



NCHEMS

**An Accountability System for
Higher Education in Minnesota**

Submitted to the
Office of Higher Education

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An Accountability System for Higher Education in Minnesota

I. INTRODUCTION

In August 2005, the Minnesota Office of Higher Education (OHE) circulated a Request for Proposals (RFP) seeking contractors who would “assist in developing a plan for an accountability system for higher education in Minnesota.” The goal of the project as stated in the RFP is:

...to recommend state goals and corresponding indicators for a statewide performance accountability system for Minnesota’s higher education sector. The system recommended by the contractor will be continuously maintained by the State to provide policy makers with relevant information on the effects of higher education on state residents, students, and the economy for the purpose of state policy improvement.

The National Center for Higher Education Management Systems (NCHEMS) was awarded the contract to conduct the project. This report documents the process followed in the performance of the contract, the findings that emerged from that process, and the recommendations offered by NCHEMS regarding the specifics of an accountability system for higher education in Minnesota.

II. PROJECT ACTIVITIES

A. Activities Conducted

In pursuit of the project’s goals, NCHEMS staff conducted activities that can be characterized as:

1. Rooted in the Philosophy of Accountability Tied to a State’s “Public Agenda”

Many state-level accountability systems have been designed around institutions as the sole unit of analysis. This approach yields valuable information about how institutions are performing vis-à-vis their missions, but it does not adequately address the question of whether the institutions **collectively** are meeting the priority needs of the state and its citizens. Minnesota’s approach to higher education accountability builds on the systems already in place within each of the public systems of higher education in the state. It adds a series of statewide indicators, measuring Minnesota performance against other states and countries in areas identified as being crucial to the future well-being of the state. This approach that recognizes both institutional and state perspectives is designed to sustain attention of both institutional leaders and state policymakers to the critical needs of the state.

2. Collaborative

NCHEMS staff worked closely with OHE staff at each step of the process, consulting with them about both the process and the substance of the project. This working relationship proved to be both enjoyable and effective. The final product was improved by the insights and perspectives shared across the organizational lines.

3. Data and Information-Based

Throughout the project, discussions and decisions were informed by use of data about the state of Minnesota and its standing relative to other states (and nations where possible). In this way focus on the population, workforce, and economy of the state was maintained, with the institutions of higher education recognized as necessary means to state goals rather than as ends unto themselves.

4. Policy Focused

While the focal point of the project as stated in the RFP was accountability, NCHEMS staff were mindful throughout that the ultimate purpose was the improvement of public policymaking regarding higher education. As a result, particular attention was given to accountability measures that:

- Keep the focus on state policy—not system or institutional management issues.
- Allow benchmarking against world-class performance whenever possible, reflecting the widespread understanding in the state that Minnesota is competing in a global marketplace.
- Provide guidance for those issues requiring focused attention and investment.

5. Consultative

At each stage of the project, input was sought from individuals having widely different perspectives.

- Government—elected officials and representatives of executive branch agencies at both the state and local levels
- Business/employers
- Students
- Education—K-12 and postsecondary, public and private
- Faculty

- Labor

This involvement was obtained in three large group meetings convened in St. Paul and 20 smaller meetings held throughout the state. Approximately 100 different individuals attended the large group meetings and more than 135 participated in the regional meetings. As a result of this broadly consultative process, priority issues were identified in a way that resulted in a consensus about those issues, while at the same time recognizing regional variations on the primary themes.

B. Sequence of Activities

1. Data Analysis

This activity involved analyzing a substantial amount of data about the demography and economy of Minnesota along with data that placed the state in a national and international context. In addition to the quantitative data, other sources of information were tapped. These included accountability information from the public higher education systems, the Citizens League Report, and other documents whose contents added breadth and/or depth to the broad perspective.

2. First Meeting with Advisory Group

The analytic results were presented to the large Advisory Group for the project. The result of this meeting was the initial version of the public agenda for Minnesota—the list of state issues to which the higher education enterprise could appropriately be asked to respond. (Members of the Advisory Group are listed in Appendix A.)

3. Regional Meetings

The priority goals and the rationale for their selection were reviewed at twenty different regional meetings throughout the state of Minnesota. Separate meetings were held with business and civic leaders and with representatives of educational institutions in ten locations throughout the state—Moorhead, Bemidji, Hibbing, Duluth, Rochester, Mankato, Marshall, St. Cloud, and the Twin Cities (two different sites). Suggestions as to the creation of accountability measures were also solicited at these meetings. As a result of the comments received during these meetings, the preliminary set of goals was revised in important ways. (Individuals who attended the regional meetings are listed in Appendix B.)

4. Preliminary Accountability Measures

A set of accountability measures designed to indicate performance relative to this refined set of goals was developed by the NCHEMS staff and refined through discussions with OHE staff.

5. Second Meeting with Advisory Group

The revised set of goals and the proposed, related set of accountability measures were presented to members of the broader Advisory Group for their review and comment. Subsequent to this large meeting, NCHEMS and OHE staff met with representatives of each of the higher education sectors in Minnesota—the University of Minnesota, Minnesota State Colleges & Universities (MnSCU) and the independent institutions—to hear their concerns and suggestions about specific measures.

6. Recommended Accountability Measures

Based on the recommendations received during these review meetings, NCHEMS staff, working in collaboration with OHE staff, developed the recommended set of accountability measures presented later in this report.

III. THE SET OF PRIORITY GOALS

As indicated in Section II, the statement of goals/priorities evolved over the course of the project. This evolution is revealed in the following listings—the priority areas identified by the Advisory Group as a result of the early round of analyses and presented at the regional meetings, the set presented at the second Advisory Group meeting, and a final, recommended set.

A. The Initial Set

1. Improving Educational Success of Students of Color

- High school graduation
- College participation
- College completion

2. Responding to Workforce Needs in Critical Shortage Areas

- Regional needs
 - a. Health care
 - Community and social services
 - Office administration and support
- Statewide needs
 - Computer workers

3. Increasing Global Competitiveness of Minnesota Graduates
 - High school
 - College
4. Increasing Skill Levels of Adult Population
 - Incumbent workers
 - Adults lacking basic literacy skills
5. Improving Productivity of State's System of Postsecondary Education—Increased Degree Production
 - All levels, especially among individuals likely to remain in Minnesota
 - In STEM fields
6. Enhancing Competitiveness of Minnesota Economy
7. Enhancing Research Competitiveness in Key Fields
 - Engineering
 - Computer sciences/math
 - Biosciences
8. Addressing These Needs Differently in Different Regions

B. The Set as Revised After Regional Meetings

1. Improve success of all students, particularly students from groups underrepresented in higher education.
2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.
3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
4. Increase skill levels of adult population, especially those who have not completed high school.
5. Contribute to the development of a state economy that is competitive in the global market through research and other appropriate means.
6. Ensure affordability so that access and choice are provided for all students.

C. The Final, Recommended Set of Goals

1. Improve success of all students, particularly students from groups underrepresented in higher education.
2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.
3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and other appropriate means.
5. Provide access, affordability, and choice for all students.

The data that led to this selection are included in myriad charts and graphs that were presented to the Advisory Group and attendees at the regional meetings. The complete data presentations utilized in these settings are contained in a companion document. A very select subset of this information is presented here to illustrate the conditions that drove participants in the process to settle on the final set of goals and priorities.

D. Factors Affecting Selection

Several overarching values emerged during the course of the project that influenced the selection and framing of the goals.

1. For Minnesota and its citizens to prosper, the state has to effectively compete in a global marketplace. The state's economy and stock of human capital must be judged against the best that the world—not just the U.S.—has to offer.
2. The different regions of Minnesota differ substantially in the size and nature of their populations and economies and in the specifics of regional issues and needs. Minnesota cannot prosper unless its strengths can be found in all parts of the state. Attention to substate regions, as well as the state as a whole, is necessary.
3. Not everything can, or should be, justified on purely economic grounds. While there is a state interest in specific types of education that can spur the economy, there is also an overall state interest in the benefits of having a highly educated citizenry regardless of the specifics of their academic pursuits and histories. The importance of students' being able to choose their own paths to their versions of success was reinforced in every venue.

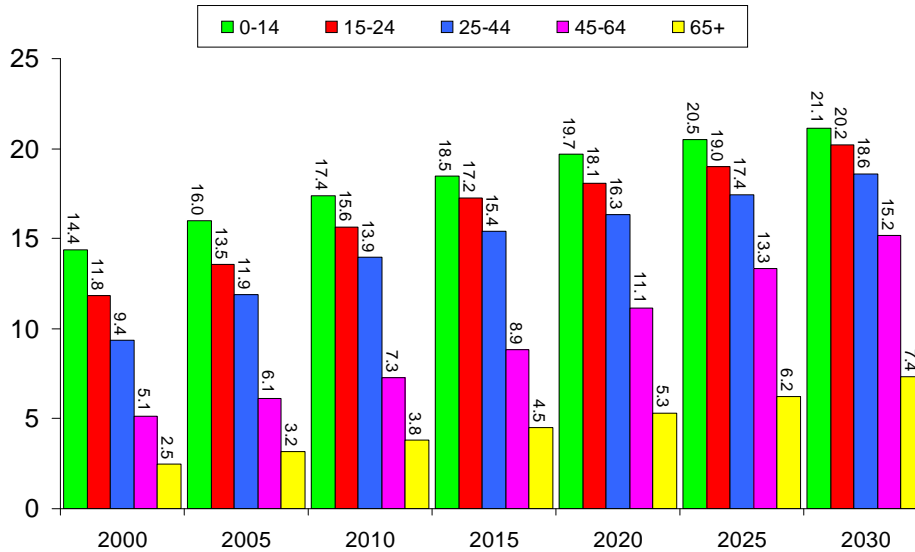
Goal 1 of the final, recommended set emerged as a high priority in recognition of the facts that:

- The population of Minnesota is becoming much more diverse.

- The rapidly growing subgroups of the population are far behind Minnesota and international competitive standards with regard to educational attainment.

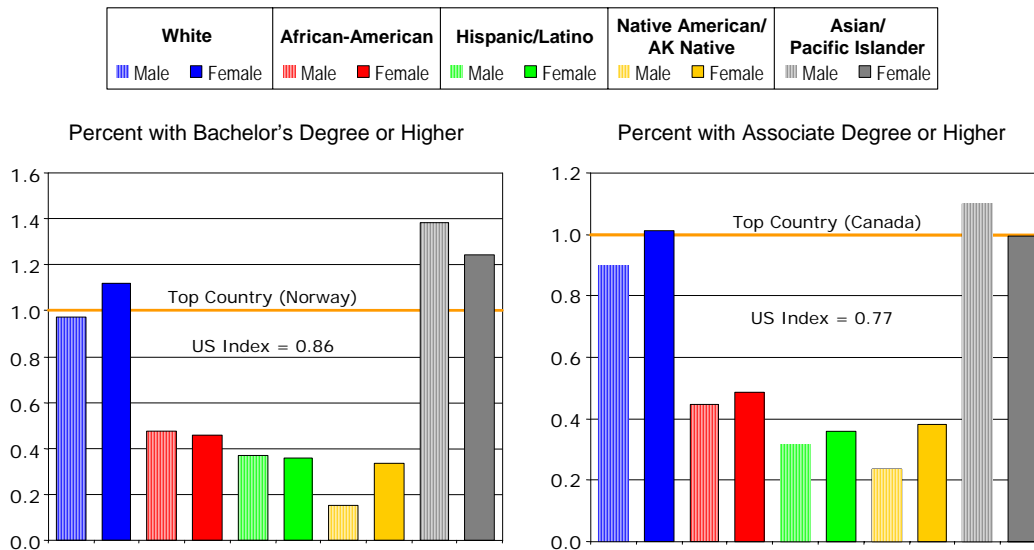
These two factors are made clear in Figures 1 and 2.

FIGURE 1.
Projected Percent Minority by Age Group, 2000-30



Source: Minnesota State Demographic Center

FIGURE 2.
Minnesota Educational Attainment by Gender and Race/Ethnicity, Age 25-34—Indexed to Top Country

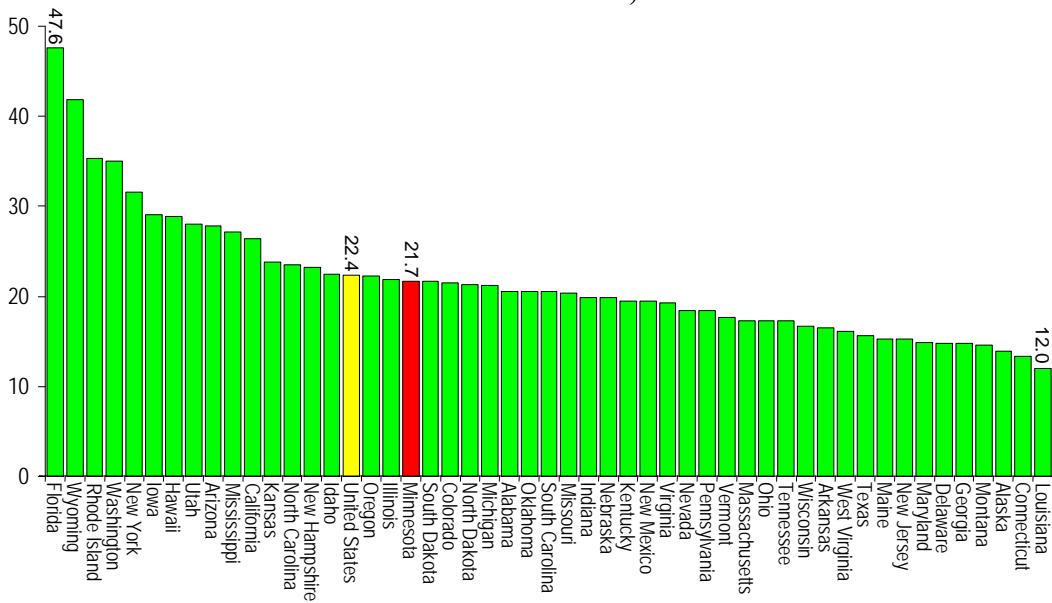


Source: U.S. Census Bureau, Public Use Microdata Samples (Based on 2000 Census); Organisation for Economic Co-operation and Development (OECD)

The aspirations of the state will be hard to achieve unless the educational attainment gap revealed in Figure 2 can be substantially reduced.

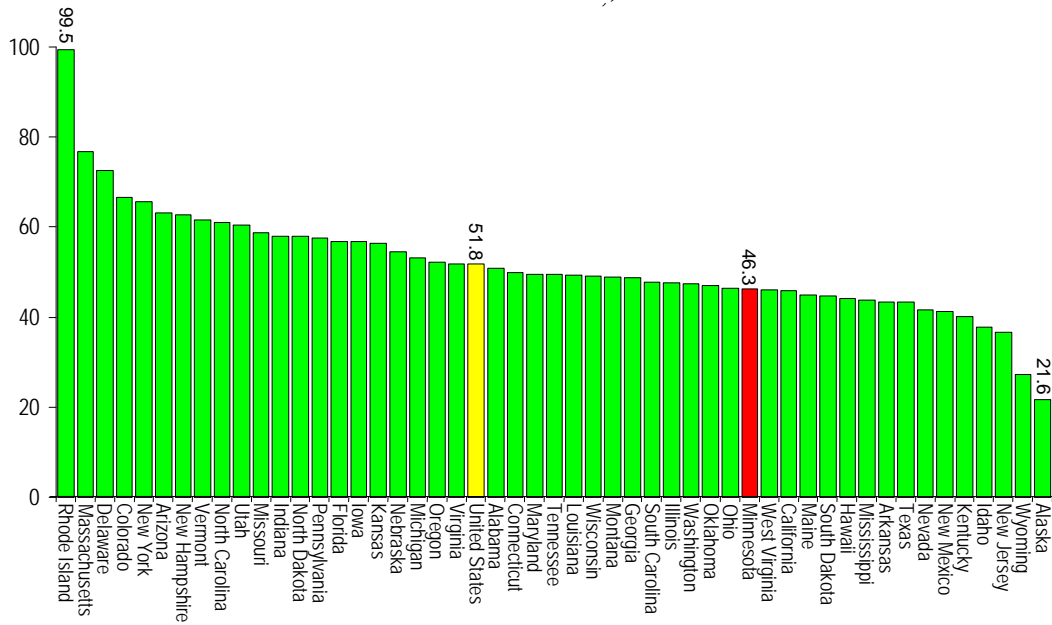
Goal 2 emerged out of recognition that Minnesota is producing too few graduates at both the associate and baccalaureate levels and that the share of degrees produced in science and engineering fields is below the national average. Minnesota has relied heavily on in-migration of talent to meet its workforce needs. These conditions are revealed in Figures 3-6.

