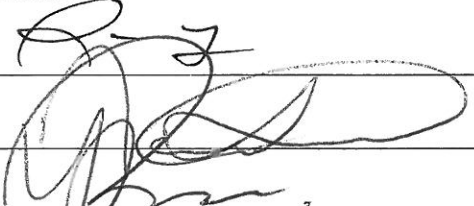


DISSOLVING THE IRON TRIANGLE: INCREASING ACCESS AND QUALITY AT
REDUCED COST IN PUBLIC HIGHER EDUCATION

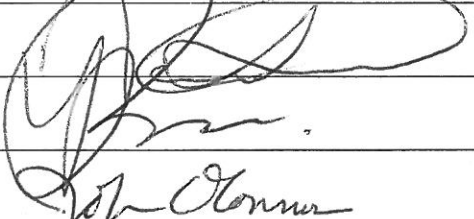
by

Guilbert Lee Brown
A Thesis
Submitted to the
Graduate Faculty
of
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in Partial Fulfillment of
The Requirements for the Degree
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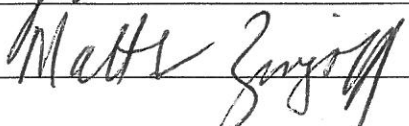
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Dissolving the Iron Triangle: Increasing Access and Quality at Reduced Cost in Public
Higher Education

A thesis submitted in partial fulfillment of the requirements for the degree of Master of
Arts at George Mason University

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Spring Semester 2012
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Dedication

To every student who might benefit from public higher education and most especially
Carrie, my inspiration and joy.

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Abstract

DISSOLVING THE IRON TRIANGLE: INCREASING ACCESS AND QUALITY AT REDUCED COST IN PUBLIC HIGHER EDUCATION

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George Mason University, 2012

Thesis Director: Dr. Jaime Lester

Society derives public benefits— public good – from public colleges and universities in the forms of a more highly educated populace, employment and economic growth, cultural and other activities. At the same time individuals and corporations derive benefits from public higher education institutions yielding private gains including higher salaries, improved manufacturing techniques and new commercial products. Funding for the instructional activities of public colleges and universities reflect these dual public-private benefits with funding split between public appropriations and student fees. In recent years the proportional burden of bearing the costs of public higher education has shifted, in some cases dramatically, toward diminished public financing and increased private support. At the same time societal demographic changes in the United States suggest the need for more, not less, access to publicly subsidized higher education institutions as higher proportions of entering classes have diminished ability to pay. In the

public policy discourse these factors are encapsulated in the metaphor of an “iron triangle” of access, cost and quality. This thesis considers the extent to which recent changes in the funding sources of public higher education institutions have impacted the ability of institutions to provide citizens with affordable access to high quality educational programs, focusing in particular on the recent experiences of public colleges and universities in the Commonwealth of Virginia. Discrete analyses of each corner of the so-called “iron triangle” of the public mission to instruction – summarized as affordable access to quality instruction – reveal significant challenges to public colleges and universities based on their historical and aspiring missions. Current data and trends support public policy calls that higher education leaders move beyond the iron triangle paradigm as they seek to simultaneously increase access and quality while reducing costs.

The Iron Triangle: Access, Cost and Quality in Higher Education

Nearly three decades ago a mentor who had trained as both a computer scientist and business manager passed on “the project triangle” then in vogue among information technology (IT) managers for discussing IT projects with their clients (see Figure 1). Developed by project manager Martin Barnes in 1969 (PMWorldToday, 2012) in this model the recipient or beneficiary of the project outcomes is challenged to “pick any two” from the options of good, fast or cheap. The assumption of the project triangle is that changes to the three prospective virtues are interdependent. A good and fast project is not cheap; good and cheap is not fast; and fast and cheap is not good. While any

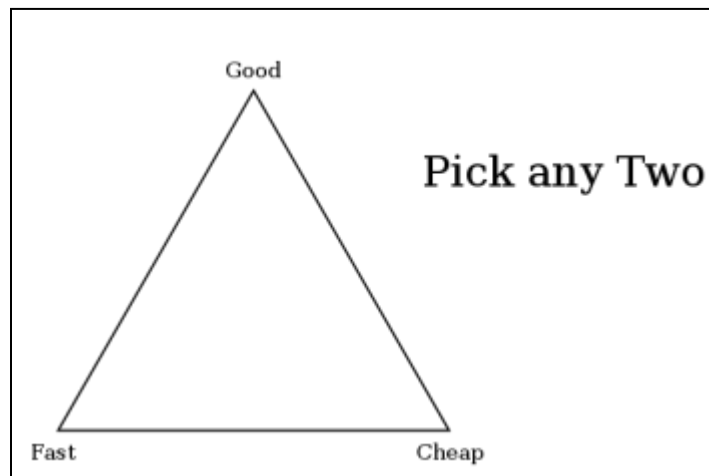


Figure 1. The Project Triangle (Piazzalunga, 2007)

of the three possible combinations of two variables may be possible (“Pick any Two”), getting all three is not. The mentor’s message, to be conveyed to future clients, was clear: Good and Fast is Not Cheap.

For (paid) labor-intensive project work the three possible outcomes of the project triangle seem to make intuitive sense. From the perspective of the IT project manager, the project triangle establishes an advantageous paradigm around which alternative potential project plans including deadlines, user requirements, labor and equipment resources and funding can be discussed with the project sponsor. The client is put in the position of identifying the single most critical constraint, time (or schedule), cost or quality of results. Fewer resources or shorter timelines may mean less than ideal programming outcomes (results). Good results could be accomplished quickly but only with additional resource investments, i.e., not cheaply.

Arguably the paradigm posited by “the project triangle” is a better sales device than project management paradigm. One analysis of the triple constraint model posits that since time to completion can be lessened with additional money (“time is money”), the model posits only two constraints: cost and content (Baratta, 2006). Baratta argues that the triple constraint ultimately presents a value proposition for which both costs and content are variable based on project approaches: greater efficiency yields greater value. That is, costs to achieve a given outcome are variable depending on the approaches taken to achieving the outcome (ibid.). In a similar fashion Kaplan and Porter (2011) argue that solving the health care cost crisis involves redefining the value equation by altering how health care costs are weighed against patient outcomes. Notwithstanding Baratta’s

critique, the “triple constraint” model continues to circulate in project management circles as defining the paradigm within which project managers practice their craft (Schwalbe, 2009).

Higher education institutions are also highly labor intensive undertakings (Bowen, 1967) and have advanced similar “zero sum” arguments with regard to college access, cost and quality (Immerwahr, et al., 2008). A report from the National Center for Public Policy and Higher Education termed this paradigm, described through a series of conversations with college and university presidents, “The Iron Triangle” (ibid.). Like the project triangle, the iron triangle asserts inherent, fixed linkages between its core components such that each component or triangle point affects the other two. In the case of the iron triangle, gains in any one dimension require changes in another dimension in order to prevent changes in a third dimension. Like its predecessor the project triangle, the iron triangle includes cost as a potential constraining factor in realizing potential benefits in the other two apexes. Decreasing cost can result in a decrease in quality, a decrease in access, or both, and increasing cost can yield increased quality, increased access, or both.

As in the case of the project triangle described above, these relationships make intuitive sense and can be readily explained. Take for example the implication that increasing access without increasing cost will result in a decline in quality. It makes intuitive sense that adding more students (increasing access) without adding faculty or services (increasing cost) will result in diminished attention to each student (decreasing quality). Similarly decreasing cost alone (decreased cost) can result in decreased access

(fewer students at the same cost per student) or decreased quality (the same number of students at a lower cost per student). Or, decreasing access (fewer students) improves quality (more time and effort available per student) or reduces cost (same time and effort available per student at reduced total cost). Given these relationships, increases to cost – more faculty and other resources – can be used to increase quality or access or both.

Higher education institutions engage in numerous and diverse activities including undergraduate, graduate and professional instruction; basic and applied research; health care education and provision (e.g., via teaching hospitals); crop, soil and animal husbandry services for farmers and homeowners; and business development services to name several. The commercial dimensions of many higher education activities, for example intercollegiate athletics and extramural research, are sufficiently significant to overshadow their linkages to mission activities (Slaughter and Rhoades, 2004; Washburn, 2005; Knight Commission, 2010). While the attributes of quality, cost and access can be applied to any of these activities alone or in combination, what is clearly emerging in the public discourse is the use of the iron triangle to prescribe goals for higher education instructional programs: to increase quality and expand access while holding the line on costs (Daniel, et al., 2009; Duncan, 2009; Zimpher, 2012). In other words, public colleges and universities are being asked to identify ways to increase their cost efficiency and program effectiveness such that more students can be educated with the same or diminished resources while maintaining or increasing quality (Wellman, 2010; Haycock, 2011). Similar to the technological evolution of simultaneously smaller, cheaper, faster consumer computing devices, higher education is being asked to do more, and better,

with less. This is a tide that has been coming in for some time and all signs are that this trend will continue for the foreseeable future (College Board, 2008; SHEEO, 2011). How higher education institutions will adapt to these public policy pressures, on a large scale, remains to be seen.

Much of higher education's value throughout the history of the United States is to be found in both the economic and noneconomic societal benefits of an educated populace (Thelin, 2011), yet there are also private gains derived from higher education (Becker, 1964 and 1999; Baum and Payea, 2005). As the societal financial investments that have made broad access to higher education possible gradually erode, and are replaced by expectations of higher individual financial contributions, how institutions of higher education respond to this changing mix in funding sources can impact the extent to which public as opposed to private gains are realized by society.

In the half decade preceding this analysis, the Commonwealth of Virginia has embarked on a fundamental restructuring of its higher education system to allow for greater institutional autonomy while committing to achieve societal goals of increased access for historically underrepresented minority populations and quality improvements as measured by numerous criteria. During the same time period, due largely to economic recession in the general economy, higher education funding in the Commonwealth of Virginia has declined significantly. Virginia's four-year colleges and universities thus provide a framework for evaluating how institutions respond to simultaneous needs to increase access and quality at the same time public subsidies are declining. For this reason the recent experiences of Virginia's public institutions are examined in detail.

That examination finds mixed results in the achievement of Virginia public colleges and universities.

In this thesis I attempt to describe and delineate many of the complexities and interrelationships between factors impacting college cost, access and quality, and the resulting difficulties higher education institutions face in addressing what is a growing public policy demand that access and quality are increased while cost is decreased. By exploring the complex interplay of quality, cost and access, and relationships between these components of the iron triangle, I hope to identify ways higher education institutions might respond to the difficult and precarious economic and public policy situations they face while preserving the integrity of the academic enterprise. In the face of societal pressures to constrain costs, I believe higher education's value equation must reaffirm its traditional public and private contributions to the betterment of individuals and society while incorporating operational efficiencies suggested by its own technological and organizational development advancements. I will argue that there is no one answer to the "riddle of the iron triangle," yet that the standards higher education has established for its own success in administering and managing costs are not up to the same standards as its academic and research enterprises are expected to attain day in and day out. The realization of cost efficiencies will require new ways of thinking about how higher education is delivered and administered, but without adversely impacting its sensitive academic cultural core. The framing for public policy discourse surrounding these issues, and for this inquiry, is the iron triangle.

Context

The iron triangle contains three deeply rooted, foundational values of American higher education. It is a powerful and compelling paradigm for discussing the most critical traditional activities of colleges and universities. Its apexes are simple and clear, and express what have been longstanding goals and features of American higher education institutions: access, cost efficiency, and quality. These relationships will be discussed in detail in chapter two.

There are several phenomena driving calls for increasing access to higher education: the changing demographic in the United States toward more first generation college age youth from lower socioeconomic groups that traditionally have not had high college attendance or completion rates (WICHE, 2008; Bontrager, 2008); the United States' relative decline in the percentage of college educated adults compared to other highly developed economies (Haycock, 2011); and finally shifts in the economy toward less manufacturing and more “knowledge jobs” requiring college degrees (Carnevale, Smith and Strohl, 2010). The combination of these demographic, economic and, in a global economy, competitive factors point toward the increasing importance of broad access to higher education in the future.

In the case of cost there are also multiple factors occurring in the wider societal context creating pressure for higher education institutions to operate more efficiently. For students and families, tuition price inflation in the preceding decades has resulted in higher education prices inflating more than any other major sector of the economy including health care (The College Board, 2008). For state governments facing the

highest rates of unemployment since the Great Depression (BLS, 2012) and resulting tax revenue declines (SHEEO, 2010 and 2011) per-student levels of subsidized support have been declining at the same time as an enormous new influx of financially needy first generation students are graduating from high schools (WICHE, 2008; Postsecondary.org, 2011). Finally, in the general economy, sea changes in the development and use of new technologies are driving the creation and dissolution of entire industries; nowhere has this been more profound in everyday lives than in the areas of information dissemination. Viewed by the general public as largely dealing with information dissemination, many ask whether higher education can even survive in the long term (Drucker,) or ask, at the very least, that higher education realize some cost and price reductions in the same way mass market production technologies and techniques have resulted in an increasing availability of high quality and low cost goods and services.

In most recent public policy discourses about higher education quality the core metrics that are referenced, consistent with the drivers for increased access noted above, are graduation rates (Haycock, 2011; College Board, 2008). While acknowledging the “first time” entering student graduation rates are a problematic measure of success and quality (ibid.), largely because they do not reflect the college-going experiences of most young adults in the United States (College Board, 2008), this metric reflects a combination of several key performance factors that ultimately give rise to student graduation. These include curriculum and program design that students are willing and able to complete; academic and extracurricular support to ensure student success in

completing programs; and adequacy of student preparation to successfully complete college-level work in a timely manner.

The convergence of these societal forces, expressed through the current public policy environment, is challenging public institutions of higher education to break through the iron triangle and provide affordable access to quality educational programs with reduced subsidies and without merely passing on price increases in the form of higher tuition rates to students and their families. At a macro level the iron triangle serves as an organizing principle for these complex issues.

How the Iron Triangle Influences the Public Policy Discourse

“College and university presidents...tend to view cost-quality-access as an ‘iron triangle,’ – critical values locked in a zero-sum relationship.”

- Patrick M. Callan in Immerwahr et al., *The Iron Triangle: College Presidents Talk About Costs, Access, and Quality*, October 2008, p. 33.

“I often hear it said that managing the multiple missions of higher education is akin to being caught in an “iron triangle.” Nearly every college president and every governing board wants to simultaneously improve quality, increase access, and yet constrain costs. To college executives, these three sides of the iron triangle--quality, access, and cost--seem like mutually conflicting choices: Elevating quality raises costs; increasing access can dilute quality; and reducing costs impairs both quality and access.”

- *Moving Beyond the Iron Triangle*, Arne Duncan, U.S. Secretary of Education, Trusteeship (Association of Governing Boards of Universities and Colleges), September/October 2009, p. 9.

“The public does not believe that colleges need to choose among maintaining quality, expanding access, and holding down costs.”

- John Immerwahr and Jean Johnson, *Squeeze Play: How Parents and the Public Look at Higher Education Today*, National Center for Public Policy and Higher Education, 2007, p. 24.

The triple constraint model, or “project triangle” discussed above, made its first appearance in 1969 (PMWorldToday, 2012) and over the next four decades gathered a combination of adherents and critics to its implied value propositions. Within a year of applying a similar framework to the issues of college quality, access and cost, the iron triangle has become a compelling paradigm for higher education public policy discussions with public institutions at the center of the public discourse.

Issues of college access, cost and quality are complex and often counter-intuitive. Like the project triangle, the iron triangle can have a distilling effect on complex phenomena that encourage, if not force, straight talk about what college costs (Harvey, 1998) and what is delivered in exchange for this cost (Duncan, 2009). For example, the surrogate for an abundance of measures of program quality (including equating high costs with quality) becomes college retention and graduation rates. The focus on costs becomes a focus on cost containment and identifying efficiencies. Rejection of the iron triangle – the idea that its constraints are not real – has the effect of shaping public discourse in the direction of predetermined policy outcomes. Few if any are arguing for higher costs, or lower quality, or decreased access to higher education. This chapter explores some of the complexities surrounding access, cost and quality, and how the introduction of the iron

triangle into the domain of public discourse has focused attention on specific aspects of those complexities.

Linkages between broad access and costs of attendance can be found in the history of higher education in the United States beginning with Harvard's 1650 charter providing exemption from taxes in order to support "the education of the English and Indian youth of this country, in knowledge and godliness" (Bontrager 2008, p.49 footnote 13). As Thelin (2011) describes, beginning with that original Harvard charter, money for higher education has been a matter of contention and scarcity in the ongoing public-private partnerships characterizing American higher education (page 13).

Implied standards of quality and the relationship between accessible education, democratic institutions and the overall quality of life are reflected in the 1787 Northwest Ordinance declaration that "[r]eligion, morality, and knowledge, being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." (ibid.) Consistent with the historical evolution of colleges and universities in the United States, the appropriation of public monies is frequently tied to specific expectations of institutions. Virginia's financial "rescue" of the College of William & Mary in the 1880's was largely effected to provide for the education of teachers to staff Virginia's newly established system of public education (Thelin, 2011).

Over the decades and centuries that American colleges and universities have grown and evolved, access to their programs and services by increasing numbers and segments of the population has been a persistent and consistent theme of their evolution (Thelin, 2011). It is ultimately the commitment to affordable access that differentiates

public from private institutions of higher education (Bontrager 2008). To a prospective student, having access means the degree program(s) the student is academically qualified to pursue is available to that student without consideration of cost to the student. When courses or programs are overfull such that a student cannot register for a class, access is denied. The broadest form of access to postsecondary education in the United States is in its network of community colleges. The missions of community colleges have traditionally emphasized “open door” admissions, i.e., providing programs that are open to individuals of all levels of intellectual capability including remedial or “college preparation” courses, all provided at minimal cost to students (Thelin, 2011). A student denied access to a program based on qualifications may enroll in courses designed to bolster the student’s abilities. In this fashion community colleges are the widest points of affordable access to higher education. These institutions are being impacted by state budgetary challenges in much the same way as four-year public colleges and universities (Katsinas, D’Amico and Friedel, 2011).

