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The Privately Financed Public University: A Case Study of the University of Michigan-Ann Arbor

by Vicki Murray, Ph.D., Director, Center for Educational Opportunity, Goldwater Institute

EXECUTIVE SUMMARY

In 1965, the University of Michigan-Ann Arbor (U-M) received 70 percent of its funding in appropriations from the state of Michigan. By 2003, U-M had reduced its dependence on the state to just 10 percent of total revenue. At the same time, U-M remained a top 25 institution according to the University of Florida's *Top American Research Universities* and *U.S. News & World Report's* annual rankings. U-M also tops Wall Street rankings, becoming the first public university to have its credit rating raised to an Aa1 ranking and its bonds trading at Aaa levels. Today, Michigan's flagship university is considered "Silicon Valley East" and has become a model for other large, public research institutions.

Arizona's two largest public universities, Arizona State University (ASU) and the University of Arizona (UA), face many of the same challenges that U-M confronted decades ago. Like the University of Michigan of the 1960s, ASU and UA depend heavily on state appropriations, yet have great endowment and alumni-giving revenue potential. This case study describes U-M's efforts over the past 35 years to transform itself into a privately financed public research university and draws three recommendations for consideration.

Arizona's universities can increase their financial self-sufficiency and reduce their reliance on state funding by identifying core academic programs, aligning tuition more closely with the actual cost of educational services, and increasing private funding. ASU and UA have strong community support, with well over 200,000 alumni each, and increasingly distinguished academic rankings. Like U-M, ASU and UA have the potential to become world-class research institutions by embracing an entrepreneurial approach to fundraising, management, and resource allocation.

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Becoming a Privately Financed Public Research University: An Overview

In 1965, state appropriations amounted to 70 percent of the University of Michigan-Ann Arbor's general revenue.¹ After peaking at this level, state funding as a portion of the University of Michigan (U-M) declined steadily over the next 30 years. State support for U-M began declining, in part, because Michigan's public university system, which currently includes 15 public campuses, was expanding as the state's economy was weakening. In fact, Michigan quickly went from one of the top-ranked states in terms of appropriations for higher education to one of the lowest-ranked states.²

Beginning in the 1970s, U-M responded to reductions in state funding by increasing both in- and out-of-state tuition; focusing on its most distinguished academic programs with the greatest potential for raising revenue, such as business administration, medicine, and engineering; and reducing funding for its less distinguished programs, including natural resources, art, and education.³

When the state of Michigan again reduced its support in 1981, U-M responded by eliminating funding altogether for its undistinguished programs such as geography, as well as

its institutes studying mental retardation and environmental quality.⁴ The University's critical programs survived, but as former president James J. Duderstadt, who served from 1988 to 1996, observes, "it was clear that such a crisis-driven, centralized decision process was not appropriate for the longer term."⁵ For this reason, in the mid-1980s U-M implemented Vision 2000, a strategy of containing costs, managing resources wisely, and finding alternative sources of revenue to help sustain and improve the University's research standing.⁶

By following the Vision 2000 strategy, U-M's private sector support increased, especially from friends and alumni.⁷ This approach succeeded in raising enough funds to sustain U-M's research stature in the short-term. However, the Vision 2000 strategy failed to put the university on a financial foundation solid enough to position it as a leader in higher education over the long term.⁸ A primary reason for this failure was the fact that U-M viewed private funding as a temporary supplement providing a "quick fix" until state support would return to normal. It never did. By fiscal year 1990, state funding had fallen to roughly 15 percent of U-M's total funding, and it was obvious that state support would continue to decline as a percentage of its general revenue.⁹

U-M officials acknowledged that

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“the current erosion in state support for higher education is part of a more permanent shift in funding priorities. Generous support of higher education is unlikely to be sustained in most states over the longer term.”¹⁰ At best, the anticipated levels of state support for U-M would sustain a four-year regional college. However, to become an internationally recognized research university, U-M would have to become a privately financed public university by raising revenue competitively through tuition, grants, and private donations, and then managing those resources wisely.¹¹

Under its Vision 2000 strategy of the 1980s, U-M sought to generate and manage resources like a private business, but it intended to continue relying on generous state funding that never materialized. Becoming a privately financed public university therefore became the cornerstone of U-M’s new strategy for the 1990s, named Vision 2017 in honor of the university’s 200th anniversary. According to president emeritus Duderstadt, the new strategy was designed to establish a long-term financial foundation that would be “less susceptible to the shifting winds of government fortune.”¹² Under this new strategy, private giving would replace, not supplement, state funding.¹³

As a result, by the end of the 1990s, U-M was largely supported through private money.¹⁴ Moreover, its educational quality was on par with some of the country’s top private institutions, including Harvard

University and Stanford University, at about one-third the price.¹⁵ By adopting the model of a privately financed public university, U-M doubled its general revenues from \$1.8 billion in fiscal year 1991 to nearly \$4 billion in fiscal year 2001. This revenue increase occurred as state funding went from 15 percent of U-M’s general revenue in fiscal year 1991 to 10 percent in fiscal year 2001.¹⁶

Like U-M, Arizona State University (ASU) and the University of Arizona (UA) are classified by the Carnegie Foundation as “Doctoral/Research Universities—Extensive” institutions and rank among the country’s top 200 universities. The Arizona Board of Regents (ABOR) considers U-M a peer institution of ASU and UA.¹⁷ Another similarity among these three institutions is a stated intention to reduce reliance on state funding. ASU president Michael Crow has stated his intent to transform ASU from an agency, or state-subsidized, research university to what he calls an “entrepreneurial” university. The goal of such a university, according to Crow, “is to ask the Legislature in the future for less money by finding alternative support through partnerships with business.”¹⁸

However, in spite of the stated goal of making Arizona’s universities less dependent upon state funding, Crow led an effort for more, not less, public money. In 2003, following intense lobbying efforts, the state legislature passed the highly publicized University Research Financing bill.¹⁹ Paid out in 24 installments of \$35 million over 23 years

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to Arizona's three public universities, the total expenditure amounts to approximately \$840 million in current dollars for \$440 million worth of new research facilities.²⁰

In addition, during fiscal year 2004, legislators increased state appropriations for Arizona's three public universities over five percent to \$780 million.²¹ ABOR also unanimously approved a \$1.26 billion budget for fiscal year 2006. The Regents' proposed budget represents a 10 percent increase over the previous fiscal year's budget. Under the proposed budget plan, state general fund appropriations for all three public universities would have to increase to \$906 million.²²

Those requested increases come as ASU and UA have raised more money from private sources than at any time in the past. During fiscal year 2004, ASU and UA each raised over \$100 million in private donations. Yet university officials report that Arizona's public universities "will continue to rely heavily on tax dollars for their core educational programs and most new buildings."²³ In fact, turning to private sector support for the universities actually worries former Regents president Chris Herstam because he does "not wish to throw in the towel on relying on the state general fund."²⁴ Thus, it appears Arizona's public universities intend to maintain their reliance on state funding.

By continuing to depend so heavily on state funding, ASU and UA are nearly two decades behind U-M. Like

ASU and UA, dozens of public universities nationwide aspire to become leading 21st-century research institutions, but they cling to 19th-century strategies of state subsidies and centralized planning. U-M has pulled far ahead of the pack precisely by bucking that conventional public university strategy. Given its success over the past 30 years, U-M is an instructive case study of what is possible when public research universities choose financial self-sufficiency over state subsidies.

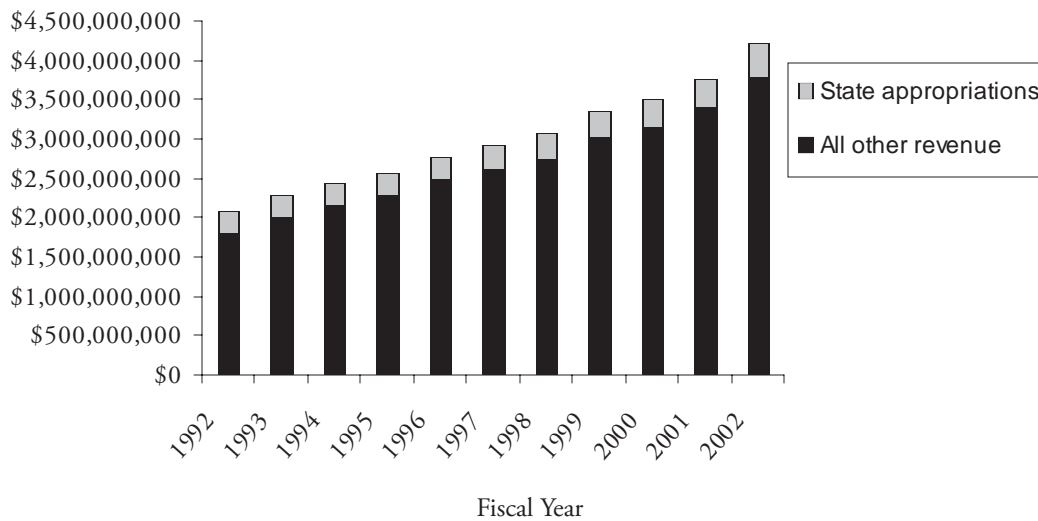
Revenue

Most public universities rely on five basic revenue sources: state appropriations; federal, state, and local grants and contracts; tuition and fees; private gifts and endowment income; and auxiliary enterprises. This section examines each of those revenue sources at U-M. The following figures illustrate the growth of its total general revenue and the portion each revenue source has contributed over the past decade. As shown in Figure 1, U-M doubled its general revenue from \$1.8 billion in fiscal year 1992 to nearly \$4 billion by fiscal year 2002, even as state funding went from 15 percent to less than 10 percent of its general revenue.

Comparing the contributions that government and non-government revenue made to U-M's general revenue from fiscal years 1991 to 2002 is even more striking, as seen in Figure 2. U-M raises roughly three-quarters of its

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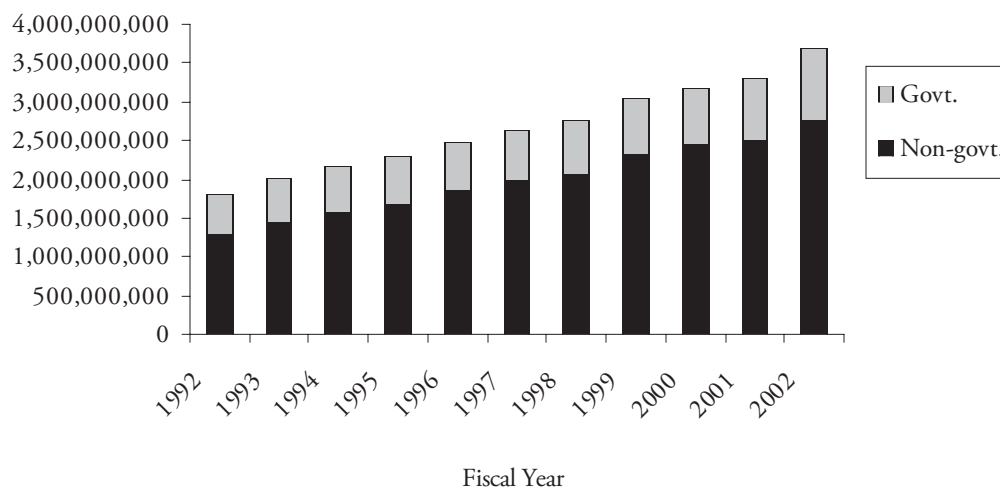
Figure 1: General Revenue: 1992 to 2002



Sources: University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports; and *U.S. News & World Report's* annual "America's Best National Universities" issues for corresponding years.
 Note: Dollar amounts are not adjusted for inflation.

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Figure 2: Government and Non-Government Revenue: 1992 to 2002



Sources: University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports; and *U.S. News & World Report's* annual "America's Best National Universities" issues for corresponding years.
 Note: Dollar amounts are not adjusted for inflation.

In 1965 Michigan was among the top five states in funding higher education. By 1980, it ranked in the bottom third, and state funding went from 70 percent of U-M's general revenue to 40 percent.

general revenue from non-government sources, which include tuition and fees, private giving and grants, as well as income from the university's auxiliary enterprises, educational departments, endowment income, and other investments. In addition to state appropriations, government sources include federal, state, and local government grants and contracts. The portion government sources contributed to U-M's general revenue declined from 29 percent in fiscal year 1992 to 25 percent in fiscal year 2002.

