

For-Profit Colleges and Non-Traditional Students: Responses to Cyclical Shocks

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It has been widely noted that an increasing fraction of students seeking enrollment at colleges and universities are older students -- beyond their late teens and early 20s - and seeking to combine college enrollment with work or family responsibilities. While traditional colleges and universities in the public and nonprofit sector have adjusted to meet part of this demand, for-profit institutions have contributed to the reshaping of the options for this pool of students in significant ways. While for-profit institutions – and colleges and universities more generally—serve a wide array of objectives and constituencies, these institutions increasingly provide post-secondary training (or retraining) in response to labor market fluctuations. A primary result of this analysis is that enrollment at for-profit institutions, particularly among Pell-eligible students, is quite sensitive to changes in local economic conditions. In fact, for-profit institutions may generate a greater enrollment response to cyclical fluctuations than counterparts in the non-profit and public sectors.

“Going to college” is an activity commonly associated with dorm life, intercollegiate athletics, and full-time study. Yet, such a description increasingly does not apply to the students and institutions comprising the post-secondary sector in higher education. This paper considers the determinants of increased demand for collegiate opportunities among non-traditional students, particularly in response to short term economic shocks, and the role of proprietary institutions (“for profits”) in providing collegiate instruction.

What is unambiguously clear from the available data is that enrollment among students beyond the traditional 18-22 age bracket for college enrollment and completion has increased dramatically over the last half century. While about 3 percent of adults 25-29 and less than 1 percent of adults 30-34 were enrolled in college in 1950, adult enrollment had increased to 11.4 and 6.7 percent for these groups in 2000 (Table 1). Potential explanations for this increase include changes in the labor market, including the erosion of “once and for all” skill investments, shifts in the preparedness and objectives of potential students and adjustments in the methods of financing college.

Concurrent with the change in the nature and age-structure of enrollment demand over the last half century have been adjustments among the providers – colleges and universities. The most dramatic changes have surely been on the public side of the market, including the community college movement and the expansion of four-year comprehensive institutions. Mixed in this changing market environment has been the expansion of for-profit higher education institutions. The institutional innovations in the last half of the 20th century provided collegiate opportunities for non-traditional students

in ways largely unimagined by traditional, residential institutions. Rather than focusing exclusively on full-time residential study, new entrants to the market welcomed students who wanted credentials and training outside the traditional menu of degree options.¹

This analysis is particularly focused on the extent to which for-profit providers respond to the same – or different – economic incentives as non-profit and public collegiate counterparts. Economic theory suggests that for-profit colleges may focus on particular segments of the market and may also be more responsive to changes in local economic conditions. To this end, this analysis focuses on differences across states and over time in enrollment by type of institution, distinguishing among for-profit and non-profit providers. One challenge, mentioned repeatedly in research analyses of the for-profit higher education, is that available data are quite limited and it is simply impossible to measure all of the desired indicators.

The next section provides an outline of the potential explanations for the increased demand for post-secondary opportunities among students beyond the traditional age of college attendance. The second section considers the supply-side of the market, concentrating on why for-profit providers may be particularly well-positioned to provide education services in response to transitory economic shocks. The third section turns to the empirical tests of this analysis which focus on the comparison of the supply and enrollment response among different types of post-secondary providers to local economic circumstances.

¹ Very few non-profit private colleges and universities entered the higher education market after World War II. Most new entrants were public community colleges, public non-doctorate universities, or for-profit schools. Data provided from Currie and Moretti (2002) identify nearly 900 community colleges entering between 1940 and 2000, with more than one half of these institutions founded in the decade of the 1960s. The entry of new degree-granting proprietary institutions was somewhat delayed, with most of these institutions entering in the 1970s and 1980s.

I. Demand among Non-traditional Students and Public Policy

In thinking about the intersection between for-profit higher education and non-traditional enrollment, some basic facts need to be set straight. While the majority of enrollment at for-profit schools is among students beyond the traditional 18-22 age range, the majority of enrollment among these older students is not at for-profit institutions but at public institutions, particularly community colleges. Although more than 70 percent of undergraduate students enrolled at for-profit, degree-granting institutions are over the age of 22 (Figure 1), these students are only a little more than 3 percent of all students in this age range enrolled as undergraduate students. The distribution of the ages of undergraduate student at public and nonprofit institutions is plainly much younger, with 55% and 60% under age 22, than at private for-profit institutions. Nevertheless, the scale at for-profit institutions is small relative to the total market.

In ‘counting’ enrollment in higher education, researchers face a perpetual challenge in defining the scope of the sector. At issue is whether institutions with program duration of less than two years offer courses that are inherently different than those institutions offering longer term degrees. The conundrum is that there are vocational programs offered at a wide array of institutions and eligibility for federal financial aid extends to post-secondary institutions offering short duration programs. While for-profit colleges account for less than 3 percent of fall enrollment at degree-granting institutions, these institutions account for about one half of enrollment at non-degree-granting or less than two-year institutions. Still, the number of students enrolled at a point in time at these less than two-year institutions is relatively small; in 1997 398,082 in total and 188,954 at for-profit schools.