The quotation from Squeeze Play (above) was one of ten findings in a public opinion survey (Immerwahr and Johnson, 2007); it was in a subsequent study by the same primary author (Immerwahr et al., 2008) that the phrase “the iron triangle” was first applied to issues of access, cost and quality in higher education. Other findings identified in the 2007 study that have not received similar public policy attention suggest that higher education has been successful in providing access; for example the study found that “parents are worried about paying for college, but most think they will find a way” (Immerwahr and Johnson, 2007, p. 18) suggesting that combinations of public funding

for grants and loans combined with institutional discounts and other forms of financial aid have made paying for college achievable. This perspective on access has been overshadowed by an emerging policy expectation is that public institutions significantly increase the numbers of students they serve; for example, a 2008 Report of the Commission on Access, Admissions and Success in Higher Education calls for increasing college graduates to 55 percent of “young Americans” by 2025 (College Board, 2008, p. 5). Concurrent with this ambitious goal were calls from social progressives who point to the need for public institutions to effectively serve the growing demographic of first-generation college students of Hispanic heritage without the means or inclinations to borrow heavily to pay for higher education (Wellman, 2008). While college presidents have made the case that increasing enrollments and decreasing state appropriations drive tuition costs higher (Immerwahr et al., 2008) social conservatives who believe higher education can reduce expenditures made outside the classroom and thus reduce costs without impacting instructional program quality (Committee on Education and the Workforce, 2003) have jumped on the bandwagon to increase access while reducing costs (ACTA, 2012). Higher education critics from both within and outside the academy point to technology advances as providing means to make instruction more efficient (Garrison and Kanuka, 2004; McKinsey & Company, 2010), presumed lax teaching workloads for faculty (Vedder, 2011) and bloated administrations (Bergmann, 1991) as ripe grounds within which to find cost and operational efficiencies.

Cost, Quality and Access

As a paradigm for negotiating public funding support for higher education, and for describing the covalent pressures and tradeoffs facing public higher education institutions charged with providing affordable access to quality instructional programs, the iron triangle is a useful paradigm. In shaping the public discourse, the iron triangle can serve to define specific expectations of institutions in the areas of quality, cost and access.

While the iron triangle is not aimed exclusively at public institutions of higher education, it is those institutions that historically have missions to provide affordable access to quality degree programs, among other mission requirements, and it is also public institutions that are most vulnerable to changing public policy sentiments impacting direct appropriations for higher education. For critics both within and outside of higher education the iron triangle has become a rhetorical device for talking about what those critics believe must be changed in public colleges and universities. Higher education presidents point out that efficiencies are realized and applied every day and it has been on the basis of such efficiencies that higher education has been able to extend its reach to millions of additional students (Immerwahr et al., 2008) in the context of unprecedented gains in the stores of information and human knowledge (Lyman and Varian, 2003).

Another finding of the Squeeze Play study was that “rising costs cloud the picture” with “higher education costs...growing as fast as or faster than health care costs.” (Immerwahr and Johnson, 2007, p. 12) The full study contains other interesting findings, for example that the most important gain from attending college is “a sense of maturity and ability to manage on (one’s) own” (68%) followed by “the skills they need

to get a job when they graduate (60%) closely followed by “an ability to get along with people different than themselves (59%). (ibid., p.11) Like the finding concerning access – that most families found higher education within reach – these findings reflect areas of student engagement where public institutions of higher education have devoted significant programming and financial resources and arguably have done outstanding work in fostering self-reliance and civility in socioeconomically, ethnically, racially and religiously diverse campus communities (Hurtado). Yet it is finding nine – the sentiment that colleges do not have to choose between access, quality and cost – that is driving the current public policy debate over the allocation of billions of dollars in Federal and state appropriations supporting public higher education and millions of students.

The terminology surrounding the concept of higher education costs is sufficiently ambiguous and complex that a 1998 national commission on college costs devoted much of its report to defining and discussing the alternative perspectives and definitions surrounding what is meant by college price and cost (Harvey, 1998); defining a taxonomy of higher education cost and price terms and relationships, to guide subsequent dialogue and research concerning college costs, was the most lasting contribution of the Commission’s work (Bontrager, 2008). Cost has a different meaning depending on whether one is a student or family paying for college, a state government appropriating funds to support instruction or an institution attempting to provide instructional resources (Harvey, 1998).

From the perspectives of families and legislators – those who perceive that they are largely paying for public higher education – costs have dramatically increased at the

same time prices for goods and services in the general economy have remained stable, declined or been accompanied by significant product quality and capability gains (Schumpeter, 2010). Yet from the perspective of college administrators, at the same time funding available on a per student basis has declined (SHEEO, 2010). Enrollment increases occurring at faster rates than increases in state support has resulted in a shift in the burden for paying for higher education toward students and families (SHEEO, 2011). So at the same time public institutions are educating record numbers of students (College Board) and doing so more efficiently (SHEEO, 2012) what the public sees are price increases suggesting enormous increases in spending (Immerwahr and Johnson, 2007). Chapter five includes a modeling of public higher education revenues and expenses over time to illustrate how, as reflected in Winston's (1999) economic model of higher education subsidies, public higher education can be shown to be doing a more efficient job of educating larger numbers of students – providing greater access at decreasing cost – while appearing to external audiences to be more costly and less efficient.

While the work of the 1998 National Commission on the Cost of Higher Education (1999), Baumol (1966), Bowen (1967), Winston (1997) and others (Breneman, 1994; Bontrager, 2008; Wellman, 2009) have contributed to a deep and rich understanding of the dynamics of higher education costs from multiple vantage points, public policy discussions surrounding issues of access, cost and affordability suggest that understanding the problem will not relieve higher education of pressures to realize cost reductions from the perspectives of *all* affected constituencies including students and their families, state governments, and the Federal government (Duncan, 2009). In some

public policy contexts access and quality are emphasized and reduced costs assumed (Haycock, 2011); in others access and cost are emphasized and quality assumed (Wellman, 2010). For public higher education institutions the future roadmap is clear: to reduce costs.

Over the centuries that American colleges and universities have grown and evolved, access to their programs and services by increasing numbers and segments of the population has been a persistent and consistent theme of their evolution (Thelin, 2011). “Quality” in the American system, in contrast to English and European collegiate models, has been predicated on a combination of shared faculty governance and the principles of free inquiry and academic freedom combined with external oversight and governance (*ibid.*). With quality ensured by independent external accrediting bodies, a certain baseline level of quality is presumably present in all accredited higher education programs.

Within the boundaries of accreditation requirements (Schray, undated) and the broad range of diversity of American higher education institutions (Borden and Owens, 2001) there are numerous and diverse measurements for what constitutes “quality” in educational program offerings. In 2001 Borden and Owens identified 27 different “national assessments of institutional quality” (*ibid.*, p. 5). By 2012 this list had expanded to over 250 different assessment instruments, tools, benchmarking systems and services (AIR, 2012). Among the most popular yet controversial approaches to ranking undergraduate colleges and universities is the U.S. News & World Report “best colleges” methodology combining reputation (22.5%), retention rates (20-25%), faculty resources

(20%) including faculty compensation, class size and student-faculty ratio, student selectivity (15%), per student spending (10%), graduation rates (7.5%) and alumni giving rates (5%) (Morse and Flanigan, 2012). Like the project triangle the relationships between access, cost and quality make intuitive sense and are supported by college rankings such as the weight given by U.S. News and World Report to spending per student (more money spent per student = higher quality) and selectivity (less access = higher quality).

Measurements of the quality of undergraduate programs, ill-founded or not, largely drive public perceptions of the economic values of college degrees from different institutions. Public higher education is being asked to reduce its costs at the same time most measurements for U.S. News & World Report's "Best Colleges" assume that higher spending means higher quality (Morse and Flanigan, 2011). U.S. News' measurement of "quality" has the effect of penalizing institutions for enrolling larger numbers of Pell Grant recipients (Postsecondary.org, 2011b). To the extent public institutions are able and willing to operate more efficiently – less expensively – in the future, will the bifurcation of American higher education into elite academies for the few and mass education for the many become the norm?

Anthony Carnevale (2011), director of the Georgetown University Center on Education and the Workforce explains "...spending per student increases with college selectivity, exceeding \$50,000 per student at the most selective colleges, compared with \$15,000 at public four-year colleges... Students at the wealthiest, most selective colleges pay as little as 20 cents for every dollar spent on them, while students at less selective and

community colleges are required (to) pay 78 cents on the dollar spent on their education.” For these students, “graduation from a selective college compounds access to money and power over a lifetime.” (ibid.) James Shulman (2010) similarly describes that “...the scarcest resource an elite college manages is a place in the entering class.” What of those students fortunate enough to obtain a slot? Carnevale (2011) continues: “although selective institutions produce excellence, they are also reproducing inequality. The elite colleges are increasingly white and affluent. The least selective four-year colleges and community colleges are increasingly home to disproportionate concentrations of low-income students as well as African-American and Hispanic youth. And less than 5 percent of students at elite colleges come from the bottom quartile of family income... It is not that the elite colleges don’t work. It is that they work too well as passive agents for the intergenerational reproduction of elites.” With great fanfare the Ivies did their parts by providing no-cost enrollment to families of modest means (Hoover, 2007; Supiano, 2011). Yet enrollment data from America’s most highly ranked institutions show that Pell Grant eligible students have only half the opportunity of others for places in their entering classes (Postsecondary Opportunity, 2011b).

Is the Iron Triangle Redefining Higher Education’s Value Equation?

Defining higher education’s value equation – what is the benefit resulting from investments in it? – would seem on its face to be a simple question. In the case of the project triangle time and money (cheap and fast) can be distilled into a single component of cost. There are no similarly clear conversions between any two of the three apexes of the iron triangle – unless one equates “access” with “quality”. From its inception regard

for the public good has been a core component of American higher education (Thelin, 2011). As expressed by Bowdoin College's president in 1802, "It always ought to be remembered that literary institutions are founded and endowed for the common good and not for the private advantage of those who resort to them for education. . . . [Every] man who has been aided by a public institution to acquire an education and to qualify himself for usefulness, is under peculiar obligations to exert his talents for the public good" (as cited in Thelin, 2011, p. 71). In 1772 John Witherspoon, describing the mission of the institution that would later become Princeton University, explained that those born into wealth have "the greatest need of an early, prudent and well-conducted education" in order that the wealthy might "apply their talents to the service of the public and the good of mankind" (as cited in Thelin, 2011, p. 26). Rather than a means to wealth, higher education was a means to "provide their communities with an effective, responsible elite" (ibid.).

Defining higher education's value equation – what benefits resulting from investments in it? – would seem on its face to be a simple question. In the case of the project triangle time and money (cheap and fast) can be distilled into a single component of cost. While not a clear similarly clear conversion of two apexes of the iron triangle, the equation of "access" with "quality" is not inconsistent with the American experience of higher education. These seemingly different perspectives on college attendance find common expression in the consequences or outcomes of higher education programs – not simply a credential or degree, but in service to an overarching public good that defines the very fabric of society.

The high levels of public funds appropriated to support higher education institutions make the question of who benefits from those investments a significant public policy question (Forest and Altbach, 2007). Do those investments of public funds benefit only individuals who derive private gain – gainful employment or lucrative careers – through their educations? Or are there societal benefits from having colleges and universities that justify the investment of social capital (tax dollars)? There are clearly a broad range of both public and private advantages that accrue from higher education (Baum and Payea, 2005). Some of these are noneconomic and are linked to promulgating the shared values of the community; these include civil discourse and other underpinnings of a democratic society (Young, 1997). Advancing these values and in the process improving the quality of life of the extended communities of which they comprise a part has long been a focus of public institutions’ missions (ibid.; Thelin, 2011).

The very fabric of American society has evolved with higher education institutions impacting the evolving core of other key social institutions to which they have added intrinsic value that could not have been realized without their presence (Thelin, 2011). Ultimately it is the scope and scale of public investment in higher education institutions and their public access mission that most plainly differentiates public from private institutions (Bontrager, 2008; Baum and Payea, 2005; College Board, 2010). Meeting the demands of access constitutes an obligation for public higher education institutions that is consistent with their historical role in American society (Thelin, 2011). Chapter two includes an examination of the public good served by higher

education, and of human capital and economic analyses and critiques of public funding for higher education. Economic treatments of the relative worth of the public and private gains accruing from higher education are considered in the broader context of higher education's quality of life implications for society.

Promoting Access, Quality and Affordability in Virginia

In 2006 Virginia implemented a higher education restructuring plan designed to provide institutions with increased autonomy in exchange for accountability toward meeting specific performance criteria prescribed by the state (SCHEV, 2012a and 2012b). In 2011 the Virginia General Assembly unanimously passed legislation with the goal of producing “100,000 additional undergraduate degrees by 2025” (ACTA, 2012, p.1). As “one of the few states in the nation whose public institutions would not suffer cutbacks” in funding, higher education leaders have a “tremendous responsibility...to improve academic outcomes and cost-effectiveness” (ibid.). How Virginia institutions have responded to past changes in funding and the impact of those responses on institutional mission may indicate the potential future impacts of funding changes on higher education institutions in other states, and how Virginia institutions will be poised to cope with its emerging public funding model that stresses greater productivity – that is to say, increasing both quality and access while maintaining or reducing costs.

The recent experience of Virginia public institutions provides unique insights into how the dynamics of changing demographics, increasing enrollments and diminished state support for higher education may play out in the context of public calls for increased access, affordability and quality. Virginia is home to the oldest public institution of

higher education in the United States and hosts a broad range of four-year public colleges and universities. In addition Virginia is a demographically and socioeconomically diverse state. Public fund appropriations for higher education in Virginia, as in many other states, have declined sharply in the past several years, with the clear message that going forward institutions will be expected to focus on increasing productivity .

For most students, families and legislators, undergraduate instruction is the core mission of institutions of higher education; the vast majority of undergraduate instruction in the United States is provided by public colleges and universities (Bontrager, 2008). Educating undergraduate students is the activity for which most state appropriations for higher education are provided (SHEEO, 2010), and for which price sensitivity among families is greatest (Haycock, 2011). Consequently the examination of Virginia's experience is focused on the undergraduate instructional activities of its four-year public colleges and universities. Data reflecting access, costs and quality in the period preceding and following restructuring are evaluated and compared to the goals set forth under Virginia's higher education restructuring legislation.

Higher Education's Future Agenda: Dissolving the Iron Triangle

Historian John Thelin (2011) describes contemporary American higher education as a "troubled giant" (p. 317) and finds hope for its future in the work of organizations such as the Education Trust, College Board, Lumina Foundation and others that have contributed to the public policy discourse surrounding the iron triangle (ibid., p. 397). Yet as Joab Thomas, the former president of The Pennsylvania State University, is quoted as saying, "When there are not enough biscuits to go around, the table manners tend to

decline” (SRU, 2009, p.6). If higher education is to experience profound organizational changes it will not likely be without touching the deep emotional, financial, political and even religious ties of individuals to their respective institutions of higher education – including faculty, staff, students and alums in addition to taxpayers and legislators. With money and jobs on the line, the table manners may decline. Popular works ranging from attacks on the professionalism and work ethics of faculty such as ProfScam (Sykes, 1988) to studies questioning the value of undergraduate education such as Academically Adrift (Arum and Roksa, 2011) provide ample fodder for higher education’s critics.

In an effort to point toward a constructive direction for institutional responses to the public policy demands suggested by the foregoing analysis of the iron triangle, at the conclusion of this inquiry I consider both calls and prospects for meeting the challenge of increasing access and quality while reducing cost (Haycock, 2011; Wellman, 2010; Zemsky, 2009). I argue answering the riddle of the iron triangle will require via engagement of the academic community and its creative energies, via effective leadership at multiple organizational levels, rather than through some technological marvel or grand change to the business model assumptions of public higher education.

To build this argument I begin by examining higher education’s traditional foundations in serving the public good (chapter two) including consideration of recent arguments against public funding of higher education as a means of promoting economic development. This particular economic consideration is important because it drives to the question of *why* public funds are invested in public higher education. Is it only to promote general economic growth, or are there other reasons for those investments? In chapter

three I consider the economics of higher education funding, focusing on the mix of public and private funding for instruction, and how the financial dynamics of public higher education impact diverse constituencies particularly during periods of enrollment growth and reductions to external subsidies. The nuances of higher education funding are important because constructs such as the iron triangle can oversimplify these dynamics in misleading ways. For example as higher education enrollments increase and external subsidies remain static or decrease, there are significant impacts on tuition rates just from these two occurrences and independent of inflated higher education expenditures. In chapter four I consider the efficacy of the Commonwealth of Virginia's attempts of the past half decade to achieve increased access while maintaining quality and controlling costs. These goals correspond with the core objectives of Virginia's higher education restructuring act of 2006. What these data and comparisons to national trends show is that even with intentional and deliberate public policy and institution-level efforts to achieve these goals, significant segments of growing student markets – specifically those from traditionally underrepresented minority and low income groups – continue to be disproportionately excluded from traditional four-year public colleges and universities. Finally in chapter five I consider representative calls to action from public policy advocates as well as some specific strategies for increasing both access and quality while reducing costs. I argue that to achieve this outcome while preserving what is most valuable about higher education – its historical contributions to both public and private goods – will require leadership grounded in and directed toward furthering the values of the academy.

Access and Quality: Education for the Public Good

Economic development has always been seen as part of the public good derived from higher education. By creating “human capital” to fuel economic growth and by providing the research engine to drive innovation and economic revitalization, higher education contributed to the economic, social, and civic vitality of the states. The financial resources that states poured into higher education reflected an investment in this public good.

Yet today we hear concerns from many corners that the states and their public institutions of higher education are losing their way – that the ability of higher education to serve the public good is being eroded. State policymakers (governors and legislatures) worry that their public institutions are forsaking public purposes for private interests. Meanwhile, leaders of public higher education institutions (governing boards, institutional and system CEOs, faculty, and others) fear that state policymakers and institutional leaders contribute to these very different views of the situation. Their disparate perspectives create a dissonance that makes it difficult to define what the public good is and who is responsible for protecting it.

- David Longanecker, *State Governance and the Public Good* (cited in Kezar, et al. 2005, pp. 57-58)

This chapter considers American public higher education's history of serving the public good, and finds the foundation of that service in its provision of access to a high quality education. From its inception higher education in the United States has been paid for through a combination of private funds, usually including tuition, and some form of public support whether it be in the form of tax exemption or direct appropriations of tax dollars (Thelin, 2011). The public policy questions prompted by the iron triangle include who pays ("cost") and who benefits from access to higher education as well as the quality of what is received in exchange for payment. An examination of the benefits of higher education show there are benefits to society as a whole as well as to individuals; that is, both public and private gains or benefits accrue from higher education (Bontrager, 2008). Furthermore these benefits are both economic and noneconomic; to the extent the economic benefits are quantifiable, financial return on investment analyses predicated on generalized assumptions may be made. This chapter includes an examination of some of the most prevalent interpretations of the economic benefits of higher education, namely Becker's (1964) human capital theory, and arguments against public investment in public higher education for purely economic development purposes. This chapter concludes that the core benefits of higher education, while including economic components, are not reducible to financial components and include quality of life and other noneconomic elements that contribute to the formation of a civic realm within which commercial, political, social and other economic activities occur. Higher education is an organic

component of that broader societal sphere, and in the American history has evolved together with social institutions and culture such that extracting higher education as a discrete activity from these broader influencing factors yields an incomplete picture of higher education's full influence and impact on society and individuals.