Under Harold T. Shapiro, who served as U-M president from 1980 to 1988, the university intensified its private fundraising efforts. Moreover, in 1983 Shapiro explained, "We're trying to figure out how to allocate our resources like a business does. Everybody knows we're not a business, but we still have to manage assets."²⁵ Shapiro hired experts from private universities to improve U-M's fundraising organization and volunteer recruitment. All of U-M's schools and colleges began turning to the private sector as a key component of their strategic planning to improve their revenue bases. U-M also started managing its endowment as a private bank would, and combined with effective fundraising efforts, U-M's endowment grew from \$250 million in 1988 to over \$2 billion by 1996.²⁶ By 1996, as a result of its investment management, U-M became one of the top-ranked institutions for endowment earnings and raised over \$3 billion in additional revenue for its various departments.²⁷ Each of U-M's general

revenue sources is considered in greater detail below, and together they reveal that U-M has nearly achieved financial independence from state appropriations.

State Support

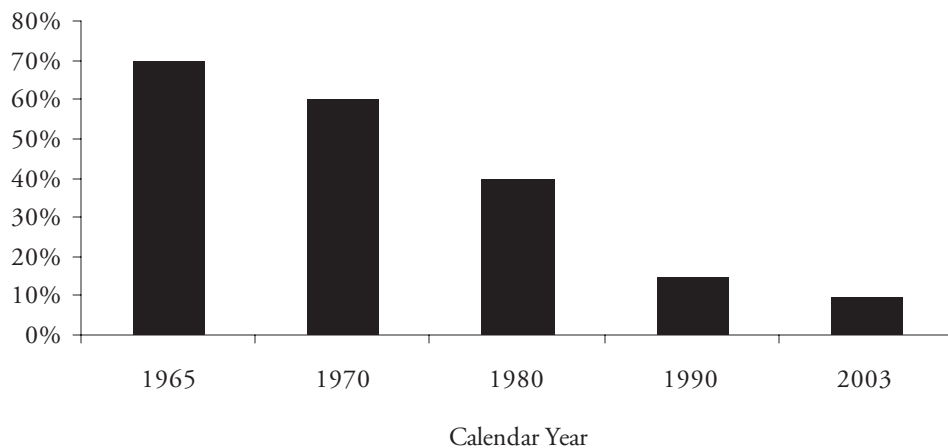
In 1965 Michigan was among the top five states in funding higher education. By 1980, it ranked in the bottom third, and state funding went from 70 percent of U-M's general revenue to 40 percent.²⁸ By the 1990s, state support constituted 15 percent of U-M's general revenue, and as of 2003 it constituted less than 10 percent.

Federal Support

During the 1980s, when state support was declining, U-M turned to federal funding to support its research and financial aid programs. Federal funding afforded U-M some budget flexibility.²⁹ Based on U-M's experience, however, increasing dependence on federal support is not a wise long-term strategy. First, just like state governments, the federal government has many competing demands for resources. Second, the federal government now limits reimbursements to universities for the overhead costs of conducting federally sponsored research. To cover those unreimbursed research costs, many research universities must reallocate funds away from educational services.³⁰

From fiscal years 1992 to 2002, the level of U-M's federal funding increased by 48 percent. Yet, as seen in Figure 4, it

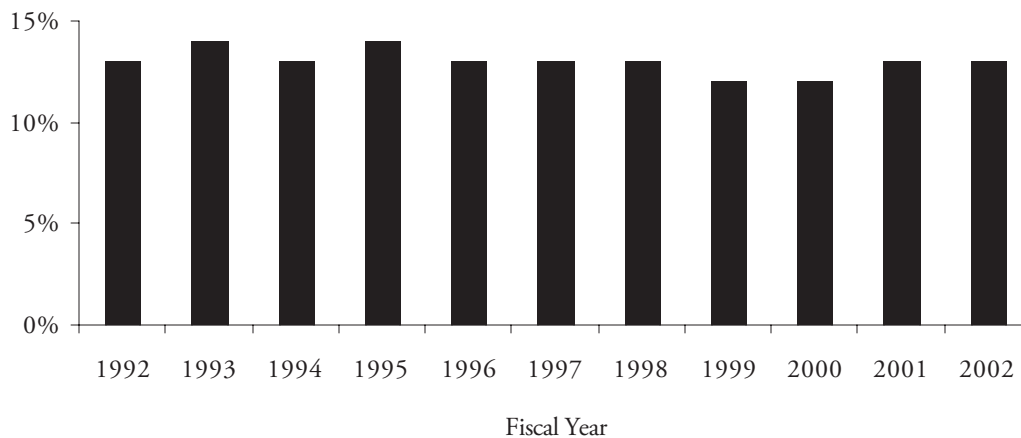
Figure 3: State Funding as a Percentage of General Revenue: 1965 to 2003



Sources: University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports for corresponding years 1991 through 2003. Percentages for prior years from James J. Duderstadt, *A University for the 21st Century* (Ann Arbor: University of Michigan Press, 2000).

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Figure 4: Federal Funding as a Percentage of General Revenue: 1992 to 2002



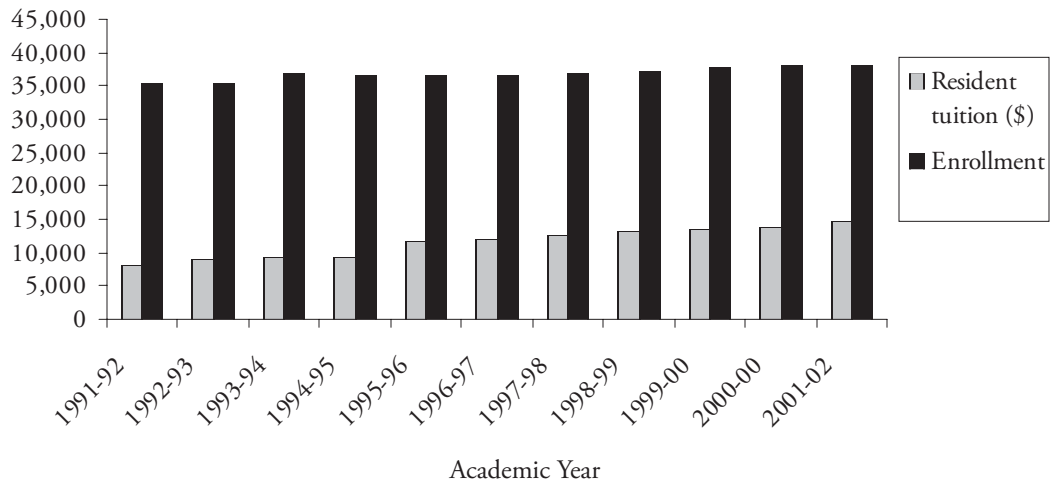
Source: University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports.

remained relatively constant as a portion of U-M’s general revenue, averaging about 13 percent between fiscal years 1992 and 2002.

Student Tuition and Fees

To compensate for declining state support, U-M raised tuition. Tuition rarely covers the actual cost of the education provided by a college or university, and it is typically heavily subsidized by public and private funds.

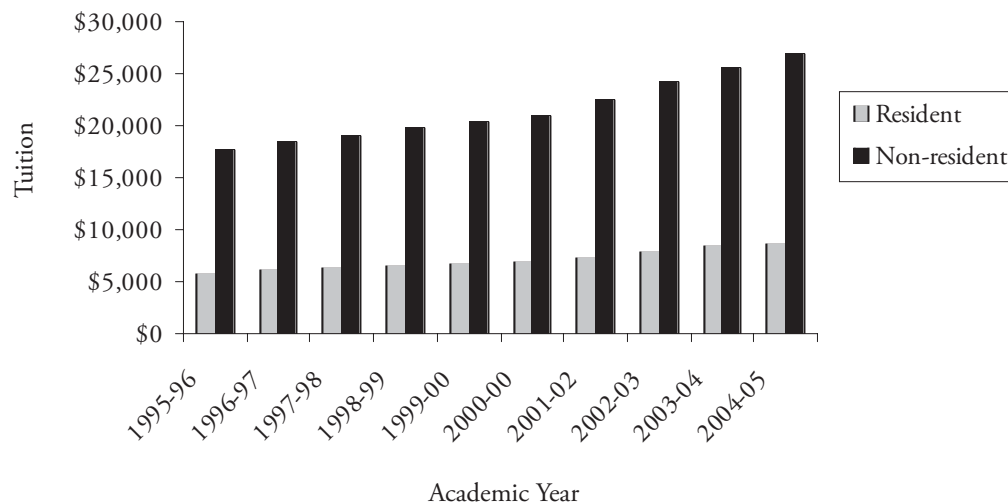
Figure 5: Total Enrollment and Tuition: 1991-92 to 2001-02



Source: Enrollment data for academic years 1991-02 through 1993-94 are from *U.S. News & World Report’s* annual “America’s Best National Universities” for corresponding years. Enrollment data for academic years 1994-95 through 2000-01 are from the National Center for Education Statistics (NCES), *Digest of Education Statistics*, 1996 through 2003 for corresponding years. Tuition data are from the University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports for corresponding years.

Notes:

1. Total enrollment figures represent combined full-time undergraduate and graduate student enrollment.
2. University of Michigan undergraduate resident tuition amounts are used and represent the average of the “Lower Division” and “Upper Division” College of Literature, Science, and the Arts tuition amounts.
3. The University of Michigan charges “Lower Division” and “Upper Division” tuition rates for resident and non-resident full-time students. Lower Division rates apply to students with less than 55 credits toward program (CTP), usually freshmen and sophomores. Upper Division rate hours apply to students with more than 55 credits toward program (CTP), usually juniors and seniors.
4. Tuition amounts for academic years 1991-1992 through 1993-1994 are estimates derived by dividing the total tuition and fees for the corresponding year by the total undergraduate and graduate enrollment.
5. Dollar amounts are not adjusted for inflation.

Figure 6: Undergraduate Resident and Non-Resident Tuition: 1995-96 to 2004-05

Source: University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports for corresponding years.

Notes:

1. University of Michigan undergraduate resident tuition amounts are the average of the “Lower Division” and “Upper Division” College of Literature, Science, and the Arts tuition amounts.
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3. The University of Michigan also charges different tuition levels for each academic program offered: Dentistry, Engineering, Kinesiology, the College of Literature, Science, and the Arts, and all other units. The tuition rate for the College of Literature, Science, and the Arts is considered the “general” undergraduate rate because it enrolls the largest number of undergraduates.
4. Dollar amounts are not adjusted for inflation.

Financial aid, work-study, and loans also reduce the price students or their families pay for the education students receive.³¹ Yet tuition can be a substantial revenue source for any university, and it is a source over which universities can exercise greater control. However, the tuition price universities can charge is limited. Tuition set too low can harm educational quality. Tuition set too high can drive away students who will seek out comparable universities that are less expensive. Moreover, like other state

constitutions, Arizona’s requires state universities to charge tuition that is “as nearly free as possible,” which limits flexibility to set tuition.³²

Before state support diminished, U-M’s in-state tuition remained low in large part because the state of Michigan subsidized it. To raise additional funding, U-M increased the tuition charged to non-resident students. By the early 1990s, U-M’s out-of-state tuition was as high as its peer institutions and

could not be raised without risking the loss of students to competitors.³³ Having raised its out-of-state tuition to match the tuitions charged by peer institutions, U-M began raising the in-state tuition it charged Michigan residents.

Despite rising tuition, from academic years 1991-92 to 2001-02, U-M's combined full-time graduate and undergraduate enrollment increased from 35,000 students to 38,000 students. U-M's annual revenue from tuition and fees increased in unadjusted dollars from \$288 million in the 1991-92 academic year to \$607 million in the 2001-02 academic year and constituted 16 percent of U-M's general revenue on average. As shown in Figure 6, from academic years 1995-96 to 2004-05, resident and non-resident tuition at U-M increased by 33 and 35 percent, respectively.³⁴ Despite those tuition increases, enrollment has continued to increase.