The general rise in the demand for post-secondary education among older students does not have a single explanation, but rather several potential forces surely contribute to this transformation. Concurrent with the rise in adult enrollment has been a general increase in educational attainment, reflecting the increased demand for skills in the U.S. economy. Explanations appealing to the increased demand for skilled workers in the economy must explain why individuals choose to enroll at, say, age 25 rather than age 18. In fact, rudimentary models of education investment typically produce the result that maximizing lifetime income comes through finishing all schooling early in life, thereby maximizing the number of years that an individual has to accrue the return to college (for a discussion of increased time-to-degree attainment, see Turner (2003)). Plainly, such models fail the test of basic empiricism.²

One explanation is that unexpected “shocks” in economic conditions alter the return to college investments or require individuals to return to the post-secondary system to “retool.” Examples include job displacement and unemployment or the development of a new technology that dramatically changes the returns to a college investment. During periods of high unemployment or recession, the opportunity cost of time is lower and thus individuals are likely to consider returning to school.³ A number of empirical papers in the applied social sciences have included the unemployment rate as an explanatory variable in the determination of college enrollment (see, for example, Kane (1994), Kane (1995)). Yet, the effects of local economic conditions on collegiate

² A few authors such as Betts and McFarland (1995) have been explicit in noting that the traditional models of demand used in modeling the decisions to attend and complete four-year programs are likely to be inappropriate when modeling the link between unemployment and adult post-secondary participation.

³ There is ample anecdotal evidence to this point, as well. For example, a recent article in the New York Times (April 27, “Jobless and Hopeless, Many Quit the Labor Market”) notes that many unemployed workers are returning to school.

attainment may differ markedly by sector and with individual characteristics. Work by Bound and Turner (2003) shows that the effect of local labor market conditions on enrollment (measured for all ages) is generally considerably larger than the effect on baccalaureate degree attainment, with the latter generally quite close to zero.⁴ For-profit institutions may be relatively quick to adapt to changes in local economic conditions relative to public or private four-year institutions.

High school preparation and attainment may also play a role in explaining the increase in non-traditional enrollment. As college participation rates have increased, the marginal student enrolling in college may be less prepared than in previous cohorts. As such, there is considerable evidence that many young people do not finish college at the first institution that they enroll in. Rather, students potentially engage in “multiple spells” of college enrollment, including participation at several institutions. Writing in the early 1960s, Burton Clark hypothesized that open access institutions like community colleges may serve a function of “cooling out” and thus have very high attrition rates. Rosenbaum (2001) suggests that one explanation for high college attrition is the mismatch between expectations formed in high schools which encourage a “college for all” norm, while failing to provide clear guidance on the academic requirements for degree completion.⁵ It is particularly interesting to consider how for-profit institutions fit

⁴ Manski and Wise (1983) note that the link between state unemployment rates and local labor market conditions is relatively weak for recent high school graduates.

⁵ The “college for all” norm is not just a coined phrase but an empirical observation as 95 percent of high school seniors in the class of 1992 planned to attend college, despite the fact that nearly half of the 12th grade students’ math and verbal skills were below the ninth grade level. Rosenbaum’s assessment of degree attainment a decade after high school for the 1982 cohort shows that aspirations are insufficient to guarantee degree attainment. Among those with BA aspirations, about 66 percent of those with As in high school had received a BA degree while only 16.1 percent of those with Cs in high school had achieved the BA degree. At a more general level, Rosenbaum finds that those with low high school grades are the most likely to enter college and complete 0 credit hours, with nearly 13 percent of C students with BA aspirations ending up with this outcome.

into this pattern of multiple institutions. Are for-profit institutions the “first stop” or the “last chance” for degree completion and collegiate attainment? It is likely that many students entering for-profit institutions have had some collegiate experience (albeit potentially truncated) at a public or nonprofit institution. In future work using longitudinal data, I hope to explore the position of for-profit opportunities in individual collegiate trajectories.

Limits in the capacity to finance college may also play a role in the increase in enrollment among older students. Again, traditional models of college as an investment suggest that borrowing for college and attending full-time early on will have a higher lifetime return than attending part-time for an extended number of years. Of course, such models presuppose the absence of credit constraints and the capacity of individuals to borrow to fund educational investments. Beyond the potential violation of the credit constraints assumption, it is necessary to explain the extraordinary incidence of students combining near full-time work with college enrollment. Data from the most recent iterations of the Current Population Survey show the relatively high incidence of students combining work and school (see Table 2), with the incidence of this behavior particularly high for older students. Among those over 25 attending college on a part-time basis, more than 75 percent of these students also report working full-time. Similarly, among these older students reporting full-time college attendance, more than 50 percent report full or part-time employment.⁶ The relatively flexible scheduling at for-profit colleges

⁶ Economic analysis has been slow to offer convincing explanations for the high incidence of “work and college”. As noted above, credit constraints form one potential explanation if individuals are unable to borrow to finance college costs. An alternative explanation is that workers would be forced to surrender firm-specific benefits or earnings premium if they were to leave current employment.

and universities may increase the attractiveness of these options to older students combining work and school.