FIGURE 3.
Associate Degrees Awarded per 100 High School Graduates
Three Years Earlier, 2003



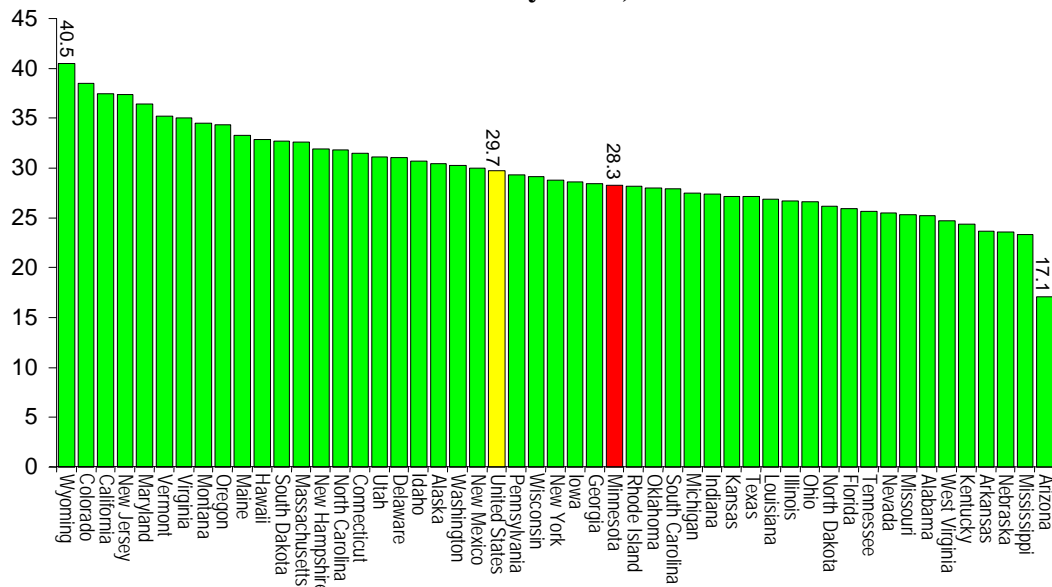
Source: NCES-IPEDS Completions Survey, WICHE

FIGURE 4.
Bachelor's Degrees Awarded per 100 High School Graduates
Six Years Earlier, 2003



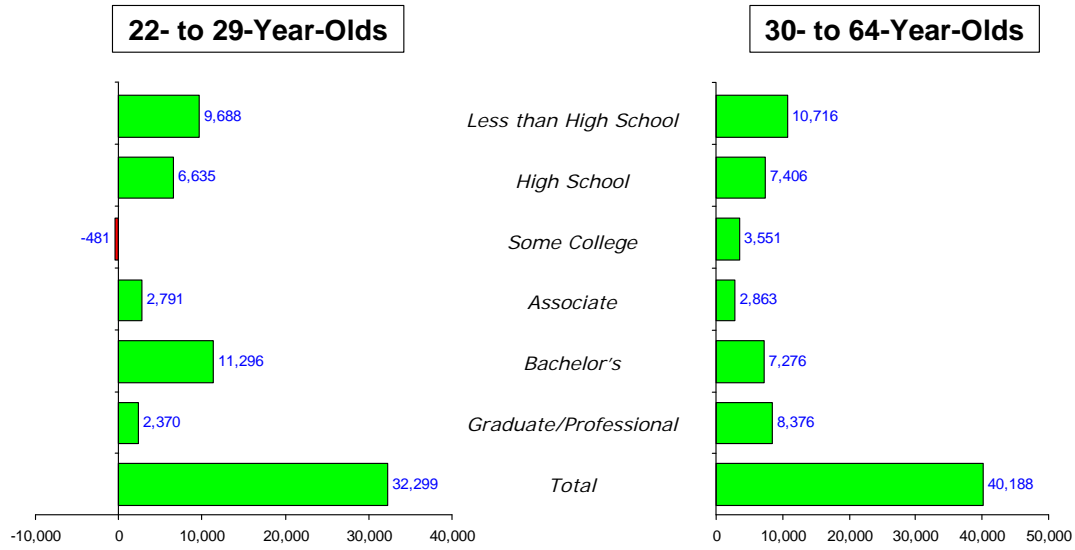
Source: NCES-IPEDS Completions Survey, WICHE

FIGURE 5.
Science and Engineering Degrees as Share of Higher Education Degrees
Conferred by State, 2000



Source: U.S. Dept. of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System

FIGURE 6.
Minnesota Net Migration by Degree Level and Age Group



Source: U.S. Census Bureau, 2000 Census; 5% Public Use Microdata Sample (PUMS) Files

Goal 3 surfaced in recognition of the fact that learning—the acquisition of knowledge and skills—and not just acquisition of degrees will be a major determinant of global competitiveness. The data show that Minnesota high school students are less likely than students in some other states to take advanced math and science courses, and that the U.S. compares poorly in international assessments of math competency (see Figures 7 and 8). Specific attention to learning outcomes assessed against international standards was recognized as a priority for Minnesota.

FIGURE 7.
Minnesota Scores on Preparation—*Measuring Up 2004*

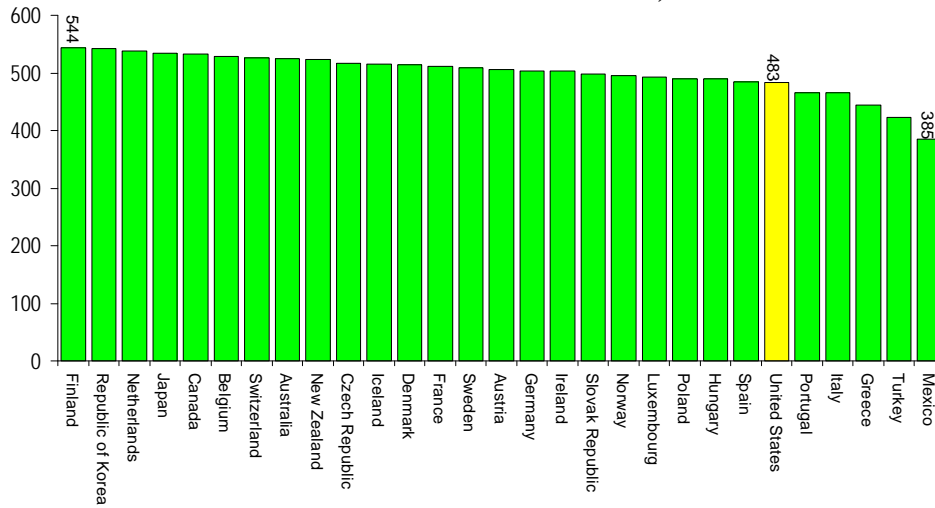
PREPARATION	MINNESOTA		Top States 2004
	A Decade Ago	2004	
High School Completion (20%)			
18- to 24-year-olds with a high school credential	93%	93%*	94%
K–12 Course Taking (35%)			
9th to 12th graders taking at least one upper-level math course	45%	49%	59%
9th to 12th graders taking at least one upper-level science course	31%	30%	41%
8th grade students taking algebra	6%	17%	35%
12th graders taking at least one upper-level math course	n/a	n/a	66%
K–12 Student Achievement (35%)			
8th graders scoring at or above “proficient” on the national assessment exam:			
in math	31%	44%	36%
in reading	37%	37%	39%
in science	37%	42%	42%
in writing	25%	25%†	41%
Low-income 8th graders scoring at or above “proficient” on the national assessment exam in math	20%	24%	23%
Number of scores in the top 20% nationally on SAT/ACT college entrance exam per 1,000 high school graduates	155	201	227
Number of scores that are 3 or higher on an Advanced Placement subject test per 1,000 high school juniors and seniors	31	92	219
Teacher Quality (10%)			
<i>7th to 12th graders taught by teachers with a major in their subject</i>	79%	92%	81%

*Eighty-six percent of 18- to 24-year-olds have a regular high school diploma; 7% have a GED.

Note: Indicators in italics are new for 2004.

†Data from *Measuring Up 2002* were used because updated state information was not available.

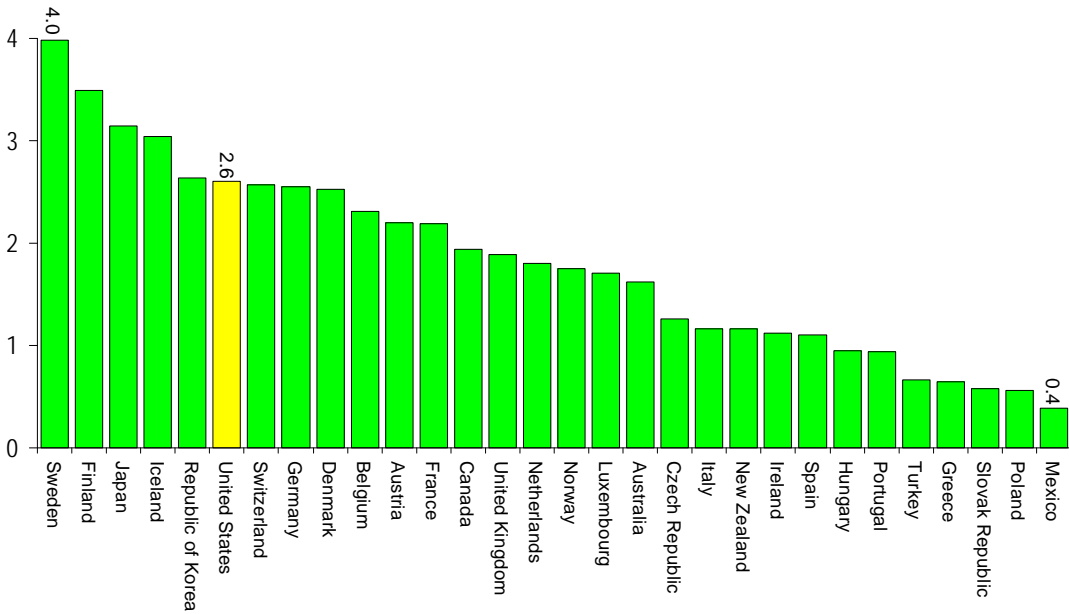
FIGURE 8.
Mean Score and Variation in Student Performance on the
OECD PISA Mathematics Scale, 2003



Source: OECD PISA 2003 database

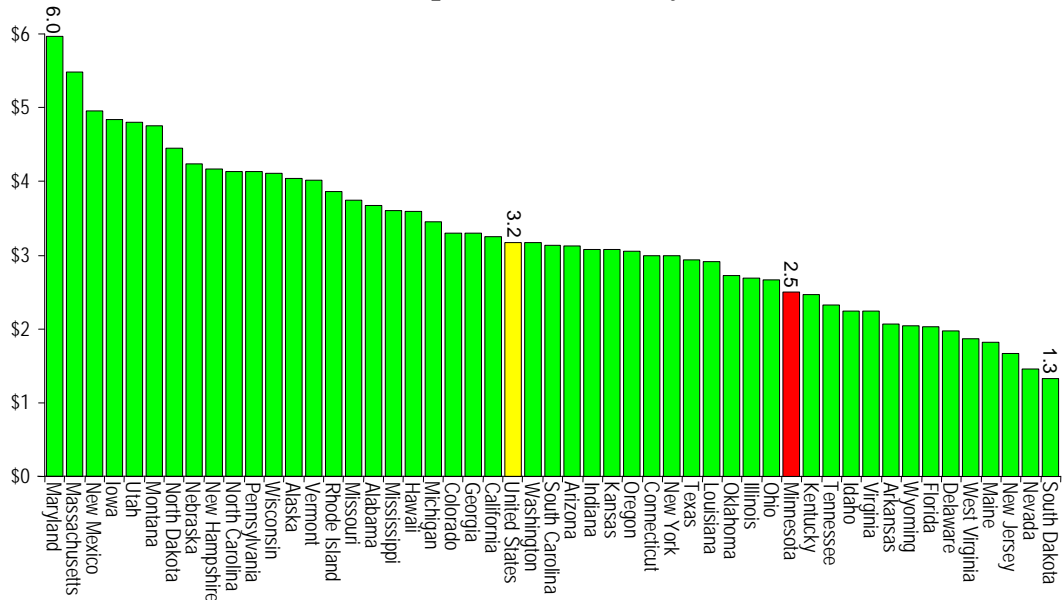
Throughout the term of the project, the importance of research and its contribution to the continuing growth and evolution of Minnesota’s economy were recognized. The fact that the U.S. is spending less on research and development than several emerging competitors—and that Minnesota is less competitive for R&D funding than many other states—led participants to flag growth of research as a priority area (see Figures 9 and 10). Of particular concern was the fact that Minnesota’s research capacity is concentrated in one area, the medical sciences. In all other areas, Minnesota’s per capita R&D expenditures fall below national average.

FIGURE 9.
Percent of Gross Domestic Expenditure on Research and Development, 2003



Source: *Main Science and Technology Indicators*, OECD, Paris, 2005

FIGURE 10.
Academic R&D per \$1,000 GSP by State, 2000



Source: National Science Foundation; U.S. Dept. of Commerce

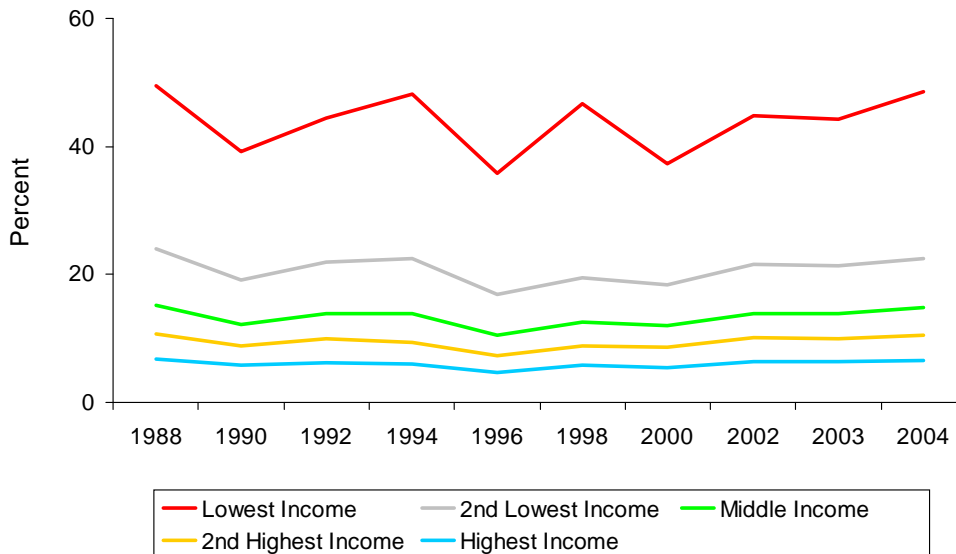
Finally, the consideration of affordability, for students attending all sectors of higher education, arose out of discussions at the regional meetings and was ratified by the larger Advisory Group. The cost burdens affecting lowest income students was a particular concern as was the fact that there is little variation between the costs of attending public two- and four-year institutions (see Figures 11-14).