Higher Education and the Public Good

Public colleges and universities as agents of significant economic development have a long history in the United States beginning with the Morrill Act that established land-grant institutions beginning in the 1860's. A significant component of that economic contribution, as envisioned in the Morrill Acts of 1862 and 1890 and reflected in numerous legislative initiatives since, is the training of a highly skilled workforce (Thelin, 2011). While the education of college graduates may arguably constitute the most significant long-term economic and societal impact that colleges and universities have on their respective communities, the reach of institutions of higher education extends far beyond the physical boundaries of the campus itself. The land grant institutions created by the Morrill Acts were designed to provide specific economic support directed toward their local communities in the forms of agricultural outreach and testing services that exist to this day (ibid.). Universities became active and engaged partners in advancing the public good of the local community while at the same time providing the opportunity for individuals to increase their future prosperity through education.

As suggested by Longanecker, state investments in higher education yielded public benefits in the forms of a an educated citizenry, new knowledge and technologies

and economic prosperity. Broad access to higher education, a hallmark of the land grant university, gradually spread to other public institutions of higher education as well. In the aftermath of World War II the GI Bill led to significant enrollment increases in both public and private institutions, and in the 1960's an emphasis on universal access to higher education stimulated even greater public investments in higher education including both public and private institutions.

For public institutions an economic model of significant state subsidies fueled program and facility growth for over a century (Thelin, 2011). Yet in the last quarter century this business model has shown signs of transformation including reductions to public funds supporting instruction, changes to Federal policies impacting cost reimbursements for research and medical training, the shifting of student aid programs to emphasize loans over grants, and a shifting of the burden for paying for higher education from governmental support to students and their families (College Board, 2008). Public institution enrollments continue to grow despite significant increases in tuition rates. As Longanecker describes, there are concerns that private interests are displacing the public interests historically served by public higher education.

Differentiating between public and private, or economic and noneconomic, benefits of higher education is nevertheless difficult as these benefits are often interrelated and codependent. For example higher incomes (private gain) yield higher income taxes (public benefit). Furthermore, identifying how investments in *public* higher education, specifically, benefit society requires looking both to the general benefits of higher education to society and the uniquely public benefits of public higher education.

How these benefits accrue from and are financed by public higher education institutions bears on the question of whether changes in underlying funding mechanisms may impact their realization. The literature similarly reflects philosophical divides that similarly characterize policy changes in the financing and performance outcome funding strategies of different states.

The Institute for Higher Education Policy (1998, cited in Kezar, et al. 2005, p. 10) summarizes numerous benefits of higher education, differentiating between both “Public” and “Private” as well as “Economic” and “Social” benefits. Public and private benefits can be primarily economic or social, and similarly economic and social benefits can be largely public or private. Figure 2 attempts to describe some of the complex and interrelated improvements to both societal and individual quality of life that result from access to higher education on a wide scale. Who the “beneficiaries” of higher education are – the public, or individuals – enters into the public discourse about who should pay for higher education. If it is primarily individuals who benefit, some contend, individuals primarily should pay for higher education.

	Public	Private
Economic	<ul style="list-style-type: none"> -Increased tax revenues -Greater productivity -Increased consumption -Increased workforce flexibility -Decreased reliance on government financial support 	<ul style="list-style-type: none"> -Higher salaries and benefits -Employment -Higher savings levels -Improved working conditions -Personal / professional mobility
Social	<ul style="list-style-type: none"> -Reduced crime rates -Increased charitable giving / community service -Increased quality of civic life -Social cohesion / appreciation of diversity -Improved ability to adapt to and use technology 	<ul style="list-style-type: none"> -Improved health / life expectancy -Improved quality of life for offspring -Better consumer decision-making -More hobbies, leisure activities

Figure 2. Public and Private Benefits of Higher Education

As Baum and Payea (2005) demonstrate, the lines between public and private benefits are not as clearly delineated as Figure 2 suggests; they cite numerous benefits of higher education with and without economic correlates. Incarceration rates in federal, state and local prisons decrease as educational levels advance; rates are highest among those who did not graduate high school, lower for high school graduates, lower still for those with some college and lowest among those earning a bachelor's or higher degree. The decreased incidence of certain illnesses correlates with educational attainment (Baum and Payea, 2005) and simultaneously constitutes a public and private, economic and social benefit of higher education. Higher salaries resulting from advanced professional training benefit highly educated individuals who in turn pay higher taxes and contribute to overall economic prosperity benefiting society generally (ibid.). Individuals with higher levels of college attainment benefit from more meaningful work experiences and improved interpersonal relationships in comparison to those with less education; more

educated individuals experience lower levels of emotional and physical distress than the uneducated, and experience a higher subjective quality of life (Ross and Willigen, 1997). At the same time these individuals consume fewer public resources through social assistance and similar programs (Kezar, et al. 2005; Baum and Payea, 2005).

There are strong correlations between educational attainment and individual actions that benefit society. Examples from Census Bureau and U.S. Department of Education data include: higher average household income; lower unemployment rates; more vehicle purchases; more health insurance coverage; higher voting and volunteer rates; lower nonmarital birth rates for women; lower cigarette use; higher average grades of elementary and secondary school children; higher literary reading rates; higher consumer spending rates; lower rates of obesity; lower poverty rates; and higher seat belt use (albeit, while driving intoxicated) (Mortenson, 2011). These correlations are consistent and compelling: higher education improves the quality of both individual lives and life in society. And, higher education conveys demonstrable economic benefits to both individual graduates and society as a whole (cf. Baum and Payea, 2005).

Both Young (1997) and Kezar et al. (2005) argue that it is the noneconomic characteristics of higher education that lay at the core of its contribution to the public good. For Young the fundamental values of higher education are noneconomic and also nonmaterial. Young identifies seven core values advanced by higher education (service, truth, freedom, equality, individuation, justice and community) as well as three contemporary challenges to those shared values (capitalism, spirituality and aesthetics). He argues the cited values promote and undergird scholarship and democracy. Quayle

similarly argues that “(o)ur current capitalistic society and our ideals of democracy often run counterintuitively to each other, for the very notion of capitalism means that some individuals will be ‘losers’ and others ‘winners.’ Competition and individualism drive capitalism, not the public good” (cited in Kezar, et al. 2005, p. 298).

Higher education has been part of the American social fabric since Colonial times and indeed governmental institutions in the United States were founded under an assumed ideal of an educated populace (Thelin, 2011). There is a profound sense in which it makes little sense to conceive of an American societal “quality of life” absent institutions of higher education that have played major roles in shaping and ultimately defining the evolution of democratic government. Nevertheless the fact that individuals, and not only society, gain personal benefit from their pursuit of higher education gives rise to the question of how that personal gain or benefit might be measured and the extent to which societal investments in higher education institutions are recouped. The next section considers economic approaches to measuring the benefits of higher education and how these attempt to capture and reflect both public and private economic gains. To the extent such marginal analyses do not fully capture the broader consequences of higher education having served to define the societal context that creates a substantial core value around which marginal gains are measured in the first place – and as will be shown, they do not – attempting to measure relative economic gains is an inherently incomplete picture of *both* public and private benefits accruing from higher education.

Measuring Private Benefit

Over the past half century the prevailing model for evaluating the private economic benefits of higher education has been the human capital model first put forth by Becker in 1964. Applying the taxonomy of economics to human experience, individuals become means of production with inventories of knowledge, skills and abilities that generate quantifiable economic value (Becker, 1993). As is the case with noneconomic benefits of higher education, economic benefits accruing to individuals who form a part of society can yield broader economic benefits to society as a whole; in the field of economics this public-private dual benefit of education was first noted by Adam Smith and finds related themes in human capital theory (Forest and Altbach, 2007). According to human capital theory, through college attendance and graduation individuals add to their portfolios of competencies and in time realize economic benefits resulting from those competencies; a private benefit rate of return on the financial benefits of attending college can be calculated based on increases to income less the combination of opportunity cost (time spent not working while attending college) and out of pocket college expenses (ibid.). As summarized by Becker (1993), “schooling raises earnings and productivity mainly by providing knowledge, skills, and a way of analyzing problems” (p. 19).

In the economy that has emerged in the half century since Becker first introduced the human capital theory the economic value of the cognitive skill set he describes has become increasingly important. During this period the share of total employment in the United States represented by the service sector including government, financial activities, professional and business services, transportation and government has increased to 86.3%

of total employment while goods producing employment (such as manufacturing and construction) has decreased from 33.8% in 1964 to just 13.7% of all jobs in 2011 (BLS 2012).

From a governmental perspective a similar calculation can be made based on increased tax revenues resulting from higher incomes compared to financial investments made in educational programs. Higher levels of entrepreneurial activity tend to occur among more highly educated populations generating second order economic benefits and higher standards of living (*ibid.*). Different assumptions about long term rates of return on financial capital investments, tax rates, educational costs, salary levels and employment opportunities are all factors in quantifying human capital and both the private and public rates of return from investments in education. As summarized by Ehrenberg, “State governments need to understand the role that higher education plays in economic development and in boosting incomes of state residents” (Ehrenberg 2002, p. 275).

Criticism of Public Funding

Economist Richard Vedder (2004) takes issue with the perspective that state investments in higher education yield increases in economic growth. Examining census and government spending data over a twenty-five year time span, Vedder (2004) finds either statistically insignificant or inverse relationships between increasing levels of state spending on higher education and economic growth, suggesting that alternatives to state investments in higher education yield greater economic benefits. Yet at the same time Vedder finds the presence of more college graduates correlates with economic prosperity

within a state but cannot say whether economic prosperity attracts college graduates or if college graduates generate economic prosperity (ibid., p. 684). Vedder attributes these outcomes to state spending for higher education representing investments in a “sector with falling productivity” rather than “the private sector, with rising (and probably higher initial) productivity” (ibid.). Vedder notes that most staffing growth in colleges and universities has not been for faculty but for “people (who) do not contribute much directly to human capital” such as “administrators, secretaries, computer programmers, student activity personnel, affirmative action officers, football coaches, etc.” (ibid., p. 684). The ratio of these employees to students, he notes, rose 20 percent in the last twenty years of the twentieth century (ibid.).

Absent significant reference in the literature are distinctions between public, nonprofit private and for-profit institutions. Those who advance arguments in favor of the noneconomic public good of higher education can point to a robust national history of higher education initiatives designed to expand access to affordable, quality education beginning with the Morrill Act of 1862 through the Post-911 GI Bill. References to the Ivies may be interesting, particularly from the standpoint of the education of national leaders and evolution of higher education systems within the United States, but insofar as raw numbers of students served the vast majority of twenty-first century American college students attend public colleges and universities; in fall 2008 over 70% of all postsecondary students were enrolled in public higher education institutions (NCES, 2010).

As shown in Table 1, in the 2009-10 academic year fully 83.5% of Pell Grant recipients, students least able to pay for college, attended public 4-year and public 2-year institutions (USDOE, 2011). Private 4-year institutions enrolled 15.7% of Pell Grant recipients and private 2-year (for-profit) institutions enrolled only 0.8%. The sheer numbers of students served including those least able to afford college demonstrates public higher education institutions do the “heavy lifting” of postsecondary education in the United States. This is especially true of public 2-year institutions that enroll 41.6% of all undergraduates, 48.6% of whom are Pell Grant recipients.

In the 2009-2010 academic year, public 4-year institutions enrolled 41.1% of all undergraduates with 37.8% of those students receiving Pell Grants. This ratio of Pell Grant recipients to total enrollments is below the overall average for all sectors of 42.8% and also below the private 4-year ratio of 39.6% (approximately 4 in 10 students enrolled). These data suggest that 4-year public institutions with missions to provide access have room for improvement. Chapter 5 examines these outcomes and trends in the case of Virginia’s public institutions.

Table 1. 2009-2010 Postsecondary Undergraduate Enrollments and Pell Grants by Sector (USDOE 2011)

	Total	Public 4-Year	Public 2-Year	Private 4-Year	Private 2-Year
Enrollments	14,099,163	5,794,009	5,863,130	2,383,917	58,107
% of Total	100.0%	41.1%	41.6%	16.9%	0.4%
Pell Grant recipients	6,036,849	2,192,404	2,851,665	945,002	47,778
% of Total enrolled with Pell Grant	42.8%	37.8%	48.6%	39.6%	82.2%
% of all PGs	100.0%	36.3%	47.2%	15.7%	0.8%

Like many critiques of public higher education institutions based on changes to marginal rate increases, Vetter overlooks the big picture where public higher education is concerned. His assessment of state economic investments analyzes the marginal differences between state spending for higher education and economic growth but does not and cannot anticipate either the societal or economic implications of the vast majority of students currently attending college not being served by any postsecondary education institution. Nor does his analysis differentiate between state appropriations for undergraduate instruction as opposed to direct support for research, economic development or other activities unrelated to instruction but comprising part of the public institutional mission. Similarly with regard to staffing levels Vetter ignores that the student to staff ratio is much higher in public degree-granting institutions (5.7:1) than in private nonprofit institutions (3.4:1) (USDOE, 2011). In every employee category including faculty, there are fewer employees per student in public institutions than in

private nonprofits; in the case of administrative staff the difference is a whopping one staff member per 124.5 students in publics compared to one per 37.0 students in privates (ibid.). Such levels of relative efficiency are worthy of mention when talking about the efficiency of public investments.

Summary

There is not a consensus in American society concerning the value of public higher education or even how to measure or express its value. Historically higher education has been regarded as advancing the social fabric that is both expressed and nurtured by our public institutions. Where the economic and noneconomic perspectives on the value of higher education converge is in the full realization of human potential that is an underlying theme of formal education (Dewey, 1989). Such educational development yields economic gains to the individual and quality of life gains to society. Particularly with regard to first generation students who otherwise would not have the financial wherewithal to attend college, public institutions are critical to realizing both.

The opportunity to attend college as a means of developing one's fullest potential has approached, in our democratic society, the status of an individual right. Yet it remains a right with a price tag. If the private benefits of higher education ultimately become available only to those with the means to pay for the privilege, the United States will have lost an institution – *public* higher education – that has served as a cornerstone of its economic prosperity and civil society for over a century. The public and private goods of higher education will accrue for society and individuals irrespective of funding sources. As the next chapter describes, shifts in funding sources can have dramatic impacts on the

affordability of higher education for individual students and on the ability of higher education institutions to provide quality programs to increasing numbers of students.

The Economics of Higher Education Funding

Through the last quarter of the 20th century and beginning decade of the 21st major sectors of the United States economy have experienced fundamental transformations. For public higher education institutions these transformations included reductions to public funds supporting instruction; changes to Federal policies impacting cost reimbursements for research and medical training; the shifting of student aid programs to emphasize loans over grants; and a shifting of the burden for paying for higher education from governmental support to students and their families (College Board, 1999; SHEEO, 2010). Concurrent with these changes is a significant emphasis on entrepreneurial initiatives in public colleges and universities that hold as their objective the generation of revenue to support the mission-critical institutional programs of instruction, public service, discovery or creation and subsequent dissemination of new knowledge (Slaughter and Rhoades, 1997).

Beginning with Bowen's 1967 description of higher education as an inherently labor-intensive enterprise with a finite potential for efficiency gains, reflecting what came to be known as the Baumol Effect or "cost disease" similarly attendant to the labor-intensive performing arts (Baumol and Bowen, 1966), explanations for the high costs of higher education have generally compared and contrasted its cost and revenue structure with more familiar business models in the general economy (Bowen, 1967; Winston,

1997). A comprehensive attempt to address college costs was the focus of a national effort by the 1998 National Commission on the Cost of Higher Education included numerous public hearings and sessions to attempt to define and explain the reasons for escalating tuition rates. Precipitated by public pressure over tuition rate increases and “the cost of college,” the primary contribution of the report was to proffer a common taxonomy to describe the complex phenomena surrounding collegiate finances from public policy, institutional and student perspectives. The report considers several alternative interpretations of the term *cost* before settling on a distinction between cost as what institutions spend, *price* as what students pay and subsidy as the difference between cost and price, supplied in the forms of state appropriations, charitable gifts, investment income and revenue earnings from unrelated business activities. The Commission contrasted the economic structure of higher education with that of private industry, explaining that in commercial enterprises price is typically higher than cost and the difference is profit (Winston, 1997).

For business enterprises, increasing volume results in higher costs yet even higher revenues and so increased profit. For higher education, increased volume means costs exceed revenue by even greater levels than before, and so increased subsidies are needed (Winston, 1997). In contrast to a commercial environment where increasing volume arguably yields higher quality at lower prices, however, in labor-intensive colleges and universities increased numbers of students without corresponding increases in external subsidies gives rise to escalating prices (Bowen, 1967; Winston, 1997). If those subsidies are not forthcoming, tuition prices must increase or spending per student must decrease.

What has happened in fact is the former. In the period 1970 to 2005, public college and university spending increased by 31 percent, adjusted for inflation, yet state support (also adjusted) increased by only 7 percent (Lingenfelter, 2008). Tuition increases made up the difference.

A series of simple tables illustrates the dynamics of these interrelationships.

Assume that an institution enrolls 1,000 students and charges \$4,108 tuition per student, the national average for public institutions in 2009 (SHEEO, 2010). In addition the institution receives a \$6,928 per student subsidy from its state, also the national average amount for 2009 (SHEEO, 2010). Assume further that all revenues and expenses are increasing by 3% and enrollments are level, that is, not increasing or decreasing.

