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Routing

Making College More Expensive
The Unintended Consequences of Federal Tuition Aid

by Gary Wolfram

Executive Summary

As Congress debates the reauthorization of the Higher Education Act, it should heed Friedrich Hayek's warning that democracy is "peculiarly liable, if not guided by accepted common principles, to produce over-all results that nobody wanted." One result of the federal government's student financial aid programs is higher tuition costs at our nation's colleges and universities. Basic economic theory suggests that the increased demand for higher education generated by HEA will have the effect of increasing tuitions. The empirical evidence is consistent with that—federal loans, Pell grants, and other assistance programs result in higher tuition for students at our nation's colleges and universities.

The diversity of objectives, resources, and types of governance among the thousands of colleges and universities makes it difficult to adequately measure the exact amount by which tuitions rise in response to federal student assistance. Therefore, estimates of the amount vary in the literature. Congress can at best know that its policies increase tuitions and that some portion of the federal assistance ends up being captured by state governments and by the colleges and universities.

Also, when large numbers of students begin to rely on the federal government to fund their higher education, and the federal government uses this financing to affect the behavior of state and private institutions, we should be concerned about how the resulting loss of independence of our colleges and universities affects the ability of voters to form opinions about public policy that are independent of the government's position.

Rather than expand the current system, Congress should consider a phase-out of federal assistance to higher education over a 12-year time frame. As the federal government removes itself from student assistance, we should expect several things to happen. First, sticker tuition prices should decline. Second, the private market should respond to the phase-out of federal assistance. That response would likely take three forms: additional private-sector loans, additional private scholarship funds, and perhaps most importantly, the expansion of human capital contracts. Human capital contracts, first suggested 40 years ago by Nobel Laureate Milton Friedman, would allow students to pledge a portion of future earnings in return for assistance in paying their tuition.

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Introduction

Friedrich Hayek warned in *The Constitution of Liberty* that democracy was "peculiarly liable, if not guided by accepted common principles, to produce over-all results that nobody wanted."[1] As Congress readies itself for reauthorization of the Higher Education Act, it should decide what the purpose of the act is and whether its component programs are accomplishing their intended goals. Indeed, the current act, along with the various tax credits and deductions and other programs such as the GI Bill, has over the years moved the federal government further and further into the higher education market with insufficient debate over the goals of programs, their effectiveness in meeting those goals, and the unintended effects on tuition.

Direct financial aid began as a way of providing benefits to World War II veterans who had been seriously underpaid, then moved to grants to low-income students to expand access to higher education, and now includes tax credits to help middle- and upper-income parents face the cost of high tuition. The net result is a mixture of programs that may have results that Congress never contemplated. In particular, there is a good deal of evidence suggesting that federal financial assistance has the unintended consequence of increasing tuition for all students. Federal aid may also result in a reduction in aid by state governments to students who attend universities in their state and a reduction in state appropriations to public colleges and universities. Individual colleges and universities may also reduce their internal financial aid when their students receive federal aid. In addition, federal aid reduces the independence of our institutions of higher education.

There are thousands of American colleges and universities, both public and private. Each institution has its own organizational structure and operates under different objectives and constraints. As a consequence, there is no single model of the effects of federal grants, loans, and tuition tax credits on colleges and universities. Nevertheless, both theoretical analysis and empirical evidence indicate that the federal government's financial aid programs cause higher tuition costs, reducing the ability of some students to go to college and causing others to attend a college that is not their first choice. Basic economic theory suggests that the increase in demand for higher education brought about by the system of grants and loans will increase the price of higher education.

This year, Congress should consider the effect of federal tuition aid on college costs as it debates the reauthorization of the Higher Education Act of 1965.[2] Rather than expand federal aid to higher education, Congress should phase out the current federal assistance program over a period of 12 years and allow the charitable sector to provide assistance to college students. Congress should focus on developing the legal structure that would allow for a system of human capital contracts, a proposal that was suggested by Nobel Laureate Milton Friedman more than 40 years ago and whose time has now come.

The System of Financial Aid

The role of the federal government in higher education has been a topic of interest since the Founding. George Washington thought that we should have a national university.[3] The federal government helped establish land grant universities in the 19th century. Although we have no national university today, and the land grant universities are now primarily associated with the state of their location, the federal government is heavily involved in higher education, subsidizing attendance and using incentives to affect the behavior of colleges and universities. It does so with grants, loans, work-study programs, and tax credits.

The Bush administration's 2005 budget would provide $73.1 billion in overall federal financial aid to students through the Department of Education under HEA, an increase of $4.4 billion over the 2004 level. The number of students receiving assistance through grants,

Table 1
Aid Available to Students, FY 2004 and FY 2005 Request (millions of dollars)

Program	2004	2005 Request
Pell Grants	13,042	12,803
Campus-based Programs:		
Supplemental Grants	975	975
Work-Study	1,196	1,196
Perkins Loans	1,263	1,137
Leveraging Educational Assistance	169	-
Federal Family Educational Loans	38,978	42,588
Federal Direct Loans	13,219	14,329

Source: U.S. Department of Education, "FY 2005 Budget Summary—February 2, 2004," www.ed.gov/about/overview/budget05/summary/edlite-section2d.html.

loans, and work-study will reach 10 million, up from 9.5 million in 2004.[4] The primary programs that serve these students are the Perkins Loan Program, Pell Grants, Federal Supplemental Educational Opportunity Grants, Federal Work Study Programs, the Federal Direct Student Loan Program, Federal Family Educational Loans, and Federal Trio Programs.[5] The amount of direct student aid in the major programs provided in 2004 and requested for 2005 is detailed in Table 1.

The Department of Education has a number of other programs under various titles of HEA, such as direct assistance to Howard University; the GEAR UP program, intended to prepare low-income students for college learning; and Aid for Institutional Development. In addition to the programs in the Department of Education, there are several other programs that provide assistance to higher education, including the Montgomery GI Bill.[6] The Department of Education projects tax benefits from the higher education tax programs to be $3.5 billion under the Hope Tax Credit, $2.2 billion under the Lifetime Learning Tax Credit, $2.6 billion for higher education expense deductions, and $780 million in deductions for interest paid on postsecondary loans in Fiscal Year 2005.[7]

HEA: Duct Tape and Unintended Consequences

As may be obvious from the plethora of programs, the federal government has not thought out its proper role with regard to higher education or developed programs that were designed to work together to accomplish a given goal. Indeed, as Robert Archibald pointed out in *Redesigning the Financial Aid System*:

> Through the years, the (financial aid) system has evolved with changes in funding levels, adjustments in rules, and the addition of programs. For the most part, this evolution had been unplanned. On occasion, programs have been changed with no thought to how other programs might be affected. . . . The financial aid system of today resembles something that has been patched up many times with duct tape, bailing wire, clothespins, and spit. It is dizzyingly complex, and is not doing its job efficiently.[8]

The empirical literature is fairly consistent in showing that student aid has increased the demand for higher education.[9] What is not