Importantly, U-M does not charge a flat tuition rate for undergraduate or graduate education. Each academic program varies in price, and a slightly higher tuition is charged for upperclassmen. This practice is the result of U-M's attempt to make tuition match actual costs. Yet again, because of political pressure to keep in-state tuition artificially low, and pressure not to exceed levels the market will bear, there are limits to how much tuition and fees can rise.³⁵

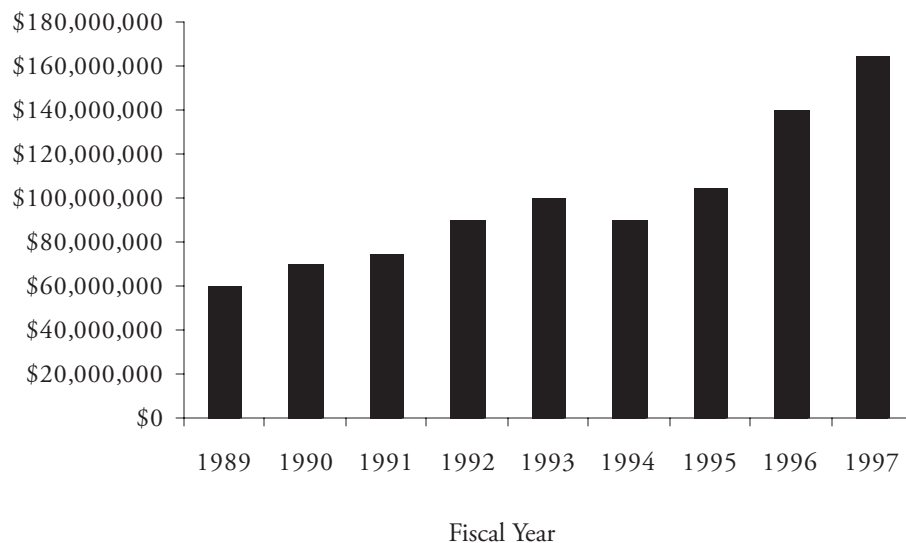
Private Fundraising

U-M began aggressively raising private funding by creating a central development office, which assists university-wide fundraising efforts, as well as more targeted projects undertaken by smaller units. Though centralized, the development office's operations are decentralized, sharing resource allocation decisions among academic units, administrative units, and central administration.³⁶ Such decentralization introduced incentives for increased productivity among units of the University's schools and colleges by making them responsible for meeting their costs but allowing them to keep the funds they raise. To support operations shared by all of U-M's schools and colleges, such as the library, and to subsidize academic units that cannot raise sufficient funds, a small "tax" is imposed on units' expenditures to provide a central pool of resources.³⁷

One of U-M's first development projects was its Campaign for Michigan, which built a network of donors and fundraising volunteers. As a result of the Campaign, annual private giving reached \$60 million in 1988 and U-M was able to establish a base endowment of \$250 million.³⁸ This success prompted U-M to adopt bolder financial goals in 1990. First, the university strove to generate more annual private and investment revenue than annual state appropriations, averaging \$300 million by 2000.³⁹

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Figure 7: Private Giving: 1989 to 1997

Source: James J. Duderstadt, *A University for the 21st Century* (Ann Arbor: University of Michigan Press, 2000), 455.

Notes:

1. Dollar amounts are not adjusted for inflation.
2. Private giving includes gifts and pledges.

U-M launched one of the most ambitious fundraising campaigns by a university, public or private, at that time: to raise \$1 billion by the fall of 1997. The university ultimately exceeded its goal by raising more than \$1.4 billion.⁴⁰ As a result, from fiscal years 1989 to 1997, annual private giving nearly tripled, from \$60 million to \$165 million, and U-M's endowment increased from \$250 million to \$2 billion, yielding \$90 million in annual endowment income.⁴¹ Thus, as of fiscal year 1997 U-M's combined annual private giving and endowment income reached \$255 million.

U-M's second financial goal was to

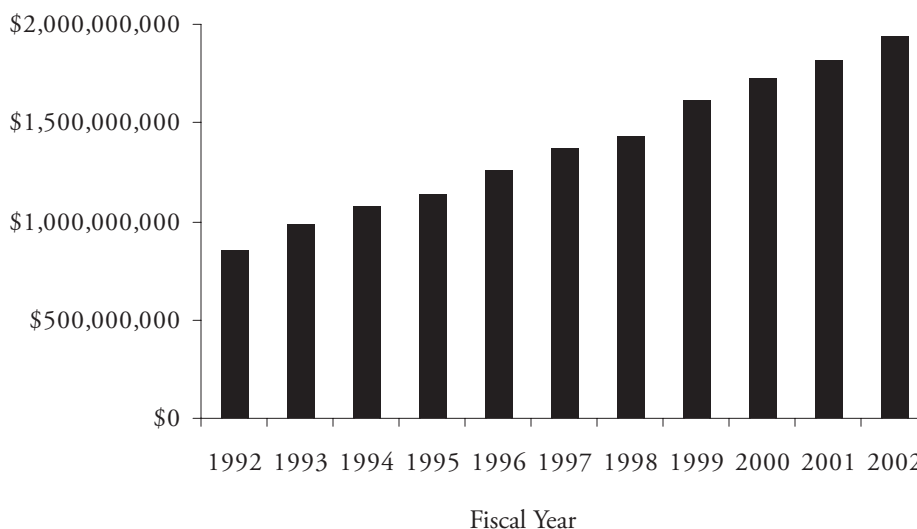
build an endowment capable of yielding annual income exceeding state appropriations by 2010.⁴² By the close of fiscal year 2003, the market value of U-M's endowment reached \$4.2 billion, suggesting U-M is well on its way to meeting its goal.⁴³

Auxiliary Funds

Along with private gifts and endowment income, auxiliary income has been U-M's fastest growing source of revenue.⁴⁴ One auxiliary revenue source is its Michigan Wolverines football team, including licensing of the "block M" logo.⁴⁵ Continuing education also generates significant revenue for U-M.

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Figure 8: Auxiliary Enterprise Revenue: 1992 to 2002



Raising revenue represents only one side of the ledger. Streamlining administration, setting funding priorities, and cutting costs are equally important in helping universities adapt to changing economic circumstances.

Source: James J. Duderstadt, *A University for the 21st Century* (Ann Arbor: University of Michigan Press, 2000), 455.

Note: Dollar amounts are not adjusted for inflation.

For example, by marketing its Executive Education Program in the School of Business Administration and the Continuing Engineering Education Program in the College of Engineering, U-M raised resources for those academic units. U-M’s continuing education programs offer students the opportunity to take individual courses that meet their particular needs and interests instead of enrolling in an entire program or college.⁴⁶

academic units that contribute to the bottom line of the U-M hospitals (e.g. clinical research facilities), we believed it would be unwise to make permanent base commitments based on these funds.”⁴⁷

As shown in Figure 8, annual income from U-M’s auxiliary enterprises more than doubled between fiscal years 1992 and 2002, from \$856 million to just over \$2 billion.

During the past 20 years, U-M’s hospitals were generating between \$60 million and \$100 million annually. However, given the changes in national healthcare policy, Duderstadt cautions against over-reliance on this particular enterprise, saying, “While we thought there might be an opportunity to make important investments in those

Resource Management

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to changing economic circumstances. U-M has more than 50,000 full- and part-time students, 3,500 faculty, and 12,000 staff, which makes funding it akin to financing a large private corporation.⁴⁸

One lesson U-M drew from private business was the recognition that quality does not always have to cost more. In fact, in many cases, quality can be more cost effective than mediocrity. For example, by having fewer but more talented professors, overall faculty salary costs would be lower, but individual salaries could be higher. With effective faculty, redundant courses could be eliminated without compromising classroom quality, even if resulting classes were slightly larger.

U-M drew another lesson from private industry concerning budgeting. Simply put, before adopting new programs, universities must evaluate existing programs and eliminate ineffective or redundant ones. Most university budgets rely on automatic, annual funding increases. This is a recipe for inefficiency because it discourages long-range planning and prioritizing, each of which assures potential private supporters that universities take cost-effectiveness and institutional efficiency seriously.⁴⁹

U-M also learned to define quality in terms of outputs, such as student performance, rather than inputs, such as increased funding. Measuring quality against results encourages universities to become student-centered, focusing

academic programs, fundraising efforts, research agendas, and administrative functions primarily around their needs, not those of faculty or administrators. Becoming student-centered is increasingly critical for universities to thrive, as Duderstadt explains:

Universities have long enjoyed a monopoly over advanced education because of geographical location and their monopoly on certification through the awarding of degrees. However, today all of these market constraints are being challenged, as information technology eliminates the barriers of space and time and as new competitive forces enter the marketplace to challenge credentialing...Perhaps most important of all will be the impact of information technology, which will not only eliminate the constraints of space and time but will create open learning environments in which the learner has choice in the marketplace. More specifically, tomorrow's student will have access to a vast array of learning opportunities, far beyond today's faculty-centered institutions. Some of these opportunities will provide formal credentials, others will provide simply knowledge, still others will be available whenever the student, more precisely, the learner, needs the knowledge.⁵⁰

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As higher education becomes increasingly global and decentralized,

competition for students and their education dollars will intensify.

With those lessons in mind, U-M changed the way it allocates resources. On the one hand, the University did not want to sacrifice academic scope in order to achieve excellence in a limited number of academic fields, as some institutions do. On the other hand, U-M could not afford to pursue a “multiversity” model characterized by multiple campuses and colleges in an effort to be “all things to all people.”⁵¹ Instead, U-M adopted a balanced approach with what it calls a “spires of excellence” strategy. This strategy enabled the University to offer the diversity of programs other large public universities offer while setting itself apart by focusing its resources on academic quality.⁵²

From U-M’s “spires of excellence” strategy came a series of structural decisions, including a new, decentralized approach to resource management. Decentralization is a significant departure from standard public university practice. Universities typically allocate their resources according to an “incremental budgeting” system in which programs and departments begin each fiscal year with the same level of funding as the previous year plus an inflation-adjusted increase. Such an approach to resource management is impractical in an era of limited public resources because state universities need the autonomy to establish their priorities and fund them accordingly.⁵³

[U-M developed] a decentralized model that requires administrative and academic units to contain costs and streamline operations, which includes using competitive pricing and outsourcing of services.

U-M explored a variety of resource-management models, turning to private industry and the country’s best private universities for guidance. Harvard University, for example, uses a decentralized “every tub on its own bottom” strategy in which each university unit is wholly responsible for its own budget.⁵⁴

U-M adopted a responsibility-center management model in which academic units, administrative units, and the central administration make resource-allocation decisions as equal partners. However, it is a decentralized model that requires administrative and academic units to contain costs and streamline operations, which includes using competitive pricing and outsourcing of services. Administrative and academic units also keep the revenue they generate, such as tuition, research grants, private gifts, and auxiliary income. U-M’s responsibility-center management model not only improved internal resource allocation, it also improved external fundraising efforts because it gave U-M the flexibility to shift priorities if necessary and generate sufficient revenue for new programs.⁵⁵

Comparing U-M, ASU, and UA as Research Universities

Academics

In 2000, TheCenter, part of the Lombardi Program on Measuring University Performance at the University

of Florida-Gainesville, began publishing an annual report called *The Top American Research Universities*. Its report ranks research universities according to nine separate academic and financial measures, which allows for a detailed comparison of U-M, ASU, and UA.⁵⁶ According to TheCenter's annual reports, which use data from 1998 to 2002, ASU, UA, and U-M all ranked among the country's top 200 public and private research universities.

Between 1998 and 2002, U-M consistently ranked among the country's top 25 research institutions, with an average five-year rank of 13. UA consistently ranked among the country's top 50 research universities, with an average five-year rank of 39, while ASU consistently ranked among the country's top 100 research universities, with an average five-year rank of 85.⁵⁷ Between 1999 and 2002, all three universities ranked among the top 100 universities in terms of faculty who are National Academy of Sciences members.⁵⁸ U-M consistently placed among the top 20 research institutions in this category, with an average four-year rank of 17. UA consistently placed among the country's top 50 research universities, with an average four-year rank of 30; while ASU consistently placed among the country's top 100 research universities, with an average four-year rank of 99.⁵⁹

Another measure used to assess the quality of research universities is the number of awards its faculty members receive, including grants and fellowships

from prominent programs in the arts, sciences, humanities, engineering, and other fields. In terms of overall awards earned by respective faculty members, the four-year average rankings of U-M and UA from 1999 to 2002 fall within the top 50 research universities in the country. U-M's four-year average rank for faculty awards was six, and UA's average rank was 40. ASU was just outside the top 50 with a four-year average rank of 57.⁶⁰

The caliber of students is another important measure of a top university. From 1999 to 2002, U-M, ASU, and UA were among the country's top 50 research universities for the number of National Merit and National Achievement award winners in their entering freshmen classes. ASU led with the highest four-year average rank of 19. U-M's average rank was 39, while UA's average rank was 45.⁶¹

To the extent that rankings are accurate predictors of quality, ASU and UA have a strong showing. Their solid rankings help build confidence among potential private supporters, making it easier for the universities to launch successful private fundraising campaigns.

Finances

Financial resources also contribute to a leading research institution. Again, U-M, ASU, and UA all rank among the country's top 200 research universities for total research expenditures, endowment assets, and annual giving.⁶²

The caliber of students is another important measure of a top university. From 1999 to 2002, U-M, ASU, and UA were among the country's top 50 research universities for the number of National Merit and National Achievement award winners in their entering freshmen classes.