Approximately 80% of expenses are for salaries. The resulting two-year finances for the institution might resemble the figures shown in Table 2:

Table 2. Steady State Institutional Finances – 1,000 Students

Item	Year One	Year Two	\$ Change	% Change
Revenue				
Tuition	\$ 4,108,000	\$ 4,231,240	\$ 123,240	3%
State Support	6,928,000	7,135,840	207,840	3%
Total Revenue	\$11,036,000	\$11,367,080	\$ 331,080	3%
Expense				
Salaries	\$ 8,828,800	\$ 9,093,664	\$ 264,864	3%
All Other Expenses	2,207,200	2,273,416	66,216	3%
Total Expense	\$11,036,000	\$11,367,080	\$ 331,080	3%
Total # of Students	1,000	1,000	-	-
Avg Student Tuition	\$ 4,108	\$ 4,231	\$ 123	3%
Cost per Student	\$ 11,036	\$ 11,367	\$ 331	3%

Table 2 illustrates how, in a uniform steady state condition – with no increases or decreases to enrollments, and all revenue sources and expenses growing together – tuition increases, salary increases and total spending (cost) per student would increase at comparable rates based on uniform cost and price inflation. While simple, the mathematical relationships in this model make intuitive sense and represent a common sense understanding of how tuition might be expected to increase over time. With enrollments remaining constant and revenues and expenses increasing 3%, the average tuition charge also increases by 3%. Both students and faculty benefit directly from the increased subsidies as average costs per student increase by \$331 funded primarily through increased subsidies (\$208) and only partially by increased tuition (\$123) and faculty receive salary increases for teaching the same numbers of students.

Conversely, when subsidies do not keep pace with increased enrollments both students and faculty pay the consequences. Average post-secondary state appropriations per student peaked in 2001 and since then have declined by 13% after adjustments for inflation while during the same period tuition has increased by 25% in real terms (SHEEO 2010). As a result and when combined with enrollment growth, funding per student from the combination of tuition and state appropriations actually *declined* from \$11,239 in 2001 to \$11,036 in 2009 (SHEEO, 2010) when adjusted for inflation. The long term trends of declining subsidies combined with enrollment growth result in significant tuition increases without corresponding increases to spending per student.

Even without adjustments to inflation, as subsidies fail to keep up with enrollment growth the Baumol Effect results in dramatic increases to tuition rates without

corresponding increases in per unit spending. Changes to enrollments and state support from 2008 to 2009 are illustrated in Table 3. In this one year period public enrollments grew by 3.4% and state appropriations per student declined by 4%. *Changing only these assumptions* in the second year of the previous example, overall support from the state declines despite the increase in enrollments and total tuition revenue must increase by *three times* the rate of expense increases to balance the budget. Even if no additional costs associated with the increased enrollments are assumed, for example hiring additional faculty, tuition revenue must increase by 9.3%. Of the increased tuition, the new enrollments (volume) would account for about 3.6% of the revenue increase and average tuition charges per student (rate) would need to increase by 5.7%.

Table 3. Increasing Enrollments and Declining State Support

Item	Year One	Year Two	\$ Change	% Change
Revenue				
Tuition	\$ 4,108,000	\$ 4,490,070	\$ 382,070	9.3%
State Support	6,928,000	6,877,010	(50,990)	(0.1%)
Total Revenue	\$11,036,000	\$11,367,080	\$ 331,080	3%
Expense				
Salaries	\$ 8,828,800	\$ 9,093,664	\$ 264,864	3%
All Other Expenses	2,207,200	2,273,416	66,216	3%
Total Expense	\$11,036,000	\$11,367,080	\$ 331,080	3%
Total # of Students	1,000	1,034	34	3.4%
Avg Student Tuition	\$ 4,108	\$ 4,342	\$ 234	5.7%
Cost per Student	\$ 11,036	\$ 10,993	(\$ 43)	<0.1%

For continuing students a 5.7% tuition increase may exacerbate financial pressures to the point of having to withdraw from school, increase borrowing or increase work hours. Despite the 5.7% tuition rate increase, the institution will be spending slightly less per student than during the prior year as a portion of the tuition increase is funding a portion of the average cost for new students that would otherwise be provided by increased subsidies (state support). As a result continuing students pay an additional \$234 on average with \$43 less being spent on their educations. Similarly for the faculty, 3% salary increases leave no funds available to increase the size of the faculty and so with enrollment growth classes will be larger and demands for grading, office hours, advising and other instruction-related activities will increase (by about 3.4%, the size of the enrollment growth). In the parlance of the iron triangle, affordability, quality and cost all decrease as the consequence of diminished subsidies.

The Consumer Price Index against which tuition increases are frequently compared is based on a basket of goods and services that bear little relationship to the costs of operating a college or university, precisely *because* higher education is so labor intensive and so its costs are driven primarily by labor market considerations (SHEEO, 2004). Eventually faculty will need to be added, further pressuring tuition. When multiplied over many years of enrollment growth and declining subsidies the Baumol Effect contributes to significant price increases without corresponding per unit cost increases.

Tables 2 and 3 illustrate how the economic structure of public colleges and universities can, in the context of decreasing subsidies, simultaneously reflect rapidly

escalating prices in the form of tuition increases, modest increases to the overall expenditure base, decreased spending on a per student basis and increased workload from a faculty perspective. As these exhibits illustrate, given salary costs in the range of 80%, subsidies in the range of 60% and modest changes to both variables combined with enrollment growth, tuition rates increase by multiples of the base cost inflation. The simple reality is that public higher education has been expanding enrollments at the same time subsidies on a per student basis have declined. Increased enrollments without corresponding increases to instructional programs reduce course availability, program quality and affordability. Institutions are called upon to provide extracurricular (non-instructional) support services to an expanded student body. Despite increasing at nearly twice the rate of expense growth, the tuition rate increases illustrated in Table 3 result in *less* spending per student while creating new financial barriers to access based on price.

As described in Chapter 2 both private and public benefits accrue from higher education. State subsidies are provided to realize the missions of public institutions. Those public missions vary from private institutions in that public institutions must be accessible to the public and this requires affordable pricing structures or financing mechanisms as well as adequate capacity to meet demands for services. As state subsidies decline and enrollments expand, the resulting price increases are in direct conflict with the public access missions of public institutions unless specific measures are taken to mitigate costs.

Critiques

Both public and private colleges and universities have similar economic structures characterized by diverse revenue streams including subsidies (Winston, 1997). Public institutions are more reliant on direct subsidies from state legislatures (Winston, 1997) and as public entities their mission statements frequently compel these institutions to attempt to serve a growing population of students (Zemsky, 2003). Concurrent with these changes is a significant emphasis on entrepreneurial initiatives in public colleges and universities that hold as their objective the generation of revenue to support the mission-critical institutional programs of instruction, public service, discovery or creation and subsequent dissemination of new knowledge (Slaughter and Rhoades, 1997).

An immediate result of replacing subsidies with earned revenue is that it introduces layers of inefficiency that result in higher overall costs for achieving the same set of goals (Slaughter and Rhoades, 2004). Wellman posits that these and other significant activities of colleges and universities do not fall under the umbrella of Baumol's cost disease theory including inefficiencies based on student scheduling and administrative costs, and that cost and performance data from alternative approaches to higher education such as the Western Governor's University raise questions concerning the applicability of the theory to instructional activities as well (Wellman, 2009).

College and university financial reporting does not lend itself well to a granular analysis of these criticisms on the basis of financial analysis. Private nonprofit and public colleges and universities follow different financial reporting standards, those of the Financial Accounting Standards Board (FASB) in the case of nonprofits and

Governmental Accounting Standards Board (GASB) in the case of public universities (NACUBO, 1992). While over the past thirty years these accounting standards have grown increasingly similar, and also more similar to for-profit financial reporting standards, financial reporting can vary in significant ways among institutions (ibid.). For reporting to the Integrated Postsecondary Education Data System (IPEDS) standard reporting rules and definitions provide for some levels of comparability between and among institutions over time. However consistency in definitions and activities driving institutional financial reporting can yield what appear to be significant changes in spending pattern when in fact they may only reflect accounting or organizational changes.

Fund accounting, used both by private nonprofit and public colleges and universities, tracks revenues by funding source and uses of funds by programmatic purpose. The primary revenue categories for public universities include tuition and other enrollment fees, governmental grants and contracts, government appropriations, auxiliary enterprise sales and services, and private gifts. Uses of funds include instruction, academic support, institutional support, public service, physical plant, sponsored research, auxiliary enterprises and student services. These are the fund use categories used in IPEDS reporting (IPEDS, 2003).

The purpose of fund accounting is to provide for a high level of accountability concerning the uses of funds. For example governmental grants and contracts for research can only be used for sponsored program expenditures, and within this classification additional restrictions on allowable expenditures using those funds may apply (OMB,

2004). Similarly auxiliary enterprise revenues for such services as parking, room and dining services are typically expended only in direct support of the activities for which fees are assessed. Depending on statutory restrictions governmental appropriations may be restricted to specific uses such as instruction. Tuition revenues can and are expended across multiple program purposes including instruction, academic support, student services, physical plant and institutional support.

Where a specific operating cost may be reported depends in large part upon the organizational structure of the institution. For example the costs of enrollment management services may reside primarily within institutional support, or alternately within student services or academic support. Similarly, study leave granted to faculty members could be included in instruction or research. Indeed, in two recent reporting periods (fiscal years 2003 and 2009) George Mason University reported study leaves in two different programs, instruction and research respectively, both of which are acceptable accounting treatments (personal knowledge of author).

Slaughter and Rhoades (2004) describe the modern university as multi-million (and in some cases, billion) dollar enterprises that closely resemble modern corporations. Like corporations, universities monetize the work they perform including research, public service or providing instruction to students (monetized as credit hours). Decision-making in this environment results in the prioritization of applied research over commercially less attractive basic research, diminished emphasis on teaching and faculty conflicts of interest among other impacts (Washburn, 2005; Kezar, et al., 2005, pp. 29-30). Like corporations, colleges and universities are complex bureaucracies, leading Bill Massy to

the conclusion “(t)he barriers to improving productivity are cultural, not financial or technical.” (Auguste et al, 2010, p. 57)

The preoccupation with procuring and maintaining financial resources fosters what James Duderstadt (2001) characterizes as a “bribery culture” (p. 28) in colleges and universities; within this culture the expectation is that collaborating to achieve shared goals will include the allocation of additional resources. Wellman ties this culture to an antiquated value proposition that equates greater value to more money, such that “(d)oining new things requires new money” (Wellman, 2010, p. 6). Slaughter and Rhoades (2004) describe how incentive and reward systems within the modern university hold sway over alternative calls to action (what Young might characterize as a dedication to truth, for example) as a function of harsh economic reality.

On a purely economic basis others argue that increasing privatization in higher education yields greater efficiency: citing comparative growth in Pennsylvania state operated, private and state-related institutions, for example, Sontheimer argues that institutions not receiving direct subsidies spend fewer resources on non-program expenses such as faculty, pointing to incremental budgeting in state government entities as growing independently of economic realities (Yeager et al., 2001). Sontheimer further argues for the distribution of state subsidies on an individual student basis, based on where the student decides to enroll: “What are the arguments against publicly provided higher education? First, there are the inefficiencies that derive from tying subsidies to specific providers. If subsidies are provided to individuals there are well known utility gains thereby captured by allowing the individual to assign the subsidy to the provider of

choice rather than requiring the individual to have to restrict his/her choice to a particular subset of the institutions in order to gain the subsidy.” (Yeager et al., 2001, p. 102) A variation on this approach is incorporated into the Governor of Virginia’s most recent biennial budget submission with the same level of state funding following students whether they opt to attend public *or* private institutions (McDonnell, 2012).

The privatization of public higher education is one of three paths to “balancing public and private purposes” as a means of “serving the public good” described by Longanecker (Kezar et al, 2005, p. 60), the other being the “conjoining of public activities with private interests” and “courting of private gain to achieve the public good” (ibid.). Longanecker finds the ultimate distinction between private gain and public good reflected in ensuring “our least fortunate individuals are served” and “by protecting and ensuring the quality of the educational experience we offer” (Kezar et al, 2005, p. 67). Derek Bok suggests the traditional goals of the Academy can be met through successful competition in the marketplace as “any profits (universities) earn can presumably go to finance precisely those precious forms of teaching and research that cannot be supported by the marketplace alone” (cited in Zemsky 2009, p. 55).

Engagement in for-profit business activities is a direct manner by public and private nonprofit colleges and universities act like private corporations. Examples range from the investment of endowment resources in for-profit subsidiaries such as Middlebury College’s establishment of a for-profit language instruction program designed to generate income to support its liberal arts programs (Liebowitz and Fritz, 2010) to the University of South Florida’s filing of criminal charges against a graduate

student in an effort to assert patent rights on behalf of the institution (Washburn, 2005). As noted in the preceding discussion college and university revenue streams are discretely tracked according to source and use. Revenue gains in a case like Middlebury College's for-profit subsidiary ultimately filter back to the core instructional mission of the institution as direct endowment subsidies consistent with Winston's model described above. In the case of institutional revenues from research activity any linkages to instructional program costs are much more indirect if they exist at all.

The Bottom Line on Price, Cost and Affordability

Public institutions have been growing in numbers of students, instructional and research expenditures for decades, while from the revenue perspective, government support for instruction has not kept pace with increased levels of institutional spending (SHEEO, 2010). Beyond personnel costs, colleges and universities face a mix of expenses subject to inflation (Commonfund Institute, 2012). With subsidies decreasing and costs increasing, tuition and other revenue sources have been left to pick up the slack (Hossler, 2004).

Cost is a complex and critical focus of both the access and quality dimensions of the iron triangle. The fact that college and university operations and accounting are so complex does not make for a simple cost analysis where the issues of access and quality are concerned. As the public policy discourse referencing higher education's iron triangle clearly suggest, there is an assumed correlation between higher education costs and what students pay for college. Yet consistent with Winston's (1997) formulation (cost equals price plus subsidy) one of the few longitudinal empirical studies of instructional costs by

discipline and student level, the Delaware Project, found “There is no pure cause and effect relationship between price (tuition) and cost (what institutions actually expend).” (Middaugh, 2005, p.8). For higher education practitioners this finding is hardly surprising; students generally pay the same tuition rate to sit in a class of 80, taught by a low cost adjunct, as to sit in a seminar of 12 taught by a full professor. The public policy concern with regard to higher education costs is how those costs translate into student charges or, ultimately, student debt levels: is college affordable? Defined as what institutions spend to provide instruction, cost is but one of many factors – subsidies from gifts, endowments, state appropriations, for-profit subsidiaries, and price discounts among the others – entering into the equation of what students actually pay for college.

To the extent that universities are like car dealerships (Winston, 2000) enrollment managers staff the sales floor of the display room. What can students or their families afford to pay? For Slaughter and Rhoades (2004, pp. 295-6) practitioners of strategic enrollment management (SEM) focus “on maximizing yield rates and quality, and minimizing tuition discounts and financial aid. This approach has become the focus of annual meetings and several publications sponsored by the American Association of Collegiate Registrars and Admissions Officers (AACRAO). It has also become a cottage consulting industry.” Enrollment management strategies have grown in scope and sophistication over the past several decades to include in their objectives the realization of both institutional mission and students’ educational goals (Bontrager, 2008). The core principles elucidated by Kreutner and Godfrey (1981) – marketing, enrollment, retention and research (to improve on subsequent marketing, enrollment and retention activities)

continue to be reflected in outcome-driven strategic enrollment management” activities (Hossler, Bean and Associates, 1990). Whether enrollment management leads to the realization of institutional mission and students’ educational goals as Bontrager argues, or to the further stratification of educational opportunity as Slaughter and Rhoades (2004) suggest, there is little question that the practices of enrollment management lead to increased costs for merit-based financial aid (Davis, 2003) and that the institutions engaging most frequently in those strategies, private research universities, have experienced the most significant growth in tuition prices fueled largely by competition for prestige, high profile students and resources (Clotfelter, 1996; Wellman, 2006; Winston, 2001).

In contrast to this characterization, in his examination of selective liberal arts colleges Brenemann (1994) describes how institutions that could otherwise act to maximize revenues by admitting only those capable of paying undiscounted tuition rates instead elected to discount tuition to attract students of diverse backgrounds and abilities. SEM practitioners would argue tuition discounting and financial aid are tools used not only to recruit high profile students, but also to realize socioeconomic, gender and ethnic diversity in the student body, and that the tuition revenue gains from the practice of SEM facilitate increased levels of institutional financial aid to traditionally underrepresented groups (Bontrager, 2004). Even the use of merit aid to drive net revenue producing enrollments can advance goals of affordability and access. Applying SEM principles in public institution settings frequently results in using merit aid to recruit nonresident students who pay significantly more than their own costs of education, in effect

supplementing or supplanting subsidies (and making possible lower tuition rates, and thus diminished financial need) for resident students (Bontrager, 2008).

Clearly distinguishing between cost, price and affordability is critically important for higher education institutions attempting to respond to public policy criticisms of higher education's cost to society, which is ultimately a function of what both students and taxpayers contribute to public colleges and universities. This is the "bottom line" on the cost component of the iron triangle: to reduce the public's investment, in the forms of tuition and subsidies, in public institutions of higher education.

Virginia's Recent Experience

The mission of public higher education in Virginia is defined by statute: providing access to higher education for all citizens in the Commonwealth; ensuring affordability of higher education; offering a broad range of academic programs; promoting academic quality; improving student retention; developing articulation agreements; contributing to the state's overall economic well-being; increasing the level of externally-funded research at institutions; contributing to the improvement of Virginia's primary and secondary school system; having solid institutional financial planning; maximizing institutions' operational efficiency; and ensuring student safety on campus...

...by and large, Virginia higher education is not meeting these high goals, specifically when it comes to ensuring affordability, promoting academic quality, and maximizing institutions' operational efficiency.

- The diffusion of light and education: Meeting the Challenges of Higher Education in Virginia (ACTA, 2012, p. 27)

The preceding chapters focused on characteristics of “the iron triangle” having primarily to do with instructional quality, affordability and cost. The above recounting of the statutorily prescribed missions of public colleges and universities in Virginia mentions these among numerous other components of institutional mission that have been mentioned periodically in the preceding chapters such as overall economic well-being of the state and increasing levels of sponsored research activity. The Virginia statutes also include reference to the means by which institutional missions shall be realized, as summarized by a recent report of the American Council of Trustees and Alumni (2012) as via “solid institutional financial planning” and by “maximizing institutions’ operational efficiency;” ensuring a safe environment for students, a precondition for the realization of other mission components, is a prescribed institutional priority as well (ibid., p. 27).

This chapter examines how Virginia’s public colleges and universities, together with the State Council for Higher Education in Virginia (SCHEV), have addressed issues of access, affordability and quality in the years immediately preceding and following the 2005 introduction of higher education restructuring designed to increase institutional autonomy and accountability. During this period performance metrics designed to report institutional progress toward achieving mission goals have been established. Institutional governing boards have had the freedom to establish tuition and enrollment policies during this period. Concurrent with these changes in public policy governing Virginia public higher education institutions, the nation and state have experienced economic recession on a scale not seen since the Great Depression. How has Virginia public education fared?