FIGURE 11.
Minnesota Family Ability to Pay—Measuring Up 2004

A CLOSER LOOK AT FAMILY ABILITY TO PAY	Average family income	Community colleges		Public 4-year colleges/universities		Private 4-year colleges/universities	
		Net college cost*	Percent of income needed to pay net college cost	Net college cost*	Percent of income needed to pay net college cost	Net college cost*	Percent of income needed to pay net college cost
Income groups used to calculate 2004 family ability to pay							
20% of the population with the lowest income	\$16,749	\$7,420	44%	\$8,623	51%	\$20,261	121%
20% of the population with lower-middle income	\$37,110	\$7,928	21%	\$9,149	25%	\$20,251	55%
20% of the population with middle income	\$59,326	\$8,237	14%	\$9,821	17%	\$19,732	33%
20% of the population with upper-middle income	\$83,500	\$8,356	10%	\$10,199	12%	\$19,731	24%
20% of the population with the highest income	\$131,715	\$8,361	6%	\$10,367	8%	\$21,291	16%
40% of the population with the lowest income	\$26,930	\$7,674	28%	\$8,886	33%	\$20,256	75%

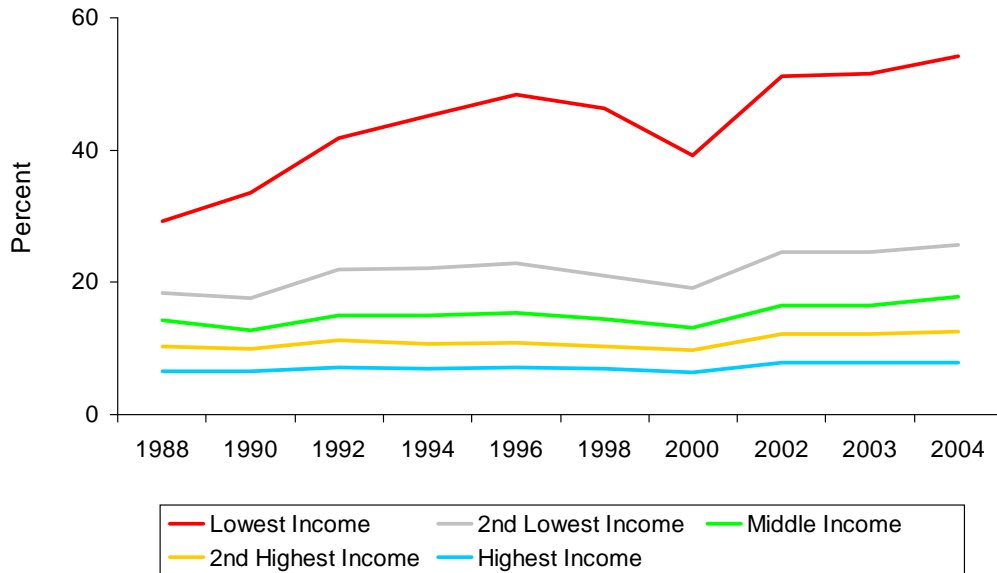
*Net college cost equals tuition, room, and board, minus financial aid.

FIGURE 12.
Net College Costs as a Percent of Income—Minnesota 2-Year Public



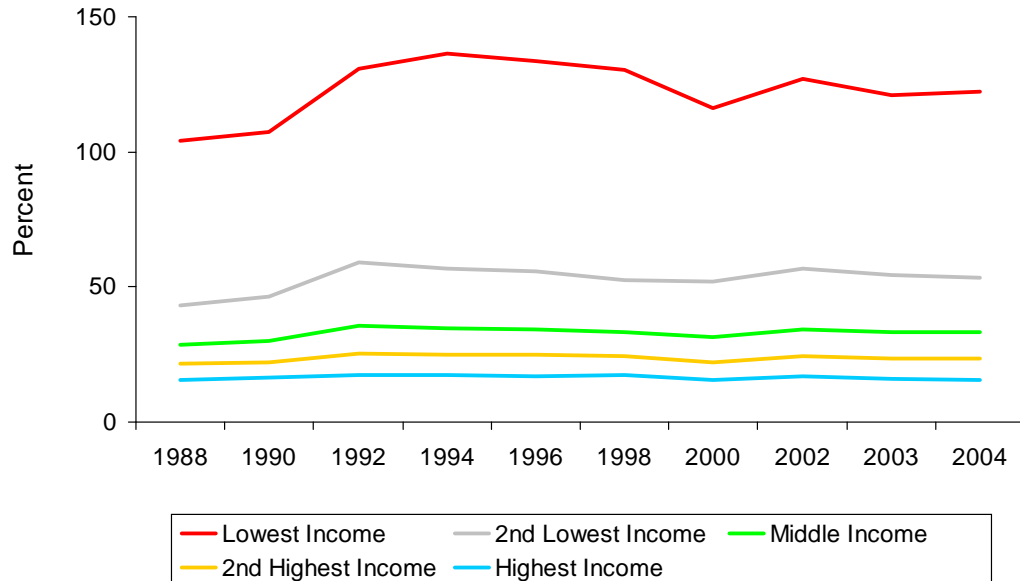
Source: National Center for Public Policy and Higher Education

FIGURE 13.
Net College Costs as a Percent of Income—Minnesota 4-Year Public



Source: National Center for Public Policy and Higher Education

FIGURE 14.
Net College Costs as a Percent of Income—Minnesota 4-Year Private



Source: National Center for Public Policy and Higher Education

While these goals and priorities were developed as a result of the process described in Section II, they are completely consistent with those defined in other contexts. Section 135A.053 of Minnesota's State higher education policy lists the following statewide objectives:

- (1) to ensure quality – to provide a level of excellence that is competitive on a national and international level, through high quality teaching, scholarship, and learning in a broad range of arts and sciences, technical education, and professional fields;
- (2) to foster student success – to enable and encourage students to choose institutions and programs that are best suited for their talents and abilities, and to provide an educational climate that supports students in pursuing their goals and aspirations;
- (3) to promote democratic values – to enhance Minnesota's quality of life by developing understanding and appreciation of a free and diverse society;
- (4) to maintain access – to provide an opportunity for all Minnesotans, regardless of personal circumstances, to participate in higher education; and
- (5) to enhance the economy – to assist the state in being competitive in the world market, and to prepare a highly skilled and adaptable workforce that meets Minnesota's opportunities and needs.

Similarly, the Citizens League Report on Higher Education in Minnesota argues that Minnesota needs three outcomes from higher education:

- The best-educated workforce in the world.
- World class excellence and innovation in research.
- National leadership in the transfer of new knowledge and advanced skills from higher education to the State's citizens, communities and workplaces.

The accountability measures recommended for each of these goals are presented in Section IV.

IV. RECOMMENDED ACCOUNTABILITY INDICATORS

After having settled on the statement of goals and priorities, and having discussed possible measures with both the Advisory Group and representatives of the sectors, NCHEMS and OHE staff worked together to develop a recommended set of accountability measures. The initial list was quite long. Responding to the admonishments of the Advisory Group, the list was pared to 15 Core indicators. A separate set of "Supporting" indicators was developed. These indicators suggest areas in which policy attention might be directed if progress on a core measure were to be attained. An example is the need to improve high school graduation rates of minorities (a supporting indicator) as a precursor to enrollment in college (a core measure). Finally, a set of

background indicators is suggested. These indicators serve to provide contextual, diagnostic, and explanatory information of the core and supporting indicators. For example, high school graduation rates by school district within Minnesota is a piece of background data that helps explain the statewide high school graduation rate suggested as a supporting indicator.

A. General Specifications and Issues

The following specifications are applied to all indicators:

1. Indicators will be calculated for the state as a whole and, wherever possible, by region.
2. Selected indicators appropriate to institutions will be calculated for each institution using institutional data and data drawn from a “service region” comprising counties that make up 80% of undergraduate headcount enrollment.
3. Indicators will be calculated to show at least five-year trends wherever possible.
4. There will be at least one “Core” indicator for each policy goal. Additional “Supporting” indicators are intended to further amplify progress on each goal and are listed separately. A third set of indicators not directly related to state or institutional performance is provided as “Background” to provide context.
5. Benchmarking will be done for all “Core” and for many “Supporting” indicators. The benchmarks used will be the two best-performing states and, where available, the two best-performing countries. A third benchmark will be provided based on the average value of the measure for the ten best-performing states on the New Economy Index—a indicator that reflects the progressiveness of a state’s economy.

B. Proposed Core Indicators

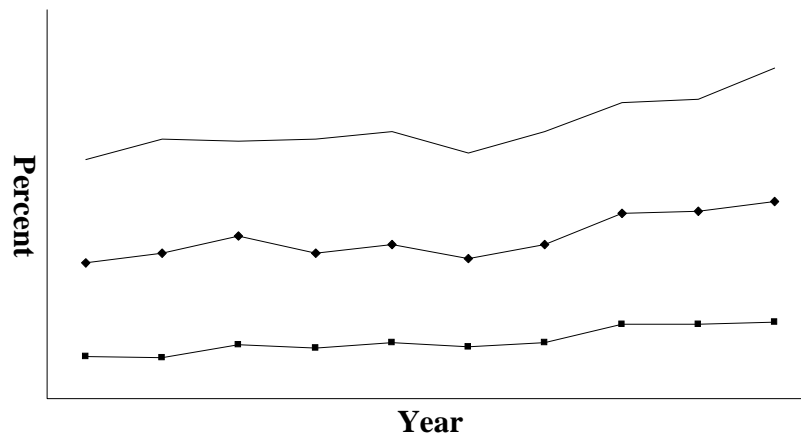
Proposed core indicators are listed below under each priority goal area. Each indicator listed as a core measure is accompanied by a brief rationale describing why it was chosen as a core measure. Suggested display formats are also provided for this set of indicators. (Data sources for sections B and C are provided in Appendix C.)

1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - a. *Core*: Percent of population age 18-24 enrolled in tertiary education (all levels). State Only, benchmarked to Best-Performing Countries and average of top ten “New Economy” States.

Rationale: This is the most comprehensive measure of postsecondary participation available for which there are international benchmarks.

Display Format

Percent of Population Age 18-24 Enrolled in Postsecondary Education



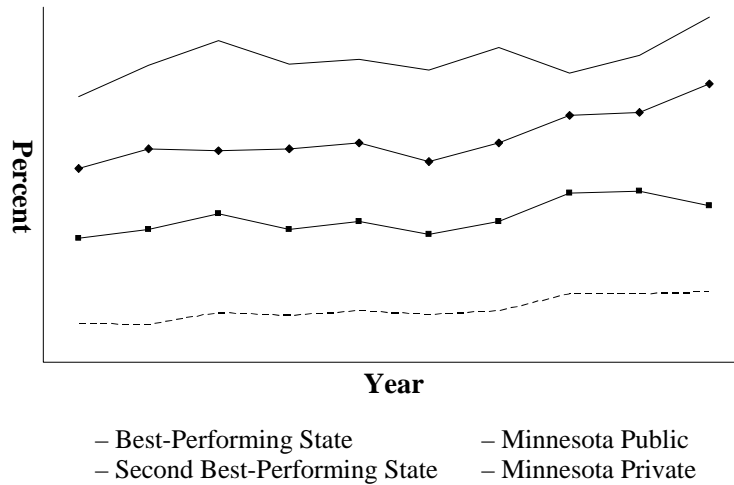
- Minnesota (IPEDS and Census)
- Average of Top 10 New Economy States (IPEDS and Census)
- Best-Performing Countries (OECD data)

1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - b. *Core*: Bachelor's degrees awarded as a proportion of total undergraduate headcount enrollments at four-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

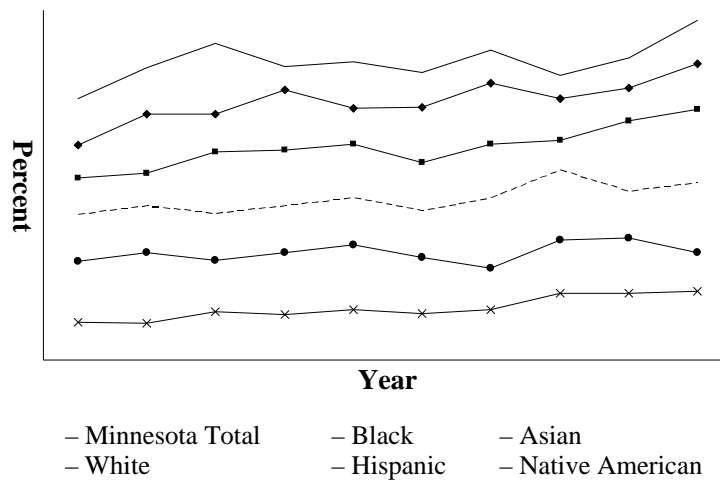
Rationale: Using this ratio measure avoids the difficulty of confining the indicator to first-time, full-time students that is characteristic of degree completion statistics reported in the IPEDS Graduation Rate Survey (GRS).

Display Format

Bachelor's Degrees Awarded as a Proportion of Total Headcount Enrollment at 4-Year Institutions



Bachelor's Degrees Awarded as a Proportion of Total Headcount Enrollment at 4-Year Institutions, By Race/Ethnicity

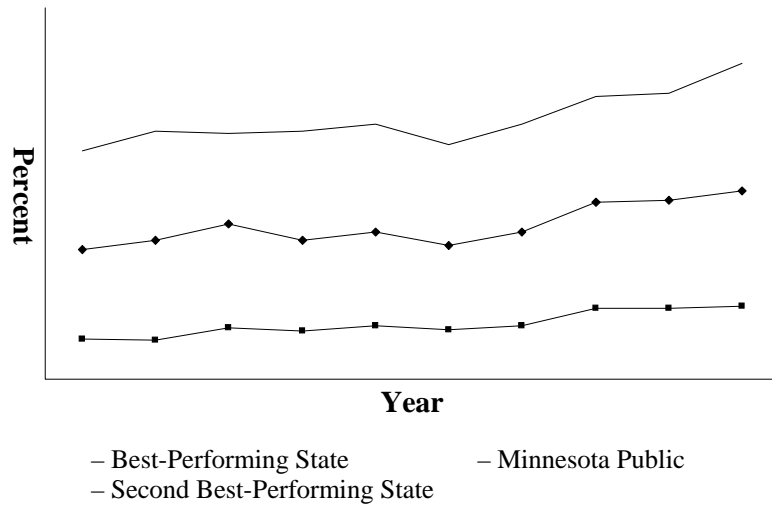


1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - c. *Core*: Associate degrees awarded as a proportion of total credit-bearing headcount enrollment at two-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

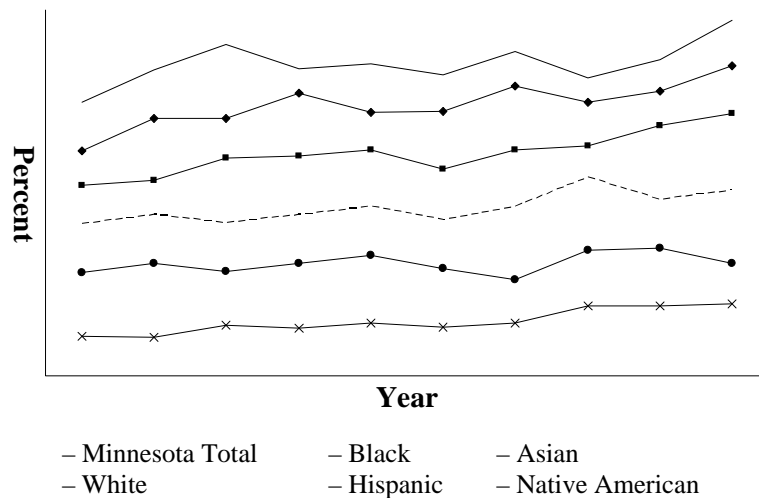
Rationale: Using this ratio measure avoids the difficulty of confining the indicator to first-time, full-time students that is characteristic of degree completion statistics reported in the IPEDS Graduation Rate Survey (GRS).