Like U-M, ASU and UA each enjoy strong community support and have an increasingly solid academic foundation upon which to base expanded private fundraising efforts. In fact, in some private funding areas, ASU and UA surpass U-M. However, in others there is room for improvement.

A standard ranking measure of research universities is total research expenditures, and in this category U-M, ASU, and UA all rank among the country's top 100 research institutions. From 1999 to 2002, U-M's four-year average national rank was 3, with total research expenditures amounting to \$2.2 billion. UA's four-year ranking falls just outside the top 20 nationally at number 21, with total research expenditures amounting to \$1.3 billion. ASU's four-year average ranking is 88, with total research expenditures amounting to \$426 million.⁶³

Endowment assets are another important indicator of universities' long-term financial stability. In this regard there is a wide disparity between the four-year average rankings of U-M on the one hand, and ASU and UA on the other. Between 1999 and 2002, U-M had an average national rank of 13 among the country's top 200 public and private institutions for endowment assets. For example, in 2002 U-M ranked 12 overall and 2 among public institutions, surpassing public institutions such as the University of California-Berkeley, University of North Carolina-Chapel Hill, Ohio State University, the University of Iowa, the

University of Florida, and the University of California-San Diego.⁶⁴ Among public institutions, UA's four-year average ranking was 49, and ASU's four-year average rank was 69. However, among both public and private institutions, UA and ASU's four-year average rankings were much lower, at 140 and 186, respectively.⁶⁵ From 1999 to 2002, U-M's annual endowment assets averaged \$3.12 billion, while UA's averaged \$290 million and ASU's averaged \$203 million. This area of finance holds great potential for both ASU and UA. In fact, this year UA completed "Campaign Arizona," the first \$1 billion university fundraising campaign in state history, exceeding its goal by raising \$1.2 billion between July 1997 and June 2005.

Alumni giving is another measure of an institution's financial strength, and ASU and UA appear to have significant alumni revenue potential. For example, according to *U.S. News & World Report's* annual rankings of America's best national universities, from 1993 to 2000, U-M's average alumni giving rate was nearly twice as high as ASU's and UA's rates, 16 percent compared to 8 percent and 10 percent, respectively. Additionally, U-M ranked as a top 20 institution for both individual alumni and non-alumni giving according to the *Chronicle of Higher Education's* 2004-2005 *Almanac of Higher Education*, raising \$120 million combined in 2002-2003.⁶⁶ However, both ASU and UA have over twice the number of alumni U-M has. ASU has more than 267,000 alumni, and UA has more than 224,000

Alumni giving is another measure of an institution's financial strength, and ASU and UA appear to have significant alumni revenue potential.

alumni, while U-M has approximately 110,000 alumni.⁶⁷ The ASU and UA alumni bases present a great potential resource opportunity for the universities.

Yet ASU and UA stand out in other categories of private giving. Based on data from the Council for Aid to Education (CAE), an independent subsidiary of RAND Corporation, annual giving amounts to ASU and UA are impressive, putting them ahead of leading public and private institutions. CAE defines annual giving as contributions that include “cash, securities, company products, and other property from alumni, non-alumni individuals, corporations, foundations, religious organizations, and other groups.”⁶⁸ Based on CAE data, in 2002 UA ranked 38 among public and private institutions nationally. UA received \$120 million, surpassing such leading institutions as Boston University, Brown University, the California Institute of Technology, Georgetown University, University of California-San Diego, University of Iowa, and University of Pittsburgh.⁶⁹ Annual giving to ASU in 2002 was \$61 million, ranking 80 among both public and private institutions, and exceeding annual giving to such distinguished institutions as Carnegie Mellon University and San Diego State University.⁷⁰

From 1999 to 2002, only UA has steadily improved its national rankings among public and private institutions for annual giving, from 50 to 38.⁷¹ Meanwhile, U-M’s ranking slipped from 17 in 1999 to 29 in 2002. ASU made

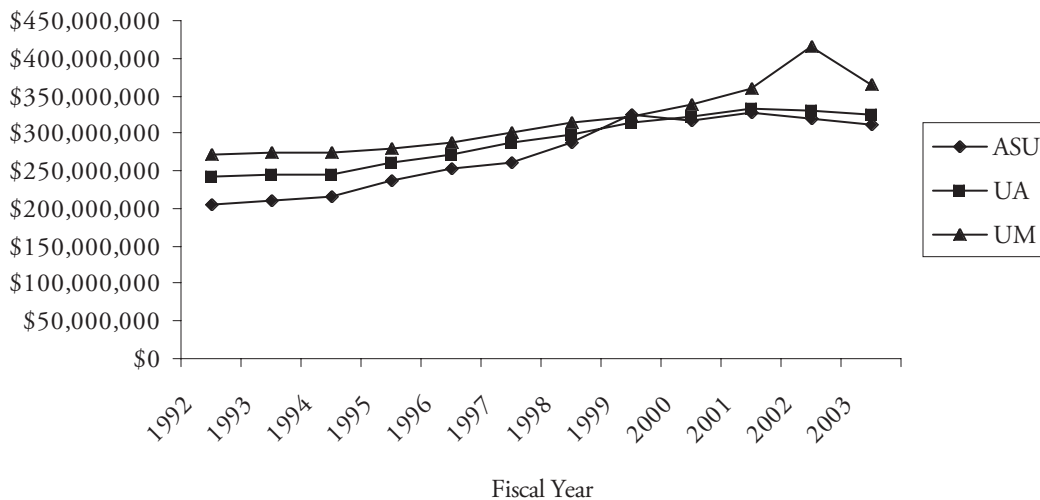
impressive gains in the annual giving rankings, moving up from 86 nationally in 1999 to 58 in 2001. However, in 2002 it dropped to 80. As of 2003, ASU improved its national ranking, moving up 10 places to 70. Also in 2003, UA surpassed U-M in the national rankings for annual giving, coming in at 23 compared to U-M’s 24.

ASU and UA also surpass U-M in other categories of private giving. According to the *Chronicle of Higher Education’s* 2004-2005 *Almanac of Higher Education*, UA ranked first nationally in corporate giving, receiving over \$110 million in academic year 2002-03 from private corporations, more than double the amounts received by MIT, Harvard University, and Stanford University.⁷² The *Chronicle of Higher Education* also included both ASU and UA on its list, “Major Private Gifts to Higher Education Since 1967.” UA was listed for an \$87.5 million gift made in 1998 to its College of Law, and ASU was listed for two gifts in 2003 totaling \$100 million.⁷³

Those financial data suggest that while ASU and UA have room for improvement with regard to private fundraising, there are indications that they can be competitive with U-M financially. Arizona’s research universities enjoy strong support from the communities they serve. Yet their levels of private support could be even stronger. U-M’s example suggests that alumni can play a significant role in building endowments at both ASU and UA, which in turn could yield

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Figure 9: Annual State Funding: 1992 to 2003



Source: Financial data is provided by each university’s annual financial reports for corresponding years.

Notes:

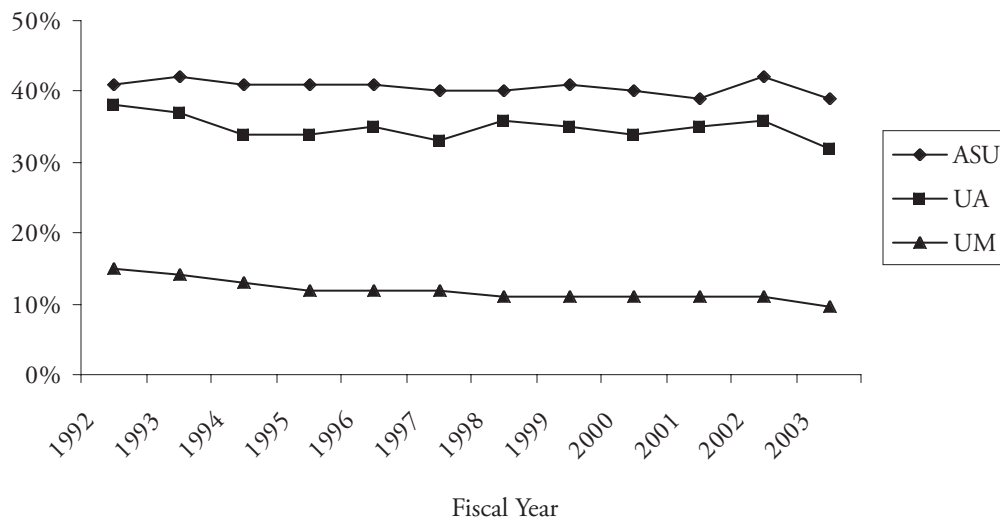
1. Dollar amounts are not adjusted for inflation.
2. Beginning in 2001-2002, corresponding with fiscal year 2002, ASU and UA received additional Technology and Research Initiatives Funding (TRIF) revenue as part of a 0.6 percent sales tax increase, which voters approved in November 2000 by passing Proposition 301.⁷⁵ That revenue is included in the annual state appropriation.

significant annual endowment income. Unlike Michigan, which has 15 public institutions competing for private donations, Arizona has only three four-year public universities. ASU and UA have ample room to build upon current sources of private support by increasing alumni giving rates and amounts.

Because Arizona’s research universities have not maximized their private giving potential yet, there is concern that absent increased state subsidies, neither ASU nor UA will become a leading public research university.⁷⁴ It would seem reasonable to

attribute U-M’s stature as a leading public research university to higher public funding. However, financial data contained in each university’s annual financial reports from fiscal years 1992 to 2003 suggest otherwise. Significantly, ASU, UA, and U-M each receive comparable annual state funding amounts, but the extent to which each university’s general revenue relies on state appropriations varies widely, as shown in Figures 9 and 10.

From fiscal years 1992 to 2003, U-M received an average of \$317 million in state funding each year. ASU

Figure 10: State Funding as a Percentage of University Revenue: 1992 to 2003

Source: Financial data is provided by each university's annual financial reports for corresponding years.

received an annual average of \$272 million from the state, while UA received an annual average of \$290 million. However, unlike Arizona's public universities, which receive additional state funding for capital outlays such as research lab construction, U-M is required to raise matching funds for new building construction and upgrades.⁷⁶ This requirement minimizes the advantage U-M may initially appear to have over ASU and UA in terms of state funding.⁷⁷

A significant financial distinction between U-M and Arizona's research universities is the extent to which each institution's general revenue depends upon state funding, not simply the annual state funding amounts. As Figure 10 shows, U-M began the 1990s with 15 percent of its general revenue coming

from state funding. In contrast, state funding accounted for more than double that portion in UA and ASU's general revenues, 38 percent and 41 percent respectively. State funding dropped as a portion of their general revenue at all three universities as of fiscal year 2003. However, both UA and ASU still rely on state funding for roughly one-third of their general revenues, while U-M's state funding dropped below 10 percent of its general revenue by fiscal year 2003.

Equally important to consider is each university's annual state funding amounts in relation to its size, not just as a portion of each institution's overall revenue. From 1991 to 2002, U-M's average annual enrollment was about 37,000 students, ASU's average annual enrollment was 48,000 students, and UA's average annual enrollment was

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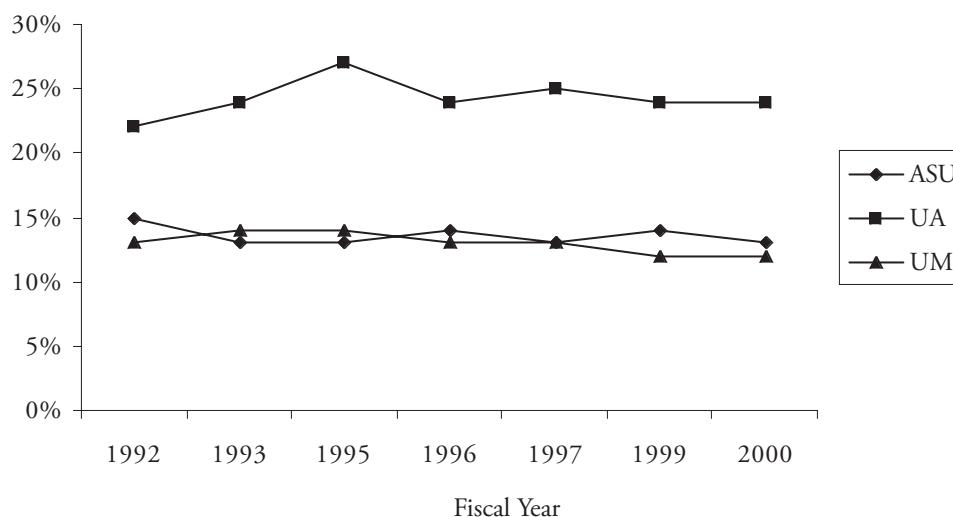
approximately 35,000 students. Over this time period, U-M received an average of \$317 million annually in state funding, which amounts to roughly \$8,600 per student. In comparison, UA received an average of \$290 million annually and ASU received an average of \$272 million annually, which amounts to about \$8,300 and \$5,700 in state funding per-pupil, respectively.