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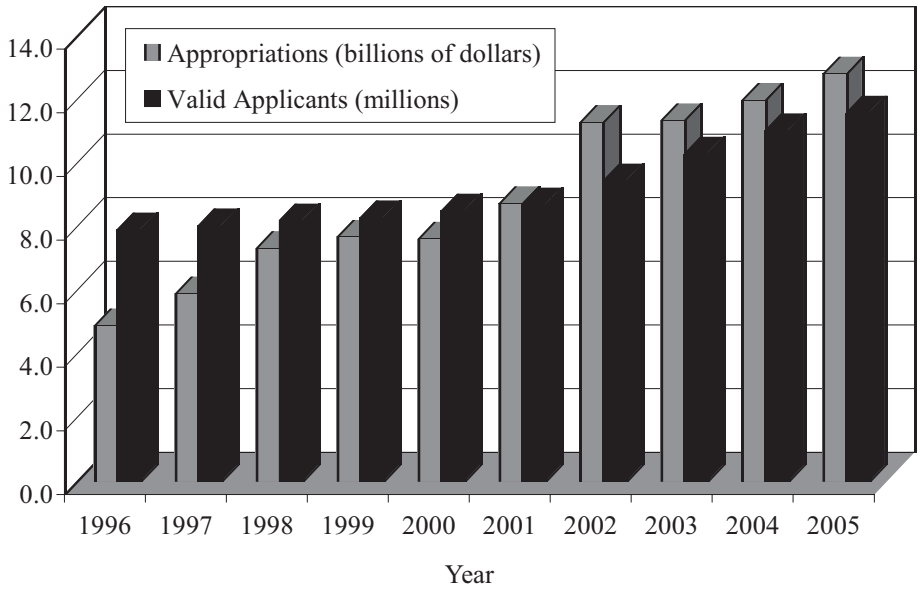
Figure 1
Pell Grants and Numbers of Applicants



Source: U.S. Department of Education, "FY 2005 Budget Summary." Note that, for technical reasons, aid available to students will differ somewhat from appropriations.

clear is what the different effects are on various income groups by type of aid. As Harvard professor Susan Dynarski has recently pointed out: "The effect of a given subsidy may vary across groups due to relative differences in financial positions, academic preparation, access to information, the form taken by the subsidy itself, and interactions of these factors."[10] In this and a second paper, Dynarski examined the effect of legislative changes in aid programs and found that, consistent with the other literature, financial aid increases college attendance.[11] Thus, while it is not known to what extent federal financial aid is meeting the goals of the different programs, what is clear is that federal financial aid has increased demand for college. Basic economic theory shows that this increase in demand will cause the unintended consequence of increasing the price of higher education. The empirical question is simply: how much does it increase tuition?

Before HEA is reauthorized and Congress spends tens of billions of dollars on financial aid, it should be fairly certain of the effect of this spending.

The Effect of Federal Aid on Tuition Costs

There is evidence to suggest that the HEA has been a factor in rising tuition costs. Rising tuition costs then result in political pressure to expand the HEA and provide tax credits and deductions for higher education expenditures; this in turn increases tuition costs, which leads to further expansion of HEA and use of the tax code to affect taxpayer behavior. This is the type of cycle that Hayek and Ludwig von Mises suggest happens when government acts outside of its fundamental role and fails to take into account how the market works.[12] Before HEA is reauthorized and Congress spends tens of billions of dollars on financial aid, it should be fairly certain of the effect of this spending.

The amount of federal (as well as state) aid has grown substantially over the past decade.

Table 2
Correlation Coefficient between Tuition and Total Federal Financial Aid

Type of Institution	Correlation Coefficient
Private four-year	0.962
Public four-year	0.970
Public two-year	0.940

Note: Data are for the 1977 through 2002 school years. Tuition data is from the NCES *Digest of Education Statistics* and aid data from the College Board *Trends in Student Aid*. Federal financial aid includes grants, loans, and tax expenditures.

For example, Figure 1 provides a recent history of federal government appropriations for Pell Grants and valid applications for the grants.[13]

Loans available from the federal government have also grown. Perkins Loans rose in current dollars from $892 million in 1993 to $1.263 billion in 2004. Federal Direct Student Loan Program and Federal Family Educational Loans in current dollars went from $12.539 billion in 1993 to $52.197 billion in 2004.[14]

At the same time, college costs have increased dramatically. As the College Board has found, college costs began to increase at a rate faster than inflation in the early 1980s. This has been a continuing trend.[15] In the 10-year period ending in 2004–05, tuition and fees at four-year public colleges and universities rose 51 percent and rose 36 percent at private colleges in constant 2004 dollars. This trend has been accelerating in the past few years. Average tuition and fees for in-state students at four-year public colleges and universities rose by 10.5 percent to $5,132 in 2004–05. Private school tuition and fees rose 6 percent to $20,082. This marked the fourth straight year in which tuition and fees rose (in inflation-adjusted dollars) by more than 5 percent at public four-year institutions.

Table 2 shows the results of simple correlation between tuition and total federal financial aid at public four-year institutions, private four-year institutions, and public two-year institutions over a 16-year period.

As perfect correlation would yield a correlation coefficient of 1.0, it is clear that federal aid and tuition levels are very closely related. Of course, although correlation certainly does not imply causation, the fact that there is a substantial correlation between tuition and federal aid should at least raise the question of how they are related, especially since almost 60 percent of all undergraduates receive some form of student aid.[16] Economic reasoning suggests that federal aid to higher education will have the effect of increasing tuition.

Theory of Subsidies

Any standard public finance text will include a discussion of how taxes and subsidies are reflected in the prices of goods being taxed or subsidized.[17] The subsidy (or tax) is partially shifted from the person legally receiving it to other actors in the economy. The amount of shifting depends on several things, but the principal factors are the elasticity of supply and demand of the good that is being subsidized (taxed).

To understand the effect of the federal student aid program, imagine a demand curve that represents how many students will purchase four years of college, and a supply curve that represents how many spots will be available at four-year colleges. As with any good, the demand curve slopes down, indicating that as tuition declines more people will purchase the

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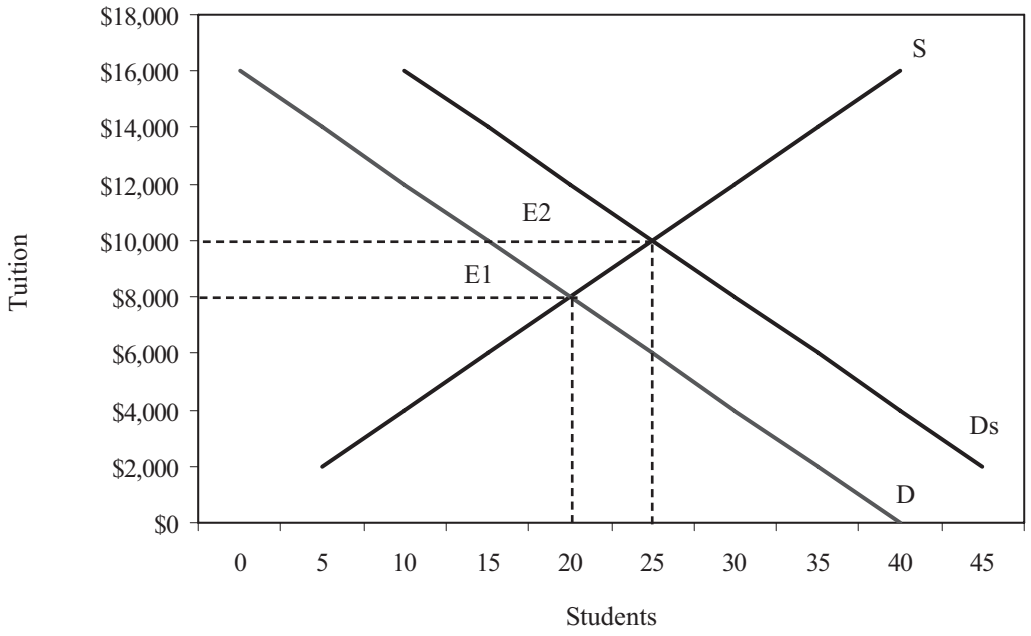
Figure 2
Effect of Increased Demand on Tuition