Display Format

Associate Degrees Awarded as a Proportion of Total Credit-Bearing Headcount Enrollment at 2-Year Institutions



Associate Degrees Awarded as a Proportion of Total Credit-Bearing Headcount Enrollment at 2-Year Institutions, By Race/Ethnicity

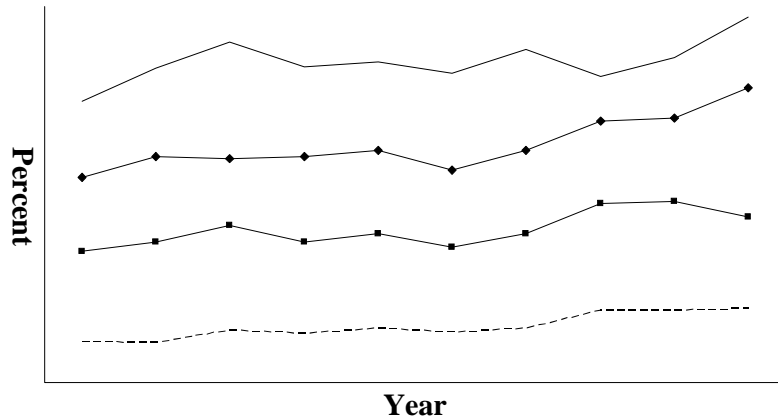


1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - d. *Core*: Percentage of adults age 25-34 who have earned Tertiary Type A and B credentials (associate degree and higher). State Only, benchmarked to Best-Performing Countries and average of top ten New Economy States. The New Economy Index measures the extent to which states' economies are structured and operated in accordance with the characteristics of the emerging world economy—characteristics such as knowledge jobs, globalization, economic dynamism, transformation to a digital economy, and technological innovation capacity. The top 10 in the most recent ranking are Massachusetts, Washington, California, Colorado, Maryland, New Jersey, Connecticut, Virginia, Delaware, and New York.

Rationale: This is a direct measure of the stock of human capital in the state, and is the best measure available for which there are international benchmarks.

Display Format

Percentage of Adults Age 25-34 Who Have Earned College Degrees (Associate and Higher)



- Best-Performing Country (OECD)
- Second Best-Performing Country (OECD)
- Minnesota (Census)
- Average of Top 10 New Economy States (Census)

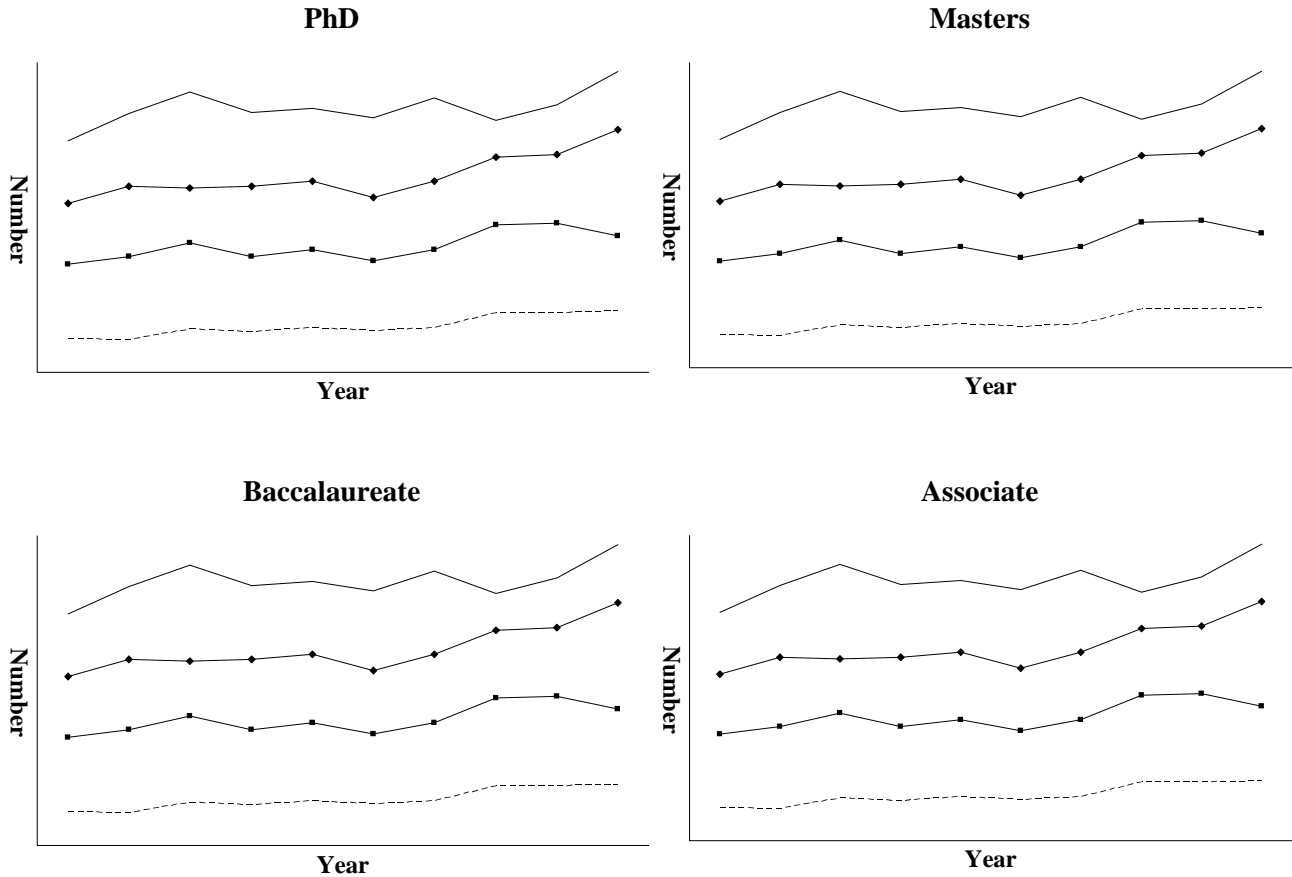
2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.
 - a. *Core*: Numbers and percentage increase in numbers of degrees produced (by level)—all fields and STEM fields. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Rationale: Degrees produced is the most straightforward measure of direct contributions of higher education to the Minnesota economy.

Display Format

NUMBER OF DEGREES PRODUCED—ALL FIELDS

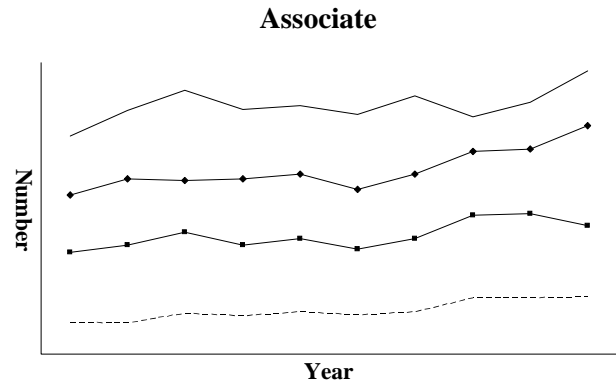
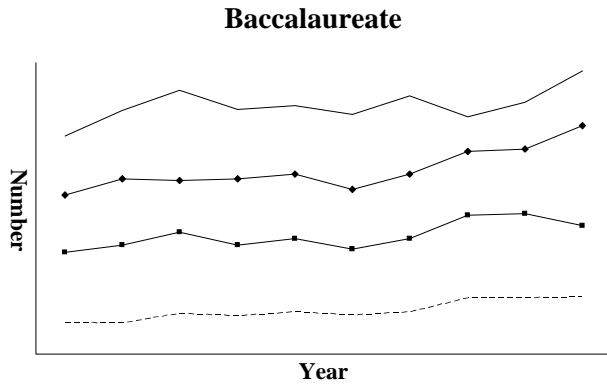
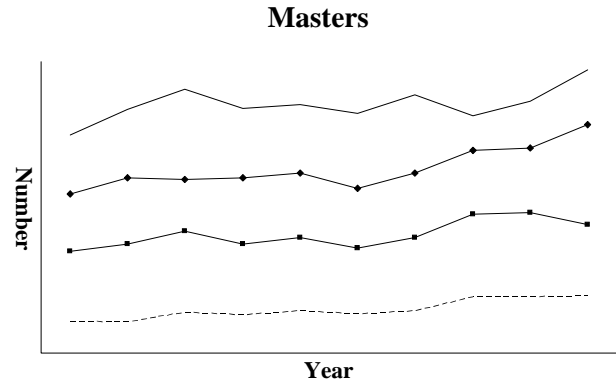
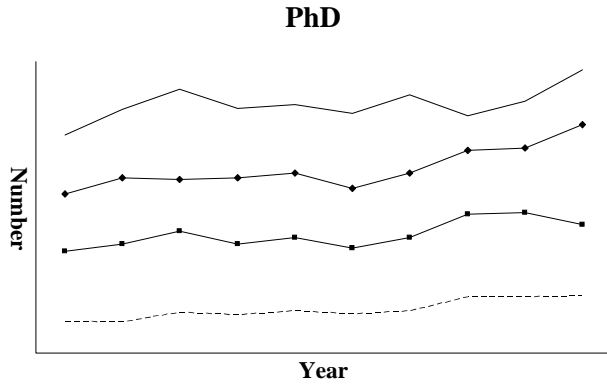
- Best-Performing State
- Average of Top 10 New Economy States
- Second Best-Performing State
- Minnesota



NUMBER OF DEGREES PRODUCED—STEM FIELDS

- Best-Performing State
- Second Best-Performing State

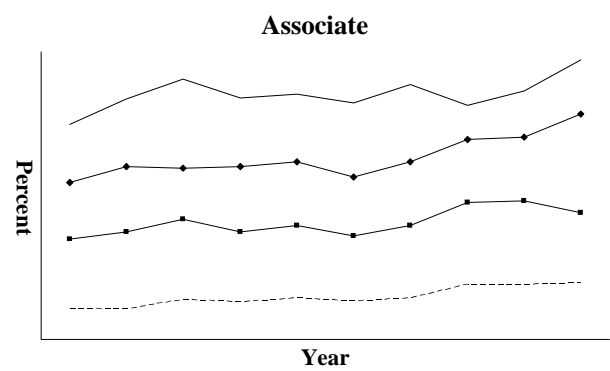
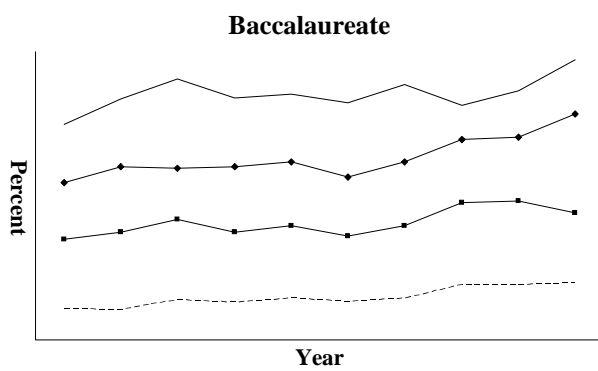
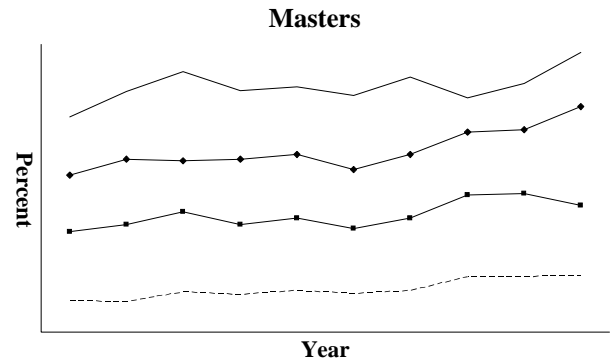
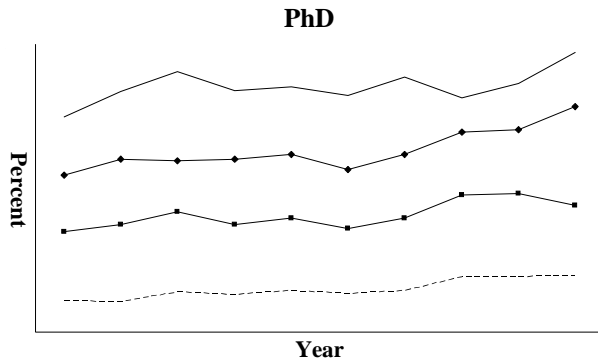
- Average of Top 10 New Economy States
- Minnesota



YEAR-TO-YEAR PERCENTAGE CHANGES IN DEGREES PRODUCED—ALL FIELDS

- Best-Performing State
- Second Best-Performing State

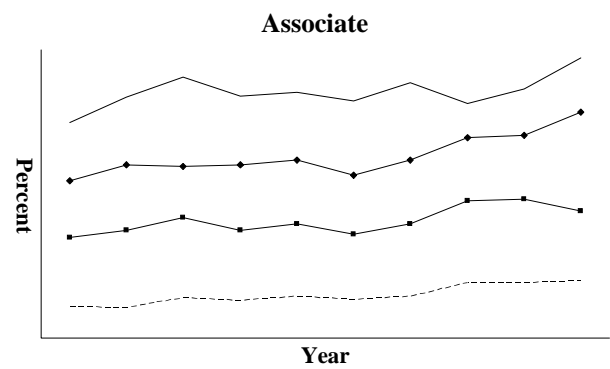
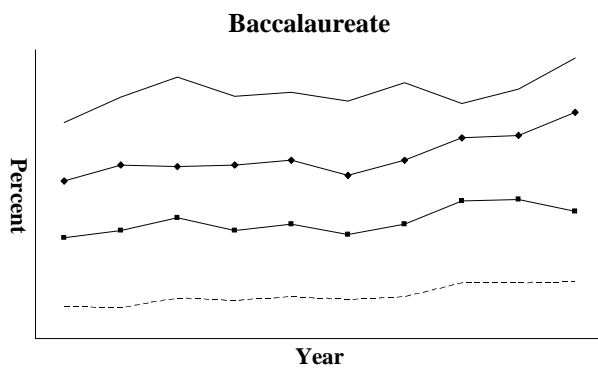
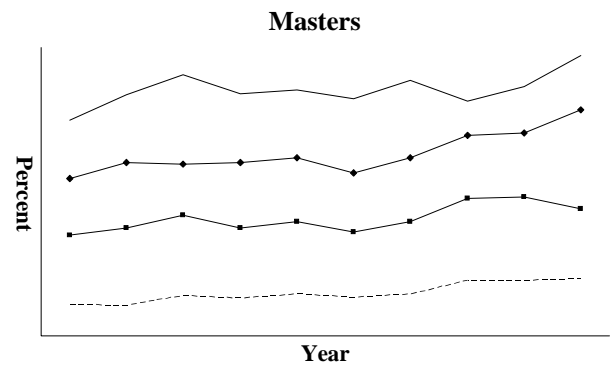
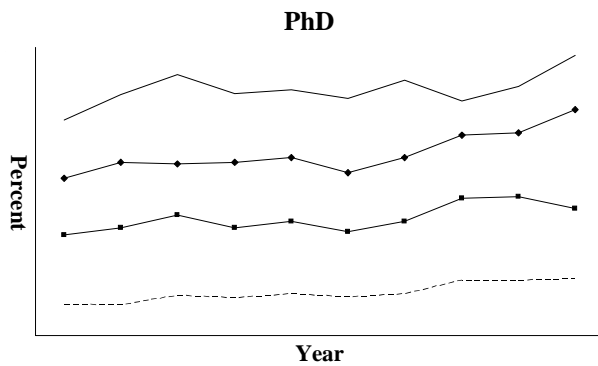
- Average of Top 10 New Economy States
- Minnesota