Leaving aside the question of whether the federal government should subsidize university research, an examination of funding trends reveals that as a portion of U-M's general revenue, federal funding remained relatively constant while state funding declined.

From 1991 to 2002, approximately 40 percent of ASU and UA's general revenue came from state funding. Combined, annual state funding to ASU and UA was over \$560 million on average. Relying on state appropriations to raise their respective per-pupil funding amounts to U-M's level would require a substantial funding increase. For example, keeping average annual

enrollment constant, for UA to match U-M's per-student funding of \$8,600, annual state funding to UA would have to increase by more than \$10 million to about \$300 million annually. Annual state funding would have to increase more dramatically for ASU to achieve \$8,600 per student. Again, keeping average annual enrollment constant, annual state funding to ASU would have to increase by about \$141 million to nearly \$413 million annually.⁷⁸ Thus, the state would have to increase its combined annual funding to ASU and UA by roughly \$150 million just at current enrollment levels. According to ABOR's past president Chris Herstam, enrollment at Arizona's three public universities is expected to increase from 115,000 students to 185,000 students by 2020.⁷⁹ A financial strategy that relies

Figure 11: Federal Funding as a Percentage of University Revenue: 1992 to 2000



Source: Financial data is provided by each university's annual financial reports for corresponding years.

Note: Federal funding data were unavailable for U-M for FY 1994 and UA for FY 1998, so those years are omitted.

so heavily on increased state appropriations to increase per-student funding levels therefore seems ill-advised.

Likewise, claims by ASU's Morrison Institute, for example, that state funding is necessary for leveraging federal funding also appear unfounded in light of U-M's experience.⁸⁰ Leaving aside the question of whether the federal government should subsidize university research, an examination of funding trends reveals that as a portion of U-M's general revenue, federal funding remained relatively constant while state funding *declined*. From fiscal years 1992 to 2000, U-M's annual state funding increased 20 percent, from \$272 million to \$339 million in nominal dollars, while its annual federal funding increased 35 percent, from \$244 million to \$377 million, also in nominal dollars.

U-M's experience suggests first that state appropriations are not a necessary condition for securing federal funds. In addition, as shown in Figure 11, like state funding, federal funding constitutes a relatively small portion of U-M's general revenue. Specifically, between fiscal years 1992 and 2000, U-M's state and federal funding combined constituted about one quarter of its general revenue on average, dropping from 28 percent of general revenues in fiscal year 1992 to 23 percent of general revenues in fiscal year 2000. This also suggests that state funding is not a necessary condition for leveraging funding from other sources. On the contrary, U-M's example

indicates that reducing its reliance on state appropriations presented an opportunity to explore previously untapped revenue sources.

Between fiscal years 1992 and 2000, federal funding for U-M, ASU, and UA increased overall.⁸¹ However, as shown in Figure 11, federal funding makes up a higher portion of UA's general revenue than ASU's general revenue, roughly 25 percent compared to less than 15 percent. In fact, between fiscal years 1992 and 2000, UA received more than twice the annual federal funding on average that ASU did, approximately \$76 million annually compared to \$192 million annually. Yet as shown in Figure 9, state funding levels for both ASU and UA during this time were similar. This variance suggests that higher state appropriations are neither a necessary nor sufficient cause for increasing federal funding. Rather, it indicates UA is doing something materially different than ASU, which perhaps warrants further investigation.

The U-M experience holds two important finance lessons for research universities. First, U-M leveraged its federal funding even as state funding was diminishing as a portion of its general revenue. Second, combined state and federal funding makes up a small portion of U-M's general revenue. Substituting federal funding for state funding does not appear to be a wise long-term strategy. Just as competition for limited state funding is increasing, so too is competition for federal funding. Like state governments, the federal

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government is funding a growing number of K-12 education, health, welfare, and other social programs. Whether or not one agrees with this trend, federal funding for university research did not hold the growth potential U-M originally anticipated. U-M's example indicates that private and self-generated revenue have much greater growth potential than federal funding.

Despite record financial and academic successes over the past decade, U-M continues to explore innovative new ways to increase its financial self-sufficiency.

Recommendations

Despite record financial and academic successes over the past decade, U-M continues to explore innovative new ways to increase its financial self-sufficiency. In terms of both resource management and fundraising, U-M has not excluded other possible models. For example, the University has considered an innovative public/private research university model that would privatize some schools and colleges, including the schools of Law, Business Administration, and Medicine, if they agree to become financially independent.⁸²

This model warrants further scrutiny. Nevertheless, U-M's academic and financial success over the past 30 years offers Arizona's public research universities a valuable blueprint for increasing financial independence and reducing reliance on state funding.

What follows is a brief summary of the steps Arizona's research universities

can take to become more financially self-sufficient institutions. These steps would expand upon a trend in decentralization that began when ABOR implemented Changing Directions in 2000, which increased each institution's autonomy. Proposed reforms include: increasing tuition proportionate to "the top of the lower one-third of senior public universities in the 50 states;" raising the amount of tuition set aside for financial aid by over 140 percent and offering alternative tuition payment plans; removing geographic restrictions so universities can offer courses statewide; and giving universities more control over admissions standards.⁸³

1. Identify Core Academic Programs

The U-M experience suggests that Arizona's research universities should consider a "spires of excellence" model. UA has, in fact, adopted such a model, which it calls "focused excellence." As UA president Peter Likins explains,

At the University of Arizona we cannot discover everything, educate in all subjects, or serve everyone. And we cannot expect to inspire anyone unless we perform at the highest level in all that we do. In the context of Arizona's State University System, there is no defense for the view that the University of Arizona should attempt to be all things to all people. This would be for us a vain pursuit at any cost, and, with Arizona's resource constraints, it would be a formula for uniform

mediocrity at best, diminishing our prospects for success and compromising our sister universities, which have their own strategies for success. Excellence must be the defining characteristic of the University of Arizona, and excellence in our environment of constrained resources requires focus.⁸⁴

UA recently announced plans to raise admission standards and expand its graduate programs because, according to president Likins, “We’re focusing on getting better, not bigger.” ASU, in contrast, plans to establish a statewide university presence through what it calls a “One University Many Places” strategy, with four campuses. Each campus will have different missions, including research and professional degree programs.

By focusing on their core academic missions and distinguished academic programs, ASU and UA will be better able to direct resources to their key research programs and distinguish themselves in targeted research areas. For example, in 2004 *U.S. News & World Report* ranked ASU’s aerospace/aeronautical, biomedical/bioengineering, and industrial programs among the top 25 graduate programs nationally—putting the Ira A. Fulton School of Engineering among the top 50 public and private schools and among the top 30 state-funded schools nationally.⁸⁵ In addition to having one of the country’s best hospitals and entrepreneurship programs, 15 of UA’s

departments and graduate programs have ranked among the top 10 universities nationwide according to *U.S. News & World Report* in recent years, including analytical chemistry, astrophysics/space, audiology, and pharmacy.⁸⁶

2. Align Tuition More Closely with the Actual Costs of Education

ABOR increased Arizona public universities’ ability to raise tuition in 2000 when it initiated Changing Directions. However, the Arizona Constitution requires that tuition be “as nearly free as possible” and will likely have to be amended in order for the universities to charge tuition that covers the actual costs of the education they provide. The state’s universities face tremendous political pressure to keep tuition artificially low, fueled by publications such as the latest national report from the National Center for Public Policy and Higher Education, which ranked Arizona as one of the worst states nationally for college affordability.⁸⁷

However, such assessments overlook evidence that Arizona’s universities charge less than peer institutions. In fact, because of Arizona’s constitutional mandate, Arizona’s public universities keep their tuition at levels charged by the bottom third of American universities.⁸⁸ Enrollment at ASU and UA continues to rise despite a 70 percent increase in tuition from 1991 to 2002.⁸⁹ As ASU president Michael Crow explained in *USA Today* last fall,

compelling ASU to charge approximately \$3,500 for a \$12,000 education means “it will not rise to the level of world-class status...We can’t ignore any revenue sources, including the investment students make in their portion of the cost of higher education.”⁹⁰

ABOR’s 2005 public university redesign proposal recommends differentiated tuition levels, depending on the type of university a student attends.⁹¹ The universities are also considering charging specialized fees for students in more expensive programs.⁹² ASU and UA should consider allowing students to take single courses apart from larger academic programs and charging tuition that is commensurate with the real cost of the educational programs. For example, students majoring in liberal arts could be charged less than those enrolled in hard science programs. Having free-standing or even decentralized colleges would also help ensure that students enrolled in less expensive academic programs are not subsidizing high-cost research programs though their tuition.⁹³ As U-M does, ASU and UA could charge slightly more for upperclassmen, who require more time with faculty. Tuition levels could be even more precise by charging a higher rate for students who prefer more time with professors as opposed to graduate teaching assistants.⁹⁴

By improving acceptance standards, Arizona’s universities could maximize tuition revenue. As it is, ASU and UA have high acceptance rates but low

graduation rates. For example, from 1990 to 2000, ASU and UA’s average acceptance rates were 86 percent and 91 percent, respectively. Over the same period, ASU and UA’s graduation rates were 49 percent and 51 percent, respectively. In contrast, U-M’s average graduation rate exceeded its acceptance rate, 72 percent compared to 81 percent.⁹⁵ By admitting students who are prepared for and committed to doing college-level work, ASU and UA could expend tuition revenue and financial aid resources more productively toward students who are most likely to complete a university degree.

3. Increase Self-Sufficiency with Private Funding

To succeed as leading research universities, ASU and UA will have to abandon the notion that state subsidies are integral to leveraging additional revenue. In fact, financial data from the past decade suggest that by focusing so exclusively on increasing their portion of shrinking state resources, ASU and UA may be missing important private funding opportunities. Substituting federal funding for state funding is also not an optimal long-term financial strategy. At both government levels, K-12 education, healthcare, and other social programs account for an increasing share of government expenditures. Moreover, given increasing competition from other social programs for limited public resources, it is unlikely that the state or federal governments will be able to fund universities at levels they enjoyed in the past.

To succeed as leading research universities, ASU and UA will have to abandon the notion that state subsidies are integral to leveraging additional revenue.

There is growing recognition of this reality. According to UA president Likins,

The Regents have begun to realize that the Arizona University System is on a perilous financial trajectory unless something changes. Historically, what we hoped would change is that the Legislature would become more supportive of higher education and would fund it better. It appears that we have achieved one goal: the Governor and the Legislature are more supportive of higher education than they were five years ago, but because of the state's economy, we are unlikely to receive more funding. In fact, it is clear that universities along with other state agencies will get even less financial support.⁹⁶

ASU and UA have more than twice the alumni U-M does, but their alumni giving rates are about half of U-M's rates, roughly 8 percent and 10 percent compared to 16 percent on average. However, unlike U-M, both ASU and UA have received some of the largest private gifts since 1967, and UA ranked first nationally in corporate giving for the 2002-03 academic year, receiving over \$110 million from private corporations. UA even surpassed U-M in annual giving in 2003 with a national rank of 23 compared to U-M's rank of 24. And, despite its recent slip in the national rankings, ASU has also demonstrated strong annual giving capacity, surpassing Carnegie Mellon University and San Diego State

University in 2002.

With more than 200,000 alumni on record each, ASU and UA should shift their focus from lobbying the state legislature for funds, and turn instead to alumni for support. Unlike Michigan, which has 15 four-year public institutions, Arizona has only three. ASU and UA are therefore important and prominent institutions in their surrounding communities. With greater attention from university administration, non-alumni giving could also increase beyond the two to three percent reported in fiscal year 2003.⁹⁷

While large, one-time donations to universities make important projects possible, ASU and UA should implement a sustained annual private fundraising strategy. Specifically, ASU and UA should strive to increase both annual private giving rates and endowment income to match state appropriations, which averaged roughly \$320 million each in fiscal year 2003. Moreover, both ASU and UA should prepare now for the cessation of roughly \$65 million annually in Proposition 301 tax revenue and university infrastructure appropriations, both of which will expire in about 20 years.⁹⁸ According to published reports, both universities intend to increase private research funding by hundreds of millions of dollars over the next several years.⁹⁹ Along with those efforts, over the next two decades ASU and UA should strive to replace just under \$400 million in annual public support to become

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financially self-sufficient universities.