good, and the supply curve slopes up, indicating that as tuition rises more higher educational services will be supplied. Figure 2 represents such a scenario, with D representing the demand curve for higher education and S representing the supply curve.

The market will reach equilibrium at E1, with 20 million students and a price of $8,000, where the number of spots that four-year colleges made available equals the number of students who desire to attend. Now suppose the federal government provides a subsidy for attending college, say in the form of Pell Grants. Suppose the grant was $4,000 per student. The effect of this policy would be to shift the demand curve up by $4,000. This is because at each number of students, the net price would now be $4,000 less. For example, before the Pell Grant, 20 million students would be willing to pay $8,000 for tuition. Now 20 million students would be willing to pay $12,000 for tuition, since after the Pell Grant their net tuition would again be $8,000. This is true at every price and quantity, and so the demand curve shifts up by the amount of the subsidy. This is represented by Ds in Figure 2.

Notice that there will now be a new equilibrium, E2. In this case it will be at 25 million students and with tuition of $10,000. Notice that the subsidy has created two effects, increasing the number of students attending college, and increasing the amount of tuition. This is what federal aid to higher education under HEA and various other programs is doing. More students are attending college, but tuition is rising. The extent to which tuition rises depends on the shapes of the demand and supply curves, or how responsive students and institutions of higher education are to changes in tuition.[18]

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If the number of available spots in higher education institutions rises very little as tuitions rise, then the increase in demand caused by federal aid will primarily result in higher tuition costs for students. If the colleges and universities increase their available spots a good deal in response to rising

tuitions, then the aid will not have much effect on tuition.

The observant reader will notice that given a downward sloping demand curve, the only way that tuition would not increase is if the supply curve were perfectly horizontal, which would indicate that as a whole colleges and universities expand to accept more and more students at the given market price for higher education. That does not seem to be a reasonable assumption, as anyone who has been rejected by a college will attest to.

Unfortunately, there is little literature regarding the elasticity of supply, or the responsiveness of institutions of higher education to tuition changes.[19] This is no doubt due to the lack of an accepted theoretical model of university behavior. As Judith Li noted recently, "very little is currently known about the objective functions of higher education institutions."[20] Her point is that economists aren't sure what the goals of administrations and boards of universities are. However, there has been some recent work in developing a model of university behavior that leads to the expected conclusion that the supply curve for higher education services is upward sloping and that the elasticity of supply is likely to vary by institution.

In the 1999 *Journal of Economic Perspectives* symposium on higher education, Gordon Winston built upon the earlier work of economists Michael Rothschild and Larry White to provide an interesting discussion of the type of market within which universities operate.[21] His paper emphasizes the combined role of universities as charitable organizations that rely on donations for support and as producers of a product in which students are both consumers and inputs. In other words, the quality of the student body affects the quality of the education provided. The implications of his model are that the elasticity of supply will vary across types of institutions, from highly inelastic at elite private universities such as Harvard to relatively elastic at for-profit non-elite institutions such as the University of Phoenix.

In their 2002 paper, Dennis Coates and Brad Humphreys use a model of bureaucracy to provide an empirical estimate of the supply of university enrollment in 11 Maryland universities.[22] Their estimate for price elasticity is 1.94 for one specification of the model and .97 for another. What this means is that for every one percent increase in tuition, the number of places in those 11 universities increases by between 1 and 2 percent. The supply curve for these universities, at least, is definitely upward sloping, so any increase in demand will lead to an increase in tuition.

What should be clear is that although a definitive measure of the elasticity of supply is not well established, there is no evidence, either theoretical or empirical, that the supply would be perfectly elastic.[23] This means that at least some portion of the increase in federal financial aid that has occurred over the years has ended up in the form of higher tuition.

Determining the Effects of Federal Student Assistance on Tuition

There are several situations that complicate the issue of determining the amount by which federal aid increases tuition. First, not all students are eligible for the various grants and loan programs that exist. Thus, some students will receive no subsidy but will be affected by the higher tuition. Second, the demand and supply for colleges is probably quite heterogeneous. Students may have inelastic demand for some colleges and elastic demand for others. For example, the demand for slots at Harvard may be inelastic, while the demand for slots at Adrian College may be elastic. The supply of slots at the University of Pennsylvania may be inelastic, while the supply of slots at Lake Superior State University may be very elastic. Thus, federal assistance may be passed on to some colleges and universities and not to others.

Another factor that makes it difficult to determine the final effect of the subsidy is that colleges and universities may reduce their own internal financial aid in response to

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Colleges and universities may reduce their own internal financial aid in response to federal financial assistance while maintaining tuition levels.

federal financial assistance, while maintaining tuition levels. Thus, net tuition increases in response to increased federal aid, while the "sticker price" remains the same. Bowdoin College evidently took this action in response to the 1997 enactment of federal tax credits for higher education expenditures.[24] After the legislation was passed, Bowdoin announced that it would not increase tuition in response to the new federal subsidy, but that it would be reducing the amount of financial aid it provided to students who qualified for the tax credit.

A major complicating factor is that state governments are highly involved in the production and subsidization of higher education. Thus, the federal financial aid may be passed to state governments if state governments reduce their appropriations to higher education or reduce state financial aid. For example, the state of Michigan has been facing a budget crisis over the past two years. If state legislators know that the federal government is going to increase programs under HEA, the legislators may reduce appropriations to the University of Michigan, knowing that, at least for the less affluent students, the net tuition will not rise. The net effect of federal grants may be that the state appropriation is reduced and tuition at state universities rises so the state is able to capture some of the federal assistance in the form of a reduced higher education budget.

This is, of course, consistent with what has been happening. Although state appropriations for higher education at public universities have increased over the past 20 years, they have not been rising as fast as tuition. As a consequence, state appropriations have been a declining share of revenue at public universities while tuition and fees have been an increasing share.[25] In 1981 state appropriations made up 45.6 percent of revenue at public degree-granting institutions of higher education. By 2000 the share of revenue from state appropriations had fallen to 35.8 percent. Tuition and fees rose during the same period from 12.9 percent of revenue to 18.5 percent.[26] Again, it may be that the increase in tuition at public colleges and universities led to political pressures at the federal level that increased federal financial aid. However, the data is also consistent with a scenario in which the states were able to reduce the growth in appropriations and increase tuition due to increased financial aid at the federal level.