History and Higher Education Restructuring

Virginia is home to fifteen public four-year colleges and twenty-four two-year and community colleges (SCHEV, 2012c). While Harvard College is renown for being the United States' first institution of higher education, founded in 1636, some seventeen years earlier the first plans and endowment for a college in North America were granted by King James to the Virginia Company for establishment of a college to be located near Henrico; the plan was abandoned after the massacre of settlers at Jamestown which included the deputy who oversaw the college lands (Thelin, 2011). Virginia boasts the second oldest institution of higher education, the College of William and Mary, which though founded as a private institution has been public for over a century. During the Great Depression a one-building branch campus of the College was formed, initially providing two year instruction for students aspiring to attend Virginia Polytechnic University, and ultimately giving rise to Old Dominion University (Old Dominion University Publications, 2010). After serving as U.S. President Thomas Jefferson founded the University of Virginia (UVa) in 1819, when his alma mater William and Mary was still a private institution, to provide Virginia with an institution that served the public good and deserved public financial support for precisely that reason (Kirp, 2003), and a century and a half later a branch campus of UVa became George Mason University.

Virginia's Higher Education Restructuring Act of 2005 was an "institution-driven" initiative designed to increase institutional autonomy in exchange for achieving agreed upon accountability measures linked to state goals (Couturier, 2006). While some provisions of the restructuring act applied to all Virginia public institutions, the greatest

autonomy, so-called “Level III” (also referred to as “Tier III”), was reserved for the three institutions – the University of Virginia, College of William and Mary and Virginia Polytechnic Institute (Virginia Tech) – that had put forth the original restructuring proposal (ibid.). Virginia Commonwealth University obtained Tier III status in 2008 (JLARC, 2011). Under the restructuring act “if the institutions demonstrate they are meeting the State goals, they are able to keep their level of autonomy and are also eligible for certain financial rewards” (ibid.). All institutions under Virginia’s restructuring act share responsibility for achieving the state goals of affordable access to a broad range of program offerings including degrees in high-need areas; maintaining academic standards and meeting student retention and graduation targets; entering into articulation agreements with state community colleges and offering dual enrollment programs; promoting economic development including management of research, patents and licenses as appropriate to the institutions’ activities; submitting six-year financial plans and demonstrating financial and administrative effectiveness; ensuring campus safety and security; and working to enhance elementary and secondary education in the Commonwealth (SCHEV, 2012a; SCHEV, 2012b). A key provision of the restructuring act requires institutions to match “from institutional funds, on a dollar-for-dollar basis, any additional research funds provided by the State in the Appropriation Act above the amount provided from institutional funds for research in 2005-06” (cited in Couturier 2006, p. 37). This provision has the effect of reserving the highest level of autonomy for high-research institutions generating significant indirect cost revenues or private gifts.

The dynamics of enrollment growth combining with decreased state appropriations yielding significant tuition increases without corresponding increases in available funds have been very much in evidence in Virginia since enactment of the restructuring act. After adjustments for inflation, in the period 2005-2010 public higher education enrollments in Virginia during the same period enrollments increased by 19.9%, appropriations per student decreased by 8.9% and net tuition per student increased 15.7% (SHEEO, 2011). During this time period tuition revenue surpassed state appropriations as the most significant source of revenue for public higher education (ibid.). Even with these increases in net tuition revenue per student, total funding per student after adjustments for inflation declined by 5.0% in Virginia during this same time period (ibid.). Indexed to the levels of personal incomes allocated for public higher education Virginia funded 75% of the U.S. average of \$7.35 per \$1,000 (ibid.).

Access Under Restructuring

Similar to the complex relationships between cost, price and affordability, factors that depend not only on institutional financial factors but student factors as well, the issue of college access has many interconnected parts. At a recent National Association of Student Financial Aid Administrators (NASFAA) conference Donald Heller identified three primary factors contributing to college access: financial resources, academic preparation and sociocultural factors affecting college aspirations (NASFAA, 2012). In contrast to the reputational value associated with greater selectivity – in effect, decreasing access – public institutions have a mission focus to maximize access to their programs and services.

Many factors, financial and nonfinancial, enter into students' decisions whether to accept an offer of admission. Ultimately the access mission of public institutions is not simply an issue of whether there are "available slots" for students, but whether students are academically prepared to pursue college-level studies, given a potential to do so, have opportunities for higher education available through institutions and programs students are inclined to participate in, and can manage to meet the financial obligations they incur in the process.

Table 4 summarizes first-year student college application, acceptance and enrollment data for Virginia 4-year public institutions in the first year preceding the restructuring act (2004-2005) and five years following restructuring (2010-2011). Over this time period applications increased by 44.4% based on in-state applications increasing 36.9% and out-of-state applications increasing 55.6%. The acceptance rates for all students decreased by 4.8% with in-state acceptances decreasing by 2.0% and out-of-state acceptances decreasing by 8.1%. Yield, the percentage of student offered admission who actually enroll, decreased by 14.3% overall with a slightly higher decrease among in-state students (13.9%) compared to out-of-state students (12.9%). Rejection rates – the inverse of acceptance rates – increased by 2.1% for in-state students and by 4.8% for out-of-state students. From an overall selectivity perspective, reflecting institutional decision-making about how many students to admit, there was a slight decrease in the percentage of in-state students offered admission (65.0% in 2010-2011 compared to 66.3% in 2004-2005) but a more significant decrease in out-of-state offers (52.5% in 2010-2011 down from 57.1% in 2004-2005). All other factors being equal, in-state students were 16% more

likely than out-of-state students to receive an admission offer in 2004-2005 and 23% more likely than out-of-state students to receive an admission offer in 2010-2011. Nevertheless increases in the number of total offers for in-state students (36.9%) was greater than the increase in acceptances (34.2%). With regard to yield, the percentage of students offered admission who ultimately enroll, rates decreased by 6.7% for in-state students and by 3.3% for out-of-state students. In other words the offers of admission were not accepted by a higher percentage of students overall, and by a higher proportion of in-state than out-of-state students. This suggests some dimension of the institutions' offers – pricing, financial aid packaging, housing options or other factors – diminished the appeal of those offers to in-state students.

Table 4. Public Institutions Admissions Summary 2004-2005 and 2010-2011 (SCHEV 2012d)

	Applied	Accepted	Accept Rate	Enrolled	Yield Rate	Rejected	Rejection Rate
2004-05							
In-State	68,577	45,483	66.3%	21,908	48.2%	22,536	32.9%
Out-of-State	46,008	26,265	57.1%	6,730	25.6%	19,665	42.7%
Total	114,585	71,748	62.6%	28,638	39.9%	42,201	36.8%
2008-09							
In-State	86,145	54,776	63.6%	24,211	44.2%	31,369	36.4%
Out-of-State	58,329	33,576	57.6%	7,977	23.8%	24,753	42.4%
Total	144,474	88,352	61.2%	32,188	36.4%	56,122	38.8%
2010-11							
In-State	93,905	61,053	65.0%	25,349	41.5%	32,852	35.0%
Out-of-State	71,606	37,582	52.5%	8,390	22.3%	34,024	47.5%
Total	165,511	98,635	59.6%	33,739	34.2%	66,876	40.4%
CHANGE 2004-05 to 2010-11							
In-State	25,328	15,570	-1.3%	3,441	-6.7%	10,316	2.1%
Out-of-State	25,598	11,317	-4.6%	1,660	-3.3%	14,359	4.8%
Total	50,926	26,887	-3.0%	5,101	-5.7%	24,675	3.6%
% CHANGE 2004-05 to 2010-11							
In-State	36.9%	34.2%	-2.0%	15.7%	-13.9%	45.8%	6.4%
Out-of-State	55.6%	43.1%	-8.1%	24.7%	-12.9%	73.0%	11.2%
Total	44.4%	37.5%	-4.8%	17.8%	-14.3%	58.5%	9.8%

One measure of college readiness is the “chance for college” ratio which is a measure of the likelihood a student in ninth grade will enter college by the time the student is nineteen years old (NCHEMS, 2009). The ratio is calculated by multiplying

percentage of ninth graders who go on to graduate from high school by the percentage of high school graduates who continue on to college. For Virginia in the years since the restructuring act there has been a steady increase in this ratio based on increases in the college continuation rate and despite decreases in public high school graduation rates. These figures are shown in Table 4.

Table 5. Chance for College by Age 19 in Virginia (Postsecondary.org 2010)

Year	Public HS Grad Rate	Rank	Total High School Graduates	Fall Freshmen by State of Residence	College Continuation Rate	Rank	College Participation Rate	Rank
2008	70.7%	30	84,282	57,862	68.7%	9	48.6%	13
2006	68.3%	33	76,691	51,499	67.2%	12	45.9%	16
2004	73.2%	24	77,882	44,937	57.7%	23	42.3%	18

Virginia's relatively high dropout rate – its high school graduate rate ranked 30th of the 50 states in 2008 – may be a contributing factor to its relatively high college continuation rate as those students who remain enrolled are more likely to continue on to college (NCHEMS, 2009). There has been a significant increase in the college continuation rate since 2004 despite significant economic factors negatively impacting affordability (discussed in the next section). In the four-year period from beginning in 2004 and

ending in 2008 there was a 28.7% increase in the number of Virginia residents entering college.

In terms of measuring the impact of Virginia's restructuring on the inclinations of students to continue on to college, the college participation rate includes students attending public, private nonprofit and for-profit institutions of higher education in any state. With reference to Table A-1 in Appendix A, in 2004 21,908 or 48.7% of those students advancing from high school to college (44,937) enrolled in Virginia four-year public institutions. By 2008 of the total number of Virginia college-going high school graduates (57,862) only 41.8% or 24,211 attended Virginia four-year public institutions. Analysis of application data for the same period, from 2004 to 2008, shows that growth in the numbers of Virginia students advancing to college (28.8%) is slightly higher than the percentage increase in applications to Virginia four-year public institutions (25.6%). For this period acceptances (offers to enroll) for in-state students increased 20.4% based on a rejection rate 3.5% higher in 2008 than in 2004, and yield rates for in-state applicants offered admission declined by 4.0% to 44.2% in 2008 from 48.2% in 2004. In summary, of the increase in Virginia high school graduates advancing on to college, a lower percentage opted to apply for Virginia four-year institutions; of those who applied a lower percentage were offered admission; and of those offered admission a lower percentage accepted the offer and enrolled.

There is evidence of a trend toward Virginia students opting to attend public 2-year colleges rather than public or private 4-year institutions. Table 5 summarizes enrollment trends among those Virginia high school graduates who opt to enroll in

Virginia institutions (Postsecondary.org 2010b). Since 2004 an increasing proportion of those Virginia high school students who attend college in Virginia in the year following their high school graduation enroll in public 2-year colleges and a declining percentage choose public 4-year institutions. The vast majority of students – 86.7% in both 2004 and 2008 – select one of these public institution options. This trend could very well be related to the lower costs of attendance for those institutions.

Table 6. Institutional Selections of Virginia Resident First-Year Freshman Students Remaining in Virginia

	Total*	Public 4-year	Public 2-year	Private 4-year	Private 2-year
2008	47,354	22,864	18,171	5,916	403
% of total	100.0%	48.3%	38.4%	12.5%	0.9%
2006	41,342	21,207	14,748	4,980	407
% of total	100.0%	51.3%	35.7%	12.0%	1.0%
2004	36,272	20,341	11,103	4,664	164
% of total	100.0%	56.1%	30.6%	12.9%	0.5%

*Percentage totals may not equal 100% due to rounding.

Concerning sociocultural factors impacting enrollments, data comparing Fall 2005 to Fall 2011 by race and ethnicity show mixed results for Virginia 4-year institutions. Percentages of new freshmen represented by different race and ethnic groups are shown in Table 6 for both periods together with the percentage change for this period.

Table 7. Virginia Resident First-Year Four-Year Public Institutions Freshmen Race/Ethnicity (SCHEV 2012e)

	Fall 2005	% of total	Fall 2011	% of total	% chg
Foreign/International	101	0.5%	88	0.4%	12.9%
African American or Black	3,334	14.9%	3,422	14.1%	2.6%
American Indian/ Native American	85	0.4%	61	0.3%	28.2%
Asian/ Pacific Islander	1,871	8.4%	2,215	9.1%	18.4%
Hispanic	806	3.6%	1,311	5.4%	62.7%
White, Caucasian American	14,897	66.5%	14,832	60.9%	-0.4%
Multi-Race	(new category)		1,027	4.2%	-
Unknown/Unreported	1,298	5.8%	1,391	5.7%	7.2%
Total	22,392	100.0%	24,347	100.0%	8.7%

In the most recent year for which state-level high school graduation data are available, 2008-09, the ethnicity of Virginia public high school graduates was 0.3% American Indian/Alaska Native, 6.1% Asian/Pacific Islander, 6.3% Hispanic, 24.2% Black and 63.1% White (NCES, 2011a). Blacks, Hispanics and Whites represent a higher proportion of graduating public high school classes than they do entering freshmen classes at four-year Virginia public institutions of higher education; Asian/Pacific Islander students represent a disproportionately high number of entering freshmen students in comparison to the percentage of high school graduating classes they represent. The effects of changes in reporting definitions during this period to include students who self-identify as “multi-race” is unknown. The most significant gap in representation between high school graduating classes and freshmen enrollments is for African Americans / Blacks who represented only 14.1% of entering freshman compared to

24.2% of graduating high school seniors. In the six year period covered in Table 6 not only was there no progress made toward increasing the proportionate number of African American / Black students, there was a 0.8% reduction in the percentage of freshmen represented by this racial / ethnic group.

In summary, access to public 4-year institutions in Virginia shows a mixed record of results since the Higher Education Restructuring Act of 2005. While enrollments have increased significantly and demographic shifts appear to be reflected in a changing entering class, opportunities to benefit from instructional programs of public institutions have not kept pace with the demand for those programs. Nationally, an analysis of IPEDS Beginning Postsecondary Students (BPS) data reveals that in 2003, 26% of both black and Hispanic students attended for-profit institutions (Haycock, 2011). With only 12% of enrollments, for-profit providers of higher education accounted for 24% of federal financial aid and 43% of loan defaults (ibid.). To the extent these trends are reflected in Virginia enrollments there is no evidence that higher education restructuring has had a significant impact on changing student choices or opportunities.

As discussed in the following section, there is strong evidence that affordability may be one of the factors impacting student decisions to opt for 2-year public institutions in greater numbers.

Impacts on Affordability

As discussed in previous chapters there are numerous dimensions to the financing of public colleges and universities. Public investments take the form of direct appropriations, subsidized interest rates for student loans, Pell Grants and other subsidies

benefiting students and institutions. What students can afford to pay from their own resources depends on conditions in the general economy including rates of employment and income levels. In the time period following enactment of Virginia's higher education restructuring act there have been significant pressures on both students and state appropriations as financial sources for public colleges and universities.

For the fifteen public four-year colleges and universities in Virginia, tuition and fee increases in the period 2004-2005 to 2010-2011 averaged 34.5% and as a percentage of median household income increased on average by 3.5% (ACTA, 2012). In calendar year 2009, Virginia experienced its first reduction in per capita income since 1954 (BEA, 2012). The academic years preceding and following this reduction in per capita income saw significant increases in Virginia resident students showing calculated financial need for purposes of awarding financial aid. Table 7 displays total numbers of students qualifying for aid by income levels and calculated family contributions. Between 2004-2005 and 2007-2008, the years surrounding and immediately following Virginia's restructuring act, the numbers of students qualifying for financial aid decreased; by 2007-2008 the total number of recipients had declined by 6.8% compared to 2004-2005. That decline was made up for in one year, 2008-2009, when students qualifying for aid increased by 9.2% and in the following year increased by a comparable number of students. In the two years ending in 2009-2010 the number of students qualifying for aid had increased by 18.4%.

Among Pell Grant recipients, regarded to be the most financially needy students based on program requirements, the shifts and growth in participation was even more

dramatic. A decline of 7.0% in the two years ending 2006-2007 was mostly made up for during 2007-2008, then following a year of modest growth (3.8% in 2008-2009) participation grew by 29.1% and Pell Grant recipients as a percentage of total aid recipients increased to 54.9%. More, and more financially needy, students qualified for financial aid.

Table 8. Virginia Resident Undergraduate Students with Financial Aid Need (SCHEV 2012f, Postsecondary.org 2011)

Family Income	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
\$0-50,000	34,403	34,115	34,234	31,349	32,889	35,957
\$50,000-100,000	20,294	19,451	19,587	19,299	21,342	21,554
>\$100,000	4,581	4,580	4,949	4,617	6,093	7,902
Total	59,278	58,146	58,770	55,265	60,324	65,413
Percent change		-1.9%	1.1%	-6.0%	9.2%	8.4%
Family Contribution						
\$0-7500	43,063	41,463	40,985	39,638	42,356	46,437
\$7500-15000	12,102	12,562	12,753	12,058	12,791	12,841
>\$15000	4,123	4,121	5,053	3,575	5,184	6,146
Pell Grant Recipients	26,870	25,246	24,979	26,785	27,804	35,882
Percent change		-6.0%	-1.1%	7.2%	3.8%	29.1%
% of aid recipients	45.3%	43.4%	42.5%	48.5%	46.1%	54.9%

The combination of tuition and fee price increases beyond the income growth of Virginia families has precipitated a significant rise in the number of students qualifying for financial aid, and in the levels of financial need experienced by these students as indicated by Pell Grant eligibility. The trends outlined in Table 7 pertain to those students

who actually enrolled at four-year public institutions in Virginia. The growth in numbers of students demonstrating higher levels of need coincides with a significant increase in public two-year institution enrollments. In combination these factors suggest that Virginia's four-year public institutions are providing less affordable access to their educational programs.