Conclusion

In 1965, the state of Michigan provided 70 percent of the University of Michigan-Ann Arbor's general revenue. After peaking at this level, state funding as a portion of the University of Michigan's (U-M) general revenues declined steadily over the next 30 years. Today, state funding accounts for less than 10 percent of its general revenue, and U-M offers an education rivaling even the best private institutions at about one-third the price. U-M tops Wall Street rankings and became the first public institution to have its credit rating raised to Aa1 and its bonds trading at Aaa levels in 1994. U-M was also the first public university ever to launch and exceed a \$1 billion fundraising campaign. Through these efforts U-M doubled its general revenue from \$1.8 to nearly \$4 billion between fiscal years 1991 and 2002.

Representatives of Arizona's research universities have stated their intention of becoming more financially independent. However, state support remains a cornerstone of their financial strategies, even though ASU and UA representatives admit that state funding is unlikely to reach the levels needed to sustain leading research universities. Nevertheless, representatives of Arizona's universities insist that state subsidies are essential for leveraging additional revenue. U-M's example proves

otherwise. By becoming a privately financed public university, reducing its costs, and allocating resources wisely, U-M is a model modern public research university.

ASU and UA have strong community support, well over 200,000 alumni each, and increasingly distinguished academic rankings. Like U-M, ASU and UA have the potential to become world-class research institutions by embracing an entrepreneurial approach to fundraising, management, and resource allocation. Based on U-M's successful strategies, ASU and UA should consider identifying core academic programs; aligning tuition more closely with the actual cost of educational services; and increasing their financial independence with private funding. U-M's academic and financial success over the past 30 years despite reduced state support shows that Arizona can have strong public research universities that are largely privately funded.

NOTES

1. James J. Duderstadt, *A University for the 21st Century* (Ann Arbor: University of Michigan Press, 2000), 72. Today, U-M receives over \$320 million in annual state support, down from \$364 million in 2003. See Ellen Jeffries and Kyle I. Jen, *House Fiscal Agency, Fiscal Year 2004-05 Higher Education Appropriations Report: A Report of the Senate and House Appropriations Subcommittees on Higher Education*, December 2004, p. 26, <http://www.senate.michigan.gov/sfa/Departments/DepartmentPublications/HigherEdAppropsReport.pdf>. The remarks of several U-M representatives, however, indicate they would like to receive more. See, for example, the remarks of U-M president Mary Sue Coleman in *Associated Press, State and Local Wire*, "Michigan President Proposes Capping Next Year's Tuition Increase at 2.4 Percent," March 19, 2004; U-M Provost Paul Courant in Maryanne George and Janie Gumbrecht, "Universities Say There's No Fat Left to Trim," *Detroit Free Press*, February 20, 2003; and U-M spokeswoman Julie Peterson in Chris Christoff, "Budget Cuts May Hit Colleges Hard," *Detroit Free Press*, February 20, 2003.
2. Duderstadt, 104-120. Michigan's single industry economy, combined with the state government's expansive tax, regulatory, and welfare policies, stymied prosperity and a greater number of public institutions of higher learning in Michigan were increasing their dependence upon shrinking public resources.
3. *Ibid.*, 104; and William Hampton, "An Ivory Tower Shaken by a Blast of Reality," *Business Week*, November 14, 1983.
4. Duderstadt, 87 and 314; and Hampton, "An Ivory Tower."
5. Duderstadt, 314.
6. For example, Duderstadt explains that during president Harold Shapiro's administration in the early 1980s, "the University moved aggressively to build an effective central development operation. The University raised more than \$300 million during the major campaign of the 1980s, but more importantly, it began to build a network of volunteers and prospects that would lay the foundation for the massive effort of the 1990s. Annual giving rose to \$60 million, and the 1980s campaign established the nucleus of an endowment at \$250 million" See Duderstadt, 445-46.
7. Duderstadt, 99-100.
8. *Ibid.*, vi.
9. *Ibid.*, 122.
10. *Ibid.*, 302.
11. *Ibid.*, 303 and 421.
12. *Ibid.*, 19.
13. *Ibid.*, 304 and 457.

14. *Ibid.*, 423.

15. *Ibid.*, 409.

16. Federal funding remained nearly constant at 13 percent during this time. Author's calculations based on "Schedule A: Ann Arbor Campus Summary of Budgeted Revenues and Expenditures by Fund," in the *2002 University of Michigan Annual Financial Report*. U-M's total operating budget in FYE June 30, 2003, was \$3.8 billion, and state appropriations totaled \$364 million, or 9.6 percent. For rankings, see Duderstadt, 24.

17. On U-M being a model for ASU and UA, see Blake Morlock and Elvia Diaz, "UA Jumps into Race for Research Money," *Tucson Citizen*, October 14, 2003; Judd Slivka, "Regents to Ponder Fee Hikes," *Arizona Republic*, January 22, 2004; and David Wichner, "University of Arizona Hopes to Land New Drug Development Institute," *Arizona Daily Star*, August 11, 2004.

18. As reported in the *Arizona Republic*, ASU president Michael Crow is "pushing a pioneering entrepreneurial model for ASU, including weaning the university off...dependency on the Legislature." See Jon Talton, "The State's Best Economic Indicator is Crow," *Arizona Republic*, May 11, 2003. Also, according to Crow, "We're incrementally moving the university into a more entrepreneurial model...where we seek investment from the state to enable us to complete our mission, with multiple funders, multiple supporters." See

Theoden K. Janes, "ASU Vows Investment on Return," *Arizona Republic*, September 28, 2002; cf. Bill Hart, "The 'Whirlwind' of ASU," *Arizona Republic*, April 24, 2003. Recent newspaper reports, however, indicate that current U-M president Mary Sue Coleman (2002-present) and other U-M representatives would like to receive more state funding. On current U-M finances, see Jeffries and Jen, *House Fiscal Agency, Fiscal Year 2004-05 Higher Education Appropriations Report*, p. 26, <http://www.senate.michigan.gov/sfa/Departments/DepartmentPublications/HigherEdAppropsReport.pdf>. See also the remarks of U-M president Coleman in *Associated Press, State and Local Wire*, "Michigan President Proposes Capping Next Year's Tuition Increase at 2.4 Percent," March 19, 2004; U-M provost Paul Courant in Maryanne George and Janie Gumbrecht, "Universities Say There's No Fat Left to Trim," *Detroit Free Press*, February 20, 2003; and U-M spokeswoman Julie Peterson in Chris Christoff, "Budget Cuts May Hit Colleges Hard," *Detroit Free Press*, February 20, 2003.

19. On President Crow's lobbying efforts, see Robbie Sherwood and Chip Scutari, "Golden Boy vs. J-Nap; Guv Takes Crow to the Mat," *Arizona Republic*, June 15, 2003. It was also reported that Crow "hired Republican gubernatorial candidate and former U.S. Representative Matt Salmon at \$8,000 a month to lobby Republican legislators." See John Dougherty, "Mission: Impossible; The Arizona Legislature may prove to be too much for ASU's

unsinkable Michael Crow,” *Phoenix New Times*, May 23, 2003. The University Infrastructure Financing measure appropriates \$440 million for research facility construction at Arizona’s three public universities. See Michael Arnone, “Plan Sparks Fierce Debate on Reorganizing Arizona Higher Education,” *Chronicle of Higher Education*, October 8, 2004; cf. Arizona Board of Regents (ABOR), *Arizona University System FY 2002-2003 Annual Report*, September 1, 2003, p. 1. The bill, House Bill 2529, was signed into law on June 26, 2003, and appropriates the following sums from the state general fund to the respective universities for lease-purchase capital financing for research infrastructure projects from fiscal year 2007-2008 through 2030-2031: ASU, \$14,472,000; UA, \$14,253,000; and NAU, \$5,900,000. See, *Ariz. Rev. Stat.* § 1, Title 15, chapter 13, article 4, amended by adding section 15-1670, “Appropriation for university research infrastructure facilities; definition,” <http://www.azleg.state.az.us/ars/15/01670.htm>.

ASU’s Morrison Institute has also released a series of papers claiming that absent increased state subsidies, ASU and UA will not become leading research universities. See Rob Melnick at al., *Economic Development Via Science and Technology: How Can Arizona Improve its Standing?* Morrison Institute for Public Policy, Arizona State University, June 2003; Rob Melnick, Mary Jo Waits, and Nancy Welch, *The New Economy: Policy Choices for Arizona*,

Morrison Institute for Public Policy, Arizona State University, January 2000; Rob Melnick, *Five Shoes Waiting to Drop*, Morrison Institute for Public Policy, Arizona State University, October 2001; and Rob Melnick, Rick Heffernon, and Nancy Welch, *Seeds of Prosperity: Public Investment in Science and Technology Research*, Morrison Institute for Public Policy, Arizona State University, April 2003.

20. The annual installments will be paid out between fiscal years 2007-2008 and 2030-2031. The annual debt service on this measure is projected to cost taxpayers \$34 million annually, which nearly matches the annual infrastructure payments of \$35 million. See Paul Davenport, “Changes planned to university research funding bill,” *Associated Press, State and Local Wire*, June 12, 2003. These payments are being made through a deferred interest plan, and the first payment will be due in 2008. By 2012, the payments will increase to \$60 million. See Rep. Steve Tully, “Legislator: ‘Your government is not prudent,’” *Paradise Valley Independent*, June 23, 2004. HB 2529 requires the universities to make annual partial repayments to the general fund. It establishes “that beginning in FY 2007-2008, the universities are required to deposit into the general fund by October 1 of each year the following amounts:

- 20 percent of the income earned during a preceding year from licensure and royalty payments received by the university.
- 25 percent of income earned

during a preceding year from the sale or transfer of intellectual property developed by the university.

- 30 percent of income earned during a preceding year from the conveyance of ownership of intellectual property from research, technology, or intellectual property.

UA president Peter Likins contends, “for every dollar we spend paying the debt service, we bring \$5 in research money.” See Blake Morlock and Elvia Diaz, “UA Jumps into Race for Research Money,” *Tucson Citizen*, October 14, 2003.

21. Michael Arnone, “Plan Sparks Fierce Debate on Reorganizing Arizona Higher Education,” *Chronicle of Higher Education*, October 8, 2004.

22. Jason Emerson, “\$1.3B in request for universities,” *East Valley Tribune*, October 1, 2004. ASU’s share would be almost \$100 million higher than UA’s and represents nearly a 10 percent increase over last year, from \$533 million in fiscal year 2005 to \$585 million in fiscal year 2006. See Arnone, “Plan Sparks Fierce Debate,” 2004.

23. Elvia Diaz, “ASU, UA raking in private donations,” *Arizona Republic*, October 5, 2003.

24. John Dougherty, “Mission: Impossible; The Arizona Legislature may prove to be too much for ASU’s unsinkable Michael Crow,” *Phoenix New Times*, May 23, 2003.

25. William Hampton, “An Ivory

Tower Shaken by a Blast of Reality,” *Business Week*, November 14, 1983.

26. Duderstadt, 448-456. “Former President Harold T. Shapiro was one of the first to fully understand the economic challenges public universities would face in the closing decades of the 20th century. He concluded in the early 1980s that the U-M needed to embark on new levels of high-intensity fundraising efforts to offset eroding state support. He recruited Jon Cosovich from Stanford as Vice President for Development, who brought with him knowledge of Stanford’s highly successful organizational and volunteer recruitment strategies.” Shapiro hired Stanford University’s Jon Cosovich as Vice President for Development. In the late 1980s, U-M’s Vice President and Chief Financial Officer Farris Womack built a strong internal investment management team with the help of private-sector experts, including many U-M alumni. U-M operated as though it were a centralized bank and carefully managed its financial reserves, including operating capital and short-term funds.

27. Lance J. Weislak and Michael LaFaive argue convincingly that fully privatizing the University of Michigan would assure its top-ranked stature. See, “Privatize the University of Michigan,” *Michigan Privatization Report*, Mackinac Center for Public Policy, Spring 2004, p. 11, <http://www.mackinac.org/archives/2004/mpr2004-01.pdf>.