A key variable related to the capacity to finance college is the level of financial aid and public subsidy made available through state and federal sources. The introduction of the Pell grant program in 1972 was a watershed event for both non-traditional students and proprietary institutions. The authorizing language of this program was decidedly ecumenical – defining postsecondary opportunities quite broadly. What is more, the legislation provided explicit openings for “independent” students, which were initially defined simply to capture potential students no longer receiving aid from their parents. Under the 1972 reauthorization of the Higher Education Act, Congress substituted the word “postsecondary education” for “higher education”, intending to broaden the range of options beyond traditional baccalaureate programs, which had been the focus of financial aid in the programs authorized under the Higher Education Act of 1965 (Gladieux, 1995). In this regard, the Pell grants (originally called basic educational opportunity grants included two- and four-year colleges and proprietary schools from the inception. Thus, in 1972, federal financial aid changed the choice set of students to include a wider range of short-term, non-baccalaureate degree and vocational programs under Title IV.

Seftor and Turner (2002) provide clear evidence that the Pell program has had a substantial effect on the enrollment of older students. The introduction of the Pell program, as well as changes in program eligibility, have had a significant effect on the college enrollment decisions of students beyond the traditional college age, with college cost elasticities implying that a 10% decrease in net college costs would be associated

with about a 6% increase enrollment for women and a somewhat smaller effect for men. Despite restrictions that potentially limit independent student eligibility, the share of Pell grant recipients who are independent has risen steadily over the last three decades from about 30 percent in 1975 to over 60 percent in the early 1990s.⁷

What is more, many non-traditional students took their Pell grants at for-profit institutions. Overall, Figure 2 presents the share of funds from federal financial aid programs awarded to students attending for-profit institutions. Students at for-profit institutions are relatively unlikely to receive funds from campus-based awards like the College Work Study program, though these students receive a sizable share of Pell awards and subsidized Stafford Loans (13.1% and 10.4%, respectively in 1999-2000). These shares are significantly lower than the levels seen at the start of the decade when nearly a quarter of Pell and subsidized loan dollars went to students at proprietary institutions. Changes in regulations through the reauthorization of the Higher Education Act in 1992, as well as the demographic shift toward younger students, explain this trend.

While the first part of this section has provided a general picture of the secular increase in the enrollment of older students in the context of for-profit provision, the question more specific to this analysis concerns the factors determining the demand for enrollment at for-profit institutions among this population. Typically, economists think of demand as the relationship between quantity (enrollment) and price (tuition) with other factors such as the price of substitutes, income, the opportunity cost of time, and so forth held constant. Changes in the status quo such as an increase in the likelihood of unemployment or the price of an alternative in the public sector will lead to increases in

⁷ Eligibility for students claiming independent status has become more restrictive since the inception of the program. The 1986 amendments to the Higher Education Act required students to be at least 24 years old, married, or with children to qualify for aid as an independent student.

the demand for enrollment at for profit institutions, represented by a shift in the demand curve such as that presented in Figure 3.

II. Supply side

How colleges and universities – particularly those in the for profit sector – have adjusted to increases in the demand for higher education is the subject of this section. While for-profit institutions surely compete with public and nonprofit providers, they are likely to be distinguished by the type of education provided and the mode of delivery. For-profit educational institutions are likely to be explicit in the consideration of student time as a costly input, thereby organizing course offerings so as to minimize time costs from missed employment opportunities, with classes scheduled in extended blocks on weekends or in evening hours (Freeman, 1974). Moreover, for-profit institutions are not likely to compete in all areas of study, but are likely to concentrate in areas where skill acquisition is relatively easy to certify.⁸

At the level of the states, the substantial historical differences across states in the funding for higher education, the type of institutions and their location is once factor likely to play a large role in the entry and scale of for-profit provision. Quite naturally, one would expect for-profit institutions to establish themselves in areas in which there is

⁸ Because it may be very difficult for students – or firms hiring students later in life – to observe the quantity or quality of learning that took place during college enrollment, there is potential for contract failure in providing educational services. This problem may be particularly severe with for-profit providers, given the incentive to increase profits by providing an inferior education. The absence of residual shareholders reduces these incentives to cheat for non-profit colleges and universities, as the behavior of management is limited by the non-distribution constraint. In this sense, Hansmann has suggested that nonprofit or public provision may be a way to resolve the contract failure associated with for profit provision. While some educational services share these difficult to observe features, it is certainly not the case that all types of higher education are so difficult to define qualitatively. While liberal studies (and any subject with the words postmodern) define one end of the spectrum, there are a whole range of other specializations that are open to direct observation and testing. For example, it would seem reasonably straightforward to evaluate whether a student learned the basics of C++ from a college course. What is more, there may be little difference between an accounting degree from a for-profit and an accounting degree from a non-profit for an adult student (Education Commission of the States, 2003).

