of Consumer Finances* (SCF), which began in 1989. It illustrates the rapidity of the growth in overall education debt, which has resulted from a strikingly large increase in the share of households with loans and an even bigger increase in the average debt held by households with debt, and shows how the degree of indebtedness varies by age and income level of the borrowing household. There is no question that education debt has grown rapidly and that its burden appears to be heavy for

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[1] The author is grateful to the Society of Actuaries for sponsoring this report as well as to the members of the Project Oversight Group (POG) for their expertise, time and assistance with this project. The POG members included John Deinum (chair), Laith Alattar, Howard Iams, Cindy Levering, Tonya Manning, Andy Peterson, Anna Rappaport, Lisa Schilling, Andrea Sellars, and Steve Siegel.

[2] The website *studentloancrisis.org* has collected a large number of accounts from student borrowers complaining about the harshness of their treatment under the program. As an example: "I'm 34 years and I'm $32,000 in loan debt with no degree. My loans were taken from me [sic] when I was 2 semesters from becoming a Registered Nurse. That was 7 years ago. I've never been able to afford to return and I've been forced to take $9/hr jobs just hating life. I tried to make a better life but it did the opposite." As another example: "I went to night school at an inexpensive state college to try to better my standard of living. Now, because of corrupt banks supported by lax government I will be paying on student loans into my 70s. If government wants to spur the economy RELIEVE THIS DEBT!" There is apparently no website collecting tales of happier experiences with student loans.

[3] Carey (2015).

[4] These studies include Elliott, Grinstein-Weiss and Nam (2013), Hiltonsmith (n.d.), and Munnell, Hou and Webb (2016).

[5] Steele and Williams (2016).

[6] One exception is Munnell, Hou and Webb (2016).

many households. Section 2 also considers the role of new lending, defaults and other influences on the outstanding stock of student debt.

Section 3 describes the student loan program of the federal government and its role in the overall financing of higher education, and highlights some aspects of the program that may be problematic for some borrowers, in particular, the consequences of falling into arrears. Section 4 briefly surveys the economics of education. Among other topics, it reviews evidence on the return to an investment in education, including any evidence that the return has declined in recent years. Section 4 also addresses the rationale for government involvement in the financing of education and the form that financing should take. These three sections provide the background for sections 5 and 6. Section 5 addresses the question of the impact of the growth in education and other debt on well-being in retirement, which is the principal object of the report. It compares three different strategies for paying down excess debt, and illustrates how the burden they create on the household depends on the magnitude of excess debt, the repayment period and the interest rate. Section 6 draws on the analysis of Section 5 and the sections that precede it and discusses considerations to keep in mind when weighing potential changes to the student loan program with the objective of reducing the chances that borrowers become excessively indebted. Finally, a short appendix reviews the sources of different estimates of aggregate education debt.

1.2 Summary

Student, or education, debt has grown at a very rapid pace in recent years. This hectic pace is reflected in the amount of education debt held by the average household, and in the number of households who have contracted one or more loans. Between 1989 and 2013, the share of households holding education debt doubled, while debt per household tripled. The growth in indebtedness has led many commentators to speak of a student debt crisis. This study, like the studies of several experts in the field, has concluded that talk of a crisis is overblown. Contrary to general impressions, students who typically borrow large sums are usually graduate or professional school students who in spite of their often considerable indebtedness tend to have low default rates. Default rates for all types of students have been declining since the end of the Great Recession.

Although there is no generalized crisis, students at some institutions are not well served by the program. Students at community colleges and for-profit institutions tend to have very high default rates, even if their accumulated debt may not be really large. Their vulnerability to default is partly due to their inability to complete their program of study. Regardless of the institution, students who do not complete their program tend to have higher default rates than those that do. The federal government's student aid program, which includes both grants and loans, subsidized and unsubsidized, serves most of its students well, but does not seem to work well for many students at community colleges and for-profit institutions.

This study is concerned with the potential consequences of accumulating education debt for retirement security. It focuses primarily on excess education debt, rather than with education debt as a whole, since much of the debt may be making possible a substantial increase in income. Excess debt would include the extra debt borrowed to finance a more costly education that does not lead to enough of an increase in additional earnings to cover the extra cost of the education, or the debt that might accumulate because the student cannot obtain a job shortly after graduating or a job commensurate with her qualifications.

There is no way of knowing how much of a particular household's debt or the debt of a group of households is excessive in this sense, but the report offers as a purely illustrative benchmark the difference between the ratio of education debt to income of a particular household and the sample median of that ratio for a given year. For example, if the median ratio in 2013 was 27 percent, and the ratio for a particular household is 50 percent, then excess education debt is estimated at 23 percent of that household's income. Using data on the percentile distribution of debt ratios, the report finds that excess debt can be very high. The 85th percentile of the distribution has a debt to income ratio that is 76 percentage points above the median. The report also experiments with other measures of excess debt.

If we assume that households will make a good faith effort to pay off their debt, then the cost to the household of accumulating excess debt is its impact on personal expenditure (or possibly also on the size of a bequest). The report makes illustrative calculations to determine the impact on annual personal expenditure under a range of assumptions about the debt burden, interest rates, and salary growth. This exercise does not yield astounding results: it shows that if the payoff period is long enough, the reduction in personal expenditure it requires is generally not large. For example, if a working household with excess education debt of 40 percent of its income pays off that debt over 20 years, debt service under certain assumptions will be about 2 percent of income. The longer a household postpones starting debt servicing, the greater the share of its income that will need to be devoted to it.

These findings notwithstanding, federal policy toward student loans should include deliberation on reducing the chances that students and their households have to cope with excessive debt burdens. Some increase in grants could be a good idea for students from very poor families.

The vast majority of students who take out loans benefit from the program, which allows students from poor families the chance of a higher education that they would not otherwise have. The average return to an investment in higher education was and remains very high. Nonetheless, many of these students have entered a program of training or study for an occupation that will not pay them enough to allow them to service their debt and maintain a reasonable standard of living. A recent *Sunday New York Times* article states: ". . . in addition to being left mountains of debt, former students have worthless degrees from schools that no longer exist (Morgenson, 2017)."

Ideally, students should have a reasonably good idea of what their education will cost and a realistic income range of their chosen vocation, activity or profession. The federal government has taken steps to provide students with more useful information along these lines. Reliable information is not enough, however. Many students lack the knowledge to make good use of it, and for that reason, an emphasis on financial education specifically geared to explaining the costs and benefits of higher education could be considered as part of any future reforms. Repayment programs that are income-related (so-called income driven repayment (IDR) plans) are available for most student loans, and an assessment of further expansion of their coverage is warranted. Continued monitoring of the claims an institution might make regarding the career prospects of its students will undoubtedly remain necessary.

Section 2: Developments in Education and Personal Debt since 1989

2.1 Introductory Remarks

This section is devoted to a statistical analysis of what lies behind the recent increase in education debt, and the increase in personal debt more generally in the past 15 to 25 years. The analyses of this and the following two sections are intended to set the stage for a discussion of the report's basic concern: the impact of increased debt burdens on the prospects of education debt holders for retirement security.

The statistics on education debt, personal debt and household income on which the analysis of this section is based are tabulations of the data of the Federal Reserve's triennial *Survey of Consumer Finances* (SCF). The survey was first conducted in 1989, and the most recent survey for which findings have been published was conducted in 2013. The SCF's basic unit of analysis is the household, and not the student loan borrower. The statistics on student borrowers that are reported in the press and used in many studies are not strictly comparable with the statistics that underlie most of the analysis of this report. The basic reasons for this are first, that a household may have more than one student borrower among its members, and second, that the survey excludes households in institutional settings like college dorms from its coverage. Consequently, the mean or median value of student debt reported by the SCF cannot be compared with the mean or median calculated by dividing total student debt by the number of student borrowers. The use of the SCF allows us to include other personal debt in the analysis, which is an obvious advantage. Other sources of data on student loans exist, which are briefly described in Appendix 1.

Section 2 begins by describing how holdings of education debt have become more widespread among households, and how a substantial increase in debt held by the average or median household has come about. It is important not to regard education debt in isolation from either personal debt as a whole or the household's balance sheet, and the section then turns to portray trends in personal debt in more or less the same way as it has portrayed education debt. To understand the burden that debt can impose on a household, it is also necessary to assess the household's ability to service it, and that subject is addressed next. Finally, having anatomized the increase in education debt, we turn to address its causes.

2.2 Recent Trends in Education Debt and Its Distribution Among Households

A very marked increase in the share of households with at least some education debt has taken place since 1989 (see Table 2.1). From about 1 in 10 households in 1989, the share of households holding some education debt increased to 1 in 5 in 2013. Most of this increase took place between 2001 and 2007. After a further increase in 2010, the share levelled off in 2013. A similar pattern is evident in the behavior of both the median and the mean of the total value of all of a household's education loans, both of which increased by about 2½ times between 1989 and 2007. The median holdings of households with debt reached $17,000 in 2013, and the mean reached $28,900. These developments suggest that the Great Recession in and of itself, although it may have contributed to the growth in education debt, essentially reinforced ongoing trends.

The Census estimates that the number of households in the United States increased by 32 percent between 1989 and 2013. If we assume that the number of households as defined by the SCF also increased by 32 percent, the number of households with education debt should have increased by close to 200 percent, which substantially exceeds the increase of 49 percent in the number of college students, both undergraduate and graduate over the period.[7] This implies that a large increase in the share of students taking out a loan must have taken place. Data on the number of student borrowers is not readily available before 2007. From 2007 to 2013, the number of students with education loans (including all loans still outstanding) increased by 40 percent, which is close to the estimated increase in the number of households holding education debt over that period.

[7] The share of households with debt increased from 8.9 percent to 20.0 percent, an increase of 125 percent. With an increase in the number of households assumed to be 32 percent, the increase in the number of households with debt should be equal to ((20/8.9 × 1.32) – 1) × 100, which equals 197 percent.

Table 2.1 Share of families with education loans, and the mean and median values of loans for households with loans

Year	Share with (in percent)	Median in 'thousands of 2013 dollars	Mean
1989	8.9	5.4	9.8
1992	10.7	5.4	11.5
1995	11.9	5.9	12.1
1998	11.4	10.0	18.5
2001	11.8	10.4	18.0
2004	13.5	11.1	20.6
2007	15.2	13.5	24.1
2010	19.2	13.9	27.5
2013	20.0	16.0	28.9

Source: *Survey of Consumer Finances (SCF) Chartbook 2013*

One concern prompted by the substantial buildup in education debt over the past two decades is that it may be burdening households of comparatively modest means. In fact, the share of households with loans in the lowest two income quintiles has increased at pretty much the average rate for households as a whole (see Table 2.2). The growth rates of the median values for these two quintiles are also close to the average. As is discussed later, the ratio of education debt to income has increased substantially at all income levels.

Table 2.2. Share of households with education loans, median and mean for households with loans by percentile of income

	<20	20–39.9	40–59.9	60–79.9	80–89.9	90–100
			Share of households with loans (in percent)			
1989	8.4	8.4	7.7	12.1	8.0	8.3
1995	9.5	11.5	11.4	15.0	14.3	9.5
2001	7.7	10.6	13.6	15.4	11.9	10.9
2007	10.7	13.0	16.6	19.0	21.2	12.6
2013	17.5	17.0	21.6	23.0	26.8	15.4
			Median value (in thousands of 2013 dollars)			
1989	4.5	5.2	7.2	6.0	4.2	5.0
1995	6.1	6.1	5.3	4.6	7.4	11.2
2001	7.2	9.2	9.8	10.5	17.7	12.6
2007	9.8	10.9	11.2	19.1	13.5	18.2
2013	12.0	15.0	17.2	17.0	18.7	26.4
			Mean value (in thousands of 2013 dollars)			
1989	9.2	6.1	12.7	11.5	6.5	11.5
1995	9.7	10.6	14.3	10.1	16.2	15.4
2001	11.9	16.2	17.1	15.8	21.7	34.2
2007	19.4	17.6	21.7	27.0	27.5	37.4
2013	24.3	23.0	26.0	30.5	35.5	44.9

Source: *SCF Chartbook*, 2013

The evolution of the share of households with at least one education loan by age of the family's head behaves similarly. All age groups experience an increase in the share of households with loans (see Table 2.3). The share of households headed by someone less than 35 years of age with at least one education loan increases from 17 percent in 1989 to 42 percent in 2013; similar proportional increases are recorded by households with heads aged 35 to 44 and 45 to 54. The increase in the share of households with a head younger than 35 is likely the result of loans contracted by the heads themselves or their spouses, since very few of their children would be old enough for college. The share of households with a head aged 55 to 64 triples, rising from 4 percent to 12 percent, which could reflect increased borrowing by older Americans for themselves as well as borrowing for their children.