YEAR-TO-YEAR PERCENTAGE CHANGES IN DEGREES PRODUCED—STEM FIELDS

- Best-Performing State
- Second Best-Performing State

- Average of Top 10 New Economy States
- Minnesota

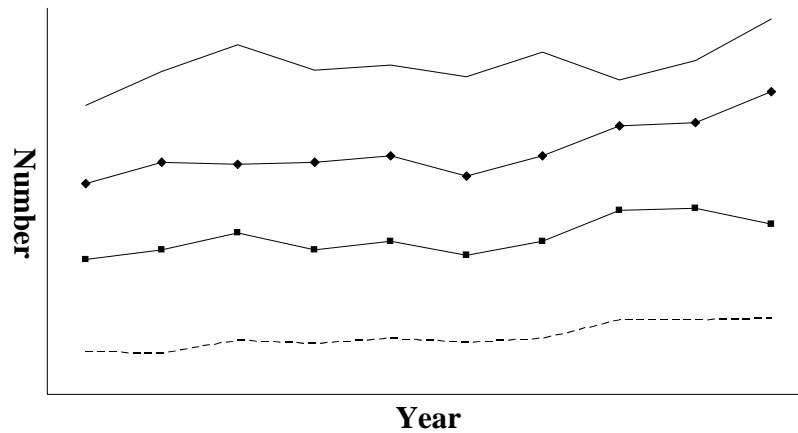


2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.
 - b. *Core*: Numbers and percentage increase in numbers of degrees produced in education, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Rationale: Degrees produced is the most straightforward measure of direct contributions of higher education to the Minnesota economy. Disaggregation by race/ethnicity is recommended to reflect the need to generate teachers who can serve as effective role models for Minnesota’s growing school population of color.

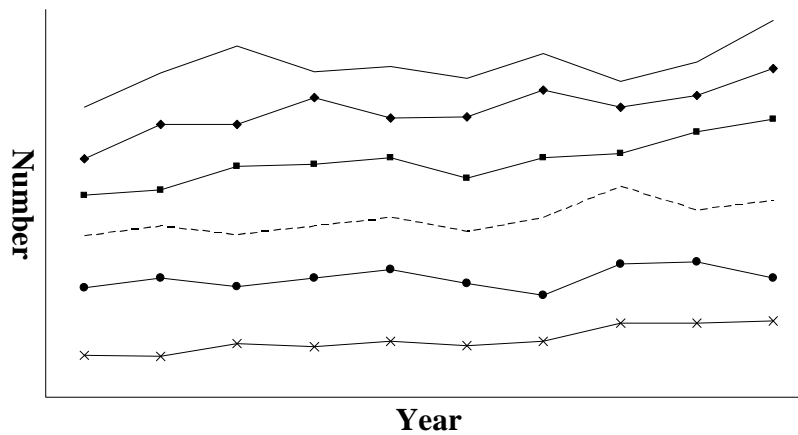
Display Format

Number of Degrees Produced in Education



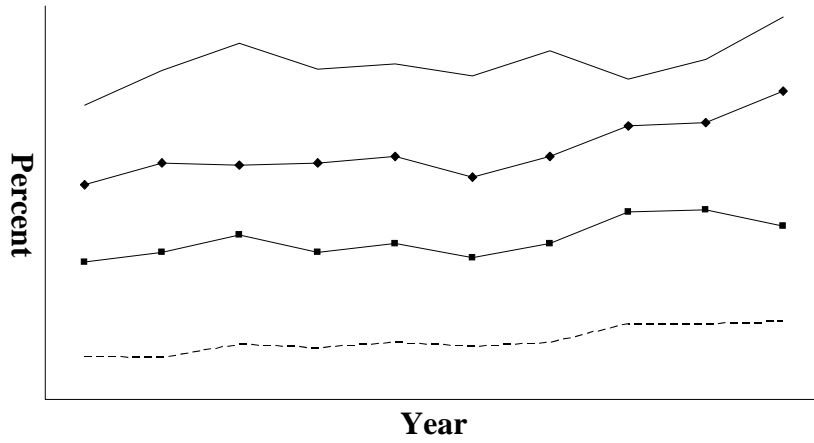
- Best-Performing State
- Second Best-Performing State
- Average of Top 10 New Economy States
- Minnesota

Number of Degrees Produced in Education, By Race/Ethnicity



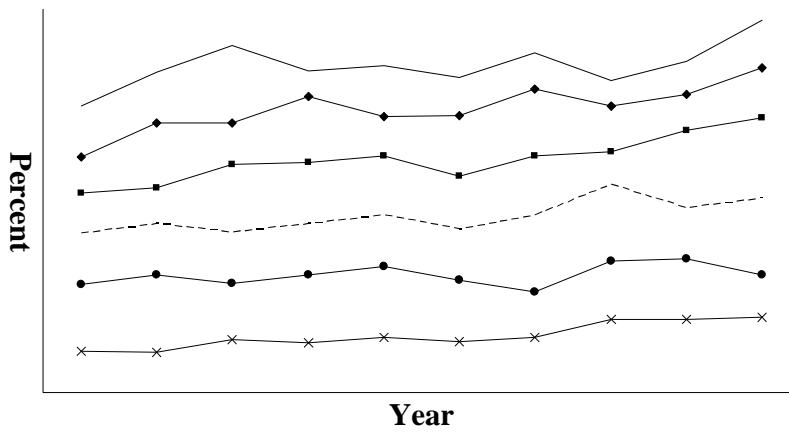
- Minnesota Total
- White
- Black
- Hispanic
- Asian
- Native American

Percent Year-to-Year Increases in Number of Degrees Produced in Education



- Best-Performing State
- Second Best-Performing State
- Average of Top 10 New Economy States
- Minnesota

Percent Year-to-Year Increases in Number of Degrees Produced in Education, By Race/Ethnicity



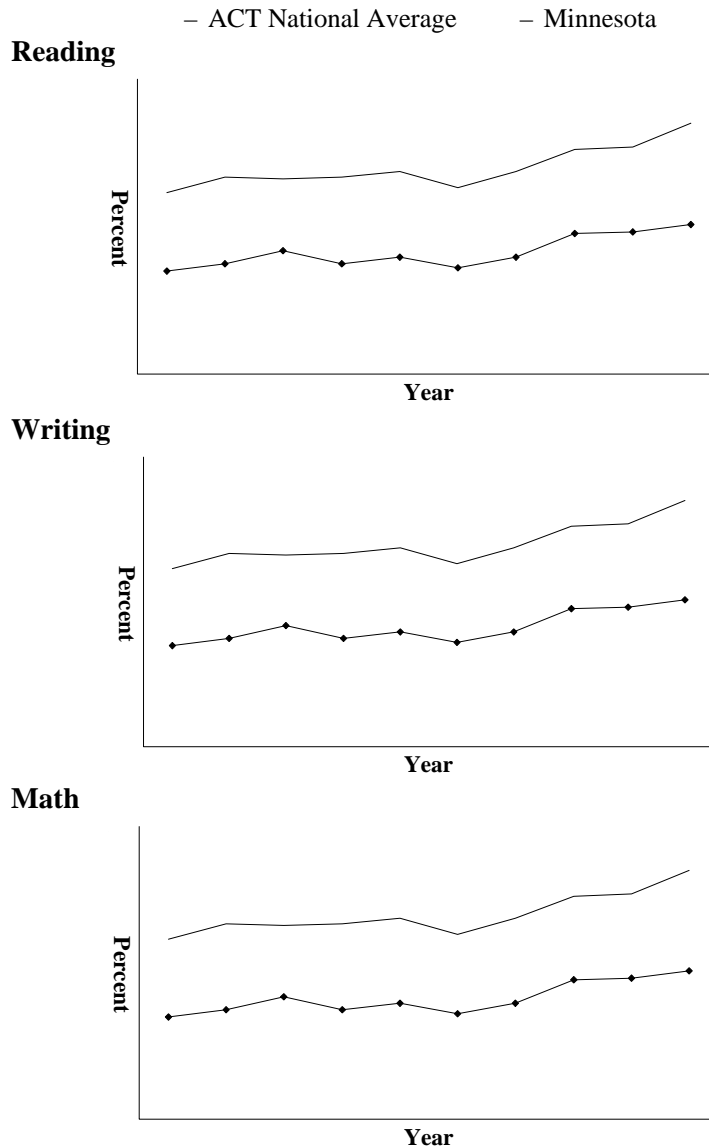
- Minnesota Total
- White
- Black
- Hispanic
- Asian
- Native American

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - a. *Core*: Percent of Minnesota American College Testing Service (ACT) test-takers meeting national readiness benchmarks in reading, writing, and mathematics. State Only, benchmarked to ACT National Average.

Rationale: ACT has established national “college readiness” benchmarks in these three skill areas and ACT scores are readily available. This measure could be discontinued once the proposed PISA test measure is put into place.

Display Format

**PERCENTAGE OF ACT TEST-TAKERS MEETING
NATIONAL READINESS BENCHMARKS**

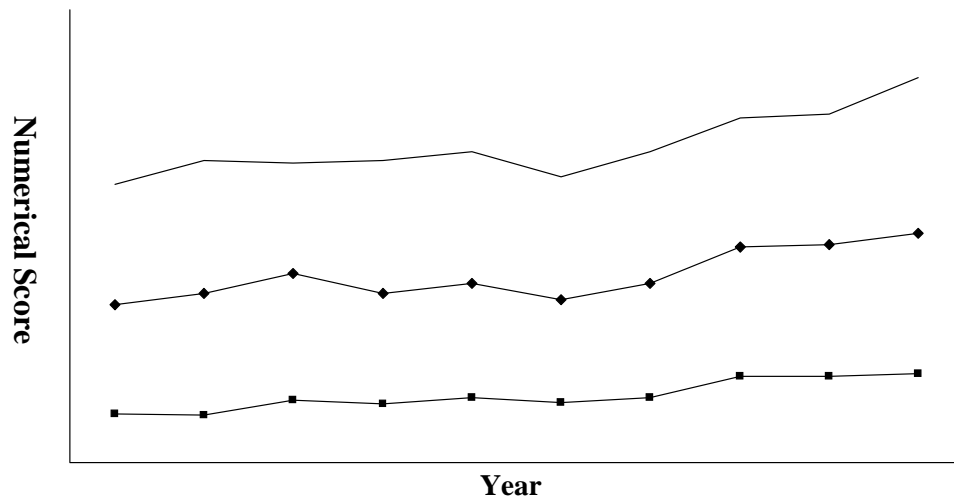


3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - b. *Core [Proposed for Development]:* Results of the PISA Mathematics Assessment. State Only, benchmarked to Best-Performing Countries. (Minnesota-specific data not yet available, OECD—would be based on a special study of PISA measures administered to Minnesota students.)

Rationale: It is useful to have an international benchmark on this measure and the PISA Mathematics Assessment can be feasibly administered to a state-level sample at a relatively modest cost. If this measure is available, it is recommended that the ACT-based measure above be moved to the “Supporting” category.

Display Format

Results of the PISA Math Assessment



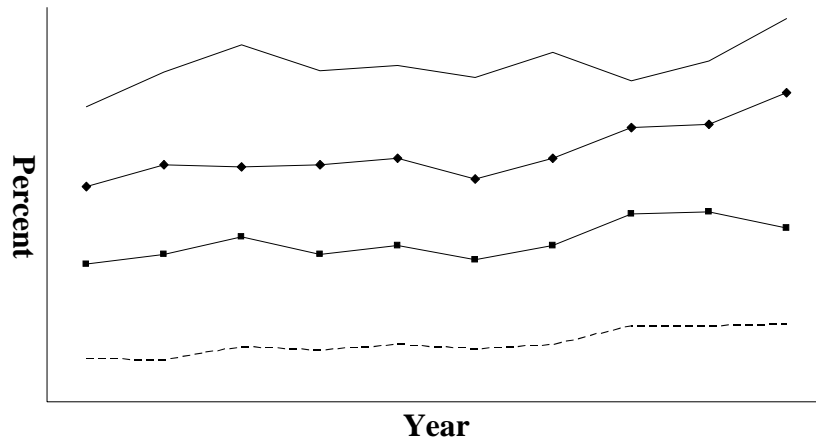
- Best-Performing Country
- Second Best-Performing Country
- Minnesota

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - c. *Core*: Percent of college-educated citizens achieving the two highest literacy levels on the National Assessment of Adult Literacy (NAAL). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Rationale: Performance on the NAAL is a direct measure of performance in skill areas relevant to work and social functioning.

Display Format

Percent of College-Educated Citizens Achieving the Two Highest Literacy Levels on the National Assessment of Adult Literacy (NAAL)



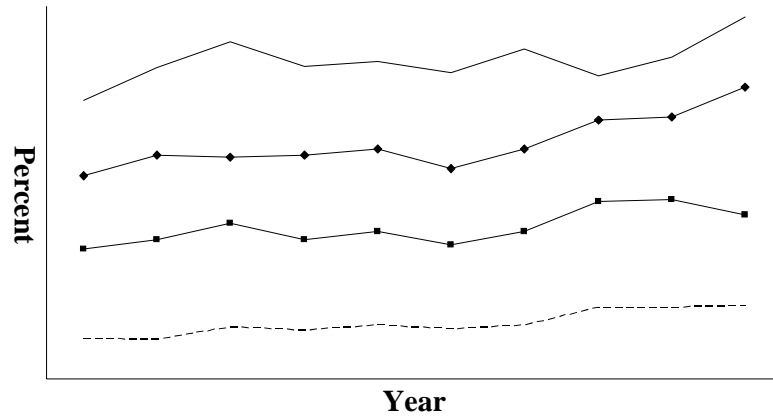
- Best-Performing State
- Second Best-Performing State
- Average of Top 10 New Economy States
- Minnesota

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - d. *Core*: Reduction in the proportion of population age 25-44 with less than a high school diploma or equivalent (GED). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Rationale: Data for this measure are readily available and reduction in this population is the objective of state efforts to increase educational attainment levels among young adults.