Beginning in 2006-2007, students attending Virginia four-year public institutions experienced the same “paying more for less” phenomenon illustrated in Chapter 3 (Tables 2 and 3). Students paid higher tuition rates, but because of increased enrollments and decreased state support, less money was spent to education them on a per student basis. Tuition increases are shown in Table 8:

Table 9. Virginia Public 4-Year Institutions Undergraduate In-State Tuition and Fees FY 2007 – FY 2011 (GMU 2012)

SCHOOL	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	5 YR CHG \$	5 YR CHG %
VMI	\$9,473	\$10,048	\$10,556	\$11,190	\$12,328	\$2,855	30.1%
W&M	8,490	9,164	10,246	10,800	12,188	3,698	43.6%
UVA	7,845	8,500	9,300	9,672	10,628	2,783	35.5%
LONGWOOD	7,589	8,058	8,499	8,925	9,855	2,266	29.9%
VA TECH	6,973	7,397	8,198	8,605	9,459	2,486	35.7%
CNU	6,460	7,050	7,550	8,050	9,250	2,790	43.2%
MASON	6,408	6,840	7,512	8,024	8,684	2,276	35.5%
ODU	6,098	6,528	6,918	7,318	7,708	1,610	26.4%
JMU	6,290	6,666	6,964	7,244	7,860	1,570	25.0%
VCU	5,819	6,196	6,779	7,117	8,817	2,998	51.5%
UMW	6,084	6,494	6,774	7,112	7,862	1,778	29.2%
RADFORD	5,746	5,942	6,536	6,904	7,694	1,948	33.9%
UVA-WISE	5,692	6,099	6,439	6,748	7,194	1,502	26.4%
VSU	5,440	5,655	5,903	6,174	6,570	1,130	20.8%
NSU	5,056	5,318	5,560	5,872	6,227	1,171	23.2%
AVG	\$6,631	\$7,064	\$7,582	\$7,984	\$8,822	\$2,191	32.7%

By comparison, Figure 3 shows national trends in tuition and fees for flagship, public four-year and community colleges. Per student spending trends for Virginia four-year public colleges and universities are shown in Figure 4.

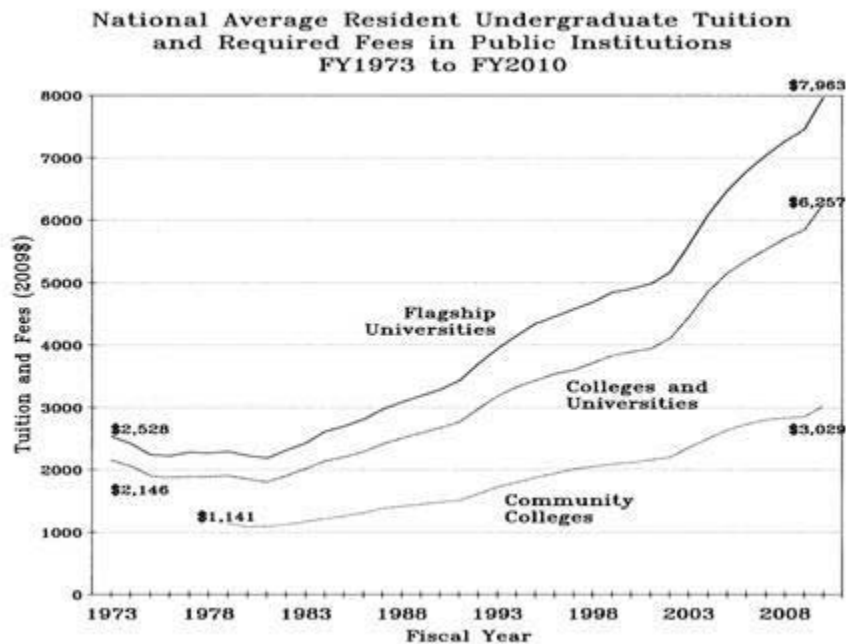
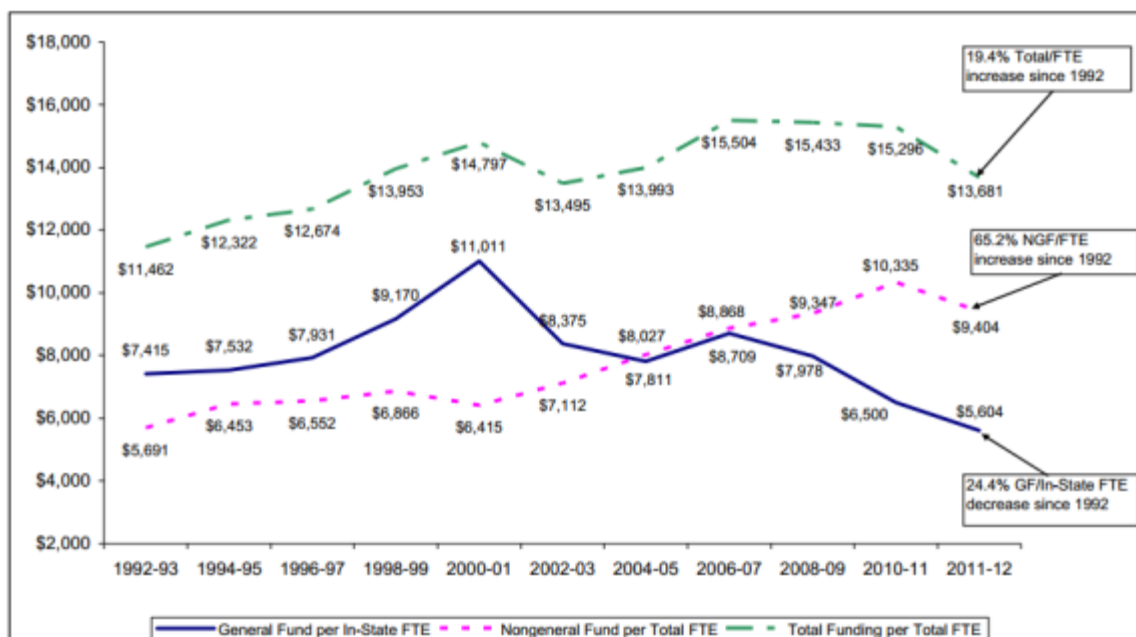


Figure 3. National Average Resident Undergraduate Tuition and Required Fees in Public Institutions FY1973 to FY2010 (Postsecondary.org, 2011b)

Average Funding per FTE Student at Four-Year Institutions in 2011-12 constant dollars (updated from 2009 report)



Notes:

- (1) Total Funding per Total FTE is not the sum of General Fund per In-State FTE and Nongeneral Fund per Total FTE.
- (2) FY10-FY12 are based on projected enrollments. All other years are based on actual enrollments.
- (3) FY10 and FY11 Nongeneral Fund per Total FTE include funding from the American Recovery and Reinvestment Act of 2009.

Figure 4. Average Funding per FTE Student at Virginia Four-Year Institutions (SCHEV 2012h)

In 2006-2007, in-state students attending Virginia four-year institutions paid tuition and fees, on average, of \$6,631. Total spending per full time equivalent student in that year was \$15,504. By 2010-2011 average tuition had increased by \$2,191 to \$8,822, yet spending was \$15,296 per student. During this same period state appropriations (“General Fund”) per student decreased to \$5,604 from \$8,709, or about \$914 more of a reduction to state appropriations per student than the per student tuition increase.

As shown in Figure 5, these data for Virginia are consistent with national trends toward students and their families assuming an increasing share of higher education

costs. In summary, during the time period following restructuring Virginia four-year public institutions of higher education have become increasingly less affordable for resident students due to price increases, changes in the general economy and resulting increases to financial need.

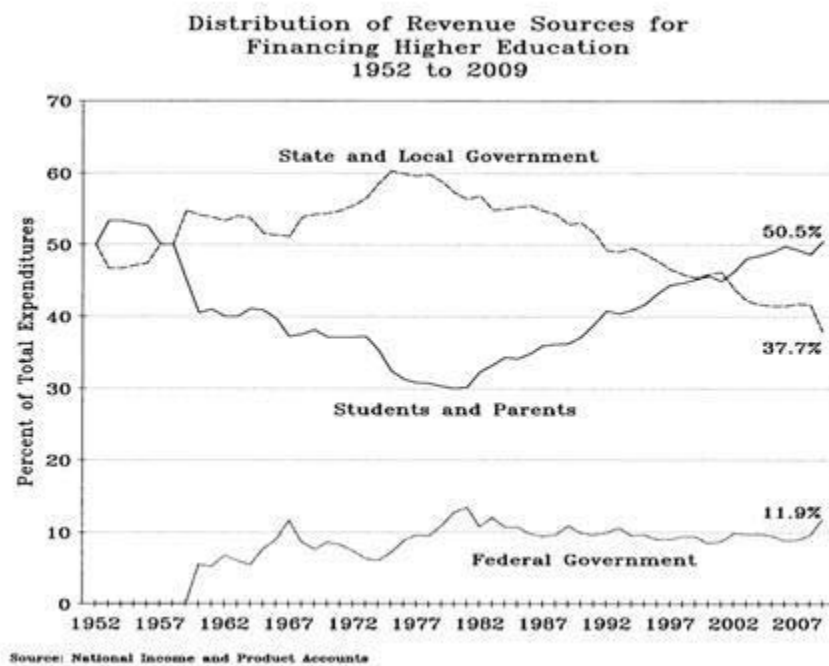


Figure 5. Distribution of Revenue Sources for Financing Higher Education 1952 to 2009 (Postsecondary.org, 2011b)

Measuring Quality

As described in the quotation leading this chapter, the missions of public colleges and universities in Virginia extend beyond providing instruction to include economic

development, sponsored research and other activities. A key component of the emerging new state funding and oversight paradigm for public institutions, expressly set forth by the Virginia restructuring act, is the assessment of institutional performance across a broad range of undertakings. As discussed in Chapter 3, what would seem to be a fairly straightforward calculation of the economic impact of investing state resources in higher education yields uncertain outcomes. Measuring the quality of goods and services produced by colleges and universities is no less complex.

From a governmental regulatory perspective, the quality of academic programs in the United States is ensured by a system of regional, national and specialized accrediting agencies recognized by the U.S. Department of Education (USDOE) (Schray, undated). Accrediting agencies take into account a series of criteria prescribed by USDOE including:

Success with respect to student achievement in relation to the institution's mission, including, as appropriate, consideration of course completion, State licensing examination, and job placement rates...Curricula...Faculty...Facilities, equipment and supplies...Fiscal and administrative capacity as appropriate to the specified scale of operations...Student support services...Recruiting and admissions practices, academic calendars, catalogs, publications, grading, and advertising...Measures of program length and the objectives of the degrees or credentials offered...Record of student complaints received by, or available to, the agency...Record of compliance with the institution's program responsibilities under Title IV of the Act, based on the most recent student loan default rate data

provided by the Secretary, the results of financial or compliance audits, program reviews, and any other information that the Secretary may provide to the agency.

(ibid.)

These accreditation guidelines leave significant levels of latitude to accrediting agencies, providing latitude in the accreditation of diverse programs and institutions. Efforts by the USDOE under President G.H.W. Bush's administration to significantly change the process of accreditation in the United States, designed to introduce specific performance measures to be included in the accreditation process, were a failure (Zemsky 2009).

Accountability reporting by Virginia public institutions of higher education under the restructuring act similarly allows for some degrees of latitude as institutions develop specific strategies and performance metrics, termed "Institutional Performance Standards" (SCHEV 2012g), to achieve the state goals mandated under the act. SCHEV is responsible for certifying institutional attainment, or failure to achieve, the agreed upon levels of performance (ibid.). SCHEV's most recent report of institutional performance outcomes is included in Appendix B. Institutions' specific goals and targets depend on the type of institution (e.g., research intensive, or not) with all institutions sharing a core set of goals, Level II institutions having additional metrics, and Level III institutions including any additional provisions of their specific management agreement with the state.

For example, the first goal under restructuring is "access." The metric for ensuring access is stated as follows: "Consistent with its institutional mission, provide access to higher education for all citizens throughout the Commonwealth, including

underrepresented populations, and in accordance with anticipated demand analysis, meet enrollment projections and degree estimates as agreed upon with the State Council of Higher Education for Virginia. Each such institution shall bear a measure of responsibility for ensuring that the statewide demand for enrollment is met” (SCHEV, 2012g). Within this goal are three different metrics institutions are required to meet: its approved in-state enrollment targets within a variance of 5%, increasing its percentage of in-state undergraduate enrollment from under-represented populations and 95 percent of its approved estimates of degrees awarded (ibid.). Failure to meet the target for a specific metric does not automatically mean the overall measure for the goal is not achieved. The context for setting performance goals is the starting point (status quo) for each institution.

National data concerning low-income student representation in four-year colleges and universities suggests trends that will make it even more difficult for institutions in Virginia and elsewhere to expand access. As shown in Figure 6, students in the lowest income quartile opt for two-year colleges at nearly twice the rate of students in the highest income quartile. The progression of educational choices appears to track with income level with those in the higher income levels choosing four-year institutions and those in the lower income groups opting less for four-year and more for two-year institutions. As Figure 7 shows, students in these lower income categories are growing as a percentage of all college students with student pipeline data suggesting such growth trends will continue in the future.

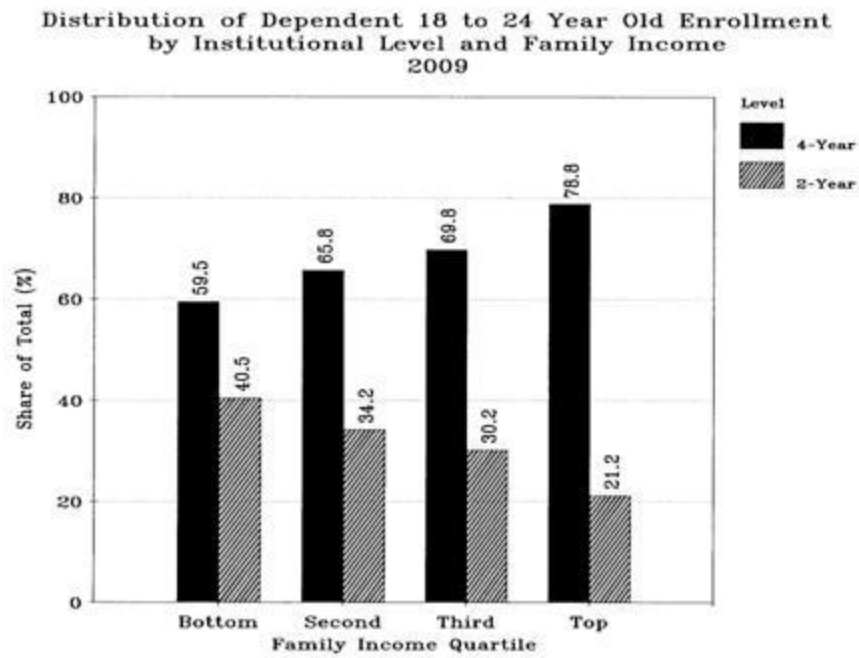


Figure 6. Distribution of Dependent 18 to 24 Year Old Enrollment by Institutional Level and Family Income 2009 (Postsecondary.org, 2011b)

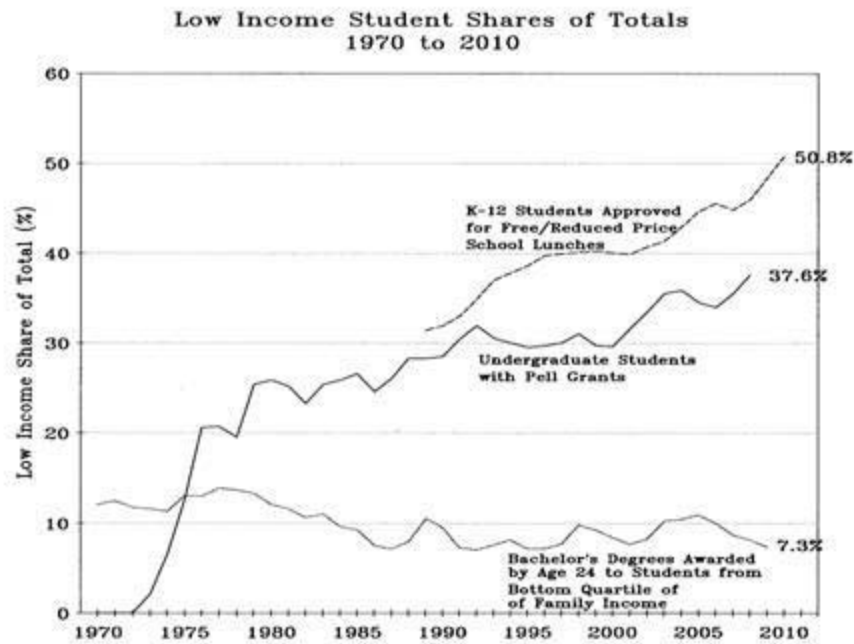


Figure 7. Low Income Student Shares of Totals 1970 to 2010 (Postsecondary.org, 2011b)

Some of the accountability measures as are represented by Virginia’s Institutional Performance Standards are widely regarded as measures of institutional “quality,” such as retention and graduation rates. Yet are these in conflict with the goals for access? As Anthony Carnevale points out, “graduation rates rise with college selectivity, even among equally qualified students. Graduation rates in the top 100 colleges exceed 90 percent compared with less than 40 percent at the least prestigious four year colleges and all community colleges. And among equally qualified students -- those who score 1200 out of a possible 1600 on the SAT -- 96 percent of those who go to the selective colleges graduate, while those who go to the least selective four-year colleges graduate at a rate of 78 percent (Carnevale, 2011).” Thus Carnevale reinforces the notion that more selective

institutions are better institutions. He continues: “even among equally qualified students, those who go to the most elite colleges have a much better chance of attending graduate and professional school. Again, among those who score 1200 or better out of a possible 1600 on the SAT, about 40 percent of those who go to the most selective colleges go on to graduate or professional school compared with only a quarter of equally qualified students who attend the least selective four-year colleges.” (ibid.) As Zemsky (2009) notes, “Most observers of American higher education would argue that the quality of student inputs remains more important than the quality of the educational process – in part, at least, because the educational processes employed vary so little across the range of baccalaureate institutions.”

As will be discussed in the next chapter, how quality is defined in the public discourse makes a difference in which public policies are advanced. These policies in turn have implications for what opportunities are available, or not, for individual students. Lives are changed in the process. The extent to which the values of the academy and public good are promoted in the process – an assumed product of that which public higher education institutions do – will be determined by the direction public policy reforms ultimately take. For the immediate future, they will be concerned with quality only to the extent that quality can be realized within the constraints of cost.

Future Courses for Public Higher Education Institutions

“In a global world technology is king. Production cycles become ever shorter. Labor becomes increasingly mobile. Consumers constantly broaden their searches for better products at better prices. Individual enterprises lost their competitiveness unless they become integral parts of an expanding set of networks. Two decades into the global revolution, this list of attributes can be said to apply to few, if any, of the world’s leading universities.”

- Robert Zemsky, *Making Reform Work: The Case for Transforming American Higher Education* (2009), p. 127.