Table 2.3. Share of households with education loans, median and mean values for households with loans by age of head

	Age of head					
	< 35	35–44	45–54	55–64	65–74	≥75[8]
	Share of households with loans (in percent)					
1989	17.1	10.9	7.3	4.1	0.9	0.0
1995	24.4	13.0	11.3	4.1	1.4	1.7
2001	26.1	12.5	11.0	5.2	0.6	0.1
2007	33.8	14.9	14.5	10.6	1.7	0.3
2013	41.7	28.7	18.6	12.0	3.1	1.0
	Median value (in thousands 2013 dollars)					
1989	5.4	3.6	6.1	4.5	7.5	…
1995	6.1	4.8	7.9	6.1	7.4	1.5
2001	10.5	10.5	7.9	10.5	2.3	7.0
2007	14.6	13.5	13.5	7.9	20.2	22.5
2013	17.2	17.0	13.2	17.2	17.0	5.0
	Mean value (in thousands of 2013 dollars)					
1989	10.5	8.8	11.2	5.6	9.4	…
1995	12.3	10.4	15.4	11.7	8.2	1.7
2001	16.0	26.2	13.0	19.8	1.9	8.0
2007	26.5	21.0	23.2	21.0	22.1	22.5
2013	29.9	31.2	24.1	28.8	22.3	39.1

Source: *SCF Chartbook*, 2013

2.3 Personal Debt as a Whole

The share of households with *any* personal debt, including education loans, experienced a modest increase that brought it from 72 percent in 1989 to 75 percent in 2013 (Table 2.4). The median value of debt of households with at least some personal debt slightly more than doubled, from about $27,000 to $60,000 over the same period, a robust increase, but less than the increase in education debt. A comparison of Table 2.2 with Table 2.4 makes clear that education debt in the aggregate is not an insignificant share of total personal debt.

Personal debt, measured in dollar terms is heavily concentrated among more affluent households, mainly because they have the collateral and ability to service debt that lenders look for. The top two income deciles doubled their average debt measured in 2013 dollars between 1989 and 2013. Median holdings of the top decile reached $270,000 in 2013, and debt held by the second decile from the top reached $179,000 (Table 2.5). Median holdings of the bottom two quintiles were $10,600 and $21,300 respectively. Although debt owed by the bottom quintile remains comparatively modest, it has quadrupled since 1989.

[8] The values in "the 75 or older" column are affected by a low sample size. The share of households headed by someone 75 years of age and over with education debt is very small, as is the share of households with a head aged 65–74.

Table 2.4 Share of households with personal loans, median and mean for households with loans

	Share with (in percent)	Median In thousands of 2013 dollars	Mean
1989	72.3	27.1	64.8
1992	73.2	27.8	69.9
1995	74.5	32.8	73.8
1998	74.1	46.4	90.6
2001	75.1	50.9	95.2
2004	76.4	68.2	127.5
2007	77.0	75.6	141.5
2010	74.9	75.8	140.0
2013	74.5	60.4	122.3

Source: *SCF Chartbook*, 2013

Table 2.5 Share of households with personal loans, median and mean For households with loans by percentile of income

	<20	20–39.9	40–59.9	60–79.9	80–89.9	90–100
			Share of households with loans			
1989	47.1	59.5	78.1	86.2	93.7	87.6
1995	49.2	68.6	79.4	87.4	90.2	86.1
2001	49.3	70.2	82.1	85.6	91.4	85.3
2007	51.7	70.2	83.8	90.9	89.6	87.6
2013	52.1	66.5	81.0	87.2	87.2	84.5
			Median value (in thousands of 2013 dollars)			
1989	2.6	9.0	21.3	50.5	71.1	133.0
1995	4.6	12.8	23.0	63.7	97.1	150.0
2001	6.8	15.1	38.2	81.8	127.1	192.2
2007	10.1	20.2	61.2	125.0	204.6	263.9
2013	10.6	21.3	39.9	100.0	179.3	270.0
			Mean value (in thousands of 2013 dollars)			
1989	9.5	22.7	39.7	70.8	92.5	185.0
1995	18.8	29.5	47.4	79.9	114.3	201.2
2001	21.9	36.5	61.7	99.3	145.4	278.8
2007	35.7	49.2	90.4	157.0	231.9	386.9
2013	37.7	48.8	70.9	122.9	201.9	357.5

Source: *SCF Chartbook*, 2013

When personal loans are broken down by age of household head, it turns out that there are increases in the median and mean values of personal debt for all age classes. However, the increases in both mean and median were less for households with a head less than 35 years of age than for households with older heads (Table 2.6).

Table 2.6. Share of households with personal loans, median and mean values for households with loans by age of head

	<35	35–44	45–54	55–64	65–74	>74
			Share of households with loans			
1989	80.0	88.6	85.3	70.8	49.6	21.0
1995	83.5	87.0	86.3	73.7	53.4	28.4
2001	82.7	88.6	84.6	75.4	56.8	29.2
2007	83.6	86.2	86.8	81.8	65.5	31.4
2013	77.1	84.8	82.3	78.7	66.4	41.4
			Median value (in thousands of 2013 dollars)			
1989	20.6	54.4	42.8	17.3	9.0	5.0
1995	22.8	56.3	59.4	31.9	10.7	2.9
2001	32.7	80.8	71.2	45.5	17.2	6.6
2007	40.6	119.2	107.7	67.7	45.1	14.6
2013	31.1	96.5	100.0	63.4	44.0	20.0
			Mean value (in thousands of 2013 dollars)			
1989	57.3	86.8	75.4	57.6	27.2	22.1
1995	56.7	87.8	100.7	76.9	41.3	17.2
2001	72.7	112.2	117.4	98.2	68.9	38.8
2007	113.1	166.1	166.8	147.6	120.9	50.6
2013	82.4	152.0	150.7	132.3	108.8	57.5

Source: *SCF Chartbook*, 2013

2.4 Debt Burdens

Two standard measures of the burden that debt imposes on a household are the ratio of debt to a measure of income (typically current income), and the ratio of debt service to income. It is not possible to tell from the behavior of the value of debt alone what financial burden it creates. Rapid growth in debt is less of a concern when it is accompanied by strong growth in income, which increases a household's ability to service its debt.

2.5 The Burden of Education Debt

What is striking about the experience of the last 25 years is that the large increase in holdings of education debt has been accompanied by a stagnation or decline in household income, with the exception of older households (see Table 2.7).

Table 2.7. Median income by age of household head, 1989–2013 in thousands of 2013 dollars

	under 35	35–44	45–54	55–64	65–74	75+
1989	37.7	66.0	69.8	47.1	30.2	24.5
1995	38.9	57.5	60.6	51.3	29.5	24.9
2001	43.2	67.5	71.6	59.4	36.5	29.7
2007	41.6	63.5	71.6	61.2	43.9	25.6
2013	35.5	60.9	60.9	54.8	45.7	28.4

Source: Author's tabulations of the SCF

As a result, the ratio of the outstanding stock of education debt to income has shot up since 1989. The increase was especially marked for young households. Families with a head 35 years of age or less with at least some education debt are estimated to have experienced an increase in the median value of the ratio of education debt to income from 15 percent in 1989 to 42 percent in 2013. Families whose heads were either 35 to 44 years of age or 55 to 64 years of age experienced even higher proportional increases (see Table 2.8), but the burden of their education debt started and ended up lower than the debt burden of young households.

The behavior of the burden of education debt by income quintile tells a similar story. The median ratio for the first quintile rose to no less than 88 percent in 2013 from 35 percent in 1989 (see Table 2.9). The second income quintile experienced a somewhat smaller proportional increase, with the median ratio rising from 24 percent in 1989 to 53 percent in 2013.[9]

Table 2.8. Median of education loans as a percentage of income of households with education debt, 1989–2013 by age of household head

	under 35	35–44	45–54	55–64	65–74	75+
1989	14.7	5.8	16.7	3.2	18.3	…
1995	11.7	8.6	10.2	11.4	15.4	3.9
2001	19.5	14.9	10.5	23.0	7.9	22.8
2007	26.2	24.3	16.9	7.5	14.8	121.6
2013	41.5	25.0	20.0	24.1	16.4	9.9

Source: Author's tabulations of the SCF; households with annual income less than $15,000 not included.

[9] The calculation of debt ratios in Table 2.8 and subsequent tables exclude households whose annual income falls short of $15,000. These households can have debt-to-income ratios that are not defined (when household income is zero), and meaningless ratios when income is close to zero. These high values have some effect on median values, and they may result from a purely temporary situation.

Table 2.9. Median of education loans as percentage of income of households with education debt 1989–2013 by income percentile

	<20	20–39.9	40–59.9	60–79.9	80–89.9	90–100
1989	35.2	24.0	17.8	6.4	3.6	2.0
1995	31.1	20.1	11.7	6.5	6.9	3.9
2001	44.9	30.9	17.2	12.3	12.7	6.5
2007	38.4	32.5	21.9	20.7	10.6	7.4
2013	87.6	52.8	34.5	23.1	15.7	12.9

Source: Author's tabulations of the SCF; households with annual income less than $15,000 not included.

2.6 The Total Personal Debt Burden

The total debt burden has also risen for all age groups since 1989 (see Table 2.10). The increase is particularly marked for households with older heads. In particular, the median debt to income ratio of households with heads aged 45 to 54 increased from 55 percent in 1989 to 134 percent in 2013. The debt burden of young households increased from 60 percent to 99 percent.

Table 2.10. Median of personal debt of households with debt as a percentage of income 1989–2013 by age of household head

	under 35	35–44	45–54	55–64	65–74	75+
1989	60.2	68.0	55.2	34.9	27.4	19.2
1995	61.2	89.4	80.2	54.6	36.1	9.0
2001	76.3	101.4	85.8	68.4	50.6	20.2
2007	91.5	145.9	120.6	100.9	86.0	47.3
2013	99.1	126.9	134.1	93.1	79.9	52.7

Source: Author's tabulations of the SCF; households with annual income less than $15,000 not included.

Measures of the debt burden by income percentile have also increased substantially, and to an alarming degree for the first and second quintiles. The median debt-to-income ratio for the lowest quintile increases by 2½ times, increasing from 28 percent in 1989 to 70 percent in 2013. The second quintile experiences a somewhat smaller increase (see Table 2.11).

Table 2.11. Median of personal debt of households with debt as a percentage of income 1989–2013 by income percentile

	<20	20–39.9	40–59.9	60–79.9	80–89.9	90–100
1989	28.3	33.0	46.9	68.0	66.2	62.3
1995	46.9	48.3	50.3	91.8	89.9	75.9
2001	63.2	46.3	74.0	101.2	101.2	80.0
2007	62.5	63.4	120.1	148.5	156.8	97.9
2013	69.6	75.7	81.3	127.6	149.1	100.0

Source: Author's tabulations of the SCF; households with annual income less than $15,000 not included.

An issue of some importance is whether households with education debt have a particularly high overall debt burden. In fact, the median of the debt-to-income ratio for young households with at least some education debt increases from 59 percent in 1989 to 124 percent in 2013 (see Table 2.12), suggesting that education loans have not simply displaced other kinds of borrowing.

Table 2.12. Median of personal debt of households with education debt as a percentage of income by age of head of household[10]

	under 35	35–44	45–54	55–64	65–74	75+
1989	58.8	104.3	81.3	30.2	36.5	…
1995	61.6	86.7	108.8	73.7	130.5	7.0
2001	92.2	108.2	125.2	73.7	102.1	118.3
2007	111.8	186.6	145.3	129.0	286.6	176.2
2013	123.6	150.5	175.9	131.2	142.0	243.9

Source: Author's tabulations of the SCF; households with annual income less than $15,000 not included.

However, the debt burden of these households remains less than the burden borne by older households. Debt levels have grown at all income levels, except the lowest, which does not exhibit a clear trend (Table 2.13).

[10] See footnote 6.

Table 2.13. Median of personal debt of households with education debt as a percentage of income by income percentile

	<20	20–39.9	40–59.9	60–79.9	80–89.9	90–100
1989	109.2	42.7	46.6	88.5	57.9	103.3
1995	55.4	49.3	57.5	102.5	117.7	104.0
2001	124.9	101.6	97.3	101.2	95.7	100.4
2007	104.8	74.4	98.5	187.1	172.6	124.7
2013	108.4	99.2	118.3	153.5	175.9	143.4

Source: Author's tabulations of the SCF; households with annual income less than $15,000 not included.

2.7 Debt Service

An indicator of the burden of debt that is complementary to the debt-to-income ratio is the ratio of debt service to income. A curious feature of education loans is how low their debt service ratios have been. The median in 2013 was only 0.7 percent, and the mean was 1.7 percent. Part of the reasons for this may be that subsidized loans bear no interest while the student is in college. At any given time, up to 4 or even more than 4 years of subsidized loans will not be accruing interest. In addition, loans in deferral (explained in the next section) neither accrue nor pay interest. The more rapid the growth in new loans, the greater will be the share of subsidized loans accruing no interest in the outstanding stock of loans. It is also possible that the interest accruing on nonsubsidized loans is not reported as interest paid or is underreported in the SCF. The median of personal debt service as a whole to income in 2013, although it is higher than the education debt service ratio, was just 1.1 percent, with an average of 2.5 percent.