Certainly, Congress and others have been aware that providing financial assistance for higher education may result in higher tuition costs. In a 1987 *New York Times* editorial, then secretary of education William Bennett declared: "If anything, increases in financial aid in recent years have enabled colleges and universities to blithely raise their tuitions, confident that Federal loan subsidies would help cushion the increase."[27] This became known as "the Bennett hypothesis."

Former education secretary Chester Finn discussed congressional reaction to the effects of the World War II GI Bill in his 1978 book *Scholars, Dollars and Bureaucrats*. The original bill separated the veteran's payment into a stipend that went to the veteran to cover living expenses and a payment that went to the college to cover tuition. As Finn relates: "Unfortunately the separate tuition payment provisions proved unworkable, as colleges raised their charges to exploit it and the Veterans Administration found itself having to negotiate rates and fees with hundreds of institutions."[28]

Another example of how financial aid can lead to tuition increases is recorded in a 1980 book, *The Financing of Public Higher Education*, written by Jacob Stampen, a senior research associate at the American Association of State Colleges and Universities. Stampen discusses how tuition came to be adopted at the City University of New York:

> In 1976, as a result of New York City's fiscal crisis and other factors, tuitions of $750 for freshman and sophomores and $700 for juniors and seniors were adopted by CUNY. The abolition of free tuition was made possible, in part at least, by increased availability of student aid

funds, according to some New York officials. Theodore Hollander, deputy commissioner of education for New York at the time, explained that if tuition were made necessary by the fiscal crisis, it was made feasible by New York's large state student-aid program and the rapidly expanding federal Basic Educational Opportunity Grant Program.[29]

Stampen also points out:

> Nowhere in the Act of 1965, the Higher Education Amendments of 1972, or the MISAA (Middle Income Student Assistance Act) of 1978 is there any statement providing guidance or establishing objectives regarding institutional tuition level vis-à-vis federal student aid. Because of this, each institution faces the choice of maintaining tuitions at the lowest possible level or of raising tuitions to "harvest" the federal student aid as an indirect institutional subsidy.[30]

Congress has recently taken note of this, as a number of House Republicans proposed legislation that would have made colleges and universities that raised tuition too steeply ineligible to receive work-study dollars and other federal grants.[31] Though the bill was later withdrawn, it drew further attention to the possible link between financial aid and tuition increases.

Empirical Evidence of the Effect of Federal Financial Aid on Tuition

Most empirical studies of the effect of financial aid have focused on its effect on student enrollment.[32] As discussed above, this literature is fairly consistent in its conclusion that federal financial aid increases the demand for college enrollments, and thus indicates that one result of these federal programs is an increase in tuition. However, as Judith Li pointed out in her 1999 study of the effect of Pell Grants, "there have been surprisingly few studies on the impact of federal financial aid on college tuitions."[33]

A comprehensive search of the literature yielded ten papers that dealt with the ability of colleges and universities to capture for themselves federal student aid in the form of higher tuition or reduced in-house assistance. Of these ten, eight found evidence that federal aid showed up in higher tuitions or smaller institutional scholarships. One of the two that found no evidence of tuition increases admitted to the poor explanatory power of its model and the other looked only at large public research universities. Some of the authors in the eight supporting studies found evidence of public institutions increasing tuition, while others found that private institutions increased tuition. The complications of identifying what portion of change in tuition is due to federal aid, the variety of models, differences in the data being used, and the varying ability of state governments to capture some of the aid by lowering appropriations to public universities, are no doubt factors that result in different estimates of the magnitude of the effect of federal aid. However, there is enough evidence to conclude that federal aid has been a factor in rising tuition in our higher education system.

Judith Li found, using data on individual students and institutions, that private four-year colleges increased listed tuition prices by more than two dollars for each dollar increase in Pell Grants, and public four-year colleges increased their listed tuition by 97 cents for every dollar increase.[34] She found that public four-year institutions were able to increase net tuition by 68 cents for every dollar of Pell Grant increase, while private four-year institutions raised their net tuition by 60 cents. That means that both public and private colleges and universities actually raised tuition by more than the amount of the Pell Grant. Li did estimate that public two-year institutions decreased tuition, 17 cents for net tuition and 18 cents for list tuition, for every dollar increase in Pell revenue. She also noted that since tax credits might be more

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Four-year public universities raised tuition in response to the introduction of federal tax credits.

transparent to colleges and universities than Pell grant awards, the response to tax credits might be greater than for Pell Grants.[35]

Sarah Turner, in her 1997 University of Michigan PhD dissertation, examined data on individual students and found that reductions in net tuition (list tuition minus grants) for students receiving Pell Grants were less than the amount of the Pell Grant. This would occur if colleges and universities raised their tuition in the presence of Pell Grants, or if they substituted Pell Grants for their own institutional aid.[36]

Rebecca Acosta, in her 2001 UCLA working paper, "How Do Colleges Respond to Changes in Federal Student Aid?" used institutional data to examine the effect federal grants and loans had on tuition.[37] She found that for every dollar in additional federal grant aid, private four-year institutions increased tuition revenues by $3.24. They did offset some of this increase in tuition by increasing their in-house financial assistance by $1.48. The net effect was an increase in net tuition of $1.76 for every dollar increase in federal grant aid. For every dollar increase in federal loans, these institutions increased their tuition revenue by $1.30. Again, they offset some of this tuition increase by increasing their internal aid by 58 cents. This gave them a net tuition increase of 72 cents for every dollar of federal loan aid. She found some evidence that public institutions responded to increased federal grant aid by reducing institutional aid, and increasing tuition. She did not find evidence that federal loans were captured by public universities in the form of higher tuition or reduced in-house aid.

In their 1991 study for the Brookings Institution, McPherson and Schapiro developed a model to estimate supply-side effects of financial aid.[38] Using institutional-level data from the 1978–79 and 1985–86 academic years, they came to the conclusion that four-year public colleges raised tuition $50 for every $100 in federal student aid. They did not find evidence that private four-year colleges raise their tuition in response to federal student aid. One reason that McPherson and Shapiro give for the lack of private college response is that Pell Grants are a small fraction of the total tuition cost at private universities, and students at private universities are already borrowing the maximum guaranteed student loan.[39] Thus, the universities cannot raise tuition and directly capture the additional federal funds from the assisted students. This argument makes sense, but doesn't consider the effect of the general increase in demand that results from federal financial aid. Even if only a fraction of students receive student aid, the shift in the demand curve as discussed above will raise the equilibrium level of tuition, thus affecting all students.

In a recent paper, "The Impact of Federal Tax Credits for Higher Education Expenses," Bridget Long found that many states reduced appropriations to two-year public colleges that had low tuition levels, and that these same colleges raised tuition in response to the tax credits.[40] Her analysis suggested that four-year public universities, especially those that charged lower tuition, raised tuition in response to the introduction of federal tax credits. She looked at relative tuition trends in low-price private colleges and universities against high-price universities and did not find a significant difference. She interpreted this to mean that since there is a slightly higher incentive to raise tuition at the lower-price universities, the private-sector institutions might not have responded to the tax credits by raising prices. But she did note that there may be a number of reasons for this lack of difference in trends and that there might be a response in the private sector. She noticed that her finding of a lack of student enrollment response to the tax credits is consistent with the tax credits having the effect of raising tuition.