excess demand for higher education. It is no surprise that there is considerable variation across states in the coverage or enrollment at for-profit institutions. As Table 3 shows, enrollment at degree granting institutions accounts for more than 7% of enrollment in some states like Arizona and Colorado. While it is hard to locate parallel tables for the category of non-degree granting enrollment, data from the Pell grant program provides a similar indication of the heterogeneity across states in the institutional control of students in all post-secondary institutions.

In this case state government action (or lack thereof) is likely to be particularly important in two dimensions. First, state-level decisions to fund public higher education and establish campuses essentially determines the extent to which there are people seeking college options that are unable to find slots at existing institutions. States with generously funded systems of higher education and extensive networks of community colleges will be less likely to have large for-profit higher education sectors.

Beyond funding, states government determines the presence of for profit institutions through regulation and accreditation decisions. Various constituencies in a state – either at the level of a particular occupational certification or at the more general level of institutional establishment – may block the entry of for-profit providers. Tough standards for licensure and accreditation slowed the entry of the University of Phoenix in northeastern states like New Jersey and New York.⁹

Beyond cross-sectional differences in the presence of non-profit institutions across states, the dimension most important for this analysis is the variation across sectors

⁹ For example, Selingo (1997) describes the relative contentious application process in New Jersey. Critics argued that the higher education regulations in New Jersey were designed to protect traditional four-year institutions. For example, requirements such as a minimum of 50,000 titles in the campus library might be viewed as a high capital hurdle for an institution like the University of Phoenix, where students often spend only limited time on-site.

in adjustments to transitory changes or short run adjustments in economic conditions. Public institutions are likely to be subject to the substantial cyclical fluctuations of state revenues: when state tax collections decrease, public institutions are likely to impose budget cuts as well as tuition increases. While community colleges may be thought of as providing an “automatic stabilizer” to the local economy (Betts and McFarland, 1995), the capacity to perform this function may be limited by the cyclical nature of state funding.

These propositions are supported by the estimates in Table 4. Using data on the state unemployment rate, tuition at public universities and state appropriations, regression estimates show that a 10% increase in the state unemployment rate is likely to lead to an 11% reduction in state appropriations and a 13% increase in state tuition levels on average. These reductions in resources make it particularly difficult for students to pursue post-secondary options at public institutions. As a result of “crowding” and increased prices in the public sector, students may be particularly inclined to turn to for-profit options of provision for post-secondary enrollment.¹⁰

Differences in the organization of “production” at for-profit institutions relative to public and non-profit institutions may lead to circumstances where the former are better-suited to respond to short-run changes in demand. In short, supply is likely to be more elastic at for-profit providers than at public and non-profit four-year institutions.¹¹ The explanation is that most of the “factors of production” in the for-profit context are

¹⁰ As evidence of the severity of crowding in economic hard times, Betts and McFarland (1995) note that during the 1991 recession about 45,000 students in California community colleges withdrew because they were unable to obtain desired courses.

¹¹ Private non-profit institutions, particularly those specializing in residential education, are ill-suited to increase output in response to increased demand or declines in the public sector. To the extent that these institutions are relatively dependent on “quasi-fixed” inputs, costs of expansion will be particularly high in the short-run.

variable (can be changed at short notice). In this sense, few faculty at for-profit institutions have tenured appointments and much of the physical plant is interchangeable with market office space.

Graphically, then, the supply side of the market can also be represented in Figure 3. The supply at for-profit institutions is much more elastic than at public institutions (which may even experience an inward shift in supply if appropriations are cut). As such, for profit institutions may be much better prepared to accommodate increases in demand caused by cyclical conditions in the labor market.

Section III: Predictions and Empirical Analysis

The supply-demand framework sketched in the preceding section suggests a number of testable predictions about the response of enrollment at for-profit institutions, particularly among older students, to changes in local economic conditions. (In this case, local economics conditions are defined in terms of state variables.).¹²

- Short term shocks to employment and earnings (measured by changes in the unemployment rate) will yield increases in the demand for post-secondary enrollment. The observed changes in enrollment will be larger among for-profit providers than among non-profit and public providers.¹³
- Disruptions in the funding available to public higher education in a state (either decreased appropriations or increased tuition) will push more

¹² The use of states as the unit of analysis is justified by the state as being a major funding and regulatory unit in higher education. This framework will be problematic if there are significant differences within states in the *changes* in local economic conditions (Albany vs New York City).