In sum, a huge increase in education debt has taken place over the past 25 years, in part because of the spread in borrowing to finance higher education to a broader spectrum of households and in part because of a very large increase in borrowing per household. The growth in education loans has contributed significantly to the growth in personal debt, although it is not the sole source of that growth, and together with stagnating incomes has led to increases in debt burdens that were already heavy for many households. It is hard to generalize about the impact of this growing indebtedness by age class or income level, but many households must be struggling to manage their finances.

2.8 Explanations for the Growth of the Outstanding Balance of Student Loans

In this sub-section, our aim is to try to shed some light on the reasons for the behavior of education debt in the aggregate. The outstanding stock of education loans at the end of a year has two components: the stock that had been contracted as of the beginning of the year net of repayments minus interest payments on the stock during the year, and new loans contracted during the year. In the course of the year, newly contracted loans and accrued interest add to the stock, while repayments reduce it. Given the stock of debt at the beginning of the year, the net increase during the year depends on what happens to repayments and newly contracted debt.

We first discuss what determines new loans and then turn to consider repayments. The number of applicants for new loans is determined in part by demographic trends, in particular, the growth in the population of student age. The state of the economy also plays a role—although exactly how is hard to spell out—as may the availability of alternative financing. A lackluster economy may encourage some students to prolong their education or return to school; for example, by electing to go to law school, business school or enroll in some other graduate or vocational program in the hope of landing a better-paying job upon graduation. Students might also want to prolong their education in the hope that the economy would turn up. However, a soggy economy might also discourage some students from incurring additional debt if they were uncertain they could repay it. A further influence could be the limits that the federal government sets on the different types of loans it offers (see Section 3).

To shed light on what is driving the increase in new loans, we compare the evolution of the average cost of attending college with increases in the value of the average newly contracted loan. The average cost of attending college for undergraduates is estimated to have increased by 68 percent between 2004 and 2014.[11] However, this figure does not take into account that part of the cost that is financed by discounts and grants from colleges themselves as well as federal tax credits. Taking these financing sources into account yields a net price for tuition, fees, and room and board—what the student actually pays—which is

[11] The readily available data on students contracting new loans is limited to 2004–2014.

estimated to have increased by 36 percent over this period.[12] The growth in the average net price of tuition and board for public 4-year institutions outstrips the increase of 31 percent in the value of the average new loan, the increase in the average net price of private nonprofit 4-year institutions keeps pace with the increase in average loan values, but the public 2-year institution increase falls short of it.

The total number of students increased from 17.3 million to 21.1 million over the same period, although the number of students contracting a new loan was not much changed—it jumped from 9.2 million in 2004 to 12.3 million in 2010 before falling back to 9.1 million in 2014.[13] The growth in the value of the average loan exceeded consumer price inflation, an indication that the real burden entailed by student loans may have increased. [14]

It appears that the increase in the cost of college explains much, perhaps most, of the recent increase in the average value of new loans. A further contributing factor may be the stagnation of disposable income discussed earlier. If the net cost of college is financed by a combination of loans and funds from the household of the student, a 40 percent increase in cost would require a 40 percent increase in the household's contribution to prevent the increase in borrowing from exceeding 40 percent. If, however, the household's contribution declines, the growth in borrowing has to exceed 40 percent. In addition, financing from the states has declined in recent years.

Repayments are determined by the size of outstanding debt and the average rate of interest on it, but also by the incidence of defaults and other deviations from the contractual repayment of loans. If we knew the repayment schedule for every loan, we could make a reasonably accurate estimate of the aggregate annual repayment and the ensuing decline in the stock. However, repayments are affected by variations in the rates of default and delinquency, as well as by the extent to which loans are affected by deferral and forbearance (see Section 3).

An estimate of repayments can in principle be derived from the relationship between changes in the stock of debt, interest on the outstanding stock and new lending, using a simple model. In this model, debt in period t (D_t) equals debt in period $t–1$ plus interest at an average rate r on the outstanding stock of debt plus new lending (NL) minus repayments ($Repay$). This relationship may be expressed as follows:

$D_t = D_{t-1}(1 + r) + NL - Repay$ or

$D_t - D_{t-1} = \Delta D = r\, D_{t-1} + NL - Repay$

$\Delta D - NL = r\, D_{t-1} - Repay$

The change in the stock of debt will be less than new lending when repayments exceed interest payments on the outstanding stock of debt. There is no readily available data on repayments or on interest payments; however, we do know that new lending has exceeded the change in the stock of debt consistently. We could experiment with different values for the interest rate on outstanding debt. As an example, if the stock of debt is assumed to increase by $80 billion, debt in period $t–1$ is $1,000 billion and new lending is $100 billion, then repayments should exceed the interest on the debt by $20 million. If the interest rate on the debt was 5 percent, interest payments would amount to $50 billion, implying repayments of $70 billion. Without more information on the rate of interest on the debt, however, it is not possible to say anything definite about the level of repayments.

The behavior of default rates is a very rough indicator of the effect of defaults on the outstanding stock of debt. More telling is the way default rates vary across the class of educational institutions. Data is available on what are known as two-year default rates for students starting to repay their loans in years 1996 to 2012, and three- and five-year default rates are also calculated.[15]

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[12] This figure is the author's estimate, derived by taking a weighted average of the increases in net price from 2005–2006 to 2015–2016 calculated by the College Board for public 4-year institutions, public 2-year institutions and private nonprofit 4-year institutions. These increases in nominal terms are respectively 57 percent, 15 percent and 33 percent. Estimates of increases in the net price of other institutions are not available.

[13] The data on student numbers come from the National Center for Education Statistics; the data on new loan contracts come from the Federal Reserve Bank of New York.

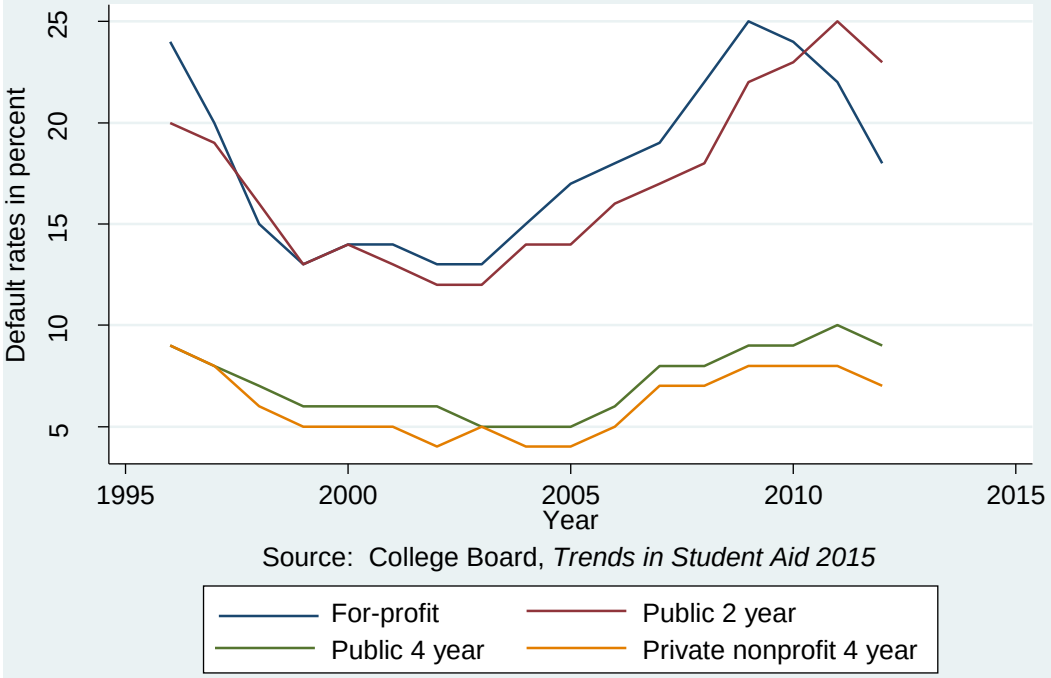
[14] The current limits on federal loans to students have not changed in 9 years. It is conceivable that they impose a constraint on federal government borrowing by some students, which would help explain why the growth in the value of the average loan has not kept pace with costs.

[15] The 2-year default rate for a given cohort of borrowers is the share of the cohort entering default by the end of the fiscal year following the year in which the cohort started making payments. The 3-year default rate is the share of the cohort that enters a state of default before the end of the following year, and so on. The default rate calculation is not affected by a student's efforts to extricate himself from default, successful or not.

The data on two-year default rates can be disaggregated into four categories: students at for-profit institutions, at public two- and four-year institutions, and at private nonprofit four-year institutions.

All four categories exhibit a U-shape over 1996 to 2012: default rates decline in the middle of the period (see Figure 2.1).[16] The default rates for 4-year colleges end up about where they started, just below 10 percent. The rates of for-profit and 2-year institutions are around 20 percent, and about where they were in the mid-1990s. This points to a troubling relationship between a student's economic prospects and the likelihood of default, since the career prospects of graduates of 4-year colleges would be superior to the prospects of 2-year and for-profit colleges.

Figure 2.1 Default rates by class of institution, 1995--2012



The share of federal loans going to the high-default rate institutions has risen from 24 percent in 2005 to 35 percent in 2011. Consequently, the overall 2-year default rate can be estimated to have risen from 7 percent to 14 percent over this period.[17] Subsequently, the overall 2-year default rate seems to have declined, as has the 3-year default rate.[18] It remains above its recent average, however, and it is likely that its increase over the past decade helps explain the outsized increase in the stock of student debt. Finally, within each institutional category, we observe a huge difference in the default rates of students who graduated and students who did not graduate (see Table 2.14).[19]

[16] Both the 3-year and the 5-year cohort rates exhibit a similar (U-shaped) pattern. In the case of the 5-year cohort rate, the latest cohort for which a rate can be calculated is the 2009 cohort, at the tail end of the Great Recession. It is not surprising that the 5-year default rate has not begun to trend downward.

[17] Data on 2-year default rates are readily available from 1995–1996 to 2011–2012.

[18] The data needed for a definitive statement are lacking.

[19] See Section 3 for a discussion of the consequences of and potential remedies for default.

Table 2.14. Two-Year Cohort Default Rates, Borrowers Entering Repayment in 2011–2012 in percent

	Public		Private		All
	Two-year	Four-year	Non-profit Four-year	For-Profit	Institutions
All Borrowers	23	9	7	18	14
Borrowers Who Graduated	17	6	5	14	9
Borrowers Who Did Not Graduate	29	18	15	28	24

Source: College Board, *Trends in Student Aid 2015*.

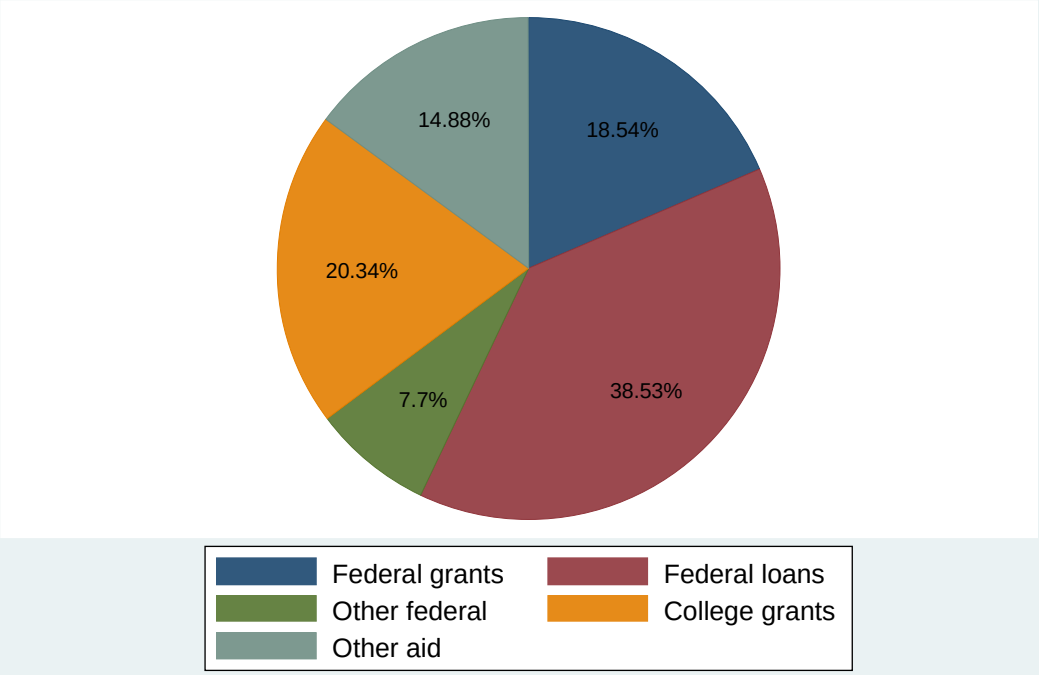
Section 3: Student Loan Institutions

3.1 Aid to Students and the Role of Federal Government Loans

Aid (both grants and loans) to students at colleges, university and other tertiary institutions from the federal government, states, universities and colleges and the private sector amounted to $249 billion in the academic year 2014–2015, or 1.4 percent of GDP. The federal government's student loan programs play an important role in financing higher education and are a major supplement to financing from other sources. Federal loans, subsidized and unsubsidized, amounted to about 40 percent of the total, federal grants to about 20 percent and tax expenditures and other federal aid to 8 percent. Grants from colleges were about 20 percent, and grants from the states and the private sector accounted for the rest (see Figure 3.1). Federal grants—mainly Pell grants—were boosted substantially in 2009–2010 in the wake of the Great Recession to assist students who were having or would have difficulty servicing a loan.[20]

Most loans to students are direct loans, which are also referred to as Stafford loans.[21] Direct loans amounted to almost 80 percent of all federal loans in 2014–2015. Prior to 1993–1994, these loans were all made by banks and other financial institutions, and were guaranteed by the federal government. In 1993–1994, the federal government began lending directly to students. Since 2010–2011, all new loans have originated with the federal government, which may be subsidized or unsubsidized. Some part of the outstanding stock of what is classified as direct lending or Stafford loans may include loans made by financial institutions and guaranteed by the federal government.[22] Although the federal government is the lender, the loans are actually administered by one of a number of designated loan servicers. A student seeking a change in the terms of her loan contacts her servicer rather than the Department of Education.