28. Duderstadt, 424.

29. *Ibid.*, 427.
30. *Ibid.*, 56.
31. *Ibid.*, 302. U-M stands out among public universities for its constitutionally guaranteed autonomy granted when the Michigan State Constitution established the University in 1837. This autonomy gives its Board of Regents more latitude in setting academic standards, educational mission and goals, and tuition levels. See Duderstadt, 30, 100, and 360.
32. Ariz. Const. art. XI, Section 6.
33. Duderstadt, 303 and 429.
34. Each year, non-resident tuition was three times higher than resident tuition, growing from nearly \$12,000 more in 1995-1996 to over \$18,000 more in 2004-2005. The University of Michigan-Ann Arbor, Office of Budget and Planning, annual reports for corresponding years.
35. For a more extensive treatment on rising tuition at American universities, see Richard Vedder, *Going Broke by Degree: Why College Costs too Much* (Washington, D.C.: American Enterprise Institute Press, 2004); cf. Richard Vedder, "A Fortune in Tuition: Why does college cost so darn much?" *National Review Online*, September 24, 2004, <http://www.nationalreview.com/issue/vedder200409241259.asp>; and "Why Does College Cost So Much?" *Wall Street Journal*, August 23, 2005.
36. Duderstadt, 315; cf. Edward L. Whalen, *Responsibility Center Budgeting: An Approach to Decentralized Management for Institutions of Higher Education* (Bloomington: Indiana University Press, 1991).
37. Duderstadt, 315 and 449.
38. *Ibid.*, 304.
39. *Ibid.*, 304 and 434.
40. Duderstadt, 304. According to Duderstadt, this amount is "the largest in the history of public higher education and comparable to even the largest campaigns of higher education (Yale at \$1.7 billion and Cornell at \$1.3 billion)." See 455. As of 2004, the University of California, Los Angeles (UCLA) raised \$2.6 billion, "The most ever by a public university." See William C. Symonds, "Rich College, Poor College," *Business Week*, December 20, 2004, p. 88. This year UA completed the first \$1 billion fundraising campaign in state history. UA's 'Campaign Arizona' exceeded its goal by raising \$1.2 billion between July 1, 1997, and June 30, 2005. See "UA Administrators Acknowledge Successful End to 'Campaign Arizona,'" UA Press Release, September 20, 2005; cf. Eric Swedlund, "UA's Billion-Dollar Man," *Arizona Daily Star*, October 8, 2005.
41. Duderstadt, 433-34.
42. *Ibid.*, 434.
43. *Chronicle of Higher Education*,

“College and University Endowments,” in the *Almanac 2004-05*, online edition used <http://chronicle.com/free/almanac/2004/index.htm>. Endowment value is for the year ending June 30, 2004, and the figures were compiled by the National Association of College and University Business Officers.

44. Duderstadt, 434.

45. *Ibid.*, 37.

46. These programs include profitable summer sessions, global education using multimedia computer networks such as programs in Hong Kong, Seoul, and Paris, and Michigan Virtual University degree programs. See Duderstadt, 37, 435 and 671.

47. *Ibid.*, 304 and 435.

48. According to Duderstadt, “The ever-broadening mission of the University, along with its increasingly complex and interwoven array of constituencies, suggested that we need to rethink how we managed the institution. In the past, we had taken great pride in lean management, relying heavily on academic and relatively inexperienced leadership. In reality, however, the University of Michigan in the 1990s was a \$3 billion enterprise, comparable in size and complexity to a Fortune 500 company. Furthermore, for the past decade the University had grown at over a 10 percent per year compound rate. As our society became ever more knowledge-dependent, the University might be expected to grow

even more rapidly in the years ahead. Hence, we needed to think more carefully and extensively about the management of the University.” See Duderstadt, 31 and ch. 17, “The Business Plan.”

49. Duderstadt, 316.

50. *Ibid.*, 318.

51. For example, in 2003 ASU president Michael Crow unveiled what he calls his “multi-versity” vision at a Monday, November 24, 2003, Tempe City Council meeting. It includes four campuses, one each in Tempe and Mesa, and two more in Phoenix. A “world-class” engineering school, a “top” business school, research center, and a sports leadership and humanity institute would be on one campus; schools of industrial administration and technology, along with a polytech institute would be on another; while another campus would house a school of management. At ASU’s downtown Phoenix campus Crow anticipated total enrollment would reach 92,500 students—nearly double the 49,980 total full-time equivalent students as of the 2002-03 school year. According to Crow, “We want to be a force, not just a place.” Since then, the Arizona University System, including ASU, has moved ahead with plans for a biomedical research campus in downtown Phoenix. See Jason Emerson, “Biomedical Campus in Works Despite Legal Battle,” *East Valley Tribune*, December 7, 2004; Alia Beard Rau, “ASU President Offers Big plans for

Four Campuses,” *Arizona Republic*, November 24, 2003; and ASU’s *Annual Financial Report 2003*, p. 7, <http://www.asu.edu/fs/reports/fin2003.pdf>. On being “all things to all people,” see Judd Slivka, “University Aims for Two-Tiered System,” *Arizona Republic*, May 23, 2004; and “Do the Math: Our Stand,” *Arizona Republic*, May 30, 2004. ASU refers to this plan as its “One University, Many Places” strategy. See ABOR, *A Redesigned Public University System*, September 29, 2005, p. 27, http://www.abor.asu.edu/special_editions/redesign/BrdRegents05_FAZ501.pdf; cf. Anne Ryman, “Regents OK redesign,” *Arizona Republic*, September 30, 2005.

52. Duderstadt, 134.

53. *Ibid.*, 313-14.

54. *Ibid.*, 315.

55. *Ibid.*, 315 and 670.

56. They are: total research expenditures, federal research expenditures, endowment assets, faculty who are National Academy members, faculty awards, doctorates awarded, postdoctoral appointees, and the number of National Merit and National Achievement award winners in the entering class. See, *The Top American Research Universities*, annual reports from the Lombardi Program on Measuring University Performance, TheCenter at the University of Florida, Gainesville. TheCenter includes only those institutions that had more than

\$20 million in federal research expenditures in fiscal year 2001 (for the 2003 report), fiscal year 2000 (for the 2002 report), fiscal year 1999 (for the 2001 report), or fiscal year 1998 (for the 2000 report).

Over the past decade, *U.S. News & World Report* amended its basic ranking system several times, making a systematic, apples-to-apples comparison of U-M, ASU, and UA impossible. According to *U.S. News & World Report*’s annual rankings of America’s best national universities, covering academic years 1989-1990 to 1999-2000, U-M consistently ranked among the top 25 institutions. ASU consistently ranked among third-tier institutions, roughly corresponding to universities ranked 101-150 nationally. UA was also ranked among third-tier universities during the 1989-1990 academic year. As of the 1990-1991 school year, it moved up to the second tier, which roughly corresponds to universities ranked 51 to 100 nationally. See *U.S. News & World Report*, “America’s Best National Universities,” see issues dated October 15, 1990; September 30, 1991; September 28, 1992; October 4, 1993; September 26, 1994; September 18, 1995; September 16, 1996; September 1, 1997; August 31, 1998; August 30, 1999; and September 11, 2000.

57. Author’s calculations. Composite research rankings derived by calculating an average annual rank for each university based on separate rankings according to nine different measures provided by *The Top American Research*

Universities, annual reports. Overall research ranking derived by averaging the annual rankings from 1998 to 2002, which are available online at <http://thecenter.ufl.edu/sourcenotes2003.html>.

58. Such membership includes the National Academy of Sciences (NAS), the National Academy of Engineering (NAE), or the Institute of Medicine (IOM). Those organizations are private, nonprofit organizations whose members serve as advisors to the federal government on science, technology, and medicine. New members are nominated and elected by current members, and serve for life. According to TheCenter, members can come from “academia, industry, government, and not-for-profit agencies or organizations” and may include “active or emeritus faculty at their affiliated work institution.” See *The Top American Research Universities* annual reports.

59. From 1999 to 2002, U-M had 245 National Academy members, UA had 109, and ASU had 14. See *The Top American Research Universities*, annual reports. Overall research ranking derived by averaging the annual rankings from 1999 to 2002, author’s calculations.

60. From 1999 to 2002, U-M faculty received 173 awards, UA faculty received 66, and ASU faculty received 48. See *The Top American Research Universities*, annual reports. Overall research ranking derived by averaging the annual rankings from 1998 to 2002, author’s calculations.

61. ASU had a total of 470 National Merit and National Achievement award winners, U-M had 239, followed closely by UA with 216. See *The Top American Research Universities*, annual reports. According to TheCenter, “The National Merit Scholarship Corporation (NMSC) is an independent, nonprofit organization that awards scholarships to the nation’s outstanding high school seniors based on their academic achievement, qualifying test scores, high school principal and counselor recommendations, and their activities, interests, and goals. The NMSC names approximately 16,000 National Merit Finalists each February. Of these, about one-half will receive a National Merit \$2,500 Scholarship, a corporate-sponsored scholarship, or a college-sponsored scholarship...National Achievement Scholars are selected and funded in a similar fashion and represent the nation’s outstanding African-American students. Ideally, the National Hispanic Scholars Program should also be included in this category, but it does not track the enrollment of its scholarship winners. Should it do so in the future, we will include these students in TheCenter’s data.” See *The Top American Research Universities* annual report.

62. According to TheCenter, annual giving includes, “all contributions actually received during the institution’s fiscal year in the form of cash, securities, company products, and other property from alumni, non-alumni individuals, corporations, foundations, religious organizations, and other groups.” See

The Top American Research Universities, annual reports.

63. *Ibid.*

64. In 2002, U-M had \$3.24 billion in endowment assets. Ranking first for public institutions is Texas A&M with \$3.5 billion. Public institutions that had fewer endowment assets than U-M in 2002 with public institution rank and endowment assets amounts include: #3 University of California-Berkeley, \$1.77 billion; #38 University of North Carolina-Chapel Hill, \$1.07 billion; #45 Ohio State University-Columbus, \$960 million; #65 University of Iowa, \$658 million; #74 University of Florida, \$583 million; and #149 University of California-San Diego, \$259 million. In 2002, UA ranked 133 with \$292 million and ASU ranked 179 with \$206 million. See “The Top 200 Institution—Endowment Assets (2002)” in *The Top American Research Universities*.

65. *The Top American Research Universities*, annual reports. On the difficulties of determining endowment assets, see the data note for “Endowment Assets,” at: <http://thecenter.ufl.edu/sourcenotes2003.html#endowment>.

66. Based on data from the Council for Aid to Education, an independent subsidiary of RAND Corporation. See “Top institutions in alumni support” and “Top institutions in support from non-alumni individuals” in the *Chronicle of Higher Education’s* “Top Fund Raisers, 2002-03,” available online at <http://chronicle.com/prm/weekly/>

almanac/2004/nation/0103004.htm. U-M ranked ninth in support from alumni individuals, raising \$88,143,461, and 16th for support from non-alumni individuals, raising \$31,647,591. Unless otherwise noted, references to the listings in the *Almanac of Higher Education 2004-2005* are available online to subscribers at <http://chronicle.com/free/almanac/2004/index.htm>; or in the August 17, 2004 issue of the *Chronicle of Higher Education*.

67. ASU has about 267,143 alumni with active addresses according to Micki Dadkhah, Director of Member Services, ASU Alumni Association. Figure provided to Goldwater Institute Ronald Reagan fellow Jennifer Martin in a September 21, 2004, telephone conversation. UA has 224,185 alumni with active addresses according to Faye Edmunson, Computer Production Control Specialist, UA Alumni Association. Figure provided to author during an October 18, 2004, telephone conversation. U-M has approximately 110,000 alumni as of March 14, 2005, according to Valerie Woloszyn of the Alumni Association of the University of Michigan. Figure provided to author during a March, 15, 2005, telephone conversation.

68. Annual giving totals do not include public funds, universities’ investment earnings, or unfulfilled pledges. *The Top American Research Universities*, annual reports. See “Annual Giving (1999-2003)” under heading on “American Research University Data”

page at http://thecenter.ufl.edu/research_data.html. The Council for Aid to Education (CAE), an independent subsidiary of RAND Corporation, has produced the Voluntary Support of Education (VSE) Survey since 1986. See “Annual Giving” in TheCenter’s “Source Notes,” available at <http://thecenter.ufl.edu/sourcenotes2003.html>.

69. *The Top American Research Universities*. See “Annual Giving (1999-2003)” under the heading “Universities Reporting Any Federal Research in 1990-2002,” on “American Research University Data” page at http://thecenter.ufl.edu/research_data.html.

70. *The Top American Research Universities*. See “Annual Giving (1999-2003)” under heading “Universities Reporting Any Federal Research in 1990-2002,” on “American Research University Data” page at http://thecenter.ufl.edu/research_data.html.