Display Format

Proportion of Population Age 25-44 with Less than a High School Diploma or GED

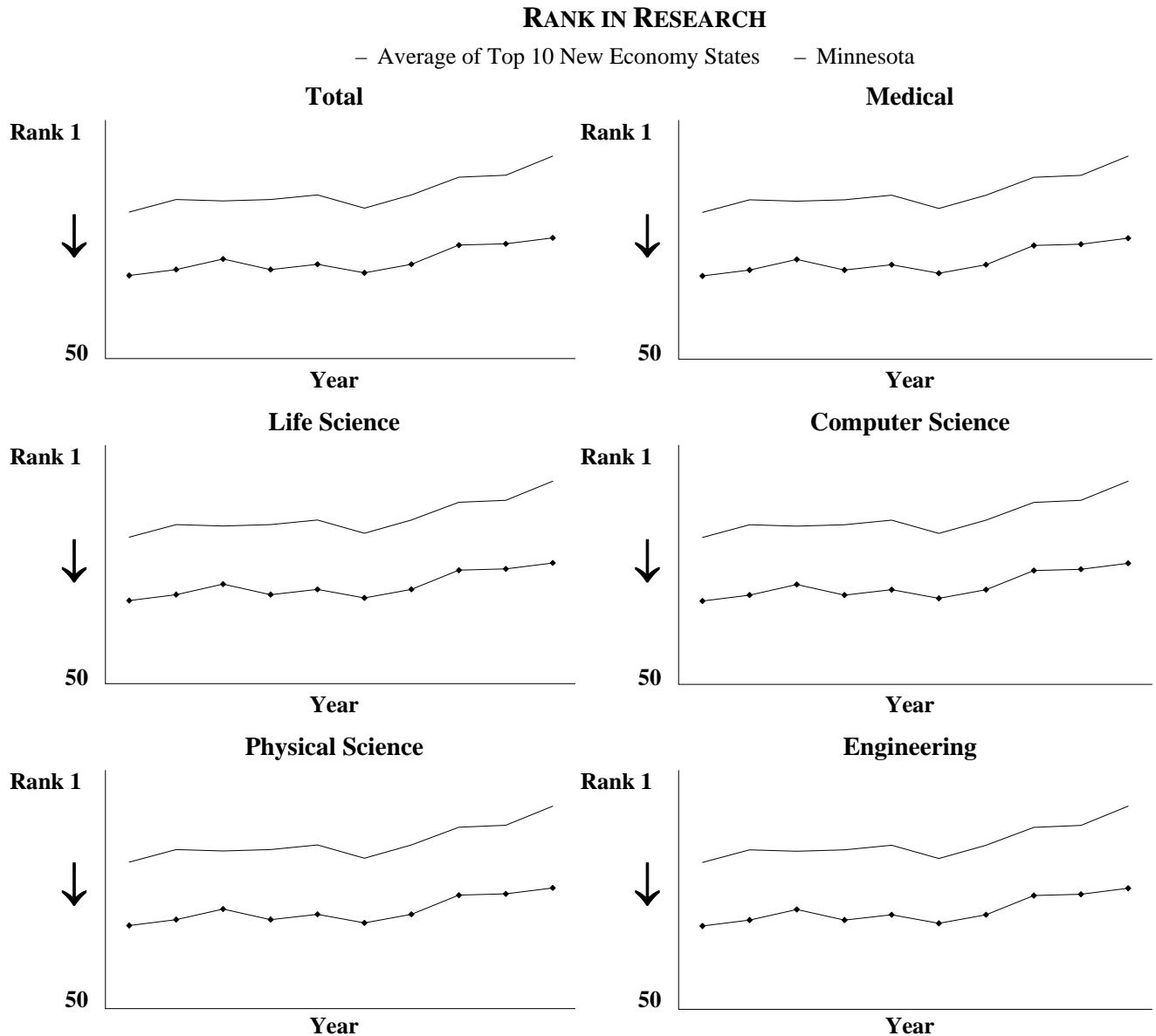


- Best-Performing State (lowest proportion)
- Second Best-Performing State
- Average of Top 10 New Economy States
- Minnesota

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and other appropriate means.
 - a. *Core*: Minnesota's rank in national share of academic research in key fields (including Mayo). Is Minnesota becoming a larger or smaller player? State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Rationale: The state's competitiveness in garnering research support relative to other states is the most appropriate measure of research productivity in the eyes of Minnesota research university representatives. Expressing this as a rank directly builds a benchmark into the measure.

Display Format

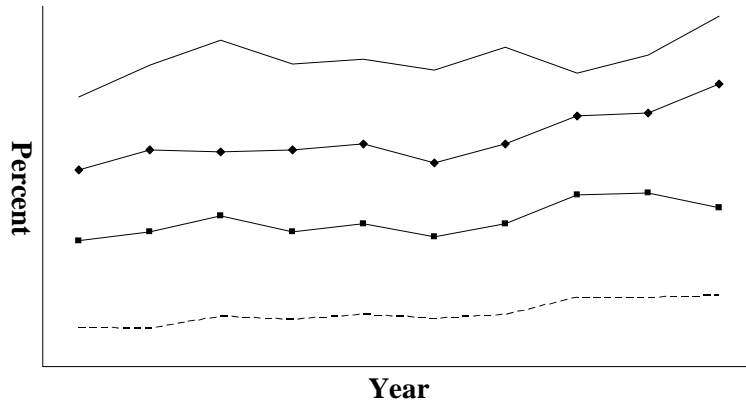


4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and public service.
- b. *Core*: Total expenditures on research and development as a proportion of Gross State Product (GSP). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Rationale: Although not currently available, this measure captures a crucial dimension of adult postsecondary education for the state in an area directly related to employment.

Display Format

Total Expenditures on Research as a Proportion of Gross State Product (GSP)



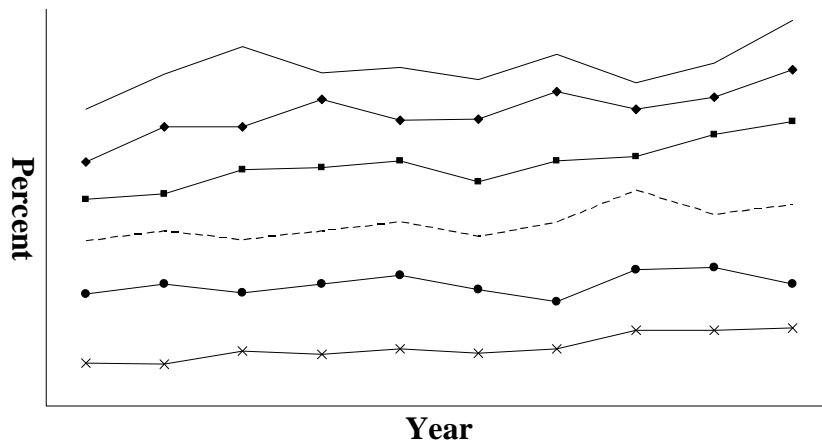
- Best-Performing State
- Second Best-Performing State
- Average of Top 10 New Economy States
- Minnesota

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and public service.
 - c. *Core [Proposed for Development]*: Responses to a community survey—employers, school district, city and county leaders—concerning level of involvement of higher education administrators, faculty, and students. State Only, no benchmarks.

Rationale: Although not currently available, the measure is the only way to capture direct contributions of Minnesota higher education to citizens and communities. As public service, this provides an important counterpart to research in the missions of the state’s non-research universities.

Display Format

**Percent of Employees in Region Engaged in
Employer-Supported Training at Educational Institutions
[To Be Developed]**



- Minnesota
- Region 1
-
-
- Region x

Definition of regions to be developed as part of the development process.

5. Provide access, affordability, and choice for all students.

a. *Core*: Net Cost of Attendance relative to median income and to income of the lowest income quintile. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

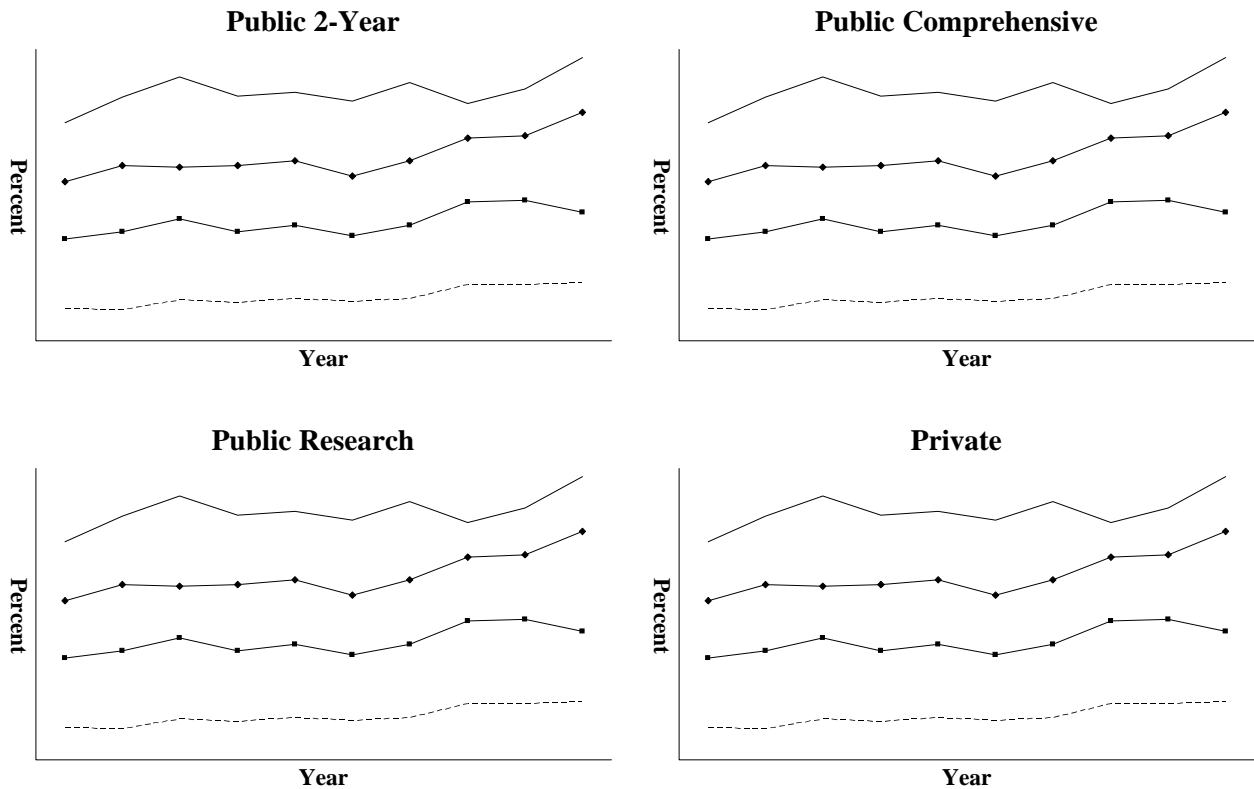
- Public community colleges
- Public comprehensive universities
- Public research universities
- Independent institutions

Rationale: This measure reflects basic affordability, which is a key for access, taking into account student aid and other policy mechanisms to promote access. It also reflects choice because all sectors of higher education are represented.

Display Format

NET COST OF ATTENDANCE RELATIVE TO STATES' MEDIAN INCOMES

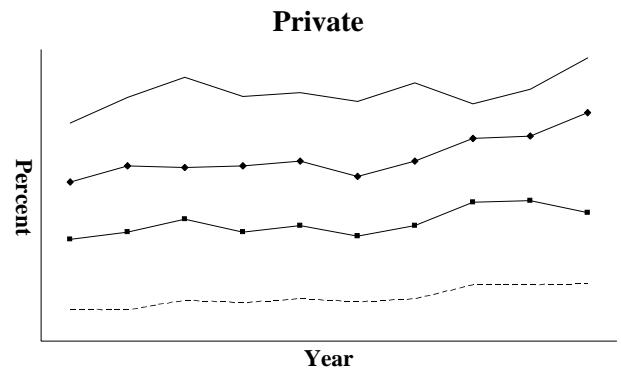
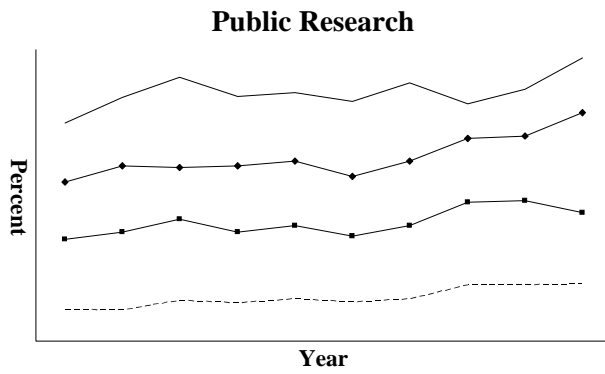
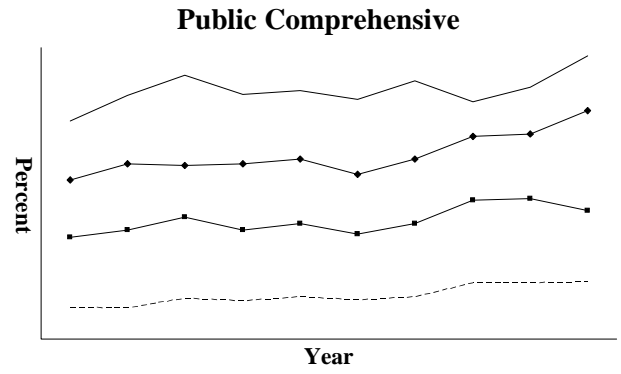
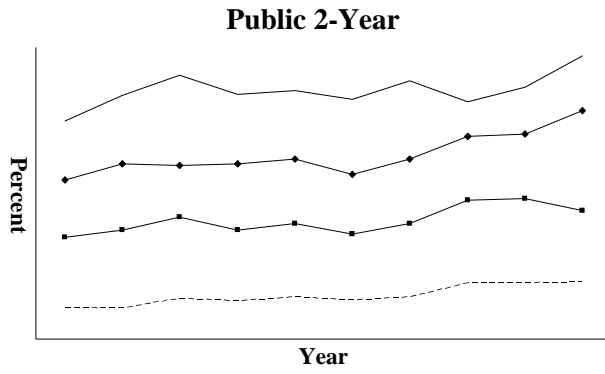
- Best-Performing State
- Second Best-Performing State
- Average of Top 10 New Economy States
- Minnesota