Figure 3.1: Composition of student aid, 2014--2015



Source: College Board, *Trends in Student Aid 2015*

[20] Pell grants are mean-tested. A formula determines the value of the contribution that is expected of the student's family (or the student, if he or she is not a dependent), and the grant is determined by the difference between the cost of tuition and the family's contribution, up to a cap that is currently set at $5,815 per year.
[21] The Department of Education now refers to these loans as direct subsidized or unsubsidized loans.
[22] The subsidized loans, like Pell grants, are means-tested. In both cases students or their representatives must fill out a "Free Application for Student Aid," or FAFSA. The form asks for a great deal of information, and many students would have difficulty completing it without assistance.

In addition to direct loans, the federal government offers loans under the PLUS program to graduates and parents of undergraduate students.. Neither has a financial need requirement, and in principle both programs may be used to bridge the gap between the cost of attendance and other available financing. (There is no cap.) The finances of parents applying for a PLUS loan are not thoroughly vetted. A fifth program, the Perkins loan program, which has recently been a minor source of funds has been allowed to lapse.

3.2 Interest Rates and Loan Limits

Direct loans to undergraduates currently bear an interest rate of 4.29 percent, which is the same whether the loan is subsidized or unsubsidized. Loans to graduates or students at professional schools bear an interest rate of 5.84 percent, and are not subsidized in the same manner. PLUS loans, to parents or professional/graduate students, charge a rate of 6.84 percent (see Table 3.1). All rates are set by Congress, using a rule that adds a fixed component to the 10-year Treasury bond rate and are set for the life of the loan.[23] Rates are adjusted annually.

Loans to undergraduates are subject to annual limits, whether they have a subsidized component or not, and separate limits apply to the subsidized component (see Table 3.1). The total limit for the first year of school is $5,500 for dependent students, and that for the subsidized component is $3,500. The limit on lending for a four-year program is $31,000 with a separate limit on subsidized lending of $23,000. If we assume that the student borrows at current interest rates the maximum amount of subsidized loans over a 4-year period, and another $8,000 in unsubsidized loans in equal amounts each year, she would graduate with about $32,000 in student debt. Paying that debt off over 10 years at the current rate of interest would require monthly payments of about $330.[24] Extending the repayment period to 20 years would reduce the monthly payment to about $200.

Higher limits on lending apply to independent students and substantially higher limits apply to graduates under the direct loan program. For the PLUS lending program for graduate students and professional school attendees, the limit is equal to the cost of attendance minus any financial aid the student receives. Consequently, the average debt of graduate and professional school students is a good deal higher than that of undergraduates.

3.3 Subsidized Lending

Eligibility for a direct subsidized loan is determined by a means test. Rather than reducing the principal to be repaid, the subsidy results from the provision that no interest is charged while the student remains in school and for 6 months after graduation. The subsidy for direct lending relative to the unsubsidized loan depends on the rate of interest charged when interest accrues or is due, and on the delay permitted in the start of repayments. [25] Its value is calculated by taking the present value of the stream of payments on a subsidized loan, and comparing that figure with the present value of the stream of payments associated with an unsubsidized loan. For example, assuming that a student in a four-year program borrows a subsidized loan up to the maximum each year at a 4-year institution (see Table 3.1), the subsidy would amount to about 9 percent of the value of the loan. The nearer the loan take-up is to graduation, the less is the value of the subsidy. It is worth considering whether the subsidy mechanism provides student borrowers with adequate relief, and whether a more direct and transparent subsidy would be superior to the current arrangement.

[23] Rates on subsidized loans for undergraduates declined in a series of steps from 6.8 percent in 2006–2008 to 3.4 percent in 2011–2013 before edging up to their present rate. From 2006–2007 to 2012–2013, the rate on unsubsidized direct lending and graduate loans was 6.8 percent and that on Direct PLUS loans was 7.9 percent. In 2013–2014 (2014–2015), the rate on undergraduate lending was 3.86 (4.66) percent, that on graduate lending was 5.41 (6.21) percent and that on PLUS loans was 6.41 (7.21) percent.

[24] There is no interest on the subsidized part of the loan, which amounts to $23,000 at graduation. Accrued interest on the unsubsidized part would amount to $990, bringing the total amount owed to about $32,000.

[25] It could be argued that even a loan where no delay in the start of repayments is permitted is subsidized if the applicable rate of interest is lower than the rate a private lender would charge. Data on interest rates on private sector student lending are not readily available to calculate this additional subsidy element.

Table 3.1. Basic features of federal student loan programs
(current interest rates, maximum annual borrowing amounts, eligibility and conditions)

Loan program	Maximum loan amount in dollars by year of schooling				Annual Interest rate	Eligibility and conditions
	First	Second	Third	Total	(percent)	
Direct loans						
to dependent students 1/	5,500	6,500	7,500	31,000	4.29	
of which: subsidized part	3,500	4,500	5,500	23,000		Financial need requirement
to independent students 2/	9,500	10,500	12,500	57,500	4.29	
of which: subsidized part	3,500	4,500	5,500	23,000		Financial need requirement
to graduate students	20,500	20,500	20,500	138,500	5.84	
PLUS	Cost of attendance minus any financial aid received				6.31	Graduate & professional students and parents of dependent undergrads No financial need requirement

1/ Except students whose parents cannot obtain a PLUS loan.

2/ And dependent students whose parents cannot obtain a PLUS loan.

Note: these limits reflect current legislation, As of July 1, 2012, graduate and professional students were no longer eligible for direct subsidized loans. As of July 1, 2010, loans under the Federal Family Education Loan program (from private lenders) ceased.

Source: *Federal Student Aid*, U.S. Department of Education

3.4 Repayment Plans

Various repayment plans are available (see Table 3.2). The standard plan stipulates repayment in equal monthly installments over 10 years. A graduated repayment plan is also available; its payments begin at a level lower than those of the standard plan and are then increased. This tends to even out the burden of the loan (the debt to income ratio) over time. The loan's maturity remains 10 years. Under an extended plan, repayments may be either fixed or graduated, and the repayment period may be as long as 25 years.

Other plans put a cap on the monthly repayment that may range from 10 to 20 percent of monthly income. The plans available to borrowers with direct loans provide for the forgiveness of any remaining balance after 20 or 25 years depending on the plan. Eligibility for these plans requires that the student's debt level be high relative to income (see Table 3.2). Interest continues to accumulate on the loan's outstanding balance with all repayment plans; it is deferred, not forgiven except in the cases where the remaining debt is extinguished after 20 to 25 years. The total undiscounted payments of interest and principal in these cases will substantially exceed the interest and principal of a standard plan.

A student may be able to choose between several of these plans, and notably the standard and graduated plans, when he or she takes out a loan. Other plans, like the Pay As You Earn (PAYE), and the income-based plan are intended to give some relief to borrowers who have accumulated substantial debt.

3.5 Deferment and Forbearance

The student loan programs provide for two types of relief to students having difficulty servicing their loans: deferment and forbearance. Deferment is the more generous of the two. Under deferment, the government will forgive the interest on subsidized loans and allow the accrual of interest on unsubsidized loans in several situations, including: while the student is enrolled at least half-time in a college or career school, or during a period of graduate study or an approved rehab training program; during a period of unemployment or a failure to find full-time employment; during a period of economic hardship; and during a period of active military service and the 13 months following it under certain circumstances.

A student who is not eligible for deferment may nonetheless be eligible for forbearance, under which monthly payments may stop for up to 12 months. Interest continues to accrue on all types of loans, however. Forbearance may be either discretionary (i.e., at the discretion of the lender in case of financial hardship or illness) or mandatory if one of the following conditions is met: the student is serving in a medical or dental internship and meets certain requirements, monthly payments are at least 20 percent of income (additional conditions apply), the student is in a national service position and the recipient of a national service award, and several other conditions.

Table 3.2. Federal loan program repayment plans

Repayment plan	Eligible loans	Monthly payment	Term of loan	Eligibility
Standard plan	All direct Loans All PLUS loans and Consolidation loans	Fixed monthly Payment.	Up to 10 years (30 years for consolidation loans).	All borrowers.
Graduated plan	As with the standard plan.	Payments begin lower than standard plan, then increase.	As with the standard plan.	As with the standard plan.
Extended plan	As with the standard plan.	Fixed or graduated payments.	Up to 25 years.	As with the standard plan, but debt must exceed $30,000.
Pay As You Earn Plan (PAYE)	As with standard plan but consolidation loans cannot include PLUS loans to parents.	10 percent of discretionary income recalculated each year based on updated income and family size, but never more than the standard plan. Spouse's income not considered unless couple files jointly.	Outstanding balance after 20 years will be forgiven.	For recent. borrowers only Debt must be high relative to income. Income tax may be due on the amount forgiven.
Revised Pay As You Earn Plan (REPAYE)	As with the PAYE plan.	As with the PAYE plan, except that spouse's income is considered.	Outstanding Balance will be forgiven after 20 to 25 years.	All borrowers are eligible.

Table 3.2. Federal loan program repayment plans, concluded

Repayment plan	Eligible loans	Monthly payment	Term of loan	Eligibility
Income-based Plan	As with the PAYE plan, but applies to all PLUS loans, not just direct loans and FEEL consolidation loans are also eligible.	10 to 15 percent of discretionary income recalculated every year as with PAYE plan. Spouse's income not considered unless couple files jointly.	Outstanding balance will be forgiven after 20 to 25 years.	Debt must be high relative to income. Income tax may be due on amount forgiven
Income contingent plan	As with the PAYE plan, but also Including all direct consolidation loans	The lesser of 20 percent of discretionary income or amount payable with a 12-year fixed payment plan adjusted to borrower's income. Payments recalculated each year. Spouse's income not considered unless couple files jointly or chooses to repay jointly.	Outstanding balance will be forgiven after 25 years.	Income tax may be due on amount forgiven.
Income-sensitive plan	As with income contingent plan, but private sector PLUS and consolidation loans only.	Based on annual income.	Up to 15 years	

Source: *Federal Student Aid*, U.S. Department of Education

Finally, students working in government, or in one of many nonprofit organizations, including nonprofits like hospitals, can have the balance of their loans forgiven once they have made 120 full monthly payments. This provision has been criticized for benefitting professional students who are less in need of it than other students, who may struggle to service a smaller debt.[26]

3.6 Default

Defaulting on a loan has potentially serious consequences and is deemed to occur if a loan has been delinquent—that is, if money owed has not been paid—for 270 days. Unlike other types of personal debt, student loans cannot be subject to a bankruptcy process. A loan in default becomes due immediately, and the federal government may attach a tax refund or garnish up to 15 percent of a student's wages. Social Security benefits may also be garnished. Default can jeopardize a student's credit rating. In addition, the student loses her eligibility for deferment, forbearance and other repayment plans. The Federal Student Aid branch of the Department of Education includes in its guides to students planning to borrow a clear description of these and other consequences of default. How aware of these consequences the typical student borrower may be is uncertain.

[26] See J. Mitchell (2015) for a discussion.

A student who has defaulted on her loan has two options to restore her financial standing. The first of these is loan rehabilitation, which was introduced in 2010. To qualify, the student must make 9 full payments in no more than 10 months, each of them within 20 days of the due date. Under a loan rehabilitation agreement, the student will then be offered initially a repayment plan with repayments set at 15 percent of income, which the student must document. A lower percentage may be agreed in special cases.[27] Nearly 3 million students have rehabilitated their loans since 2010.[28] The loan rehabilitation option may be exercised only once, so that if a student becomes unable to make the required payments under the new arrangement, default is inevitable. The full and prompt payment of interest and principal owing for 9 straight months might be beyond the means of some borrowers.