Although not designed to look at the effect of federal assistance on tuition, a study by the National Center for Education Statistics used data from the 1993 and 2000 National Post Secondary Student Aid Study to look at net tuition and total cost changes after the expansion of student loans under the amendments

to HEA that passed in 1992.[41] NCES found that when federal aid was subtracted from tuition costs adjusted for inflation, there was still a real increase in net tuition costs over the period studied, 1993–2000, and that undergraduate borrowing increased substantially. This is consistent with the tendency for increased financial assistance to result in higher tuition. The study also found that net tuition did not increase once all grants, including state and institutional aid, was accounted for. Notice that this is still consistent with rising tuition as a response to increased federal aid. Suppose federal aid increases by $8 and tuition rises by $10. If the university increased its in-house assistance by $2 to offset some of the tuition increase, there would be no net tuition increase, even though the federal aid increased tuition. Some students may be paying much higher tuition costs as others receive more state and institutional aid. The study also found that costs such as room and board rose sufficiently that the total net cost of attendance increased after all aid was considered.

Singell and Stone, in their 2003 study "For Whom the Pell Tolls: Market Power, Tuition Discrimination, and the Bennett Hypothesis," used data on 71 public and private universities to look at the effect of Pell Grants on tuition.[42] They found that the top-ranked private universities increased net tuition (list tuition minus institutional aid) by $3.96 for each dollar in Pell Grant. They did not find evidence that public universities or lower-ranked private universities capture Pell Grants in the form of net higher tuition.

The National Center for Education Statistics devoted a chapter in their two-volume study on college costs to the effect on tuition of federal financial aid.[43] Examining institutional-level data, the study's authors used regression analysis in an attempt to measure the effect of various aid variables on tuition. While the models they employed did not find a significant statistical relationship between federal aid and tuition levels, the models did not do a very good job of explaining changes in tuition. In fact, the authors themselves noted that the lack of explanatory power of the models suggests "that more remains unexplained than explained by the models."[44]

In a 2003 NBER working paper, Michael Rizzo and Ronald Ehrenberg examined the responses of 91 public research universities to changes in state appropriations and federal financial assistance over the period 1979–1988. The authors were primarily concerned with the enrollment of out-of-state students as a revenue source.[45] In the course of their study, they did not find that increases in Pell Grants led to increases in tuition at these universities. There are at least two caveats to this result. First, these flagship universities may behave differently from other colleges and universities, such as two-year colleges or private four-year colleges. And second, it may be that the states are capturing the federal subsidy in the form of lowered appropriations by states for their major public universities.

Ehrenberg and two colleagues found in an earlier paper, "How Would Universities Respond to Increased Federal Support for Graduate Students?" that doctorate-producing universities respond to changes in the number of science and engineering graduate students supported on federal funds by reducing the number of graduate students supported by internal funds.[46] Such behavior is consistent with a scenario in which the subsidy is used to displace spending that would otherwise have occurred by either the university or the state government. This may explain why some of the studies mentioned earlier were not able to find a statistically significant relationship between federal student aid and tuition levels. Some universities may be capturing the aid in the form of reduced institutional aid rather than higher tuition.

In summary, studies that have focused on the impact of federal student aid on tuition generally find some effect, whether on public universities, private universities, or both. The degree of effect is no doubt due to a number of the complicating factors discussed above. Some universities and colleges have fairly inelastic supply, some have inelastic demand, some may keep listed tuition the same and

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raise net tuition by substituting federal aid for institutional aid, and some may raise list tuition and maintain institutional aid. The boards of trustees of the various types of public and private institutions face different sets of incentives and constraints, economic and political, which determine their response to increases in federal aid to their students. Studies that focus on data from individual institutions may fail to find a strong statistical relationship between aid and tuition levels because of the different behaviors of the individual institutions. Some of the increased federal aid may be reducing state appropriations for public universities and colleges. However, the overall effect of student aid clearly is to increase tuition. The question is by how much, for what students, and at which universities.

A Case Study

Since I am currently the chairman of the board of trustees of Lake Superior State University, a small public university in Sault Ste. Marie, Michigan, I can discuss one university's goals and provide evidence of the actual effect federal financial aid has had on its tuition policy.

Michigan's constitution provides that each of the state's public universities is autonomous. Thus the LSSU board has complete control over its enrollment and tuition policies. The LSSU board of trustees is made up of eight members. I joined the board in 1999, and since then the board reduced tuition once, in 2001, when state appropriations reached a peak. Beginning in 2002, the state of Michigan was faced with budget problems, resulting in reductions in state appropriations for higher education. A substantial majority of the board has had as their primary concern ensuring the fiscal soundness of the university, but the board has also been concerned about keeping tuition affordable. LSSU is located in the upper peninsula of Michigan and per capita personal income of the university's primary drawing area is substantially below the statewide average.[47] The net result of these two conflicting goals was that the board increased tuition four times as state appropriations declined, including once in the middle of the current academic year.

The board, while not explicitly discussing it, presumed that demand for an LSSU education was inelastic, since we voted to increase tuition in order to raise revenue.[48] This shows that the university does not operate as a normal profit-maximizing firm would, since a profit-maximizing firm would never have set a price at a point on its demand curve where demand is inelastic to begin with. (The firm could increase revenue and not increase cost by raising its price.) The reality is that we operate as a political institution, trying to balance our budget while keeping our constituents happy.

In deciding on tuition increases, we discussed the effect raising tuition would have on the students who come from the surrounding area. The fact that these students are receiving federal assistance assuaged the board's feelings about increasing tuition. Had federal assistance been declining, it is more likely that we would have reduced expenditures by eliminating programs and would either not have increased tuition or increased it a lesser amount.

In my own experience in one small public university, the board of trustees does not make a conscious decision to increase tuition in order to capture the subsidy of federal financial assistance. What the federal student assistance seems to do is to make it easier to get a majority on the board to raise tuition than would otherwise be the case. Board members feel that the tuition increases do not harm low-income students substantially, since for some their Pell Grant will increase, and for the rest, their student loans will go up with tuition increases.

Other college and university administrators have noted that their experience has been that federal assistance can lead to either lower university or state financial assistance or higher tuitions. The cases of Bowdoin College and City University of New York have already been

It is important that the institutions that educate those who will participate in the democratic system be truly independent of the government.

mentioned. In recent testimony before the Subcommittee on 21st Century Competitiveness of the House Committee on Education and the Workforce, F. King Alexander, president of Murray State University, commented, "Ironically, federal programs in totality give incentive for institutions to increase tuition and to set high sticker prices."[49] Alexander showed that he is aware that other institutions have been able to increase tuition when the federal government increased student aid:

> Nor have we (Murray State) opted to dramatically shift the educational costs away from the state and to the federal government indirectly through the student by inflating tuition like many higher cost states and institutions have done over the last two decades.[50]

In an interview with *USA Today*, Alexander was more direct: "It is a shell game, pure and simple. A lot of schools set tuition prices to maximize grant money and then use institutional (financial) aid—which isn't real money—to set the real tuition."[51]

In his book *Tuition Rising: Why College Costs So Much*, Ronald Ehrenberg, a vice president at Cornell University, discusses the tradeoff between university internal aid and federal aid to students.[52] Although he argues that the slowed growth in federal aid resulted in increased financial aid costs for Cornell, the implication is that increased federal aid will result in lower university-provided aid by Cornell, similar to the Bowdoin College experience.