NET COST OF ATTENDANCE RELATIVE TO INCOME OF LOWEST INCOME QUINTILE

- Best-Performing State
- Second Best-Performing State

- Average of Top 10 New Economy States
- Minnesota



5. Provide access, affordability, and choice for all students.

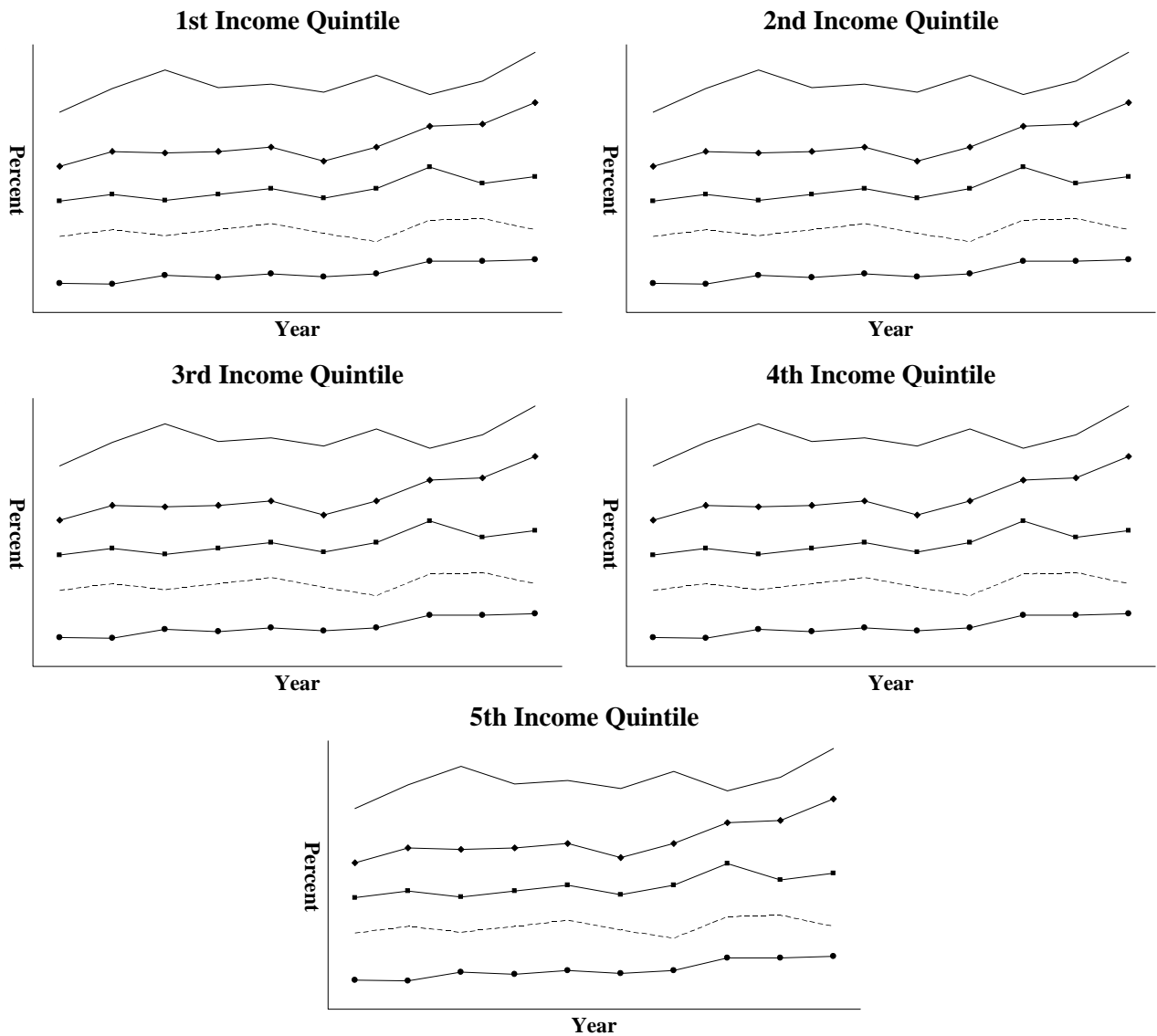
b. *Core [Proposed for Development]*: Percent of high school graduates at each income quintile participating in Minnesota higher education by sector. State Only, no benchmarks (the objective would be to track improvement in access over time).

Rationale: This is the most comprehensive measure of access available and the development of a method to obtain these data is highly recommended. If this can be done, the indicator of “affordability” above could be moved to the “Supporting” category.

Display Format

PROPORTION OF HIGH SCHOOL GRADUATES PARTICIPATING IN HIGHER EDUCATION

– Minnesota Total – Public 2-Year – Public Comprehensive – Public Research – Private



C. Proposed Supporting and Background Indicators

1. Improve success of all students, particularly students from groups underrepresented in higher education.

a. Graduate from High School

- *Supporting:* Public high school graduates as a percent of ninth graders enrolled four years earlier, disaggregated by race/ethnicity. State only, benchmarked to Best-Performing States and average of top ten New Economy States.
- *Background:* High school graduation rates by county or district, disaggregated by race/ethnicity (Minnesota-specific data). State and District, no benchmark.

b. Enter College

- *Supporting:* First-time freshmen directly out of high school as a percent of recent high school graduates, disaggregated by race/ethnicity. State Only, benchmarked to National Average.
- *Supporting:* First-time freshmen as a percent of 18- to 24-year-olds with only high school attainment, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.
- *Supporting:* All adults age 25-44 enrolled as undergraduates as a percent of adults age 25-49 with only high school attainment. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.
- *Background:* Number of individuals served through employer-sponsored continuing education programs as a percentage of civilian employment. State Only, no benchmark.
- *Background:* Percent of adults age 18-44 enrolled in some form of postsecondary education—including non-Title IV degree-granting institutions. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

c. Complete a College Program

- *Supporting:* Six-year graduation rates at four-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

- *Supporting*: Three-year graduation rates at two-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.
- *Supporting*: Success rates at Minnesota community colleges, disaggregated by race/ethnicity. State and Institution, no benchmark. (Minnesota-specific data)

Complete + transfer + still enrolled

2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.

Supporting: Trends in taking and passing teacher licensure tests in math and science. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - *Supporting:* Percentage of first-time college students requiring remediation in reading, writing, and math disaggregated by race/ethnicity. State and Public Institutions, no benchmark. (Minnesota-specific data)
 - *Background:* NAEP scores, disaggregated by race/ethnicity. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (8th grade available, 11th grade preferred)
 - *Background:* Average performance of high school students on MCA-11 assessments in reading (10th grade) and math (11th grade), disaggregated by county and by race/ethnicity. State Only, no benchmark. (Minnesota-specific data)
 - *Background:* Percentage of high school graduates completing rigorous math and science coursework. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and other appropriate means.
 - *Supporting:* R&D expenditures per capita in key fields. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.
 - *Background:* Percent of workforce employed in high-tech industries. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.
 - *Background:* GSP per Employed Population. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.
 - *Background:* Rankings on the State New Economy Index. State Only, benchmarked to Best-Performing States.
 - *Background:* Percent of jobs paying a “living wage” (150% of poverty level or above). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.
 - *Background:* Percent of population below poverty. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (U.S. Decennial Census, ACS)
 - *Background:* Infant Mortality per 1,000 live births. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.
 - *Background:* Trends in rankings on state health index. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (United Heath Foundation)
 - *Background:* Percent of population on welfare (with Public Assistance Income). State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (U.S. Decennial Census)
 - *Background:* Percent of persons 18 years old and over voting in the last presidential election. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (CPS)
 - *Background:* Percent declaring charitable gifts for those itemizing federal income tax deductions. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

5. Provide access, affordability, and choice for all students.

Background: Average loan amount students borrow each year as a percentage of median earnings of bachelors degree graduates age 21-29. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

V. POLICY AUDIT

As a final activity within the context of the project, NCHEMS conducted a review of the statewide policies that affect institutions' abilities on motivations (barriers or incentives) to pursue the goals recommended in this report. The review indicated that Minnesota at the state level has maintained a "hands-off" posture with regard to its higher education enterprise, referring almost all of the policy directives that affect institutional behavior to the system level. System policy—and the collective bargaining agreements within which they operate—create the policy environment within which institutions function.

As a result of this relationship between Minnesota state government and the systems, unlike most states with which NCHEMS works, Minnesota is not entangled in a complex web of state policies and procedures acting as barriers that must be removed if the institutions are to be free to pursue the "public agenda" outlined in this report. Minnesota is a state in which proactive policy is required. With the completion and presumed implementation of this project, two key elements of state policy have been put in place—the development of a public agenda and the associated accountability mechanism. The primary missing link is financing policy aligned with the stated priorities.

Financing policy in Minnesota is very much driven by the requests of the major systems constrained by the state's economic circumstances. As a result, the priorities that emerge in the resource allocation process are very much a function of system priorities rather than the state's public agenda. This is not to say there is no overlap. Savvy system leaders (with which Minnesota is blessed) have ensured that System goals reflect some of the goals that have emerged out of this project. Attention to research competitiveness (at the University) and to workforce demands (at MnSCU) reflect awareness regarding the needs of the state.

Nevertheless, there is a need at the state level for OHE to craft financing policy explicitly consistent with the goals identified and to seek the endorsement of the Governor and legislature for the implementation of these policies. Since resource allocation policy is the most powerful tool available at the state level to affect pursuit of stated goals, the absence of a financing policy systematically crafted to promote institutional attention to these ends represents a deficiency in state policy. NCHEMS' understanding is that formulation of such policy is in the works; it should be encouraged.

Buried with the "proactive" requirement for policy formulation are some other policy issues that are hidden beneath the surface. In some cases they take the form of establishing more detail within the statement of goals. In other cases, they take a regulatory turn. An example of the former is the designation of areas beyond medical (or bio-) sciences in which Minnesota seeks to establish a globally competitive infrastructure and capacity. Is computer science/information technology such an arena? If not, is there another? Whatever the answer, it is important that an explicit policy direction emerge.

Several examples of "regulatory" policy discussion are suggested by the statement of goals. Among them are:

- What should be the role, if any, of MnSCU (or of one or two of its institutions) in accomplishing the research portion of the goals?

- What should be the role of postsecondary education institutions in addressing the educational needs of adults who have not completed high school?
- What should higher education institutions be doing to assist K-12 education in improving completion rates and preparation of secondary school students?

These three topics in particular are commended to OHE for focused attention.

APPENDIX A
Advisory Group Members

Advisory Group Members

Name	Institution/Organization
Dennis Albrecht	Minnesota Senate Staff
Susan Anderson	Minnesota State Colleges and Universities
Ray Anschel	Normandale Community College
Paul Anton	Wilder Research Center
John Asmussen	Minnesota State Colleges and Universities
Roger Banks	Council on Black Minnesotans
Roland Barden	Minnesota State University Moorhead
Jim Bartholomew	Minnesota Business Partnership
Daniel Bittman	Minnesota Department of Education
Nancy Black	Inter Faculty Organization
Bill Blazar	Minnesota Chamber of Commerce
Nicki Bottko	Minnesota State College Student Association
Pat Callan	Higher Education Policy Institute
Patrick Christner	Minnesota State College Student Association
Tarryl Clark	Senate Higher Education Budget Division
IL Ed Cook	Minnesota Senate Staff
Sonia Cordero	Chicano-Latino Affairs Council
Alexandra Djurovich	Minnesota Office of Higher Education
Ginny Dodds	Minnesota Office of Higher Education
Mary Lou Dresbach	Minnesota Office of Higher Education
Michele Ernst	ITT Technical Institute
Peter Ewell	National Center for Higher Education Management Systems
Kerry Fine	Minnesota State Colleges and Universities
Victoria Ford	Citizens League
Cheryl Frank	Inver Hills Community College
Tim Geraghty	Minnesota Office of Higher Education
Jenny Glumack	Office of the Governor
Jennifer Godinez	Minnesota Minority Education Partnership, Inc.
Tricia Grimes	Minnesota Office of Higher Education
Susan Heeqaard	Minnesota Office of Higher Education
Rod Henry	Bemidji State University
Jeanne Herrmann	Globe College
Jeffrey Highland	St. Mary's University of Minnesota
Tom Holman	Morning Foundation
Rich Howard	University of Minnesota
Larry Isaak	Midwestern Higher Education Compact
Dennis Jones	National Center for Higher Education Management Systems
J.J. Jouppi	Minnesota State University Student Association
John Kellogg	University of Minnesota
Sean Kershaw	Citizens League
Hal Kimball	Minnesota State University Student Association
Laura King	Minnesota State Colleges and Universities
Emily Kissane	Minnesota Office of Higher Education

Name	Institution/Organization
Amy Koch	Senate Higher Education Budget Division
Tom Kosel	Herzing College
Charles Kyte	Minnesota Association of School Administrators
David B. Laird, Jr.	Minnesota Private College Council
Cristine Leavitt	Minnesota Department of Employment
Peter Lindstrom	Minnesota High Tech Association
Paul Lingenfelter	State Higher Education Executive Officers
Cherrl Maplethorpe	Minnesota Office of Higher Education
Carlos Mariani-Rosa	Minnesota Minority Education Partnership, Inc.
James McCormick	Minnesota State Colleges and Universities
Tim McDonald	Hamline University
Aims McGuinness	National Center for Higher Education Management Systems
Leslie Mercer	Minnesota State Colleges and Universities
Sally Mickelson	Minnesota School of Business/Globe College
Mark Misukanis	Minnesota Office of Higher Education
Randy Morris	McGrann Shea Anderson Camival Straughn & Lamb
Greg Mulcahy	Minnesota State College Faculty Association
Jeff Myhre	Minnesota School of Business
Mary Ann Nelson	Minnesota Department of Education
Anita Neumann	Minnesota State Colleges and Universities
Kathleen Novak	House Research
Larry Oveson	Minnesota State College Faculty Association
Valerie Halverson Pace	IBM Corporate Community Relations, Dept. KKY
Sandra Pappas	Senate Higher Education Budget Division
Tim Pawlenty	State of Minnesota
Donna Peterson	University of Minnesota
Claire Robling	Senate Higher Education Budget Division
George Roedler	Minnesota Office of Higher Education
Kate Rubin	Minnesota High Tech Association
Barb Schlaefer	Minnesota Office of Higher Education
Craig Schoenecker	Minnesota State Colleges and Universities
Nancy Schulock	Institute for Higher Education Leadership and Policy
Alice Seagren	Minnesota Department of Education
Doug Shapiro	Minnesota Private College Council
Joe Shultz	University of Minnesota
Mary Jane Smetanka	Minneapolis Star/Tribune
Stacia Smith	Minnesota Chamber of Commerce
Russ Stanton	Inter Faculty Organization
Libby Starling	Minnesota Department of Employment
Elona Street-Stewart	St. Paul Public Schools — Board of Education
Don Sudor	Rochester
Alfred Sullivan	University of Minnesota
Barb Sykora	House Education Finance Committee
Kyle Uphoff	Minnesota Department of Employment
Michael Valleau	House Higher Education Finance Committee

Name	Institution/Organization
Kathleen Vellenga	Minnesota State Higher Education Services Council
Candi Walz	Minnesota State College Student Association
Charlie Weaver	Minnesota Business Partnership
Mafia Weidmann	Minnesota Senate Staff
Michael Wilhelmi	Minnesota Private College Council
Peter Zetterberg	University of Minnesota
John Ziegenhagen	University of Minnesota

APPENDIX B

Attendees of Regional Meetings

Attendees of Regional Meetings

Name	Institution/Organization
Dennis Albrecht	Minnesota Senate Staff
Larry Anderson	Fond du Lac Tribal and Community College
Christine J. Barajas	Winona State University – Rochester Center
Roland Barden	Minnesota State University Moorhead
Peter Bell	Metropolitan Council
Aaron Benike	Alvin E. Benike, Inc.
Ann Marie Biermaier	College of St. Benedict/St. John’s University
Josh Breyfogle	Student Advisory Committee
Rick Caligiuri	Minnesota Department of Employment and Economic Development
David Carl	University of Minnesota, Rochester
Del Case	College of St. Scholastica
Amy Caucutt	Olmsted County Offices
Glen Cerny	Pioneer Public Television
Connie Christenson	St. Louis County Community Development Authority
Leo Christenson	Normandale Community College
Jim Clausen	University of Minnesota Institute of Technology Alumni Society
Sharon Cogdill	St. Cloud State University
Sue Collins	Vermilion Community College
Thomas Cook	Metropolitan State University
Gordon Crow	The Schwan Food Company
Brian Dalton	College of St. Scholastica
David Danahar	Southwest Minnesota State University
Richard Davenport	Minnesota State University, Mankato
David DeGroote	St. Cloud State University
Paul Deputy	University of Minnesota, Duluth
Eric Eliason	Gustavus Adolphus College
Wade Fauth	Blandin Foundation
Mike Flaten	Hibbing Community College
Patrick Flattery	College of St. Scholastica
Greg Fox	University of Minnesota, Duluth
Cheryl Frank	Inver Hills Community College
Fran Gardeski	Minnesota House of Representatives
Charles Giammona	Northwest Technical College
Ted Gillett	Nielson Foundation
Roger Giroux	Anoka-Hennepin Schools
May Golden	Marathon Multimedia
Alison Good	GRAUC
Larry Goodwin	College of St. Scholastica
Mike Gramse	MRG Tool & Die
William Gullickson, Jr.	McLaughlin Gormley King Co.
Harold Hamilton	Micro Control Company
Tiffany Hansen	RSM McGladrey, Inc.
Rex Hein	Duluth Public Schools