The second option is loan consolidation, which replaces the loan or loans in default with a direct consolidation loan. Consolidation requires either that the student make at least three full payments on the defaulted loan, or agree to repay the new loan under an income-driven repayment plan. Given the severe consequences of default, students should have a strong incentive to take advantage of these options. Whether students are always aware of the options is another matter.

[27] In the case of Perkins loans, now discontinued, the monthly payment is determined in a different way.
[28] Council of Economic Advisors (2016, p. 3).

Section 4: The Economic Approach to Spending on Higher Education

Ever since the pathbreaking work of economic Nobelist Gary Becker in the 1960s, economists have viewed the decision to acquire a college education as an investment decision. The cost of the investment equals the income foregone while a student, plus the sum of tuition fees and the cost of textbooks, room and board and other related expenditures; the benefit consists of the satisfaction or utility the student obtains from the experience of higher education plus the increase in lifetime income higher education enables. The economic approach to higher education does not assume that education is all about money; in practice, however, estimates of the returns to higher education disregard this nonpecuniary element. Whatever the merits of a liberal arts education, studies of its rate of return make no allowance for the nonfinancial benefits (e.g., wisdom and knowledge) of a higher education.[29]

The standard approach to estimating the returns to an investment in higher education is to compare the difference in earnings of the college-educated (both graduates and associates) with the earnings of those with only a high school diploma. The present value of an estimate of the lifetime difference in these earnings is then compared with an estimate of the cost of the education. With an investment in human capital, however, there is no direct measure of what an individual would have earned had she not gone to college. Hence, it is necessary to rely on averages. Strictly speaking, the financial gain from higher education should be measured as the difference in the income a college grad would have earned had she not gone to college and her post-graduate income. It can be argued that those who attend college are on average more intelligent those who do not, and that their earnings, had they not pursued higher education would be higher than the average earnings of a high-school graduate. If so, the standard approach will overstate the rate of return to higher education.

This said, studies of the return of an investment in higher education typically find that it is high. A recent report from the Council of Economic Advisors estimates that the median lifetime income of a college graduate exceeds that of a high school diplomate by nearly $1,000,000. An associate's degree has a premium of $360,000.[30] Another recent study (Pew Research Center, 2014) finds that a bachelor's degree increases annual median income by $17,500 in 2012 dollars for graduates aged 25 to 32 compared to the income of a high school graduate with no college when both are working full time. College graduates also spend less time unemployed.

The economic approach to education typically assumes that what is imparted or learned in lecture and study halls boosts the student's human capital; in other words, it is the educational process itself that increases a student's earnings capacity. Some economists have tried to explain the earnings premium that college graduates enjoy in another way. They contend that degrees and diplomas are screening devices: students who successfully complete college reveal by so doing that they have certain traits (like intelligence, perseverance, self-discipline, or networking abilities) that make them more attractive candidates in the job market.

A large number of studies support the view that it is educational achievement as such, and not the role of college as a screening device, that accounts for the higher earnings that college graduates enjoy. The CEA report cites 11 studies that find that college attendees earn between 5 and 25 percent more for each year of attendance (CEA, 2016, p. 11).[31] The evidence suggests that relatively high rates of return are not confined to the better known universities and colleges.[32] [33]

The high estimated *average* return to education can hide substantial *variation* in the returns enjoyed by individual students. Calculations of the rate of return to education vary substantially from college to college and from discipline to discipline, and a

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[29] Interestingly, a recent article in the *Washington Post* lamented the fact that many parents of college-bound children were strongly discouraging them from majoring in the humanities. The article reports that the average salary of humanities graduates is just above $50,000 (Pearlstein, 2016).

[30] Council of Economic Advisors (2016).

[31] A recent study cited in the CEA report provides further support for the human capital as opposed to the screening device theory. The study compared the salary paths of college students who had just barely qualified for college with the salary paths of would-be students who fell just short of making the grade, who presumably would have similar intelligence levels. The study found that the salaries earned by the college students were significantly higher than their non-college-attending peers (CEA, 2016, pp. 11–12).

[32] Pay Scale, a consulting firm calculates the inflation-adjusted return on investment (ROI) for over 1,000 universities and colleges. Some 387 colleges were estimated to have ROIs of over 7 percent. See www.payscale.com/college-roi. Measured in dollars, the highest return went to students at Cal Tech.

[33] If the screening theory were true, the issue of the usefulness of the role of colleges as screening devices would arise. Attendance for 2 or more years at a college seems like a very inefficient way of distinguishing more productive from less productive workers.

college degree does not automatically put every student on easy street. Students may be ill-informed about the benefits and costs of a college education and make the wrong choice of vocation or field as a result. Many recent graduates of for-profit institutions who have taken out education loans have found themselves in difficulty, and many are in default (see Section 2), in part because the benefits of attending these institutions were oversold. Baum (2016, p. 87) notes that ". . . many students borrow to study cosmetology, a career with a median wage of about $23,000 a year."

A purely economic justification for the government's role in student lending would rely on the assumption that the market for student loans is affected by market failure, owing to the lack of collateral the student borrower can put up to reduce the risk that a private financial institution assumes when it makes a loan. If we compare hypothetically two loans, one to a student to finance an education, the other to finance a car, and we assume that they have the same expected return and risk, the car loan will definitely be more attractive to the lender, even though the risk-return characteristics of the two loans are the same. The lack of collateral on student loans results in underinvestment.

Another reason for government involvement in the student loan market is the belief that the social rate of return to student loans exceeds their private rate of return. In particular, the college-educated are less likely to be a drain on the government's welfare budget, and a college education endows students with qualities that benefit others as well as themselves. These positive externalities would normally play no role in the decisions of lenders.

In addition, in light of the apparently overwhelming economic or financial advantage that a higher education confers on most students who borrow, there is a strong case for means-tested lending on the grounds of fairness and a concern for social stability, and in particular for especially favorable terms for students from very poor families. This distinction is reflected in federal government policy, which provides means-tested loans and grants to poorer students on better terms than the loans it provides to the general student body.

Most industrial countries subsidize the cost of higher education heavily. In many countries, the government pays the full cost of tuition and board. In the United States, directly subsidized tuition (i.e., where tuition is set well below cost) is confined to state colleges, and in-state students are favored over those from out-of-state. Nonetheless, unless a student benefits from a substantial scholarship, bursary or grant from her university, she and her family must make a substantial outlay. Without the federal government's loan program, many aspiring students would be denied the benefits of a higher education. They and the country as a whole would be worse off.

Depending on its terms, reliance on a loan program can create heavy burdens for some students. An investment in higher education can be highly leveraged—the ratio of loan to equity financing is high. Students whose subsequent careers are not very successful financially can find themselves struggling with a heavy burden of debt. If the average return to education declines, or becomes more variable, more and more students could find themselves in this predicament.

The inevitable consequence of financing higher education with loans, and not just grants, is that some students will be unable to repay their debt, either because they fail to graduate or because they are unable to find a sufficiently well-paying job. Unless students in default or threatened with it are automatically bailed out, a student loan program will have casualties. The number of students in default can be reduced by increasing the grant element of the loan, but the risk of default cannot be reduced to zero. Students from poor families are particularly at risk, because they will lack the financial support they need to service their loan in the event that their employment prospects post-graduation are not bright. Even if a student obtains enough aid to finance tuition and room and board, he or she may have to scrimp on the necessities of life.[34]

Exclusive reliance on private sector lenders to finance higher education would be problematic because of the lack of suitable collateral. Without the intervention of the government, there would be no subsidy element in the loan. In the case of students from families with modest incomes, a loan might seem to be prohibitively costly, and lenders would tend to favor students from better-off families, since the probability that they would repay their loans in full would be higher than it would be with students from poorer families. A student loan is not the only way to borrow to finance higher education, but the alternatives may favor students from more affluent families. A student from a family that can offer its house as collateral for an additional loan might be able to rely in part on mortgage lending, and possibly do so at a lower rate of interest than it would pay on a student loan. However, this alternative is in practice open only to students from more affluent families.

The recent surge in borrowing has highlighted the issue of whether aid to students should be in the form of grants or loans. Some recent studies have drawn attention to the fact that households who borrowed to finance their education have lower net worth

[34] A recent PBS News Hour feature highlighted the difficulties of students whose income was not enough to pay for three meals a day. See "For these college students, the most difficult test may be basic survival." PBS News Hour, October 25, 2016. See also the discussion of food insecurity among college students in Goldrick-Rab. (2016, pp. 127-137).

than households otherwise similarly situated who received grants or did not need to borrow. This is not a surprising finding. People will be wealthier if they do not need to borrow and pay for their education than if they do. It does not follow that an educational loan is a bad deal. That said, a loan is inevitably a gamble to some extent for at least some borrowers, and if the return to their investment is disappointing, they may end up worse off than they would have been had they not gone to college.

The choice between grants and loans raises an important public policy issue. A loan is less of a drain on the government's budget over time (what economists call the intertemporal budget constraint) than a grant of the same amount, since most if not all of the loan can be expected to be paid back with interest. For a given budgetary allocation for a period of several years, loans may conceivably finance more years of higher education than grants. A grant puts less of a burden on the finances of a poor family, however. A key issue in deciding on the relative role of grants and loans is the riskiness of the loan. The case for reliance on loan financing is bolstered if student loans are not particularly risky; that is, if a student can expect with some assurance that her income will be boosted because of the experience of higher education, servicing the loan will not be burdensome. The issue of the appropriate role of grants and loans is taken up again in Section 6.

Section 5: The Impact of the Growth in Personal and Education Debt on Retirement Security

5.1 Introduction—Sources of Increased Indebtedness

Any increase in debt that is not matched by an increase in assets, including human capital (in a broad definition of assets), can reduce retirement security; or more accurately it reduces a household's lifetime expenditure or consumption. The standard life cycle theory of consumption predicts that a household will try to maintain the same level of personal expenditure throughout the rest of its life, so an increase in indebtedness will entail a decline in personal expenditure throughout the remainder of the household's working life and subsequently in retirement.[35] The household's standard of living declines permanently. Whether people actually act like this is another matter. A household might try to maintain its former standard of living for a time, which means that when it eventually began to pay off its additional debt, the level of personal expenditure would be compressed by more than it would have had the household tried to smooth its consumption immediately and more gradually.

Increases in education debt unmatched by an increase in earning power have several possible origins:

- An education may simply cost more—if the increase in prospective earnings a college degree facilitates is unchanged, then the extra money borrowed to finance it means that a contemporary graduate who takes the same job after college as someone who graduated 15 years ago is saddled with more debt for the same increase in earnings, and the rate of return to his investment is reduced. This is not an implausible scenario given the clear tendency of the costs of higher education (tuition and room and board) to outstrip the growth of the earnings of many occupations. That said, the increased cost, depending on how large it is, does not necessarily make an investment in education unprofitable, although it does make the investment less profitable than it otherwise would have been.

- The extra debt could also result from lower than expected post-graduation earnings, a longer search period for a job after graduation or both. If starting salaries are lower than expected, or if graduates spend more time looking for work, or if they take jobs for which they are overqualified and underpaid, then their earnings will be less than expected and they are more likely to miss loan payments. As Section 3 explains, students with subsidized loans may be able to claim a deferment, which would relieve them of the responsibility for payment of interest on their loans, but obtaining a deferment could take some time. Students with unsubsidized loans who obtain a deferment are relieved of the obligation of actually making payments, but interest on their loans continues to accrue. Forbearance is another possibility. Under forbearance, the obligation to make payments is suspended for a time, but interest continues to accrue on both subsidized and unsubsidized loans. Whether deferral or forbearance provides substantial relief is uncertain.

In addition to these cases of a decline in the rate of return to educational expenditure, increases in education debt could be financing additional education, that is, graduate or professional school or vocational training. In this case, the increased debt is presumably expected to be offset by the expected increase in earning power it will finance and is less problematic. Another possibility is that the increase could reflect an increase in the share of debt financing in the total investment in education (perhaps because of the impact of a current student's declining earnings or lower grants from the student's state on the equity component of financing).

It is also important to remember that any increase in the riskiness of an investment in education, even if there is no decline in the *average* return, means that that some borrowers will find themselves less able to service their loans. The counterpart to this will be increases in the income of some graduates that are greater than expected, which could result in a faster payoff of debt.