Other Reasons for Rising Tuition

There are, of course, a number of other reasons for rising tuition. In addition to other demand factors, the marginal cost of producing higher education has been increasing. William Baumol, in his famous 1967 paper, pointed out that there are limits to increased productivity in certain services, in particular teaching, that will inevitably cause the cost of providing these services to increase relative to other goods and services.[53] Howard Bowen analyzed the underlying factors behind the costs of higher education in his 1980 book and hypothesized that universities will, in general, spend all available revenue as they seek to gain prestige and influence.[54] More recently, Ehrenberg used his experience as a senior administrator at Cornell University to discuss the various reasons why the cost of higher education is rising and what the effect is on tuition.[55] These costs include competition for students that results in higher tuition discounting and more costly residence facilities, increasing maintenance costs, rising faculty salaries, new advanced equipment for research, and so forth. My experience as a trustee for a state university has shown how reduced state appropriations, higher health care costs, and increased utility costs can drive the decision to raise tuition. However, there can be little doubt that federal aid has, at a minimum, allowed colleges and universities to increase tuition beyond what would otherwise be the case as they are faced with these increasing costs.

A Threat to the Independence of Higher Education

In addition to raising tuition costs, government tuition and institutional aid threatens the independence of higher education.[56] For many Americans, the point at which they begin to develop their opinion about the role of government and possible solutions to public policy problems is in college. For democracy to work, it is important that the institutions that educate those who will participate in the democratic system be truly independent of the government. As Friedrich Hayek points out in the *Constitution of Liberty*:[57]

> The conception that government should be guided by majority opinion

Search as one might through the Constitution, one will not find the power to provide for higher education granted to the federal government.

> makes sense only if that opinion is independent of government. The ideal of democracy rests on the belief that the view that will direct government emerges from an independent and spontaneous process. It requires, therefore, the existence of a large sphere independent of majority control in which the opinions of individuals are formed.

Unfortunately, the Supreme Court has ruled that if a college or university accepts a student who receives federal aid, that institution must follow federal rules and guidelines, even if the institution itself never directly receives federal funds.[58] Thus, Pell Grants and federally subsidized student loans create a mechanism for the federal government to establish some control over colleges and universities. For example, Hillsdale College cannot accept students who use tuition tax credits or accept federal grants or federal loan assistance because the college does not comply with federal government mandates such as keeping detailed records of all student and employee applications, enrollments, personnel files, suspension, hirings, and so forth, broken down by the race and gender.[59] That is because Hillsdale College doesn't want to have its independence compromised by the federal government. Hillsdale's stance is unique among the nation's more than 4,000 colleges and universities.

Today more than three in four college students attend public institutions.[60] Although this reduces independence from government influence, the fact that 50 state governments operate these institutions limits the ability of a central authority to direct opinion. However, when large numbers of students begin to rely on the federal government to fund their higher education, and the federal government uses this financing to affect the behavior of state and private institutions, we should consider Hayek's warning. The federal government influence on the nation's higher education system, while perhaps benign at this time, may lead to limitations on what types of debates can take place in our nation's colleges and universities. This, in turn, may influence the opinions of the electorate or simply slow the advance of ideas that will improve our society. The issue is certainly worth considering and speaks against the continued use of HEA to finance higher education.

HEA costs taxpayers more than $22 billion per year.

Suggestions for Reform

The Tenth Amendment to the United States Constitution reads:

> The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the states respectively, or to the people.

Search as one might through the Constitution, one will not find the power to provide for higher education granted to the federal government. Because of that, the federal government should not be providing financial assistance to induce people to obtain higher education. Such activity should be left to the states and to individuals.[61] Thus, one obvious reform would be to simply not reauthorize HEA. The political reality, however, is that more than 10 million students and their families now rely on some form of federal assistance to pay for their college education, and nearly all colleges and universities base their tuition policy on federal grants and loans. That creates a large constituency for current programs and renders moot any proposal to immediately end all federal financial assistance.

HEA costs taxpayers more than $22 billion per year.[62] For that price, we should expect Congress to be fairly certain of the goals and efficacy of the program. What we do know is that HEA has mushroomed over time, with little consideration of what the legislation is trying to achieve or how the various programs interact with one another. There is ample evidence that the results have been counterproductive to the goal of providing greater access

to higher education. Certainly HEA results in higher list price tuitions for all students and higher net tuitions for an unknown number. The extent of the increase in tuition varies by university, student, and time, as demand and supply conditions differ.

The lack of certainty in the results of this program, other than increasing tuition, suggests that rather than expand the current system, Congress should consider a phase-out of federal assistance to higher education over a 12-year time frame. This would allow people who have made decisions under the current system to continue with the same basic structure while the current program is being phased out. It would allow colleges and universities time to respond to the removal of federal government interference in the higher education system.

As the federal government removes itself from student assistance, we should expect several things to happen. First, we would expect sticker tuition prices to decline. Second, the private market would respond to the phase-out of federal assistance. This would likely take three forms: additional private-sector loans, additional private scholarship funds, and perhaps most importantly, the expansion of human capital contracts, which are similar to owning stock in the future earnings of a college graduate.

The private sector is already assuming a greater role in providing student loans. Nonfederal borrowing has increased from 7 percent to 16 percent of education loan volume over the past five years. Nonfederal borrowing reached $11.3 billion in 2003–04, up 39 percent in real terms over the previous year and almost 150 percent in three years.[63] It is quite likely that this market will become more and more developed over time and will be a normal place for students to look for assistance.

It is likely that private assistance for higher education will increase under a phase-out of HEA. Because federal programs affect the private market, one cannot take the current amount of private and institutional financial aid as a measure of what will happen once the federal government has stopped providing direct assistance to students. If the federal system of grants and loans were phased out, some persons who do not now contribute to private grants and loans would be likely to contribute, and others who are already contributing would likely increase their contributions. Although this effect is unlikely to offset federal aid completely, at least some of the reduction in government assistance would be replaced with private-sector assistance.

The most interesting substitute for federal government intervention may be human capital contracts. A human capital contract allows a student to go to the venture capital market and obtain investors in his education.[64] In return for that financing, the student pledges a specific percentage of later income over a specified period of time to be paid to the investor.