¹³ One explanation, mentioned earlier in the text is the greater elasticity of supply in the for-profit sector. An alternative explanation is that for-profit institutions are likely to specialize in the provision of training such as computer skills that is well-suited to workers facing temporary disruptions in employment.

students to choose for-profit options as the relative difference in prices narrows.

Data to test these hypotheses in full are quite limited, as the common data series on for-profit enrollment available through the HEGIS-IPEDS surveys are plainly subject to considerable response variability, which appears to be particularly aggravated among for-profit providers. As an alternative, this research employs data on the distribution of Pell grant receipt by state and type of institution from 1985 to 2000 available from annual program reports as the primary outcome measure.

The analysis relies on within-state differences over time to identify the effects of local economic conditions and funding for higher education on Pell grant receipt. The idea, then, is to abstract from fixed differences across states that may be endogenously related to the structure of higher education.¹⁴ The key results are presented in Table 5, with the top row showing the coefficient on the state unemployment rate (in logs). The way to interpret these estimated parameters is that a 10% increase within a state in the unemployment rate leads to an increase in Pell grant recipients attending for-profit institutions in the state of 2.8-3.5%. The magnitude of the enrollment response to changes in the unemployment at other institutions -- publics and non-profits -- is also positive, but somewhat smaller in magnitude (2-2.5%).¹⁵ Moving down the table shows the estimated effects of other covariates such as in state tuition and public appropriations which are also likely to vary cyclically. One finds that increases in state tuition lead to significant increases in the enrollment of Pell recipients at for-profit institutions,

¹⁴ More formally, I estimate a fixed-effects specification with separate dummy variables for each state and year of observation.

¹⁵ Note that standard errors are sufficiently large that the null is not rejected in a test of the difference in these estimates, so some caution in interpretation is in order.

suggesting that for some students for-profit institutions are substitutes for public institutions. Similarly, increases in state appropriations are accompanied by decreases in the number of Pell grant recipients at for-profit institutions.

Beyond examination of changes in enrollment, a further test of the hypothesis that for-profit institutions are particularly well-suited to respond to the post-secondary education needs of a group of workers facing transitory shocks is seen in stock prices. While there are surely other factors driving the growth of for profit colleges, stock prices do have a significant and positive link with unemployment rates.

III. Conclusion

The focus of this paper is on the relative adjustments of enrollment across sectors to relatively short-run changes in state economic conditions. How the full range of post-secondary institutions – publics, non-profit private and for-profit private – adjust to changes in the demand for post-secondary education is a significant margin of interaction between the higher education market and the labor market. The extent to which higher education institutions, combined with public policy initiatives, provide an efficient mechanism for individuals beyond the traditional college age to gain new skills, particularly in recessionary periods, will have substantial implications for long run economic growth and the reduction of inequality in the distribution of earnings.

The findings of this paper provide at least rudimentary evidence that enrollment in for-profit higher education is quite “adjustable” to the economic changes in local labor markets. In particular, the results in this paper show a substantial increase in Pell grant recipients at for-profit institutions with increases in the local unemployment rate. To be

sure, for-profit post-secondary institutions are small in scale relative to the entire higher education market, so large percentage adjustments still do not imply that these institutions are the primary providers of post-secondary education to adults.

Beyond the caveats already mentioned, other words of caution are in order before placing too much policy weight on this result. The discussion in this paper suggests that the for-profit institutions may be particularly well-suited to providing post-secondary options for workers displaced in tough labor market conditions. Yet, evidence of enrollment response is not sufficient for policy evaluation. Researchers have been slow to provide much evidence on how enrollment in a program (or Pell grant receipt) translates to collegiate attainment or long run increases in earnings.

References

- Bernhardt, A., Martina Morris; Mark S. Handcock; Marc A. Scott. 1999. "Trends in Job Instability and Wages for Young Adult Men." *Journal of Labor Economics*, Vol. 17, No. 4, Part 2: Changes in Job Stability and Job Security. (Oct., 1999), pp. S65-S90
- Betts, J. and L. McFarland. 1995. "Safe Port in a Storm: The Impact of Labor Market Conditions on Community College Enrollments." *Journal of Human Resources* 30 (4): 741-765.
- Bound, J. and S. Turner. 2003. "Cohort Crowding: Why does cohort size affect college attainment?" *mimeo*.
- Currie, J. and Enrico Moretti. 2002. Mother's Education and the Intergenerational Transmission of Human Capital: Evidence from College Openings and Longitudinal Data NBER Working Paper No. w9360.
- Freeman, Richard. 1974. "Occupational Training in Proprietary Schools and Technical Institutes." *The Review of Economics and Statistics*, Volume 56, No. 3.
- Gladieux, L. 1995. Federal Student Aid Policy: A History and an Assessment." <http://www.ed.gov/offices/OPE/PPI/FinPostSecEd/gladieux.html>
- Hansmann, H. 1980. "The Role of the Nonprofit Enterprise." *Yale Law Journal* 89: 835-901.
- Kane, T. 1995. "Rising Public College Tuition and College Entry: How Well Do Public Subsidies Promote Access to College." NBER Working Paper No.w5164
- Kane, T. 1994. "College Entry by Blacks since 1970: The Role of College Costs, Family Background, and the Returns to Education," *Journal of Political Economy* 102, No. 5.
- Manski, C. and D. Wise. 1983. *College Choice in America*. Cambridge: Harvard University Press.
- Munday, L. 1976. College Access for Nontraditional Students. *Journal of Higher Education*. Vol. 47, No. 6. (Nov. - Dec., 1976), pp. 681-699.
- National Center for Education Statistics. 1999. Fall Enrollment in Postsecondary Institutions, 1997 U.S. Department of Education Office of Educational Research and Improvement NCES 99-162.
- National Center for Public Policy and Higher Education. 2002. *Losing Ground: A National Status Report on the Affordability of American Higher Education*.