5.2 The Burden of Excess Debt

The notion of excess debt we propose here would correspond to that part of the education debt contracted because the cost of college was underestimated, or the debt that accumulated because of a spell of unplanned unemployment or because the borrower had to take a job that paid less than expected. The basic burden that excessive debt creates, assuming that households make a good faith effort to pay it off, is the reduction in personal expenditure it requires. The discussion of Section 2 clearly demonstrates that the burden of education debt and personal debt as a whole has grown substantially over the past 15 to 25 years. Much of the increase in education debt might be deemed to pose an excessive burden on households, and may require a

[35] Strictly speaking, life cycle consumption is supposed to decline as the years pass to take account of increasing mortality, which puts a premium on consumption today rather than tomorrow. Excess debt could also result in a decline in a household's contingency or emergency fund.

substantial cut in personal expenditure over a long period.[36] Leaving for later a look at personal debt as a whole, the data on the percentile distribution of education debt shows that the median household with any education debt owed $17,000 in 2013, and one of four households owed more than $36,000 (see Table 5.1).

There is no *objective* way to determine whether a household's debt is excessive. For education debt or for personal debt as a whole, it is essential to take account of what has happened to a household's net worth. A very large increase in a household's personal debt ratio could simply reflect the acquisition of a mortgage-financed house. We shall, however, propose very tentatively two possible benchmarks for an assessment of the degree to which debt is excessive: (1) how far a household's debt ratio is from the median value for the SCF sample in the latest year for which the data is available, which is 2013 and (2) how far a household's debt to income ratio in 2013 is from the median of an earlier year when debt ratios were deemed to be normal. The first approach we propose compares a household's position in the current or a recent year to an average measure (the median) for that year, while the second compares the household's current position to the median in a designated (and earlier) base year. The benchmark position can be interpreted as representing a debt-to-income ratio that is sustainable. A third possibility would be to compare the average ratio in the current year to the average of an earlier year.[37] It would not be difficult to devise other benchmarks.

Table 5.1. Education loans outstanding by percentile in 2013
in 2013 dollars 1/

Percentile	Outstanding loan value	Percentile	Outstanding loan value
5	1,500	55	19,300
10	2,550	60	22,000
15	4,000	65	25,000
20	5,000	70	28,000
25	6,000	75	36,000
30	8,000	80	44,000
35	10,000	85	54,500
40	12,000	90	70,000
45	14,200	95	99,000
50	17,000		
Mean	29,110		
Observations	5,319		

1/ A slight discrepancy exists between the median values of this table and table 2.1, reflecting differences in the treatment of outlying observations and potentially identifiable household data.

Source: Author's tabulations from the 2013 SCF

It needs emphasizing and even reemphasizing that these benchmarks are arbitrary. They serve a useful purpose in an exercise like this one, where it is important to apply a simple uniform standard. They could be higher (e.g., set at the 60th or 65th percentile) if encouraging all households above the median to lower their indebtedness to the median seems unnecessarily rigorous. However, whatever benchmarks were chosen, they would not necessarily appeal to any particular household wanting

[36] Debt per household might also increase because of an increase in the number of college students in the household. However, the estimated growth in the number of households with education loans is far greater than the growth in the number of college students over 1989–2013.

[37] As an example, if the average debt-to-income ratio in the current year were 25 percent, and in the earlier (base) year were 15 percent, then the targeted reduction in the ratio would be (25 – 15)/25, or 40 percent. If a household had an education debt ratio of 50 percent, its target would be 30 percent. This definition of the benchmark implies that all households should adjust, which might not be necessary or appropriate for households with low debt-to-income ratios. One way of dealing with this implication would be to impose a floor on the ratio, below which it would not have to fall.

to reduce its indebtedness. In any case, households would be unlikely to know the median debt ratio for the population as a whole or the ratio for their particular age cohort and income bracket.

It also needs emphasizing that the benchmark approach proposed here, simple though it may seem, is necessary because of the large number of households with which we are dealing. If our aim was to determine whether a handful of selected households did or did not suffer from excessive education debt loads, we would employ a different and much more detailed and thorough approach that would take account of each household's particular circumstances. Data permitting, we would examine both sides of the household's balance sheet, and the components of assets and liabilities, not just one item on the liabilities side. We would also take into account indicators of future income. If two households had the same income, while one was heavily indebted and the other was not, we would try to determine whether the heavily indebted household was likely to enjoy a substantial increase in its future income. A medical student might have a lot of debt and only a modest current income, but be more able to service that debt than a blue-collar household with the same income. This difference in household income would usually become apparent with the passage of time. It follows that having a debt-to-income ratio well above the median is not necessarily a sign of an excessive debt burden.

5.3 Comparing Debt Ratios to the Current Median

The percentile distribution of education debt as a percentage of household income reveals that half of the households with education debt have a debt burden of 27 percent or less (see Table 5.2). If we take this median value as the measure of a sustainable ratio of debt to income, then by definition 50 percent of households have excess debt, of which the most heavily indebted 15 percent of households have excess debt of 75 percentage points or more. Households at the 75th percentile have a ratio that exceeds the benchmark by about 40 percentage points, although excess debt thus calculated for the third quartile (50th to 75th percentile) would be substantially less than that figure on average. Debt burdens rise much further in the top quartile.

As the analysis of Section 2 has emphasized, there are substantial differences in debt ratios among households with heads of different ages and in different income brackets. However, substantive variation is also found within a given age and income class.[38] This raises the question of whether the norm or target for the household's debt-to-income ratio should be drawn from the distribution for all households or should be based on the particular income or age group of which a household is a member. For the sake of expediency, we focus on the median for the whole sample of households as our benchmark. However, we illustrate how the analysis might be carried out for particular age or income classes below.

[38] The median ratio of education debt to income for young households is 42 percent, and about one in four households headed by someone under the age of 35 has an education debt-to-income ratio that exceeds 90 percent. One in four households headed by someone aged 35–44 has a debt to income ratio that exceeds 60 percent. At least 20 percent of the households with a head under 35 are coping with a debt to income ratio of 100 percent or more. A similar pattern is evident in the distribution of the education debt burden by income class. One out of four borrowers in the bottom income quintile labors under a debt burden that is greater than 160 percent of income. In the second quintile, the corresponding debt ratio is about 100 percent. It is not surprising that the number of households with education debt in the bottom quintile is less than half that of the higher quintiles.

Table 5.2. Distribution by percentile of the ratio of the value of education debt to income in 2013

Percentile	Loan ratio (in percent)	Percentile	Loan ratio (in percent)
5	2.4	55	32.9
10	4.2	60	40.3
15	5.6	65	48.6
20	8.2	70	55.4
25	10.8	75	67.2
30	13.8	80	84.4
35	16.4	85	103.2
40	19.7	90	139.2
45	23.2	95	197.1
50	27.4		
Mean	54.3		
Observations	4,759		

5.4 Changes in Sample Medians over Time

The second proposed benchmark compares a household's education debt-to-income ratio in 2013 not to the median in 2013, as we have just done, but to the median value of an earlier year. As Table 5.3 illustrates, the median household education debt-to-income ratio has grown substantially since 1989, having almost tripled, and having almost doubled since 2001.

Table 5.3. Median value of the ratio of education debt to income, 1989–2013

1989	10.5	2004	16.5
1992	9.8	2007	20.5
1995	10.6	2010	23.5
1998	15.2	2013	27.4
2001	15.6		

Source: Author's tabulations of the SCF, various years

If we pick 2001 as our base year, then the reduction in the debt-to-income ratio a household with excess debt has to achieve is increased by 12 percentage points. With this alternative benchmark, households in the top quartile of indebtedness would have to reduce their debt ratio by at least 52 percentage points to meet the benchmark. Households in the top quintile would have to reduce their indebtedness by almost 70 percentage points. The second benchmark would thus set the bar extremely high for some households.

The discussion to this point has focused on debt, specifically education debt. It is conceivable, however, that the increase in the burden of education debt has been offset by an increase in household assets or a drop in the amounts of other types of debt, and that household net worth has not changed a great deal as a result. A comparison of the distribution of net worth in 2001 and in 2013 suggests that this has not been the case, at least not for less well-off households (see Table 5.4). The median value of net worth as a percent of household income for those households with education debt declines for all but the top decile and the first quintile, which experiences a very modest improvement. Far more important, however is the collapse in net worth for households in the first two quintiles both below and above the median. The 9th decile (80th to 89.9th percentile) follows a similar pattern. The 3rd and 4th quintiles and the top decile experience declines below the median, but gains (in the case of the top decile fairly substantial gains) above it. The pattern implies that the net worth of households falling in certain age and income classes in 2013 was substantially lower than the net worth of households in the same income and age classes in 2001.

5.6 Personal Debt as a Whole

The same sort of analysis the section has applied to education debt can be applied to personal debt as a whole. If we again assume to begin with that the benchmark for personal debt is the median in 2013, it is clear from Table 5.5 that the degree of adjustment for some households would be dauntingly large. A household at the 75th percentile for example, would have to reduce its indebtedness by over 100 percentage points.[39]

Table 5.4. Percentile distribution of the ratio of net worth to income expressed in percent by income percentile, 2001 and 2013

	<20	20–39.9	40–59.9	60–79.9	80–89.9	90–100
Percentile			2001			
5	−257.9	−139.3	−74.3	−29.5	−9.4	67.7
10	−127.2	−115.0	−52.0	−7.1	20.7	73.1
25	−76.4	−51.8	−8.4	34.0	45.4	109.0
50	−28.5	8.0	27.9	104.6	143.4	149.4
75	195.9	111.8	128.6	219.8	261.7	223.3
90	517.4	693.6	239.0	401.3	432.9	311.7
95	2114.1	1019.0	376.6	597.6	910.3	408.7
Sample size	108	359	472	464	227	275
Percentile			2013			
5	−300.6	−201.7	−163.7	−89.9	−13.4	8.4
10	−225.4	−158.2	−112.9	−46.4	−8.0	24.4
25	−83.8	−72.2	−40.6	10.4	39.1	95.9
50	−24.1	−7.5	14.9	65.9	106.0	208.9
75	31.6	48.6	91.0	200.8	250.0	357.7
90	395.8	202.5	335.1	468.0	451.0	577.7
95	549.4	502.5	584.5	708.8	558.8	649.9
Sample size	351	937	1,075	1,138	686	572

Source: Author's tabulations of the SCF

[39] The personal debt-to-income ratio of a household with some education debt at the 75th percentile is 244.7 percent, compared to the median value of 142.9 percent (see Table 5.5).

Table 5.5. Percentile distribution in 2013 of the ratio of personal loans to income expressed in percent for households with education debt

Percentile	Loan ratio (in percent)	Percentile	Loan ratio (in percent)
5	10.8	55	160.9
10	22.7	60	179.9
15	31.6	65	200.9
20	43.2	70	221.7
25	59.1	75	244.7
30	73.0	80	269.9
35	87.0	85	300.3
40	102.5	90	361.0
45	123.9	95	495.7
50	142.9		
Mean	176.3		
Observations	4,759		

Source: Author's tabulations from the 2013 SCF

If the benchmark is switched to the median for 2001, given the increase in the median between 2001 and 2013 of 42 percentage points (see Table 5.6), that same household would have to achieve a reduction of over 140 percentage points.[40]

Table 5.6. Median value of the ratio of personal debt to income in percent for households with education debt, 1989–2013

1989	67.1	2004	131.9
1992	77.3	2007	137.0
1995	75.9	2010	149.6
1998	94.5	2013	142.9
2001	100.7		

Source: Author's tabulations of the SCF, various years

As an illustration of the application of the method to particular age or income classes, consider the distribution of personal debt for households with education debt in the first income quintile and the distribution for households headed by someone aged less than 35 years. Both distributions differ from the distribution for the entire sample. The distribution for the first income quintile has lower values for most of the range up to the 80th percentile, when the debt-to-income ratio begins to exceed the ratio for the sample as a whole. For households with a head less than 35 years of age, the debt-to-income ratio is below that for the entire sample at all points (see Tables 5.7 and 5.8). In both cases, the median is significantly lower, which could argue for relying on a more disaggregated approach if our aim was to apply the analysis to personal debt as a whole.

[40] The median value in 2001 was 42.2 percentage points below the median in 2013 (see Table 5.6).

Table 5.7. Distribution by percentile of the ratio of the value of personal loans to income in 2013 for households in the first income quintile with education debt

Percentile	Loan ratio (in percent)	Percentile	Loan ratio (in percent)
5	11.9	55	131.4
10	22.2	60	153.3
15	30.8	65	169.7
20	44.4	70	216.3
25	61.6	75	236.6
30	68.0	80	262.8
35	80.1	85	358.0
40	85.4	90	446.8
45	98.6	95	531.2
50	108.4		
Mean	193.0		
Observations	351		

Source: Author's tabulations from the 2013 SCF

Table 5.8. Distribution by percentile of the ratio of the value of personal loans to income in 2013 for households with heads aged less than 35 years

Percentile	Loan ratio (in percent)	Percentile	Loan ratio (in percent)
5	10.7	55	147.4
10	22.3	60	164.1
15	29.3	65	191.8
20	41.4	70	209.9
25	48.9	75	229.3
30	62.7	80	260.2
35	73.9	85	289.1
40	86.4	90	325.3
45	99.6	95	446.8
50	123.6		
Mean	158.8		
Observations	1,779		

Source: Author's tabulations from the 2013 SCF

The section's analysis needs to be applied with care to personal debt as a whole. A household that can afford a home will normally shoulder a much higher debt ratio than the ratio of a household that cannot afford one. Households with an adequate income are usually able to afford a home with a price that is two to three times the household's income, so a mortgage of 80 percent of the home's value can be well over 100 percent of income. An undergraduate education typically does not cost as much as a dwelling place. Consequently, these very high ratios have to be interpreted with caution.