Milton Friedman proposed such a contract in his 1955 paper "The Role of Government in Education," later republished in *Capitalism and Freedom*.[65] Miguel Palacios in his 2002 Cato Policy Analysis "Human Capital Contracts: 'Equity-like' Instruments for Financing Higher Education," provides a detailed analysis of such contracts, their benefits and limitations, and how they would work in practice.[66]

When fully accepted, human capital contracts would come to be combined by investment funds. Those funds would purchase large numbers of such contracts, allowing the risk of default to be spread over a sufficient number of students that the law of large numbers would generate sufficient profit for the funds to be economically viable. As the market for these contracts developed further, shares in the funds would be traded in the same way that individuals purchase shares in such things as real estate investment trusts. This would create an economically efficient way to finance higher education that would allow students to graduate without having to fear that their future earnings would not be sufficient to pay their student loans.

There are other issues that may limit the extent of this market. For example, the

The most interesting substitute for federal government intervention may be human capital contracts.

Federal financing has the potential to threaten the independence of higher education in the United States.

human capital contract may not be useful for situations where a student chooses a high-cost college for a low-paying degree. However, this is not a certainty, as markets tend to create the services that consumers desire.[67]

Currently one firm, MyRichUncle, offers such contracts. Palacios provides some suggestions for how this market might become further developed.[68] Those suggestions include establishing that such contracts would be enforceable under federal law, amending federal bankruptcy statutes to prevent manipulation of the statutes to abrogate the contracts, and allowing for securitization of the contracts.

Conclusion

The federal government spends tens of billions of dollars providing aid to students to attend colleges and universities through a variety of loan, grant, and tax programs. Yet there is ample evidence to suggest that these programs are counterproductive and have the unintended consequence of increasing tuition costs. In addition, federal financing has the potential to threaten the independence of higher education in the United States and, thereby, the independence of political opinion from the federal government.

Congress should reduce or eliminate its intervention in the financing of higher education and instead focus on providing the legal structure that would allow for the creation of human capital contracts. This would result in the most efficient allocation of higher education and preserve the independence of our institutions of higher learning.

Notes

1. Friedrich Hayek, *The Constitution of Liberty*, Gateway Edition (Chicago: Henry Regnery, 1972, 1960), p. 111.

2. Public Law 89-329, 79 STAT 1219.

3. For a discussion of Washington's views on the role of the federal government in higher education, see Larry Arnn, *Liberty and Learning: The Evolution of American Education* (Hillsdale, MI: Hillsdale College Press, 2004), pp. 13–15.

4. U.S. Department of Education, FY 2005 Budget Summary—February 2, 2004, www.ed.gov/about/overview/budget05/summary/edlite-section2d.html.

5. For a brief history of federal aid to students, see Krista Kafer, "Refocusing Higher Education Aid on Those Who Need It," Heritage Foundation Backgrounder no. 1753, April 26, 2004.

6. 38 U.S.C. Chapter 30, Montgomery G. I. Bill—Active Duty Educational Assistance Program.

7. U.S. Department of Education, FY 2005 Budget Summary.

8. Robert Archibald, *Redesigning the Financial Aid System: Why Colleges and Universities Should Switch Roles with the Federal Government* (Baltimore: Johns Hopkins University Press, 2002), pp. xi–xii.

9. See Larry Leslie and Paul Brinkman, *The Economic Value of Higher Education* (New York: Macmillan, 1998) for an extensive review of the empirical literature on the effect on college attendance of financial aid.

10. Ibid., p. 283.

11. Susan Dynarksi, "Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion," *American Economic Review* 93, no. 1 (March 2003): 279–88.

12. See Ludwig von Mises, *Liberalism* (Irvington-on-Hudson, NY: Foundation for Economic Education, 1985, 1927).

13. Appropriations will differ slightly from aid available for technical reasons.

14. Data on Perkins Loans and FDSL and FFEL Loans for 1993 are from College Board, *Trends in Student Aid: 2003* (New York: College Board Publications), Table 1. Data for 2004 are from U.S. Department of Education, *FY2005 Budget Summary*.

15. Data on tuition and fees in this section are from College Board, *Trends in College Pricing: 2004* (New York: College Board Publications).

16. Ibid, p. 3.

17. See, for example, David Hyman, *Public Finance: A Contemporary Application of Theory to Policy*, 8th ed. (Thompson Southwestern, 2004), chap. 3.

18. Technically, the amount of shifting of the sub-

sidy that will occur will depend upon the elasticity of demand and supply. The interested reader may find a full discussion in Hyman.

19. Technically, the elasticity of demand is the percentage change in the quantity demanded divided by the percentage change in the price, and the elasticity of supply is the percentage change in the quantity supplied divided by the percentage change in the price. For an introductory discussion see Roger Miller, *Economics Today*, 12th ed. (Boston: Pearson, 2004), chap. 20.

20. Judith Li, "Estimating the Effect of Federal Financial Aid on College Tuitions: A Study of Pell Grants," Harvard University, April 1999, p. 11.

21. Gordon Winston, "Subsidies, Hierarchy and Peers: The Awkward Economics of Higher Education," *Journal of Economic Perspectives* 12, no. 1 (Winter 1999): 13–36. In 1993 Michael Rothschild and Lawrence White made a number of interesting observations about university behavior and raised some important questions for further research in their article "The University in the Marketplace: Some Insights and Some Puzzles" that appeared in an important National Bureau of Economic Research volume, *Studies of Supply and Demand in Higher Education*, ed. Charles Clotfelter and Michael Rothschild (Chicago: University of Chicago Press, 1993). They followed this with their 1995 paper, "The Analytics of the Pricing of Higher Education and Other Services in Which Customers Are Inputs," *Journal of Political Economy* 103, No. 3 (June 1995): 573–586, in which they use universities as an example of firms with the characteristic that the customers are also inputs to show that a competitive market in such a situation can result in some of the pricing and output behavior associated with universities. In the case of higher education, the customer is the student, but the type of students by which he or she is surrounded affects the quality of education that any student gets. They note that such a model still fails to explain some common university pricing and output decisions.

22. Dennis Coates and Brad Humphreys, "The Supply of University Enrollments: University Administrators as Utility-Maximizing Bureaucrats," *Public Choice* 110, no. 3–4 (March 2002): 365–92.

23. John Quigley and Dan Rubinfeld, "Public Choices in Public Education," *Studies of Supply and Demand in Higher Education*. Quigley and Rubinfeld developed an empirical model of supply and demand for public higher education based on a theoretical model that focused on the legislature being the entity that determines the supply of public education. Using 1984 state data on enrollment, average tuition, and other variables, they found a negative relationship between tuition and public supply in a complicated regression analysis that combined two- and four-year institutions. This would mean that tuition increases result in less supply of public higher education, or a downward-sloping supply curve. On page 268, the authors describe this result as "difficult to interpret; given the difficulties of identification, it could merely reflect the negative relationship between student demand and tuition." In separate regressions on two-year and four-year public institutions, they get a positive relation between tuition and supply for two-year colleges, and a positive relation between supply of four-year enrollment and four-year tuition. This makes sense and means the supply curve is upward sloping. Their separate regression on two-year public colleges resulted in a negative relation between tuition and supply. It would thus appear that their counterintuitive results of the combined regression are affected by the legislatures' decisions regarding the provision of two-year colleges.

24. See Li, p. 3.

25. In this paragraph, revenue is "current fund revenue." This is money that can be used to pay obligations currently due and surpluses reappropriated for the current fiscal year.