Rosenbaum, J. 2001. *Beyond College for All: Career Paths for the Forgotten Half*. New York: Russell Sage.

Seftor, N. and S. Turner. 2002. Federal Student Aid and Adult College Enrollment. *Journal of Human Resources* 37 (2): 336-352.

Simmons, S. and S. Turner. 2002. "Taking Classes and Taking Care of the Kids: Do Childcare Benefits Increase Collegiate Attainment." University of Virginia, mimeo.

Turner, S. E. 1999. "The New Market for Higher Education: For-Profit Colleges and the Transformation from Mature to Emerging Industry," mimeo.

Table 1: Enrollment by age, 1950-2000

Year	18 to 19	20 to 24	25 to 29	30 to 34
1950	0.294	0.090	0.030	0.009
1960	0.384	0.131	0.049	0.024
1965	0.463	0.190	0.061	0.032
1966	0.472	0.199	0.065	0.027
1967	0.476	0.220	0.066	0.040
1968	0.504	0.214	0.070	0.039
1969	0.502	0.230	0.079	0.048
1970	0.477	0.215	0.075	0.042
1971	0.492	0.219	0.080	0.049
1972	0.463	0.216	0.086	0.046
1973	0.429	0.208	0.085	0.045
1974	0.431	0.214	0.096	0.057
1975	0.469	0.224	0.101	0.066
1976	0.462	0.233	0.100	0.060
1977	0.462	0.229	0.108	0.069
1978	0.454	0.218	0.094	0.064
1979	0.450	0.217	0.096	0.064
1980	0.464	0.223	0.093	0.064
1981	0.490	0.225	0.090	0.069
1982	0.478	0.235	0.096	0.063
1983	0.504	0.227	0.096	0.064
1984	0.501	0.237	0.091	0.063
1985	0.516	0.240	0.092	0.061
1986	0.546	0.236	0.088	0.060
1987	0.556	0.255	0.090	0.058
1988	0.556	0.261	0.083	0.059
1989	0.560	0.270	0.093	0.057
1990	0.572	0.286	0.097	0.058
1991	0.596	0.302	0.102	0.062
1992	0.614	0.316	0.098	0.061
1993	0.616	0.308	0.102	0.059
1994	0.602	0.320	0.108	0.067
1995	0.594	0.315	0.116	0.059
1996	0.615	0.325	0.119	0.061
1997	0.615	0.343	0.118	0.057
1998	0.622	0.330	0.119	0.066
1999	0.606	0.328	0.111	0.062
2000	0.612	0.325	0.114	0.067

Source: Table 6, Digest of Education Statistics as collected from Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1970; Current Population Reports, Series P-20, various years; and Current Population Survey.

Table 2: Employment status among college students by age, October 2000

	Full-Time Students			Part-Time Students		
	Employed	Employed	Not	Employed	Employed	Not
	FT	PT	Employed	FT	PT	Employed
18 to 19 years old	0.082	0.386	0.532	0.419	0.369	0.209
20 to 21 years old	0.107	0.446	0.447	0.521	0.357	0.121
22 to 24 years old	0.178	0.398	0.423	0.646	0.210	0.143
25 to 29 years old	0.322	0.286	0.393	0.771	0.119	0.110
30 to 34 years old	0.328	0.267	0.403	0.797	0.082	0.121
35 years and over	0.319	0.229	0.453	0.758	0.094	0.148

Source: October CPS, <http://www.census.gov/population/socdemo/school/pp1-148/tab11.xls>

Table 3: Enrollment at degree granting institutions by state and type of college, 1997