Nonetheless, if we exclude mortgage debt from total personal debt, the median of the modified ratio for households with education debt still increases between 2001 and 2013 from 42 to 52 percent, and there is a substantial increase in the upper quartile. It is not the case that increases in mortgage debt explain the overall rise in personal debt. The behavior of net financial assets excluding mortgage debt is also revealing. Its mean value declines by about 12 percentage points between 2001 and 2013.

5.7 Using the Benchmark to Calculate an Aggregate Figure for Excessive Student Debt

Before turning to strategies for dealing with excess debt, we show in this subsection how the benchmark ratio of student debt to income can be used to calculate a dollar figure for total excessive debt as well as its share in total debt. The calculation, it is probably needless to say, should be taken with an extremely large grain of salt. The basic idea is to take that part of the sample with a debt ratio above the median, and using each household's income calculate a dollar estimate of excessive debt by multiplying the difference between the household's actual debt ratio and the median ratio (when that difference is positive) by household income and then summing over all households.[41] The resulting estimate amounts to 81 percent of total debt.

This estimate is as high as it is because many households with excess debt by our definition have debt ratios that are well above the median, and because we make no allowance for the possibility that households with high debt ratios may be able to service their debt without great difficulty. As another purely illustrative exercise we can instead assume that half of the excess debt thus calculated is in fact not excessive, given the future income of students in a particular household. This reduces the estimate of excessive debt to 41 percent of the total. Going far out on a limb, if these ratios were applied to the estimate of total student debt published by the Federal Reserve Bank of New York, the estimated values of excessive debt as of Q3 2016 would amount to $1.0 trillion and $0.5 trillion. Yet another estimate of the value of excess debt can be derived from the increase in average household debt between 2001 and 2013. Over this period, total education debt increases from 15.4 percent to 31.8 percent of total household income. Assuming that all of this increase amounts to excess debt, the aggregate figure for excess debt calculated with the NY Fed's estimates comes to $0.7 trillion. Again, we would calculate a lower figure if we allowed for the possibility that at least some households with high debt ratios could service their debt without undue difficulty.

5.8 Dealing with Excess Debt

Given the importance of capturing at least partially the variance in indebtedness across households and the unavoidable arbitrariness entailed by any benchmark, we propose to take a range of estimates of excessive debt (expressed as a percentage of household income), and create some illustrative scenarios of the extra saving necessary to eliminate that excess.[42] Three different measures of this additional saving are derived:

- The additional saving rate needed to eliminate the excess debt over a given interval of working life under various assumptions regarding the size of the excess debt burden and the growth of household income. This approach assumes that the excess debt is fully paid off before retirement. This is probably the most plausible option for younger workers, because they will have ample time to pay off their debt before they stop working.
- The additional saving needed to eliminate the excess debt over the remaining lifetime of the borrower. This approach is consistent with life cycle theory, which assumes that the burden caused by paying off the debt is not borne entirely by the household during its working life, but is instead distributed over the remainder of the household's life. This option is probably more plausible for workers nearing retirement who still have outstanding debt.
- The additional saving needed to eliminate the excess debt over the retirement period. This approach assumes, not entirely plausibly, that the debt continues to accumulate while household members are at work and is then paid off during retirement. This approach has to take into account in one way or another the unpredictability of the length of the retirement period.

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[41] The calculation is given by $\sum_{i}^{N}(AR_i - MR)HHI_i$, where AR_i and MR stand for the actual ratio of household i and the sample's median ratio, and HHI_i is the income of household i. N is the number of households whose debt ratio exceeds the median. This figure can be compared to the total of student debt to get an idea of the relative importance of excessive debt.

[42] This is not the only possible approach to the problem of excess debt. Munnell, Hou and Webb (2016) assume that excess debt will be financed by reducing retirement saving and will be reflected in lower holdings in 401(k) plans and IRAs and therefore a less secure retirement. The authors estimate excess debt by assuming that the current generation of workers started out their working lives with the same debt burden that recent college students now bear. The authors assume that the impact of excess debt on personal expenditure is concentrated in the retirement period. In their model, higher student debt also reduces the value of home equity at retirement.

5.9 The Three Approaches

1. Eliminating Excess Debt During Working Life

In this approach we calculate the extra saving a household has to undertake to eliminate excess debt over a given period during working life. The calculations assume that the household has income (salary) that grows at a constant rate. To get a feel for the sacrifice that might be involved in dealing with excess debt, we assume that the excess debt as a percentage of income can take one of four values—20 percent, 40 percent, 60 percent and 80 percent—that the repayment period is either 10 years, 20 years or 30 years and that annual salary growth is either 4 percent, 5 percent or 6 percent. An interest rate of 6 percent is assumed, which compares with the range of rates now charged on student loans from 4.3 percent to 6.6 percent, and which is probably close to the average rate on the outstanding stock of education debt. The annual payment of principal and interest is assumed to grow at the same rate as salary income rather than being fixed in nominal terms. This means that the annual payment of interest and principal is a constant fraction of salary, and not a declining fraction, as would be the case with a conventional fixed payment loan.[43] Initial required saving is reduced by this assumption.

The results of this exercise are shown in Table 5.9. The estimates of the extra required saving behave as could be expected: it is not at all surprising to find that the longer the payoff period, the more rapid the growth of salary and the lower the initial debt burden, the lower is the required rate of saving. If a household is young enough that it can pay off its debt over 30 years before entering retirement, required saving rates are quite low, even when the debt burden is moderately heavy (see Table 5.9). However, households starting out with a comparatively heavy burden have to pay out a significantly larger part of their income.

It is not possible to make a hard and fast judgment as to the share of households with excess education debt who are in a position to pay it off. Paying off excess debt of as much as 60 percentage points of household income appears to be manageable, however, if the payoff period is long enough. This suggests that about 3 of 5 households above the median could in principle pay off their excess debt without undue difficulty. However, the top quintile would face a lengthy period of severe belt-tightening given our benchmark.

[43] For a given ratio of excess debt to income, the ratio of the needed extra saving to income does not depend on the level of income.

Table 5.9. Calculations of the impact on required saving of various assumptions regarding saving, excess debt burdens, payoff periods and salary growth

		Excess debt as percent of initial salary			
		20	40	60	80
Payoff period	Salary increase				
10	4.0	2.2	4.4	6.7	8.9
	5.0	2.1	4.2	6.3	8.4
	6.0	2.0.	4.0	6.0	8.0
20	4.0	1.2	2.4	3.6	4.9
	5.0	1.1	2.2	3.3	4.4
	6.0	1.0	2.0	3.0	4.0
30	4.0	0.9	1.8	2.7	3.5
	5.0	0.8	1.5	2.3	3.1
	6.0	0.7	1.3	2.0	2.7
Rate of interest on debt in percent			6.0		
Discount factor with *w* = 4.0 percent			0.019		
Discount factor with *w* = 5.0 percent			0.010		
Discount factor with *w* = 6.0 percent			0.000		

Note: the discount factor *g* is derived from the expression $(1 + w)/ (1 + r) = 1/(1 + g)$, where *w* stands for the annual wage increase and *r* for the rate of interest, both in percent.

Source: Author's calculations; for derivation of figures see text.

2. Eliminating Excess Debt over the Rest of Life

This strategy might make sense for older workers, who will not be participating in the labor force for many more years. It makes less sense for younger workers, who have many years of working life ahead of them. Calculating the average saving rate is complicated by the fact that income in retirement normally declines. Here we assume that retirement income will be 70 percent of income at the end of working life and will not change during retirement. This drop in income tends to raise the extra saving as a percentage of income needed to amortize the debt, although adopting the strategy could make possible an increase in the repayment period, compared with the first strategy. We again assume that saving grows with the growth of income until retirement, at which point both saving and income stop growing. Wage growth is fixed at 5 percent.

Given the long period over which the debt is amortized, the extra saving required when the debt burden is moderate is quite low (see Table 5.10). This strategy might appeal to households with excess debt of 60 percent or above. The plausibility of these projections, even if we grant their assumptions, is uncertain. The maximum repayment period under the income-driven repayment plans is 25 years, and the 65-year repayment period of one of the simulations is totally impractical.

The strategies involving repayment over working life or the rest of life, including a period of work, assume that there is no interruption in the income the household earns. However, it is often the case that some years of work will be missed. Taking account of these periods of unemployment has the same effect as a shortening of the repayment period. If the repayment period is long enough, and spells of unemployment infrequent, it will not have much effect on the extra saving that would be calculated.

Table 5.10. Calculations of the impact on extra required saving in percent of income of the length of the working and retirement periods

		Excess debt as percent of initial salary			
		20	40	60	80
Years working	Years retired				
20					
	10	0.9	1.8	2.7	3.6
	20	0.8	1.6	2.4	3.2
	25	0.8	1.6	2.3	3.1
30					
	10	0.7	1.3	2.0	2.7
	20	0.6	1.2	1.9	2.5
	25	0.6	1.2	1.8	2.4
40					
	10	0.5	1.1	1.6	2.2
	20	0.5	1.0	1.6	2.1
	25	0.5	1.0	1.5	2.0

Source: Author's calculations; for derivation of figures see text and the appendix to Section 5.

3. Waiting Until Retirement

It will not be possible for young people to wait until they retire to begin paying off their student loans, even if we assume that they can somehow negotiate a deferment. Such a strategy is more feasible for older workers who took out loans relatively late in their working life or older parents of students. The probability of death increases substantially as we enter our 8th decade, and death could create an unpaid balance, which would be a claim on the deceased's estate. Here we will simply assume that the retiree plans to pay off her remaining balance in no more than 15 years. As with the previous case we assume that income in retirement is 70 percent of income in the last year of work and that it stays constant throughout retirement. We measure excess debt as a percentage of income during the last year of work. The shorter repayment periods assumed here explain why the additional saving required to pay off the debt is substantially higher than in the other two cases (see Table 5.11). This strategy is clearly not feasible for older households if their debt burdens are heavy.

Table 5.11. Required saving in retirement as a percentage of income in retirement

Repayment period	Excess debt as a percentage of last salary			
in years	20	40	60	80
5	7.0	13.8	20.6	27.4
10	4.0	7.9	11.8	15.6
15	3.0	5.9	8.9	11.8
Replacement ratio	0.7			
Interest rate (in percent)	6.0			

Source: Author's calculations

5.10 A Brief Summing Up

To the question, is the burden of education loans on the typical American household with student debt excessive, no definitive answer can be given. It is, however, tolerably clear that many young households and poorer households are carrying what appears to be a heavy burden. Some of what has been defined as excess debt could be financing additional education, but it is not possible to say how much. The increase in the share of households who have borrowed has undoubtedly risen, but the average holdings of education debt by households have risen by 61 percent in real terms since 2001. A substantial share of American households has accumulated a very large amount of debt. The illustrative calculations of Tables 5.9 to 5.11 show that even quite large increases in debt can be unwound given a moderate interest rate and a long enough repayment period. For this to happen, it would be necessary that the households concerned need to be able to negotiate a substantially extended repayment period, and be prepared to stick to what could be a demanding repayments schedule. In light of this section's findings, Section 6 considers some cost-effective ways of easing some of the burden of education debt.

Appendix to Section 5: Derivation of Formula for Required Saving over the Working and Retirement Periods

The equation to determine the saving rate for a saving program that starts during the working period and continues into retirement is composed of two finite geometric series. The formula is derived using the following symbols:

w—annual wage increase in percent
r—rate of interest
g—a synthetic discount rate, equal to $(r - w)/(1 + w)$
R—the replacement rate
S—saving in the initial year of work
N—the last year of work
M—the last year of retirement
D—the value of the excess debt, to be amortized

Saving during working life is assumed to grow at the same rate as wages. Income in retirement is assumed constant and equal to the replacement rate times income in the last year of work. Saving throughout retirement is constant, and equal to saving in the last year of work times the replacement rate.