This concluding chapter attempts to identify constructive directions for the next stages of evolution given the public policy and economic forces converging around American public higher education and expressed in the iron triangle. Following and helping to share public policy directions is not new to higher education (Thelin, 2011). With social forces on all sides of the political spectrum calling for public institutions to expand access to quality programs at lower costs, the planning and policy questions facing public higher education institutions are not “whether” but “how” this will be achieved. This chapter attempts to describe a pathway that is consistent with higher education’s traditions of shared faculty governance, free inquiry, academic freedom, independent governing board oversight and a combination of public and private financing (ibid.). Specific tactics and

strategies suggested by the preceding chapters are suggested, as well as a leadership framework for realizing and implementing institutional change in the years to come.

Changes in the Wind

The preceding chapters describe a higher education landscape riddled with challenges of increasing access, affordability and quality – the three sides of an iron triangle that frames much of the public discourse about funding strategies for higher education both within and outside American public colleges and universities in the second decade of the twenty-first century. A few short years ago an alternative framework for accountability in higher education was formulated – “The Accountability Triangle” – the apexes for which to be balanced are state priorities (political), academic concerns (professional) and market forces (market) (Burke, 2004; Burke and Associates, 2005). State political priorities for higher education take the forms of increasing access, holding the line on (or decreasing) the investment of tax dollars, and contributing to economic growth through building human capital, spawning new businesses and technologies and improving society through the creation of new knowledge and promulgation of arts and letters, the stuff of which democratic society is made. Market forces, as Zemsky (2009) describes, clamor for greater efficiencies – perhaps for the same forms of revolution within higher education that has characterized creative work through enabling technologies in the last half century. For those within the academy, both faculty and vast professional support networks as well, professional concerns include safeguarding – in the face of economic upheavals and the emergence of a global society defined largely by market forces – the essential characteristics of higher education institutions that form the foundation for its

contributions to society including its tenets of free inquiry, academic freedom and the governance structures that support requisite levels of faculty autonomy.

In the foreward to *Measuring Up 2000*, Governor James B. Hunt Jr. writes “As a governor, I’ve learned that the things we keep track of, count, and monitor tend to be the ones we improve” (NCPPE, 2000, p. 9). A recent survey of key governance indicators used by public and private colleges and universities found that 80.3% monitored endowments and expenses, 78.8% monitored admissions scores, 72.7% monitored graduation rates and 71.2% retention rates, 40.9% included measures of success in student outcomes; 34.8% monitored student satisfaction; only 15.2% monitored graduation rates for special populations, 10.6% monitored employee satisfaction and 4.5% monitored faculty satisfaction (Terkla, 2011). The emphasis on the quality of student and financial inputs, particularly among highly ranked private institutions, is alive and well. As discussed in the previous chapter with regard to Virginia’s public institutions, measuring quality of outputs in higher education is a much more difficult task.

The reach of the iron triangle metaphor is global and is shaping discourse concerning the future evolution of higher education systems in developing countries. By and large these developing countries and systems emphasize the economic values of their future higher education delivery systems:

The iron triangle—the assumption that quality, exclusivity, and expense necessarily go together—has been the bugbear of education. Under this assumption, an institution with tough admission requirements and high fees is a

good institution, regardless of what happens within its walls...

But is there another way to think about quality? One is suggested by the commercial world... For software, as well as an increasing number of other products and services, the key question today is whether you have access to it at all rather than about its quality once you have it. In software and many other products, quality is defined by capability and reliability, not by exclusivity and cost. This has parallels with the evolving contemporary discourse about quality and standards in higher education (Daniel, Kanwar and Uvalic-Trumbic, 2009, p.33).

Developing nations that are the primary concerns of Daniel and Uvalic-Trumbic look with a combination of interest and skepticism at the civic discourse occurring in this country about the relationships between college access, cost and quality. Nations such as India and China are building their own systems of higher education and look to the American model as a model of best practices (Khator, 2011). Daniel and Uvalic-Trumbic argue developing countries can follow the successful business model of other industries and employ scalable delivery mechanisms to reduce costs across larger audiences without diminished quality. Developing countries begin the development of their higher education systems without vast infrastructures supporting alternative – traditional – delivery systems already in place. This argument is similar to calls from advocacy groups within the United States to identify more cost effective means of delivering higher education to growing numbers of students (Haycock, 2011).

Like the triple-constraint project triangle, higher education's iron triangle reduces to a value proposition with two essential components: content and cost. With sufficient investment in the non-student dependent financial variables surrounding access – that is, with sufficient remedial course investments and program expansion to meet demand – the content of higher education could be made fully accessible to all members of society who might benefit from it. Managing the quality of instructional outcomes in this setting, like managing the performance of universal K-12 public instruction, would present a challenging set of issues for faculty, yet with sufficient investment quality programs accessible to all – content – could be realized.

Cost is the opposing and constraining factor in the access/affordability/quality equation, and cost is the primary focus of many recent reform initiatives. As state support for public higher education diminishes, consistent with Zemsky's description of the commercial marketplace, expectations will continue to increase. It is time for the balance sheets of public higher education institutions to join the flat world of the new global economic landscape, and improved efficiency and effectiveness are among its hallmarks.

The core challenge for American colleges and universities is to maintain and advance the values of the academy and their core missions in the process of adapting to new cost models. In this regard higher education's track record is arguably poor and Washburn (2005), Slaughter and Rhoades (2004), Zemsky (2009) and others catalog. Becoming more like business enterprises in the midst of the Great Recession, brought on by the excesses of unbridled capital markets, would seem to be an unlikely strategy for preserving the public good achieved by public colleges and universities. Yet managing

costs in a businesslike fashion is precisely the prescription critics with the academy, political leaders and economic necessity are requiring of public higher education.

Four Proposals

The remainder of this chapter focuses on four proposals for achieving the objectives of greater efficiency and effectiveness in the delivery of higher education and the leadership framework within which such proposals can serve to overcome the apparent constraints of the iron triangle, that is, to simultaneously increase both quality and access while containing or reducing costs. These proposals range from comprehensive roadmaps for realizing specific levels of efficiency gains to simple proposals designed to stimulate momentum – to ultimately encourage action – for institutions to force themselves to be affordable to the students who most need and benefit from public higher education.

Proposal 1: Auguste et al. (2010) propose five strategies to increase the productivity of higher education institutions: (1) systematically enable students to reach graduation; (2) reduce nonproductive credits; (3) redesign instruction; (4) improve the efficiency of core support operations and services; and (5) optimize non-core services and other operations. Their study examines eight higher education institutions including public 2- and 4-year, private nonprofit and for-profit institutions that they claim are “achieving degree productivity up to 60 percent better than their peer group average” (ibid., p. 10) and that “23 percent improvement in higher education productivity by 2020 is achievable” (ibid., p. 9).

Proposal 2: Kati Haycock from The Education Trust proposes that low-income students be required to pay no more than the same percentage of their family incomes (27%) as middle-income students, or about \$4,600 per year (Haycock 2011). Her proposal is an equity argument for economically disadvantaged students who make up an increasing percentage of college-age youth (ibid.). Haycock points out that significant institutional financial resources at public institutions are used to drive enrollments among economically advantaged students who could afford to pay rather than to expand access (ibid.).

Proposal 3: Referencing the iron triangle, Jane Wellman argues to change “the value proposition” for higher education from equating greater value with more money to greater value arising from increased cost effectiveness (Wellman, 2010). Wellman characterizes the outgoing paradigm as assessing quality based on total spending, admissions selectivity and total research dollars – a “more is better” mindset – resulting in “belief in the inevitability of spending increases” and within which cost reduction is equated with diminished quality and doing anything new requires new (i.e., additional) money (ibid.). The mental shift Wellman advocates is toward continual “attention to cost management and reinvestment” (e.g., reallocation of financial resources) and focusing management efforts on resources supporting core institutional activities; realizing change entails formalized cost and performance reviews combined with “data-driven public accountability” (ibid.).

Proposal 4: The final proposal is one borrowed from the health care industry as proposed and implemented by Kaplan and Porter (2011) who argue, like Wellman vis-à-

vis higher education, to alter how value is measured and assessed in that industry. Kaplan and Norris (1992) developed the balanced scorecard approach to business performance measurement linking multiple perspectives to both the current status of and long term strategic objectives of the business; the balanced scorecard approach quantifies business-specific measurements joining internal (employee and process), external (customer) and financial outcomes. The University of Virginia is among the higher education institutions that have adopted the balanced scorecard in addition to other management approaches from commercial enterprises (Nimax, Shuler and Moore, 2008).

Considered in combination what these proposals suggest – or demand – is that efficiency improvements in American public higher education institutions are necessary and possible. Society, through its public financing mechanisms, is already demanding that it be so. State support for higher education declined by 7.6% or \$6 billion in fiscal year 2012 with California alone accounting for 26% or \$1.5 billion of the reduction (SHEEO, 2012). Commenting on these developments, SHEEO president Paul Lingenfelter writes “Resolving the dilemma of improving educational attainment with scarce resources will take creativity, courage, and determination from all those with responsibility to meet the need. In every single year elementary and secondary schools and institutions of higher education must stretch and find ways to increase productivity and improve student attainment within the resources they have. Such evidence of creativity, commitment, and capability also is essential for building the confidence and public support needed for meeting national goals” (ibid., p. 2).

American higher education has a long and successful history of balancing tuition with other funding sources, with working within imposed fiscal constraints and with adapting to new economic and technological realities (Thelin, 2011). The four proposals above alternately describe strategies, goals and tools for accomplishing a complex balancing of ends and means. The strengths of these proposals is in their specificity and clarity of purpose. Each ultimately proffers a value proposition – it is in *how* the initiative is implemented, and whether other core values of higher education are sacrificed in the process of implementation, that the ultimately value proposition for higher education as a whole is strengthened or diminished by the approach. The implementation of efficiency and effectiveness measures without broad consultation within higher education can yield counterproductive outcomes.

American higher education is sufficiently complex and diverse that well-intentioned policy changes can have unintended negative consequences. One example is a recent proposal to exclude credits that do not apply toward realization of a degree (and thus improve the graduation rate, a quality measure) from consideration for financial aid calculations. Such “nonproductive credits”, defined as those that do not contribute to a student’s degree requirements, include enrichment and remedial courses. Declining funding levels in turn results in fewer course sections and diminished access to these educational resources for students who need them the most in order to succeed (College Board, 2010). Changing rules concerning the applicability of Federal financial aid funds to “noncredit” coursework – implemented to serve as an incentive for students to reduce time to graduation – can instead reduce the affordability of remedial courses resulting in

student failure. Beyond this impact, excluding *primarily those students with financial need* from enrichment courses based on their (in)ability to pay in effect limits the personal growth and development opportunities higher education would otherwise afford those students. American higher education is not, and never has been, simply a job training opportunity (Thelin, 2011).

Each of the four preceding strategies possess merit and promise for realizing what the triple constraint model posits to be impossible: increasing quality and access without increasing costs. In the complex web of costs, student socioeconomic factors, global economic, community and individual development factors that are each critical to the mission and purpose of American higher education, the answers to solving the public policy dilemmas posed by the iron triangle requires leadership firmly grounded in those core values and purposes. The future resolution of the iron triangle dilemma in all likelihood will include new education delivery systems, funding and budget models, admission and financial aid programs and policies, academic program requirements and schedules, and institutional governance and management strategies and techniques. What is most critical is that at each turn these changes are pursued without abandoning the core values of the enterprise of higher education in the process. From the perspective of a value proposition, the three corners of the iron triangle are important precisely because they reflect – and in so doing, balance – basic characteristics of higher education’s relationship to society and the individuals served by higher education. Similarly, *how* higher education can fulfill that mission within the constraints of cost requires responses balanced within the core values of the enterprise itself.

Framework and Leadership for Implementation

The students, faculty and staff of academic institutions comprise a human community within its surrounding community. The resulting academic cultures of different institutions vary based on many factors including institutional mission, stature, research or teaching emphasis, program emphasis, and institutional history. Each year new cohorts of students both enter and leave institutions, resulting in an organization that is continually recreating its identity among a major segment of its human population. The emphasis on scholarship and the creation of new knowledge also contribute to the dynamic nature of academic communities.

Much as they have been engines of economic development, colleges and universities offer much to their surrounding communities in the form of enhanced quality of life opportunities. American society's emphasis on consumerism and the predominance of economic considerations overlooks much that is uplifting and hopeful – from the arts to the joys of new discovery. To the extent that higher education exists not only produce new knowledge and college graduates and economic prosperity, but more broadly to benefit society and the human condition, finding new ways to extend the reach of the campus beyond its borders is a critical leadership need for the coming decades.

A neo-traditional perspective on the value of higher education to society is offered by Robert B. Young in *No Neutral Ground: Standing By the Values We Prize in Higher Education* (1997). Young identifies seven core values advanced by higher education (service, truth, freedom, equality, individuation, justice and community) as well as three contemporary challenges to those shared values (capitalism, spirituality and aesthetics).

While the Academy interfaces with and participates within economic contexts, for Young the fundamental values of higher education are noneconomic and also nonmaterial. He argues the cited values promote and undergird scholarship and democracy. A strength of Young's analysis is that it bridges the positivist, social constructivist, critical and postmodern paradigms (cf. Kezar et al., 2006) by asserting enduring values (positivist) reflecting shared meanings (social constructivist) facing structural challenges (critical) all of which influence the subjective experiences and realities of individuals within higher education and society (postmodern). Young's analysis is inclusive of the dynamically diverse range of individuals, experiences and purposes found within higher education.

Throughout, Young cites and quotes leaders both within and outside of higher education who provide insights into how large institutions interface with both individuals and society at large to convey the "academic values" into the life of the broader community. He concludes this book with a discussion of leadership, which he argues is linked to this assertion or projection of institutional or organizational values (p. 189). Young describes four stages of leadership. The first two stages are apprehension, which he describes as a leader's attention to "values twitching" or the presence of conflicting values calling for the assertion of right value(s) by the leader, and preparation, which begins with the leader's clarification of what is right. The third stage is initiation which includes "accept(ing) the need to lead," (p. 195), discovering allies and finally taking action. Finally the "leader-hero" educates the community and "models integrity to others inside the community and outside it." (p. 199)

Young's work attempts to address each of the research questions posed above, however, fails to embrace in his concluding descriptions of leadership the core value of community – and the community's value – in the process of leadership. Young describes both transformative and transactional leadership styles (p. 189). However, his subsequent descriptions of leadership evoke images of "great man" theories of leadership by focusing exclusively on the actions and interior reflections of individual leaders as "heroes" on individualistic "journeys" from which they "return" to once again reside among the larger community (pp. 189 ff.); like the trait approaches to leadership theory described by Northouse (2007, p. 19), Young's focus is upon characteristics of leaders and assumes no covalent leadership roles assumed by followers. Particularly with regard to the question of how higher education institutions can most efficaciously impact broad communities and the role of leadership in that process, the actions of many individuals – students, faculty and staff – would conceivably play a role in promulgating what Young describes as the common core of shared values (the seven values) which are also integral to leadership roles. Young does not address how leaders transform either followers or society.

Another recent book illustrates the concept of transformational leadership model. While aimed specifically toward student leaders, in *Exploring Leadership: For College Students Who Want to Make a Difference* Komives, Lucas and McMahon (2006) describe leadership as "a relational and ethical process of people together attempting to accomplish positive change." In this view leadership is inherently process-oriented in a purposeful, ethical, empowering and inclusive manner (p. 74). Komives et al. describe

this as a “Relational Leadership Model” or RLM. Like Young, Komives et al. see leadership as “driven by values and standards” and “is good – moral – in nature” (p. 97). Like Young, also, Komives et al. emphasize the importance of leaders acting with integrity and modeling moral behavior (p. 103). The contribution of Komives et al. is to outline the relational dimensions of leadership that facilitate an expansion of positive academic values by multiple or numerous individual leaders in a campus community to the broader community beyond a specific higher education institution.

The purposeful, empowering, inclusive and relational dimensions of the Komives et al. RLM find correlates in many of the shared leadership models described by Pearce and Conger (2003), who contrast traditional leadership “conceived around a single individual – the leader” with leadership “broadly distributed among a set of individuals.” (p. 1) Pearce and Conger also identify shared cognition, or shared mental maps and ways of thinking about issues confronting a leadership team or group, as a characteristic of shared leadership.

Kezar and Lester (2009) describe many organizational characteristics that nurture the development of highly effective collaborative networks and processes. These collaborations have the effect of promoting distributed leadership (p. 45) in ways that in effect multiply leadership roles, creating opportunities and fostering innovation (p. 185). Kezar and Lester’s study of collaboration, while focused more on organizational, process and group characteristics than specific instances of leadership, describes the very human interactions that hold transformative potential beyond the scope of discrete “work” and convey the academic values described by Young to the broader community.

At the furthest end of the continuum of empowered individuals acting in leadership roles, non-positional “grassroots” leaders effect significant positive changes through the exercise of “bottom up” leadership (Kezar and Lester, 2011). Significantly, grassroots leadership as examined by Kezar and Lester is not a top-down “distributed” system whereby leadership (and often, the objectives and agenda of core leadership) is delegated, but are instead actions initiated by individuals irrespective of positional roles assuming leadership roles, and collaborating, networking, problem-solving and enlisting the participations of others, in order to achieve some tangible good.

The collaborative and grassroots models of leadership most effectively capture the flavor of public good, in the form of transformative societal improvements in the quality of life, that is the initial research question of this literature review. As Young notes, there are countervailing forces to the values of higher education and so also to the reification of those values in the form of societal change. As noted above, it can be difficult to differentiate between public and private benefits of higher education and this is particularly difficult when describing economic characteristics. Young identifies capitalism – an exclusive concern with the material – as presenting a significant challenge to higher education values.

Given the confluence of these factors, how are higher education leaders to best support the realization of the (noneconomic) public good and promulgation of academic values in the broader community? Kezar and Lester (2006) describe the organizational conditions leaders can nurture in support of this goal, and also describe (2011) actions individuals can take from the grassroots level to both realize and spread positive

academic values. In *Positive Leadership* Kim Cameron provides an additional path for institutional leaders centered on creating supportive environments that nurture and elevate individuals to achieve what Cameron describes as “positive deviance” performance. While Cameron is focused on the attainment of shared goals (and almost in the form of discrete work teams), he identifies as a key dimension of positive leadership “developing what Aristotle labeled goods of first intent – or to ‘that which is good in itself and is to be chosen for its own sake.’” (cited in Cameron, 2008, p. 3). This emphasis, which again may have “accidental” economic attributes, drives to the heart of the achievements of Kezar and Lester’s (2011) grassroots leaders, and to the purposeful and ethical achievement of positive change described by Komive et al., while averting entanglement with the perverse effects of academic capitalism described by Slaughter and Rhoades. The implementation of positive leadership as described by Cameron involves an authentic engagement with and support for individuals, to develop their full human potentials.