	Total	Public 4 Year	Public 2-Year	Private Non- Profit	Private For- Profit	Share Enr At For- Profit
Alabama	282,502	122,105	135,586	22,265	2,546	0.9%
Arizona	292,730	103,434	157,398	10,398	21,500	7.3%
Arkansas	112,342	61,858	38,997	11,283	204	0.2%
California	1,959,963	516,537	1,149,704	231,889	61,833	3.2%
Colorado	256,341	139,347	78,224	23,139	15,631	6.1%
Connecticut	153,958	55,545	40,326	57,185	902	0.6%
Delaware	44,890	24,486	12,009	8,395	0	0.0%
District	73,534	6,024		64,654	2,856	3.9%
Florida	658,259	214,011	320,710	99,467	24,071	3.7%
Georgia	306,238	163,514	71,497	63,392	7,835	2.6%
Idaho	61,641	41,327	8,906	10,903	505	0.8%
Illinois	726,199	192,022	344,556	173,577	16,044	2.2%
Indiana	295,517	184,433	40,089	63,805	7,190	2.4%
Iowa	180,967	67,296	60,777	51,304	1,590	0.9%
Kansas	178,652	87,331	73,732	16,878	711	0.4%
Kentucky	178,924	104,796	41,499	25,921	6,708	3.7%
Louisiana	219,196	148,215	40,964	27,732	2,285	1.0%
Maine	56,368	30,362	7,648	16,702	1,656	2.9%
Maryland	266,111	118,045	104,054	43,548	464	0.2%
Massachusetts	412,620	102,136	72,558	236,590	1,336	0.3%
Michigan	549,742	263,169	195,392	89,084	2,097	0.4%
Minnesota	269,887	110,885	92,203	58,435	8,364	3.1%
Mississippi	130,561	62,020	56,827	11,600	114	0.1%
Missouri	302,896	116,621	73,987	104,447	7,841	2.6%
Montana	44,141	32,187	6,515	5,224	215	0.5%
Nebraska	111,542	54,865	34,549	20,573	1,555	1.4%
Nevada	76,417	31,691	41,618	616	2,492	3.3%
New Hampshire	63,811	25,987	9,272	25,006	3,546	5.6%
New Jersey	325,754	138,777	122,588	58,677	5,712	1.8%
New Mexico	108,560	49,034	51,674	3,891	3,961	3.6%
New York	1,029,527	331,420	241,502	428,235	28,370	2.8%
North Carolina	373,717	159,027	143,006	71,578	106	0.0%
North Dakota	38,937	26,560	8,477	3,885	15	0.0%
Ohio	537,730	261,509	143,746	119,356	13,119	2.4%
Oklahoma	177,157	93,670	60,902	21,431	1,154	0.7%
Oregon	169,852	65,605	78,737	24,070	1,440	0.8%
Pennsylvania	588,185	233,759	101,142	229,172	24,112	4.1%
Rhode Island	72,078	22,031	15,220	34,827	0	0.0%
South Carolina	176,278	86,446	62,248	26,460	1,124	0.6%
South Dakota	39,042	27,927	4,936	5,177	1,002	2.6%
Tennessee	249,805	116,479	77,037	51,494	4,795	1.9%
Texas	969,283	413,324	432,362	110,425	13,172	1.4%
Utah	157,891	83,582	35,037	35,111	4,161	2.6%
Vermont	36,482	16,047	4,493	15,353	589	1.6%
Virginia	364,904	171,182	130,412	49,551	13,759	3.8%
Washington	315,281	89,356	185,349	36,531	4,045	1.3%
West Virginia	87,965	69,414	6,664	10,335	1,552	1.8%
Wisconsin	298,248	142,331	101,527	52,545	1,845	0.6%
Wyoming	30,280	11,094	18,381	0	805	2.7%

Table 4: Effects of the local unemployment rate on state appropriations and tuition, 1980-1999

Dependent Variable	Coefficient on:	
	Unemployment Rate	Ln Unemployment Rate
Ln State Appropriations	-0.015 (0.007)	-0.108 (0.048)
Ln Public Tuition	0.018 (0.008)	0.127 (0.052)