71. *The Top American Research Universities*. See “Annual Giving (1999-2003)” under the heading “Universities Reporting Any Federal Research in 1990-2002,” on “American Research University Data” page at http://thecenter.ufl.edu/research_data.html.

72. Rankings are based on CAE data. See “Top Institutions in Corporate Support” in the *Chronicle of Higher Education’s* “Top Fund Raisers, 2002-03,” available online at <http://chronicle.com/prm/weekly/almanac>

/2004/nation/0103004.htm. MIT received \$54,650,775; Harvard University received \$50,723,515; and Stanford University received \$38,295,121.

73. See the *Chronicle of Higher Education*, “Major Private Gifts to Higher Education Since 1967,” available online at http://chronicle.com/stats/big_gifts.htm#star. This list was also published in the *Chronicle of Higher Education Almanac* on August 27, 2004. University of Arizona College of Law from James E. Rogers, \$87.5 million in cash and other assets, 1998 Arizona State University from Ira A. Fulton, \$50 million (nature of gift not disclosed), 2003.

74. See, for example, Rob Melnick et al., *Economic Development Via Science and Technology: How Can Arizona Improve its Standing?* Morrison Institute for Public Policy, Arizona State University, June 2003.

75. In November 2000, voters approved the Proposition 301 sales tax increase of 0.6 percent. According to a recent report prepared for the Arizona Department of Commerce: “In March 2001, the Arizona Board of Regents approved a five-year budget plan for these revenues for fiscal years 2002-2006, with annual revenues estimated from 45 to 55 million dollars over that period.” See Ronald J. Gunderson, *Statewide Economic Study: Arizona’s Education and Workforce Infrastructure*, Arizona Department of Commerce, November 7, 2000, p. 6.

76. Ellen Jeffries, *Higher Education in the Fifty States: A Survey of Higher Education Funding, Governance and Other Related Topics in the States*, Senate Fiscal Agency, Lansing, Michigan, October 2000, p. 26 and Appendix A, <http://www.senate.michigan.gov/sfa/Publications/Issues/HigherEducationFunding/50states.pdf>; cf. Elvia Diaz, "ASU, UA raking in private donations," *Arizona Republic*, October 5, 2003: "Despite the universities' success in getting private money, the Arizona institutions will continue to rely heavily on tax dollars for their core educational programs and most new buildings."
77. In June 2003, the state legislature passed the highly publicized University Research Financing bill, providing \$440 million for research facility construction at Arizona's three public universities. Paid out over 23 years at \$35 million annually, the total expenditure is \$805 million in current dollars. See Arizona Board of Regents (ABOR), *Arizona University System FY 2002-2003 Annual Report*, September 1, 2003, p. 1; and House Bill 2529, which was signed into law on June 26, 2003, and appropriates the following sums from the state general fund to the respective universities for lease-purchase capital financing for research infrastructure projects from fiscal year 2007-2008 through 2030-2031: ASU, \$14,472,000; UA, \$14,253,000; and NAU, \$5,900,000.
78. Alternatively, to achieve \$8,600 per student in state funding at current annual state funding levels, ASU and UA would have to decrease enrollments. Based on average annual enrollment figures from 1991 to 2002, ASU would have to reduce its enrollment by 16,000 students, from 48,000 to nearly 32,000. UA would have to reduce its enrollment by about 1,000 students, from 35,000 to nearly 34,000.
79. "Exceptional Growth Mandates Changes in Colleges," *Arizona Republic*, March 6, 2005. cf. *Redesigned Public University System*, 12.
80. See the remarks of ASU president Michael Crow in Theoden K. Janes, "ASU Vows Investment on Return," *Arizona Republic*, September 28, 2002; cf. Bill Hart, "The 'Whirlwind' of ASU," *Arizona Republic*, April 24, 2003; cf. Rob Melnick, Mary Jo Waits, and Nancy Welch, *The New Economy: Policy Choices for Arizona*, Morrison Institute for Public Policy, Arizona State University, January 2000; Rob Melnick, *Five Shoes Waiting to Drop*, Morrison Institute for Public Policy, Arizona State University October 2001; and Rob Melnick, Rick Heffernon, and Nancy Welch, *Seeds of Prosperity: Public Investment in Science and Technology Research*, Morrison Institute for Public Policy, Arizona State University, April 2003; and Rob Melnick et al., *Economic Development Via Science and Technology: How Can Arizona Improve its Standing?* Morrison Institute for Public Policy, Arizona State University, June 2003.
81. Specifically, federal funding for UA, U-M, and ASU increased 37 percent, 35 percent, and 31 percent,

respectively, according to each university's annual financial reports for corresponding years. Federal funding data were unavailable for U-M for FY 1994 and UA for FY 1998.

82. This model is similar to one used by Cornell University, which comprises both state-supported units and privately supported, or "endowed," components. See Duderstadt, 438.

83. See Arizona Board of Regents (ABOR), *Arizona University System FY 2002-2003 Annual Report*, September 1, 2003. Quotation from p. 1. For more detailed information, see ABOR's Changing Directions website at http://www.abor.asu.edu/1_the_regents/initiatives/changing_directions/changing_directions.html. See also *Redesigned Public University System*.

84. See the University of Arizona's position paper, "Changing Directions: Focused Excellence," October 24, 2002, <http://www.asu.edu/changingdirections/papers/UA.pdf>.

85. See Christine Lambrakis, "Graduate Programs Fare Well in *U.S. News* Rankings," Media Relations & Public Information, ASU, April 6, 2004.

86. See "Highlights/Rankings/Facts," at <http://uaadvancement.arizona.edu/highlights/ranking-summary.html>. See also "UMC Ranks Among *U.S. News & World Report's* 'Best Hospitals,'" *UA Health Sciences Newsletter* 20 (6) (August 2004), <http://www.ahsc.arizona.edu/opa/ahsnews/aug04/ranks.htm> (Feb-

ruary 13, 2005); and "*U.S. News & World Report* ranks UA's Eller College of Management entrepreneurship program #5 in nation among public programs, #9 overall," August 24, 2004, Eller College of Management press release, http://www.eller.arizona.edu/news/2004/08/23_Entrepreneurship_ranked_No9.aspx (February 13, 2005).

87. *Measuring Up 2004*, National Center for Public Policy and Higher Education, September 2004, http://measuringup.highereducation.org/docs/nationalreport_2004.pdf; cf. Judd Slivka, "Ariz. higher education rated low," *Arizona Republic*, September 16, 2004. More recently, the Arizona Senate Finance Committee approved legislation to hold tuition constant at the same level as the year students start, increasing only for inflation. The measure will be voted on by the full House. "Tuition Lid," *East Valley Tribune*, May 10, 2005; cf. HB 2260. *USA Today's* 50-state survey of 67 public flagship universities released October 4, 2005, found UA and ASU rank first and fourth, respectively, in the country for higher tuition increases since 2002. See Arienne Thompson and Breanne Gilpatrick, "Double-digit hikes are down," *USA Today*, October 4, 2005, http://www.usatoday.com/news/education/2005-10-04-tuition-survey_x.htm; cf. Mike Cronin, "UA leads nation in tuition hikes while ASU ranks 4th," *Arizona Republic*, October 6, 2005.

88. See, for example, Judd Slivka, "Tuition May Go Up Again in Arizona," *Arizona Republic*, February 15, 2005. Since 1998, ABOR has interpreted this

constitutional mandate to mean tuition charged by Arizona public universities should be among the bottom third of tuitions charged by public universities nationwide. However, ABOR has no constitutional or statutory authority to raise tuition to be competitive with other public universities. See Attorney General Opinion (No. I99-011), May 11, 1999, available online at <http://www.azag.gov/opinions/1999/I99-011.html>.

89. According to their respective annual financial reports, between the fall of 1991 and the fall of 2002, ASU's combined full-time graduate and undergraduate enrollment increased 23 percent, from nearly 43,000 students to almost 56,000 students. Over the same period, UA's enrollment grew four percent, from 35,000 students to nearly 37,000 students. Significantly, both universities charged the same resident and non-resident tuition. For a quick synopsis of tuition and fees, see "Tuition History: Arizona University System Undergraduate Tuition and Mandatory Fees," Arizona Board of Regents, available online at http://www.abor.asu.edu/1_the_regents/reports_factbook/financial/6_tuitionhist.htm. See also, Judd Slivka, "Tuition May Go Up Again in Arizona," *Arizona Republic*, February 15, 2005; Slivka, "Colleges Struggle for Right Direction," *Arizona Republic*, May 15, 2005. Since 2002, UA's tuition has increased 74 percent, and ASU's tuition has increased 70 percent. See Mike Cronin, "UA Leads Nation Tuition Hikes While ASU Ranks 4th," *Arizona Republic*, October 6, 2005.

90. Michael M. Crow, "Tuition Hikes Necessary," *USA Today*, September 16, 2004.

91. *Redesigned Public University System*, 26-27; cf. Judd Slivka, "Tuition plan has three tiers of costs," *Arizona Republic*, February 19, 2005.

92. See for example, Judd Slivka, "Regents Reject Tuition Ceiling," *Arizona Republic*, January 29, 2005; and Slivka, "Tuition May Go Up Again in Arizona," *Arizona Republic*, February 15, 2005; and Mike Cronin, "UA Leads Nation Tuition Hikes While ASU Ranks 4th," *Arizona Republic*, October 6, 2005.

93. ABOR acknowledges research universities are not cost-effective providers of undergraduate education. See *Redesigned Public University System*, 16-17. In fact, according to David Longanecker, ABOR redesign consultant and executive director of the Western Interstate Commission for Higher Education, "There is limited capacity for producing gains in the current system—research universities are expensive animals by nature—and I don't see how you can move into the future with the current system...You can get a better undergraduate education through greater diversification of the system." See Annemarie Moody, "ABOR set to revamp universities," *ASU Web Devil*, June 8, 2004. Longanecker's remarks were made during the June 3, 2004, ABOR special meeting in the Arizona Ballroom of the Memorial Union at Arizona State University in Tempe. Minutes available online at

http://www.abor.asu.edu/1_the_regents/meetings/minutes/jun2004_spec.html. Robert Robb, “University reform duel leaves students behind,” *Arizona Republic*, February 20, 2005. See also ABOR, “A Redesigned Public University System,” September 2005.

94. In fact, it was reported that according to UA vice president Edith Auslander, a member of the Arizona university redesign group, differentiated tuition is one the major themes being considered. See Judd Slivka, “5-University System for State Killed,” *Arizona Republic*, February 13, 2005. See also, *A Redesigned Public University System*.

95. *U.S. News & World Report’s* annual “Best National Colleges” issues for corresponding years. The *Chronicle of Higher Education* reports, Arizona’s graduation rate was 48 percent in 2004, “One of the lowest rates in the country.” See Michael Arnone, “Plan sparks fierce debate,” October 8, 2004. UA, in fact, does plan to gradually tighten admissions standards. See Anne Ryman, “Regents OK redesign,” *Arizona Republic*, September 30, 2005; cf. *Redesigned Public University System*.

96. Peter Likins, “‘Changing Directions’ Described as Historic Opportunity,” UA Office of the President press release, September 27, 2002, available online at <http://president.arizona.edu/initiatives/focused-excellence/changingdirections/historic-opportunity/>.

97. Based on each university’s annual financial reports for the corresponding year.

98. In November 2000, voters approved Proposition 301, which implemented a sales tax increase of 0.6 percent to be used for K-12 education, universities, and community colleges. Roughly 12 percent of the Proposition 301 revenue is for the university system’s Technology and Research Initiative Fund (TRIF). The universities’ annual share amounts to about \$50 million or \$1.1 billion over 20 years. See Ronald J. Gunderson, *Statewide Economic Study: Arizona’s Education and Workforce Infrastructure*, Arizona Department of Commerce, November 7, 2000; and Arizona Board of Regents (ABOR), *Arizona University System FY 2002-2003 Annual Report*, September 1, 2003. On June 26, 2003, the University Research Infrastructure Financing bill (HB 2529) was signed into law. It appropriates the following sums from the state general fund to the respective universities for lease-purchase capital financing for research infrastructure projects from fiscal year 2007-2008 through 2030-2031: ASU, \$14,472,000; UA, \$14,253,000; and NAU, \$5,900,000.

99. As reported in the *Tucson Citizen*, “ASU will attempt to increase its private research funding to \$400 million annually from \$130 million in the next five to seven years,’ Crow said. ‘UA and NAU also hope to achieve substantial increases during the next several years. UA currently brings in more than \$350 million a year for research.’” See Blake

Morlock and Elvia Diaz, "UA Jumps into Race for Research Money," October 14, 2004.

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