A promising paradigm for this engagement is described by Bringle et al. (1999) in *Colleges and Universities as Citizens*. This book includes a series of essays building on Ernest Boyer’s concept of the “scholarship of engagement” whereby higher education institutions realize their missions through direct involvement in addressing issues in society. Its pertinence to this study is in asserting affirmative duties on the part of higher education institutions that might ultimately be reflected in efficacious formal ethical codes. Like Young, they emphasize higher education’s role in promoting democracy yet widen their focus from the preparation of individuals to function as thoughtful citizens to

place more emphasis on democratic institutions and processes such as voluntary associations.

Through such mechanisms as service learning, applied scholarship, and community-based outreach programs, the reach of the university – as a community of individual faculty, students and administrators – is extended into the life of the society that embraces it. While the resulting interactions are, of course, among and between individual human beings, the scholarship of engagement involves not only individuals but the institutional communities of which they comprise a part. Through the resulting interfaces and interactions, student, faculty and institutional roles – up to and including institutional missions – change with the dynamically changing needs of the broader community and society, as well as with the expanding capabilities of the university community as the boundaries of scholarship and new knowledge advance.

As Kezar and Lester's grassroots leadership work demonstrates, there are no structural or positional limitations to who can effectively participate in leadership roles. The effective leader makes it possible for others to assume leadership roles, not through delegation or command – not through shared leadership, or even necessarily collaboration – but through fostering the conditions of individual empowerment and growth that make it possible for these voices to be heard. In turn the many and diverse voices and talents within higher education develop and extend their reaches into the community.

The ideal higher education organizational setting for supporting the advancement of the highest academic values into the broader community may very well synthesize the approaches noted above. In a positive leadership environment, loosely coupled from

specific shared goal attainment, arise the collaborative environments that in turn foster innovation and establish the conditions within which grassroots leaders are empowered to effect positive change. Can higher education survive financially if all of its actors choose to do “that which is good in itself and is to be chosen for its own sake”? Leadership theorists of the distant future may well wonder how we found it conceivable that economic prosperity could be realized in any other manner than this.

For public higher education to most effectively serve the public good, it must adopt world class standards across the full range of its activities and not sacrifice these for the sake of cost reductions. Within its traditions of academic freedom, shared governance and public funding, public institutions can achieve what the triple constraint model suggests is impossible – the simultaneous realization of improved quality, enhanced access and diminished cost. Working together as a community, this goal can be realized.

Appendix A

Retrieved from <http://www.schev.edu/Restructuring/Assessment2011-3-16-11.pdf>

2011 IPS Assessment Preliminary Review SCHEV Restructuring Subcommittee March 22, 2011

2011 IPS Assessment – Preliminary Review (3/22/11)

Christopher Newport University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	4,679	4,579	4,350	Target Achieved
A.1.b.: Under-represented Enrollments	1,265	1,040	967	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	947	856	900	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	104	75	94	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.452	0.400	0.320	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.517	0.450	0.400	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.486	0.460	0.400	Target Achieved
Six-Year Graduation Rate - Pell	0.534	0.450	0.400	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.596	0.590	0.540	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.609	0.600	0.550	Target Achieved
A.3.: High-need Degrees	97	67	62	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.872	0.835	0.804	Target Achieved
A.5.b.: Degrees per FTE Students	0.206	0.193	0.173	Target Achieved
A.6.a.: Transfer Students	83	15	11	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

College of William and Mary		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	4,969	4,987	4,738	Threshold Achieved
A.1.b.: Under-represented Enrollments	1,417	1,250	1,188	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	1,450	1,438	1,378	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	796	770	716	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.617	0.720	0.582	Threshold Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.802	0.800	0.730	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.799	0.800	0.700	Threshold Achieved
Six-Year Graduation Rate - Pell	0.852	0.897	0.730	Threshold Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.872	0.935	0.800	Threshold Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.882	0.905	0.850	Threshold Achieved
A.3.: High-need Degrees	187	186	173	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.923	0.920	0.896	Target Achieved
A.5.b.: Degrees per FTE Students	0.256	0.243	0.229	Target Achieved
A.6.a.: Transfer Students	83	53	43	Target Achieved
A.7.: Research - Three-Year Moving Average	\$60.29	\$51.48	\$39.96	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

George Mason University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	26,412	26,412	25,091	Target Achieved
A.1.b.: Under-represented Enrollments	8,153	7,010	6,519	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	4,202	4,202	3,992	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	3,641	3,641	3,277	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.359	0.335	0.285	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.414	0.420	0.370	Threshold Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.424	0.410	0.360	Target Achieved
Six-Year Graduation Rate - Pell	0.604	0.630	0.580	Threshold Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.632	0.620	0.570	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.644	0.635	0.585	Target Achieved
A.3.: High-need Degrees	2,027	1,820	1,693	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.853	0.812	0.804	Target Achieved
A.5.b.: Degrees per FTE Students	0.239	0.227	0.200	Target Achieved
A.6.a.: Transfer Students	1,559	370	340	Target Achieved
A.7.: Research - Three-Year Moving Average	\$61.30	\$51.47	\$46.34	Target Achieved
Level II: In-State Six-year Graduation Rate	0.647	0.640	0.600	Target Achieved
Level II: High-need Masters Degrees	1,487	1,455	1,178	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

James Madison University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	13,528	13,510	12,835	Target Achieved
A.1.b.: Under-represented Enrollments	3,639	3,375	3,206	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	3,733	3,722	3,546	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	678	647	610	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.564	0.510	0.460	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.617	0.610	0.560	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.633	0.630	0.580	Target Achieved
Six-Year Graduation Rate - Pell	0.790	0.705	0.655	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.785	0.760	0.710	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.839	0.800	0.750	Target Achieved
A.3.: High-need Degrees	806	737	685	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.917	0.883	0.878	Target Achieved
A.5.b.: Degrees per FTE Students	0.218	0.218	0.211	Target Achieved
A.6.a.: Transfer Students	386	252	237	Target Achieved
Level II: STEM Graduates	566	550	523	Target Achieved
Level II: Course Redesign - MATH 205	0.702	0.707	0.677	Threshold Achieved
Level II: Course Redesign - MATH 220	0.798	0.750	0.720	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Longwood University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	4,511	4,440	4,218	Target Achieved
A.1.b.: Under-represented Enrollments	1,253	1,077	1,002	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	792	750	752	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	194	145	175	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.380	0.358	0.322	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.454	0.388	0.349	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.377	0.367	0.330	Target Achieved
Six-Year Graduation Rate - Pell	0.565	0.524	0.472	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.564	0.559	0.503	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.601	0.573	0.516	Target Achieved
A.3.: High-need Degrees	415	239	222	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.861	0.722	0.708	Target Achieved
A.5.b.: Degrees per FTE Students	0.197	0.195	0.176	Target Achieved
A.6.a.: Transfer Students	131	44	31	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Norfolk State University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	5,715	5,234	4,972	Target Achieved
A.1.b.: Under-represented Enrollments	3,339	2,507	2,382	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	768	803	730	Threshold Achieved
A.1.c.: Degree Awards (Graduate and Professional)	220	231	198	Threshold Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.105	0.085	0.077	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.146	0.158	0.142	Threshold Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.160	0.130	0.117	Target Achieved
Six-Year Graduation Rate - Pell	0.316	0.270	0.257	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.419	0.380	0.361	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.324	0.350	0.333	Threshold Not Achieved
A.3.: High-need Degrees	324	290	260	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.772	0.750	0.710	Target Achieved
A.5.b.: Degrees per FTE Students	0.151	0.157	0.149	Threshold Achieved
A.6.a.: Transfer Students	146	10	8	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Old Dominion University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	21,131	20,250	19,238	Target Achieved
A.1.b.: Under-represented Enrollments	9,117	7,400	6,900	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	3,129	3,027	2,973	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	1,502	1,364	1,352	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.165	0.180	0.150	Threshold Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.174	0.210	0.170	Threshold Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.214	0.220	0.190	Threshold Achieved
Six-Year Graduation Rate - Pell	0.432	0.385	0.350	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.502	0.490	0.440	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.490	0.500	0.450	Threshold Achieved
A.3.: High-need Degrees	1,853	1,720	1,603	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.801	0.755	0.736	Target Achieved
A.5.b.: Degrees per FTE Students	0.204	0.200	0.190	Target Achieved
A.6.a.: Transfer Students	1,318	440	402	Target Achieved
A.7.: Research - Three-Year Moving Average	\$86.16	\$51.20	\$42.30	Target Achieved
Level II: Nursing Degrees	233	233	194	Target Achieved
Level II: Course Redesign - MATH 102	0.470	0.540	0.420	Threshold Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Richard Bland College		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	1,570	1,612	1,531	Threshold Achieved
A.1.b.: Under-represented Enrollments	723	488	400	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	192	200	182	Threshold Achieved
A.2.: Affordability				Measure Achieved
Two-Year Graduation Rate - Pell	0.041	0.025	0.015	Target Achieved
Two-Year Graduation Rate - Other Need-Based Aid	0.115	0.120	0.070	Threshold Achieved
Two-Year Graduation Rate - No Need-Based Aid	0.093	0.080	0.070	Target Achieved
Four-Year Graduation Rate - Pell	0.164	0.160	0.100	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.333	0.270	0.220	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.328	0.250	0.230	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.522	0.500	0.430	Target Achieved
A.5.b.: Degrees per FTE Students	0.179	0.049	0.047	Target Achieved
A.6.b.: Dual Enrollments	281	230	230	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Radford University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	8,264	8,215	7,804	Target Achieved
A.1.b.: Under-represented Enrollments	2,665	2,507	2,382	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	1,758	1,724	1,670	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	403	384	363	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.345	0.296	0.254	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.408	0.333	0.289	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.440	0.378	0.336	Target Achieved
Six-Year Graduation Rate - Pell	0.531	0.480	0.447	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.572	0.497	0.454	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.575	0.546	0.523	Target Achieved
A.3.: High-need Degrees	589	545	518	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.814	0.813	0.783	Target Achieved
A.5.b.: Degrees per FTE Students	0.228	0.229	0.202	Threshold Achieved
A.6.a.: Transfer Students	457	234	226	Target Achieved
Level II: In-State Six-year Graduation Rate	0.568	0.560	0.530	Target Achieved
Level II: Course Redesign - ITEC 120	0.569	0.492	0.490	Target Achieved
Level II: Course Redesign - ITEC 220	0.725	0.566	0.564	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

University of Mary Washington		3/16/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	4,518	4,110	3,905	Target Achieved
A.1.b.: Under-represented Enrollments	949	765	719	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	969	942	921	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	279	259	251	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.567	0.497	0.421	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.616	0.601	0.534	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.678	0.605	0.547	Target Achieved
Six-Year Graduation Rate - Pell	0.730	0.663	0.594	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.742	0.737	0.681	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.758	0.732	0.693	Target Achieved
A.3.: High-need Degrees	267	236	220	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.847	0.845	0.840	Target Achieved
A.5.b.: Degrees per FTE Students	0.237	0.237	0.228	Target Achieved
A.6.a.: Transfer Students	163	83	47	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

University of Virginia		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	15,058	15,596	14,816	Threshold Achieved
A.1.b.: Under-represented Enrollments	3,954	3,606	3,468	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	3,561	3,510	3,383	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	2,681	2,762	2,413	Threshold Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.763	0.870	0.720	Threshold Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.830	0.870	0.785	Threshold Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.880	0.870	0.840	Target Achieved
Six-Year Graduation Rate - Pell	0.834	0.940	0.820	Threshold Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.897	0.940	0.860	Threshold Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.939	0.940	0.910	Threshold Achieved
A.3.: High-need Degrees	1,530	1,572	1,463	Threshold Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.944	0.920	0.900	Target Achieved
A.5.b.: Degrees per FTE Students	0.244	0.245	0.240	Threshold Achieved
A.6.a.: Transfer Students	314	116	95	Target Achieved
A.7.: Research - Three-Year Moving Average	\$267.77	\$235.00	\$206.80	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

University of Virginia's College at Wise		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	1,917	1,882	1,788	Target Achieved
A.1.b.: Under-represented Enrollments	1,017	843	784	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	211	208	200	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.184	0.188	0.177	Threshold Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.277	0.277	0.260	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.297	0.291	0.273	Target Achieved
Six-Year Graduation Rate - Pell	0.444	0.450	0.423	Threshold Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.425	0.400	0.376	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.532	0.492	0.462	Target Achieved
A.3.: High-need Degrees	58	58	54	Target Achieved
A.4.: Academic Standards				To Be Determined
A.5.a.: Average Retention Rate	0.768	0.732	0.681	Target Achieved
A.5.b.: Degrees per FTE Students	0.152	0.160	0.150	Threshold Achieved
A.6.a.: Transfer Students	104	42	22	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Virginia Community College System		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	180,464	178,208	169,298	Target Achieved
A.1.b.: Under-represented Enrollments	96,703	76,846	71,485	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	21,014	20,837	19,963	Target Achieved
A.2.: Affordability				Measure Achieved
Two-Year Graduation Rate - Pell	0.063	0.060	0.045	Target Achieved
Two-Year Graduation Rate - Other Need-Based Aid	0.098	0.090	0.075	Target Achieved
Two-Year Graduation Rate - No Need-Based Aid	0.087	0.070	0.058	Target Achieved
Four-Year Graduation Rate - Pell	0.205	0.170	0.158	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.302	0.240	0.220	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.244	0.203	0.195	Target Achieved
A.3.: High-need Degrees	3,245	2,450	2,279	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.557	0.497	0.477	Target Achieved
A.6.b.: Dual Enrollments	31,876	30,500	28,365	Target Achieved
Level II: Community College Career Pathways Programs	20,631	18,250	17,500	Target Achieved
Level II: Successful Outcomes for Program-placed Students (12+ Credits)	0.491	0.485	0.460	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Virginia Commonwealth University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	27,856	27,811	26,420	Target Achieved
A.1.b.: Under-represented Enrollments	9,982	8,400	7,560	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	4,033	3,759	3,831	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	2,709	2,545	2,438	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.216	0.170	0.130	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.286	0.230	0.160	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.278	0.250	0.200	Target Achieved
Six-Year Graduation Rate - Pell	0.438	0.470	0.390	Threshold Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.530	0.480	0.420	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.512	0.510	0.440	Target Achieved
A.3.: High-need Degrees	1,411	1,225	1,103	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.833	0.815	0.734	Target Achieved
A.5.b.: Degrees per FTE Students	0.195	0.183	0.163	Target Achieved
A.6.a.: Transfer Students	1,148	200	175	Target Achieved
A.7.: Research - Three-Year Moving Average	\$162.22	\$116.81	\$99.29	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Virginia Military Institute		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	881	865	822	Target Achieved
A.1.b.: Under-represented Enrollments	274	203	189	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	283	292	269	Threshold Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.434	0.425	0.365	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.589	0.520	0.460	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.559	0.570	0.510	Threshold Achieved
Six-Year Graduation Rate - Pell	0.614	0.540	0.480	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.762	0.625	0.565	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.688	0.700	0.640	Threshold Achieved
A.3.: High-need Degrees	81	76	68	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.892	0.866	0.851	Target Achieved
A.5.b.: Degrees per FTE Students	0.166	0.182	0.156	Threshold Achieved
Level II: Financial Aid - Need-Based Cadets	0.898	1.000	0.800	Threshold Achieved
Level II: Financial Aid - High-Need Cadets	0.830	1.000	0.800	Threshold Achieved
Level II: Commissions	0.465	0.450	0.425	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Virginia State University		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	3,745	3,812	3,621	Threshold Achieved
A.1.b.: Under-represented Enrollments	2,113	1,752	1,664	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	689	629	655	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	116	104	104	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.247	0.225	0.175	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.269	0.245	0.195	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.303	0.265	0.215	Target Achieved
Six-Year Graduation Rate - Pell	0.401	0.405	0.355	Threshold Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.470	0.440	0.390	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.420	0.455	0.405	Threshold Achieved
A.3.: High-need Degrees	189	45	43	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.781	0.675	0.600	Target Achieved
A.5.b.: Degrees per FTE Students	0.144	0.144	0.115	Target Achieved
A.6.a.: Transfer Students	69	9	6	Target Achieved

2011 IPS Assessment – Preliminary Review (3/22/11)

Virginia Tech		3/15/2011		
Measure	Actual	Target	Threshold	Result
A.1.a.: In-State Enrollment	21,557	21,306	20,241	Target Achieved
A.1.b.: Under-represented Enrollments	5,807	5,206	4,950	Target Achieved
A.1.c.: Degree Awards (Undergraduate)	5,563	5,389	5,285	Target Achieved
A.1.c.: Degree Awards (Graduate and Professional)	2,061	1,994	1,855	Target Achieved
A.2.: Affordability				Measure Achieved
Four-Year Graduation Rate - Pell	0.423	0.417	0.378	Target Achieved
Four-Year Graduation Rate - Other Need-Based Aid	0.513	0.481	0.443	Target Achieved
Four-Year Graduation Rate - No Need-Based Aid	0.564	0.531	0.501	Target Achieved
Six-Year Graduation Rate - Pell	0.735	0.703	0.664	Target Achieved
Six-Year Graduation Rate - Other Need-Based Aid	0.771	0.768	0.720	Target Achieved
Six-Year Graduation Rate - No Need-Based Aid	0.808	0.815	0.778	Threshold Achieved
A.3.: High-need Degrees	2,007	1,804	1,702	Target Achieved
A.4.: Academic Standards	Statement submitted			Measure Achieved
A.5.a.: Average Retention Rate	0.913	0.878	0.854	Target Achieved
A.5.b.: Degrees per FTE Students	0.229	0.220	0.195	Target Achieved
A.6.a.: Transfer Students	517	124	97	Target Achieved
A.7.: Research - Three-Year Moving Average	\$391.13	\$404.32	\$325.32	Threshold Achieved

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Curriculum Vitae

Guilbert Brown is a Phi Beta Kappa graduate of the University of Denver with a Bachelor of Arts degree in political science and philosophy. He is co-author of the book *SEM and Institutional Success: Integrating Enrollment, Finance and Student Access* (AACRAO Publishing, 2008) and has contributed a chapter on financial aid to a forthcoming book to be published by AACRAO.

During a higher education administration career spanning nearly three decades Mr. Brown has made presentations to the National Association of College & University Business Officers (NACUBO), the Society for College & University Planning (SCUP), American Association of Collegiate Registrars and Admissions Officers (AACRAO), Association of Governing Boards of Universities and Colleges (AGB), Association for Institutional Research (AIR) and other organizations.

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