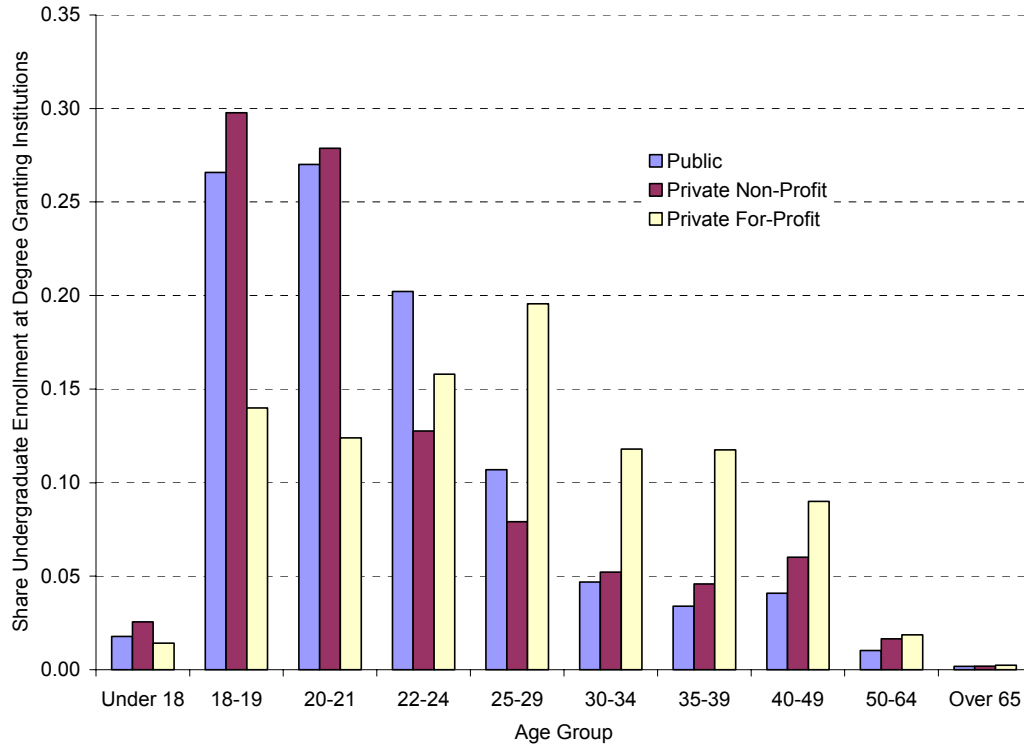
Notes: All regressions include fixed effects for states and years. DC, AK, HI are excluded. Standard errors are corrected for state clustering.

Table 5: Effects of local economic shocks on Pell recipients attending for-profit postsecondary institutions

Dependent Variable: Ln Pell Recipients at For-Profit Colleges				
	(1)	(2)	(3)	(4)
Ln Unemployment Rate	0.349 (0.139)	0.289 (0.145)	0.316 (0.140)	0.281 (0.145)
Ln Public Tuition		0.513 (0.170)		0.391 (0.163)
Ln State Appropriations			-0.514 (0.212)	-0.342 (0.211)
State Effects	Y	Y	Y	Y
Year Effects	Y	Y	Y	Y

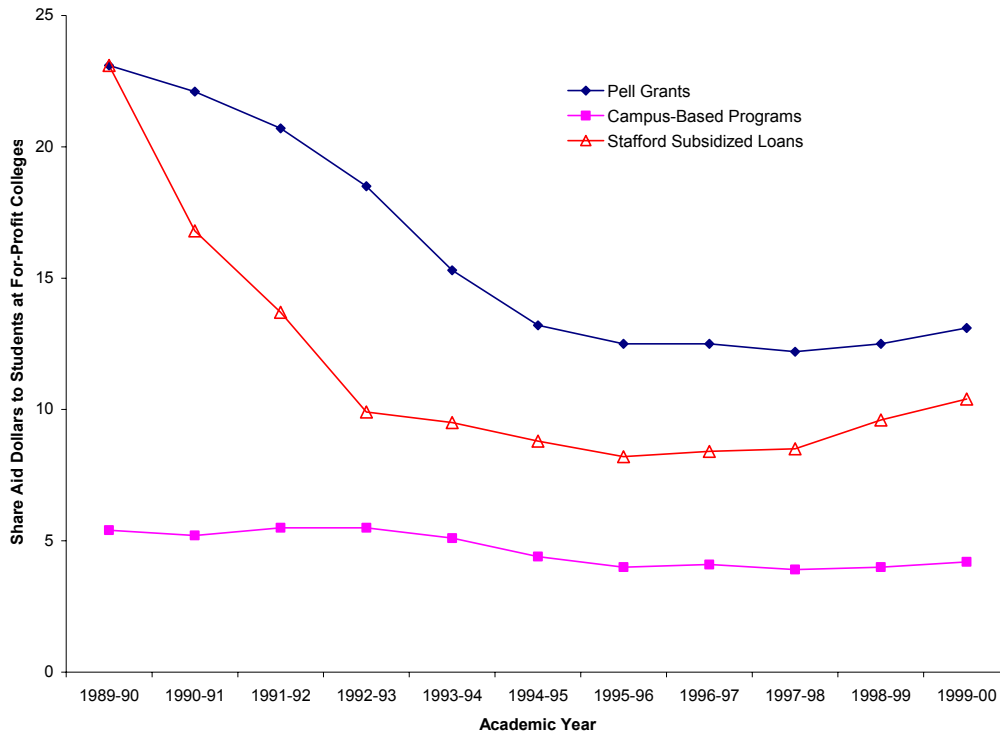
Source: Data on Pell grant recipients are from annual Pell/Title IV reports. Data include observations from academic years 1985-86 to 1999-2000.

Figure 1: Distribution of undergraduate enrollment at degree-granting institutions by age, 1997



Source: National Center for Education Statistics (1999).

Figure 2: Federal financial aid to for profit colleges



Source: Trends in Student Aid (2001, Table 5)

Figure 3: Higher Education Market and Changes in Demand