The first finite geometric series (Σ_1) is the present value of the debt to be paid off during working life,[44] and is expressed as:

$$\Sigma_1 = S * \left[\frac{1}{(1+g)} + \frac{1}{(1+g)^2} + \ldots + \frac{1}{(1+g)^N} \right]$$

This can be reexpressed as:

$$(1+g)\Sigma_1 = S * \left[1 + \frac{1}{(1+g)} + \frac{1}{(1+g)^2} + \ldots + \frac{1}{(1+g)^{N-1}} \right]$$

$$\Sigma_1 - (1+g)\Sigma_1 = S * \left[\frac{1}{(1+g)^N} - 1 \right]$$

which simplifes to:

$$\Sigma_1 = S * \left[\frac{1 - \frac{1}{(1+g)^N}}{g} \right]$$

The second component, (Σ_2), looks like this:

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[44] Σ_1 equals $S\frac{(1+w)}{(1+r)} + S\frac{(1+w)^2}{(1+r)^2} + S\frac{(1+w)^3}{(1+r)^3} + \ldots + S\frac{(1+w)^N}{(1+r)^N}$

Setting $(1 + w) / (1 + r)$ equal to $1 / (1 + g)$ yields $g = (r - w) / (1 + w)$.

$$\Sigma_2 = S * \left[\frac{R(1+w)^N}{(1+r)^{N+1}} + \frac{R(1+w)^N}{(1+r)^{N+2}} \ldots + \frac{R(1+w)^N}{(1+r)^{N+M}} \right]$$

Like the first component, the second can be solved by taking advantage of the geometric character of the series and eliminating most of its terms:

$$(1+r)\,\Sigma_2 = S * \left[\frac{R(1+w)^N}{(1+r)^{N}} + \frac{R(1+w)^N}{(1+r)^{N+1}} \ldots + \frac{R(1+w)^N}{(1+r)^{N+M-1}} \right]$$

$$\Sigma_2 - (1+r)\Sigma_2 = S * \left[\frac{R(1+w)^N}{(1+r)^{N+M}} - \frac{R(1+w)^N}{(1+r)^{N}} \right]$$

which simplifies to:

$$\Sigma_2 = S * \left[\frac{\frac{R(1+w)^N}{(1+r)^{N}} - \frac{R(1+w)^N}{(1+r)^{N+M}}}{r} \right]$$

If we introduce variables K_1 and K_2 to stand for the expressions in square brackets in the formulas for Σ_1 and Σ_2, then the formula for excess debt, D, can be expressed as:

$$D = S(K_1 + K_2)$$

Since the components of K_1 and K_2 are assumed known, and D is known, we can solve for S.

Expressed as a ratio to income (Y), we have:

$$D / Y = (S / Y)(K_1 + K_2)$$

or $$(S / Y) = \frac{D / Y}{(K_1 + K_2)}$$

Section 6: Implications for Policy toward Student Loans and Grants

Discussions of what might be done to address the deficiencies of the student aid program do not typically address the issue that this report has addressed: namely, the effect of increases in the burden of education debt on financial security in retirement in addition to while working. However, these discussions normally propose a set of policies that will prevent or at least reduce the chances of over-indebtedness. This has been the primary focus of this study. Consequently, we are able to draw on a number of recent studies of the student loan problem as well as the analyses of this study in Section 6's discussion of policy.

This study has maintained, along with two recent authoritative studies of the issue and other informed commentators, that there is no generalized "crisis" in student lending.[45] The majority of student borrowers benefit from the program. That said, it is clear that this important social program does not benefit all students equally. In particular, students who do not complete their program of studies, or those who have chosen a vocational or occupational program that does not boost their earnings by enough to allow them to pay off their loans, can find themselves in serious financial difficulty. Students from very poor families are also at risk.

Generalized crisis or not, it is still useful to review the most basic features and aims of the student loan program. It may be that changes to the overall structure of the program are needed to alleviate the problems of the particular student groups who do not benefit from the program. Of course, it could also be that more specific measures are necessary.

The most basic issue to consider for a program financing higher education is the proper division of financing between grants and loans. Section 4 discussed the pros and cons of a loan-based versus a grants-based program, or the relative weights each should have. Let's assume—purely for the sake of argument because it is extremely unlikely politically—that the government adopts a program that is 100 percent grant-financed. Such a radical reform might "solve" the problem of excessive indebtedness, but its budgetary cost would be a multiple of the current program, and it would benefit many students who come from affluent families. It would be very poorly targeted. Moreover, to ensure that students would have no need to borrow from private lenders to supplement their grant, the maximum grant would have to be set at a very high level.

An emphasis on financing by loans is necessary simply to contain the program's cost. Loans are highly likely to remain a key part of the financing of higher education in the American setting. The inevitable consequence of reliance on loan financing is that there will be defaults and rates of default can be expected to increase during economic downturns.

Although part of the recent difficulties some student borrowers have had in paying off their loans are related to the after-effects of the Great Recession, it appears that the prospects of many graduates for finding a job that pays enough to pay for basic living expenses and to service loans have declined since 2007. This suggests that the mix of grants and loans be tilted further toward grants, or that the subsidy element of loans be increased, for example, by lowering interest rates on subsidized loans. This measure would of course require an increase in appropriations for education programs, and the author is not in a position to comment on the relative merits of aid to students versus the rest of the budget.[46]

A related issue is the treatment of students from very poor families. Even if these students receive financing sufficient to cover tuition, room and board, they are more vulnerable to economic downturns than students from more affluent homes. If they are working part of the time as students to pay for part of the costs of college, they are vulnerable to an economic downturn. In addition, if their financial package is not quite sufficient to pay the full costs of colleges—and there is no guarantee that the sum of loans, grants and scholarship monies a student may receive will be sufficient—their family will be less able to provide assistance.

If student loans are not to become grants by any other name, there will always be a risk that some borrowers may be unable to service them. The extra income that a higher education generally makes possible can never be a sure thing. That said, there are a number of steps that can be taken to reduce the likelihood of this outcome and to alleviate the distress of those students who ultimately default.[47]

One overall consideration is maximizing the chances that a student borrower has a good chance of completing his chosen program of study and that his post-graduate income will be high enough for him to pay off his loan without undue hardship. The

[45] The two studies are Akers and Chingos (2016) and Baum (2016).
[46] Lowering interest rates on all new loans or as has been suggested, on all outstanding loans is not a well-targeted policy. It benefits borrowers who do not need assistance while conferring little benefit on many others.
[47] The discussion of reforms to the current system draws on Akers and Chingos (2016) and Baum (2016).

chances of such a happy outcome are highest when a student has adequate information on the costs of his program and the likely range of income in his chosen occupation. The federal government and a few states provide such information. Informed observers maintain that there is definite scope for improvement in the provision of information. The Akers-Chingos study notes that "It's clear that a lack of information has severely compromised students' ability to make smart college-going and borrowing decisions" (Akers and Chingos, 2016, p. 111). On a related point, adequate safeguards against the provision of misleading information on career prospects and education costs should be considered. This has been a special problem with some for-profit institutions.

Good information is not enough by itself. A recent study cited in Akers and Chingos (2016) found that less than one year after they contracted the loan, only one in four students could state the size of her loan correctly (within 10 percent of its original value). Many students also believe that the provenance of their loan is not the federal government, and about 1 in 7 borrowers believed that they had no debt.[48] The difficulty students have in understanding the functioning and mechanics of their loans occurs in spite of the comprehensive fact sheets the Department of Education has put up on its website.[49]

The lack of knowledge regarding the basics of loans suggests that many students would have difficulty interpreting the data on the College Scorecard. Students are also often unaware of the possibility of renegotiating their loans to make repayments income driven. The loan servicers are responsible for converting loans to IDR schemes, and some observers have argued that a lack of competition in the servicer industry has impeded the spread of the IDR arrangement.[50] More recently, the Consumer Financial Protection Bureau has filed a lawsuit against Navient, the largest of the loan servicers, alleging improper behavior at all stages of the repayment process. The company is alleged to have ". . . systematically made it harder for borrowers to obtain the important right to pay according to what they can afford" (Consumer Financial Protection Bureau, 2017). Whatever the result of the lawsuit, student borrowers could be better made aware of the ability to switch to an income-driven repayment program if that is in their interest.

The difficulties many students seem to have in exploiting effectively the information available to them are similar to the problems many older Americans have in interpreting basic economic and financial statistics.[51] Both problems can benefit from the spread or intensification of financial education. In the case of college-bound high school seniors, that education could include a section on the basic economics of education as well as guidance on where to find relevant information. Some forms of financial education have a long payoff period, but it may be possible for students to become savvier relatively quickly about the choices they need to make regarding the kind of institution they want to attend and the best way to finance their education.

Some of the requirements imposed on students applying for a loan may be onerous even for more financially literate students. The FAFSA requests a great deal of information and could probably be simplified without compromising the ability of the Department of Education to evaluate the amount of aid students should receive. In addition, a student's choice among repayment plans might be made less complicated by reducing the number of plans, of which there are now eight.

The subsidy on loans and the Pell grants program are not the only way the government subsidizes higher education. Families with college students benefit from education tax credits and deductions, which are a form of subsidy. As a potential approach, combining all these subsidies in one could simplify the lives of households with college students, even if their effect on the default rate was uncertain.

Another possible means of reducing the risk of default would be to make the current set of income-driven plans—or perhaps one income-driven plan—generally available to all student borrowers. Under an IDR plan, the required monthly payment varies with income and can drop sharply if the borrower's income undergoes a significant decline. This type of repayment program, particularly when it is combined with a loan forgiveness feature, as is the case with the REPAYE Plan, the PAYE Plan, the IBR Plan and the ICR Plan, needs to strike a balance between the goal of providing relief to borrowers when their income is low and the risk that borrowers will make skimpy payments until forgiveness can be requested. Another potential change to the panoply of loans to consider would be a reform of the rules of PLUS loans for parents. These loans, which amounted to $10.3 billion in 2013/2014 (Akers and Chingos, 2016, p. 23) are made without a proper vetting of the finances of parental borrowers, even

[48] Akers and Chingos (2016, pp. 112–113). A student's lack of awareness of her ultimate lender could be partly due to the fact that the student deals mainly with a loan servicer.

[49] These factsheets include comprehensive and clear descriptions of the different loans and grants available to students, their interest rates and fees, repayment plans, the workings of deferral and forbearance, and the consequences of default and what can be done about it.

[50] Baum (2016) also argues that bad experiences with higher education would be reduced by improving the quality of primary and secondary education. She also maintains that the need for vocational institutions would be reduced by well-designed apprenticeship programs.

[51] For a discussion of financial literacy in the United States and other countries, see Mitchell and Lusardi (2015).

though they can be large enough to cover the gap between the cost of college and other financing. As a result, it is not uncommon for borrowers to find themselves unable to service their debt.

Allowing a loan to be paid off over a longer time period, as the IDR plans do, achieves a better match between loan repayments and the extra income the loan has made possible. As Section 4 has discussed, a student loan finances the acquisition of an asset, but an asset that takes the form of a stream of extra income over the working life of the student.

Finally, and even if every student loan is converted to have income-drive repayment, there may be a case for allowing the inclusion of student loans in a bankruptcy procedure. Some borrowers may find that even with an IDR plan, monthly payments impose a heavy burden.

To sum up, efforts to reform the student loan program would benefit from considering the following:

- Ways to enhance students' understanding of the cost and benefits of particular educational programs;
- The impact of broader application of IDR plans;
- The value of well-targeted and designed financial education programs; and
- How to help students from the poorest households through possible additional grants or other measures.

Appendix: The Statistics on Aggregate Education Debt

The report's analysis makes use of the findings of the Survey of Consumer Finances in its treatment of education loans and personal loans more generally. The SCF is a triennial survey that conducts about 6,000 to 6,500 interviews of households across the United States. The latest survey was conducted in 2013. The questionnaire focuses on the finances of a sample of households (strictly speaking, the finances of a sample of primary economic units or PEUs) and probes at great length and in some detail into a household's debt and asset holdings, as well as its income. It is able to collect data on debt by income level, age and education of household head, net worth, and other demographic and economic categories.

The SCF's primary concern is with the position of individual households, as indicated by estimates of the mean and median holdings of the major categories of assets and liabilities. It does not attempt to make estimates of aggregates, like total mortgage debt, education loans, mutual fund holdings, and so on. The aggregate figure derivable from the SCF's estimates of the average education loan holdings is well below other sources, which are described briefly below. Part of the reason for this difference is that the SCF does not include residents of institutions among its interview subjects. Consequently, an independent student living in a college dorm who is not a member of a PEU would not be interviewed.

Nonetheless, it makes sense to use the data from the successive SCF surveys, because the first survey dates from 1989, which allows a fuller picture of the evolution of personal and education debt over time.

Several other sources of education loan debt are available: notably, the Federal Reserve quarterly credit report (the G-19 report), and the New York Fed's consumer credit panel. The coverage of each of these sources is somewhat imperfect. (See Bricker and others (2014) for further discussion.) The Fed's data is taken from surveys of the lending institutions, while the New York Fed's data is derived from the reports of credit agencies. (The Fed also reports education loans in its quarterly flow of funds report.) Recent estimates of total education debt from the G-19 report and the NY Fed are quite close: as of the third quarter of 2016, the G-19 report has a figure of $1,397 billion, and the NY Fed $1,279 billion. An estimate for end-2013 derived from the SCF is only $707 billion. However, the trend in the growth of outstanding lending is very similar for all three sources.

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