26. U.S. Department of Education, NCES, *Digest of Education Statistics*, 2002, June 2003, Table 330.

27. Quoted in Larry Singell and Joe Stone, "For Whom the Pell Tolls: Market Power, Tuition Discrimination, and the Bennett Hypothesis," University of Oregon working paper, April 2003.

28. Chester Finn Jr., *Scholars, Dollars, and Bureaucrats* (Washington: Brookings Institution, 1978), p. 62.

29. Jacob Stampen, *The Financing of Public Higher Education* (Washington: American Association for Higher Education, 1980), p. 41.

30. Ibid., pp. 6–7.

31. See Greg Winter, "House G.O.P. to Drop Idea of Penalty for Steep Rises in Tuition," *New York Times*, March 3, 2004.

32. For example, see Susan Dynarski; Hidehiko Ichimura and Christopher Taber, "Semiparametric Reduced-Form Estimation of Tuition Subsidies," *American Economic Review* 92, no. 2 (May 2002): 286–92; and Marcus Stanley, "College Education and the Midcentury GI Bills," *Quarterly Review of Economics* 118, no.2 (May 2003): 671–708.

33. Li, p. 11.

34. Ibid., p 28.

35. Ibid., p. 30.

36. Sarah Turner, "Essays on the Economics of Higher Education," University of Michigan PhD Dissertation, 1997. See also her paper, "The Vision and Reality of Pell Grants: Unforeseen Consequences for Students and Institutions," in Lawrence Gladieux et al. (ed.) *Memory, Reason, Imagination: A Quarter Century of Pell Grants* (Washington: College Board, 1998).

37. Rebecca Acosta, "How Do Colleges Respond to Changes in Federal Student Aid?" Department of Economics, University of California Los Angeles, Working Paper no. 808, October 2001.

38. Michael McPherson and Morton Schapiro, *Keeping College Affordable: Government and Educational Opportunity* (Washington: Brookings Institution, 1991) chap. 4.

39. See also Michael McPherson and Morton Schapiro, *The Student Aid Game* (Princeton, NJ: Princeton University Press, 1998), pp. 82–83.

40. Bridget Long, "The Impact of Federal Tax Credits for Higher Education Expenses," in Caroline Hoxby, *College Choices: The Economics of Where to Go, When to Go, and How to Pay for It* (Chicago: University of Chicago Press, 2004).

41. U.S. Department of Education, National Center for Education Statistics, *What Students Pay for College: Changes in Net Price of College Attendance Between 1992–93 and 1999–2000*, Statistical Analysis Report, September 2002.

42. Singell and Stone.

43. U.S. Department of Education, National Center for Education Statistics, *Study of College Cost and Prices 1988–89 to 1997–98*, vol. 1, Statistical Analysis Report, December 2001.

44. Ibid., p. 129. Although it is true that a low R-squared value may occur even if the model is satisfactory because of large variations in the variables, it raises some concern that there are variables that are left out of the equation and contained in the error term that are correlated with the explanatory variables. In this case the regression coefficients on federal aid will be biased. For further discussion see Robert Pindyck and Dan Rubinfeld, *Econometric Models and Economic Forecasts*, 3rd ed. (New York: McGraw-Hill, 1991), p. 62.

45. Michael Rizzo and Ronald Ehrenberg, "Resident and Nonresident Tuition and Enrollment at Flagship State Universities," NBER Working Paper no. 9516, 2003.

46. Ronald Ehrenberg, Daniel Rees, and Dominic Brewer, "How Would Universities Respond to Increased Federal Support?" in Clotfelter and Rothschild.

47. Chippewa County, in which LSSU is located, had a per capita personal income of $18,356 in 2002, while the state of Michigan had a per capita personal income of $29,516.

48. If demand is inelastic, the percentage reduction in quantity demanded will be less than the percentage increase in price and total revenue will increase when price increases. For a further discussion see any principles of economics book on the subject of elasticity. For example, Michael Parkin, *Economics*, 7th ed. (Boston: Addison Wesley, 2005).

49. Statement of F. King Alexander, president of Murray State University, September 23, 2003, http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_house_hearings&docid=f:90136.wais.

50. Ibid.

51. Dennis Cauchon, "Grants More Than Offset Soaring University Tuition," *USA Today*, June 28, 2004, p. 4A.

52. Ronald Ehrenberg, *Tuition Rising: Why College Costs so Much* (Cambridge: Harvard University Press, 2000), p. 81.

53. William Baumol, "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis," *American Economic Review* 57, no. 3 (June 1967): 415–26.

54. Howard Bowen, *The Costs of Higher Education* (San Francisco: Jossey-Bass, 1980). See pp. 19–20. See also his earlier work, "Financial Needs of the Campus," *The Corporation and the Campus: Corporate Support of Higher Education in the 1970s*, in Robert Connery, ed. (New York: Academy of Political Science, 1970).

55. Ehrenberg.

56. For a detailed discussion of the effect of federal aid on higher education, see Gary Wolfram, *The Threat to Independent Education: Public Subsides and Private Colleges*, Cato Policy Analysis no. 278, August 1997.

57. Hayek, p. 109.

58. *Grove City College et al. v. Bell*, 465 U.S. 555; 104 S. Ct. 1211.

59. For a discussion of federal funding and federal control see George Roche, *The Fall of the Ivory*

Tower (Washington: Regnery, 1994), chap. 5.

60. The percentage enrollment in public institutions of higher education was 76.8 in 2000. See *Digest of Education Statistics 2002*, Table 172.

61. For a discussion of the constitutionality of the Higher Education Act, see Arnn, especially pp. 13–17.

62. The FY 2005 Education Department Budget Summary requests $22.256 billion for student financial assistance under HEA. This does not count other federal programs, such as the Montgomery GI Bill, nor various tax credits.

63. College Board, *Trends in Student Aid, 2004*, p. 5.

64. In the interest of brevity, please read "his" as "her" if one chooses a different gender for the example.

65. Milton Friedman, "The Role of Government in Education," in *Economics and the Public Interest*, ed. Robert Solo, (Rutgers: Rutgers University Press, 1955) and *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962).

66. Miguel Palacios, "Human Capital Contracts: 'Equity-like' Instruments for Financing Higher Education," Cato Institute Policy Analysis no. 462, 2002, http://www.cato.org/pubs/pas/pa-462es.html. Also see Miguel Palacios, *Investing in Human Capital: A Capital Market's Approach to Student Funding* (Cambridge, U.K.: Cambridge University Press, 2004).

67. Those familiar with this literature may recognize the similarity between human capital contracts and Yale's ill-fated Tuition Postponement Program. However, a major difference is that Yale's program required all participants to continue to pay a portion of their income until the loans of all members of their cohort had repaid their loans. Thus, those who participated in the program were forced to cover the losses of those who failed to repay their loans. For a discussion of the Yale program see Bret Ladine, "70s Debt Program Finally Ending," *Yale Daily News*, March 27, 2001, www.yaledailynews.com/article.asp?AID=15115.

68. Palacios. The website for MyRichUncle is http://www.myrichuncle.com/.

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