Name	Institution/Organization
Jeanne Herrmann	Minnesota School of Business
James Hess	Bemidji District
Katherine Hiyane-Brown	Normandale Community College
Robert Hoffman	MnSCU Board of Trustees
Thomas Huntley	Minnesota House of Representatives
Christine Imbra	St. Cloud State University
Sharon Jensen	Minnesota Business Partnership
Laurie Johnson	University of Minnesota
Mike Johnson	Itasca Community College
Pamela Jolicoeur	Concordia College, Moorhead
Tom Klas	Tapemark Company
Kevin Kopischke	Alexandria Technical College
Thomas Kosel	Herzing College
Ronald Kraft	Hennepin Technical College, Brooklyn Park Campus
Gary Kruchowski	Lake Superior College
Linda Krug	University of Minnesota, Duluth
Robert Krumwiede	University of Minnesota, Duluth
Lisa Larson	Lake Superior College
Sandy Layman	Iron Range Resources
Greg Lea	Pemstar, Inc.
Janet Lestock	College of Business Graduate Programs, University of St. Thomas
Tina Liebling	Minnesota House of Representatives
Jery Lobland	Mayo Clinic
Bill Luce	Crossroads College
Steve Lyons	College of St. Scholastica
Vince Magnuson	University of Minnesota, Duluth
Mariangela Maguire	Gustavus Adolphus College
Carlos Mariani-Rosa	Minnesota Minority Education Partnership, Inc.
Jon Marshall	Normandale Community College
David Martin	Chamber of Commerce, Fargo/Moorhead
James McCormick	Minnesota State Colleges and Universities
Barbara McDonald	Itasca Community College
Wayne Merrill	Rainy River Community College
Kathleen Meyerle	Mayo Clinic Legal Department
Frank Moe	Minnesota House of Representatives
Kevin Molloy	Radisson
Tom Moore	St. Cloud Area Economic Development Partners
Cal Mosley	College of St. Catherine
Mary Ann Nelson	Minnesota Department of Education
Duane Northagen	Hibbing Economic Development
Kim Norton	Rochester
Cap O'Rourke	Senate Education Committee
Michael Offerman	Capella University
Bernie Oman	St. Cloud State University
Joseph Opatz	Central Lakes College

Name	Institution/Organization
Sandra Pappas	Senate Higher Education Budget Division
Jonathan Parker	St. Cloud Technical College
David Paskach	The Schwan Food Company
Michael Pesch	St. Cloud State University
James Peterson	Gustavus Adolphus College
Wayne Pletcher	Minnesota Technology, Inc.
Jon Quistgaard	Bemidji Station University/Northwest Technical College
Heather Rand	Minnesota Department of Employment and Economic Development
Steve Raukar	St. Louis County Courthouse
Jim Riehl	University of Minnesota, Duluth
Joan Roca	Minnesota State University, Mankato
Tina Royer	Mesabi Range Community College
Kate Rubin	Minnesota High Tech Association
Mitchell Rubinstein	St. Cloud State University
Carrie Ruud	Minnesota State Senate
Vicki Sandberg	Minnesota Mechanical Contractors Association
Craig Schoenecker	Minnesota State Colleges and Universities
Marty Seifert	Minnesota House of Representatives
Tony Sertich	Minnesota House of Representatives
Joe Sertich	Northeast Higher Education District
Dennis Siemer	V-Tek Incorporated
Ken Simberg	Hibbing Community College
Stacia Smith	Minnesota Chamber of Commerce
Michael Spitzer	St. Cloud State University
Libby Starling	Minnesota Department of Employment and Economic Development
Bruce Stender	Blandin Foundation
Betty Strehlow	Ridgewater College, Willmar Campus
Don Sudor	Rochester
Dave Sunderman	Benco Electric
Don Supalla	Rochester Community and Technical College
Ronald E. Thomas	Dakota County Technical College
Rick Thoni	Augsburg College
Brian Tohal	New Ulm Economic Evelopment
Jay Trusty	Southwest Regional Development Commission
Tracy Veglahn	Marshall Area Chamber of Commerce
John Wade	Rochester Area Chamber of Commerce
Rich Wagner	Dunwoody College of Technology
Brian Walters	Greater Fargo Moorhead Economic Development Corporation
Tené Wells	Woman Venture
Michael Wilhelmi	Minnesota Private College Council
Jane Williams	Concordia College, Moorhead
Jerry Williams	Rochester Public Schools
Carolyn Ruth Williams	St. Cloud State University
Walter Wolff	Minnesota State University, Mankato
Ronald Wood	Minnesota West Community and Technical College

Name

Larry Young
Ron Younge
John Ziegenhagen
Richard Ziegler

Institution/Organization

Joint Economic Development Commission
Bethany Lutheran College
University of Minnesota
University of Minnesota, Duluth

APPENDIX C

Data Sources

DATA SOURCES FOR CORE INDICATORS

1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - a. *Core*: Percent of population age 18-24 enrolled in tertiary education (all levels). State Only, benchmarked to Best-Performing Countries and average of top ten “New Economy” States.

Data Sources:

- (1) Enrollees—IPEDS enrollment form—total enrollments, all institutions and all levels, fall term.
- (2) Adults age 18-24—U.S. Census Bureau, American Communities Survey, now being done annually.
- (3) Best-Performing Countries—OECD.
- (4) Top 10 New Economy States in 2002 were Massachusetts, Washington, California, Colorado, Maryland, New Jersey, Connecticut, Virginia, Delaware, and New York.

1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - b. *Core*: Bachelor's degrees awarded as a proportion of total undergraduate headcount enrollments at four-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: IPEDS Completions survey.
- (2) Denominator: IPEDS enrollment survey.
- (3) Separately reported for Whites, Blacks, Hispanics, Asian-Pacific Islanders, Native Americans.
- (4) Eliminate foreign nationals from all calculations.

1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - c. *Core*: Associate degrees awarded as a proportion of total credit-bearing headcount enrollment at two-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: IPEDS Completions survey.
- (2) Denominator: IPEDS enrollment survey.
- (3) Separately reported for Whites, Blacks, Hispanics, Asian-Pacific Islanders, Native Americans.
- (4) Eliminate foreign nationals from all calculations.

1. Improve success of all students, particularly students from groups underrepresented in higher education.
 - d. *Core*: Percentage of adults age 25-34 who have earned Tertiary Type A and B credentials (associate degree and higher). State Only, benchmarked to Best-Performing Countries and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Number of adults age 25-34 with Associate or higher degrees—U.S. Census Bureau, American Community Survey.
- (2) Denominator: Total number of adults age 25-34—U.S. Census Bureau, American Community Survey.
- (3) Best-Performing Country benchmarks—OECD.

2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.
 - a. *Core*: Numbers and percentage increase in numbers of degrees produced (by level)—all fields and STEM fields. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) IPEDS Completions survey.
- (2) Include data from all institutions in the state—public, private not-for-profit, private for-profit.
- (3) Consider as STEM fields, the following:
 - Agriculture and Related Science (CIP 1 and 2)
 - Computer and Information Sciences (CIP 11)
 - Engineering (CIP 14)
 - Engineering Technologies (CIP 15)
 - Biological and Biomedical Sciences (CIP 26)
 - Mathematics and Statistics (CIP 27)
 - Physical Sciences (CIP 40)
 - Science Technologies and Technicians (CIP 41)

2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.
 - b. *Core*: Numbers and percentage increase in numbers of degrees produced in education, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) IPEDS Completions survey.
- (2) Include data from all institutions in the state—public, private not-for-profit, private for-profit.
- (3) Consider as STEM fields, the following:
 - Agriculture and Related Science (CIP 1 and 2)
 - Computer and Information Sciences (CIP 11)
 - Engineering (CIP 14)
 - Engineering Technologies (CIP 15)
 - Biological and Biomedical Sciences (CIP 26)
 - Mathematics and Statistics (CIP 27)
 - Physical Sciences (CIP 40)
 - Science Technologies and Technicians (CIP 41)

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - a. *Core*: Percent of Minnesota American College Testing Service (ACT) test-takers meeting national readiness benchmarks in reading, writing, and mathematics. State Only, benchmarked to ACT National Average.

Data Sources:

- (1) ACT.
- (2) College readiness benchmark scores have been established by ACT as:
 - Reading (CIP 21)
 - Writing (CIP 18)
 - Math (CIP 22)
 - Science (CIP 24)

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - b. *Core [Proposed for Development]:* Results of the PISA Mathematics Assessment. State Only, benchmarked to Best-Performing Countries. (Minnesota-specific data not yet available, OECD—would be based on a special study of PISA measures administered to Minnesota students.)

Data Sources:

- (1) Special Study of Minnesota students.
- (2) Benchmark data from OECD (pisaweb.acer.edu.au/oecd_2003/oecd_pisa_data.html).

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - c. *Core*: Percent of college-educated citizens achieving the two highest literacy levels on the National Assessment of Adult Literacy (NAAL). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Source:

Measuring Up: The State-by-State Report Card for Higher Education.

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.
 - d. *Core*: Reduction in the proportion of population age 25-44 with less than a high school diploma or equivalent (GED). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Number of adults age 25-34 with less than a high school diploma or GED—U.S. Census Bureau, American Community Survey.
- (2) Denominator: Total number of adults age 25-34—U.S. Census Bureau, American Community Survey.

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and other appropriate means.
 - a. *Core*: Minnesota's rank in national share of academic research in key fields (including Mayo). Is Minnesota becoming a larger or smaller player? State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) National Science Foundation (www.nsf.gov/statistics/nsf05309/htmstart.htm).
- (2) Include research funded by the federal government, business and industry, and foundations. Exclude amounts provided by state governments or institutions through use of their own funds.
- (3) Numerator: All funds from these resources expended by Minnesota universities (including Mayo).
- (4) Denominator: Total funds from these sources nationally.

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and public service.
 - b. *Core*: Total expenditures on research and development as a proportion of Gross State Product (GSP). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Total expenditures from research by all institutions in the state—National Science Foundation.
- (2) Denominator: Gross State Product—Bureau of Economic Analysis (www.bea.gov/bea/regional/gsp.htm).

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and public service.
 - c. *Core [Proposed for Development]*: Responses to a community survey—employers, school district, city and county leaders—concerning level of involvement of higher education administrators, faculty, and students. State Only, no benchmarks.

Data Sources:

Community survey to be developed.

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and public service.
 - d. [To Be Developed]

5. Provide access, affordability, and choice for all students.
- a. *Core*: Net Cost of Attendance relative to median income and to income of the lowest income quintile. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.
- Public community colleges
 - Public comprehensive universities
 - Public research universities
 - Independent institutions

Data Sources:

- (1) Numerator: Net cost of attendance—IPEDS Student Financial Aid Survey (first-time freshmen only).
- (2) Denominator: Family income—U.S. Census Bureau, American Community Survey.

5. Provide access, affordability, and choice for all students.

- b. *Core [Proposed for Development]*: Percent of high school graduates at each income quintile participating in Minnesota higher education by sector. State Only, no benchmarks (the objective would be to track improvement in access over time).

Data Sources:

- (1) Numerator: Income level of first-time freshmen enrolled in each sector of Minnesota higher education—Minnesota Office of Higher Education.
- (2) Denominator: Income level (by quintile) of each high school graduate.
 - Minnesota Department of Education, or
 - Estimate based on U.S. Census tract data for high school attendance areas.

DATA SOURCES FOR PROPOSED SUPPORTING AND BACKGROUND INDICATORS

1. Improve success of all students, particularly students from groups underrepresented in higher education.

a. Graduate from High School

- *Supporting:* Public high school graduates as a percent of ninth graders enrolled four years earlier, disaggregated by race/ethnicity. State only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) NCES Common Core Data.
 - (2) Replaced by Minnesota longitudinal student teaching data when capability is developed—Minnesota Department of Education.
- *Background:* High school graduation rates by county or district, disaggregated by race/ethnicity (Minnesota-specific data). State and District, no benchmark.

Data Source:

Minnesota longitudinal student tracking data when capability is developed—
Minnesota Department of Education.

b. Enter College

- *Supporting:* First-time freshmen directly out of high school as a percent of recent high school graduates, disaggregated by race/ethnicity. State Only, benchmarked to National Average.

Data Sources:

- (1) Minnesota-specific data.
 - (2) Tom Mortenson, Postsecondary Opportunity
(www.postsecondary.org/archives/Reports/Spreadsheets/EntranceRate.htm).
- *Supporting:* First-time freshmen as a percent of 18- to 24-year-olds with only high school attainment, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Number of first-time freshmen, by race/ethnicity—IPEDS enrollment survey.
 - (2) Denominator: Number of adults age 18-24 with only high school attainment—U.S. Census Bureau, American Community Survey. Exclude all having less than high school or some college, and recipients of college degrees or certificates.
- *Supporting:* All adults age 25-44 enrolled as undergraduates as a percent of adults age 25-49 with only high school attainment. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: IPEDS enrollment survey.
 - (2) Denominator: U.S. Census Bureau, American Community Survey.
- *Background:* Number of individuals served through employer-sponsored continuing education programs as a percentage of civilian employment. State Only, no benchmark.

Data Sources:

- (1) Numerator: Special Minnesota survey, not yet developed.
 - (2) Denominator: Civilian employment—U.S. Bureau of Labor Statistics.
- *Background:* Percent of adults age 18-44 enrolled in some form of postsecondary education—including non-Title IV degree-granting institutions. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Enrollment in Postsecondary Education, U.S. Census Bureau, American Community Survey.
- (2) Denominator: Total number of adults age 18-44—U.S. Census Bureau, American Community Survey.

c. Complete a College Program

- *Supporting:* Six-year graduation rates at four-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) IPEDS Graduate Rate Survey.
- (2) For state and sector data, calculate as weighted averages—i.e.:
 - Total number of completers for state, divided by
 - Total number of first-time full-time freshmen for all institutions in the set.

- *Supporting:* Three-year graduation rates at two-year institutions, disaggregated by race/ethnicity. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) IPEDS Graduate Rate Survey.
- (2) For state and sector data, calculate as weighted averages—i.e.:
 - Total number of completers for state, divided by
 - Total number of first-time full-time freshmen for all institutions in the set.

- *Supporting:* Success rates at Minnesota community colleges, disaggregated by race/ethnicity. State and Institution, no benchmark. (Minnesota-specific data)

Complete + transfer + still enrolled

Data Sources:

- (1) Numerator: Minnesota Office of Higher Education—number of original cohort that:
 - have completed a degree or certificate
 - have transferred to another institution
 - are still enrolled

after three and five years.

(Separated by students who entered as full-time versus part-time.)

(2) Denominator: Minnesota Office of Higher Education—number of students entering as a cohort

(Separated into full-time and part-time groups at time of entry.)

2. Create a responsive system that produces graduates at all levels who meet the demands of the economy.

Supporting: Trends in taking and passing teacher licensure tests in math and science. State and Institution, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Source:

U.S. Department of Education, Title II Reports
(www.ed.gov/about/reports/annual/teachprep/index.html).

3. Increase student learning and improve skill levels of students so they can compete effectively in the global market place.

- *Supporting:* Percentage of first-time college students requiring remediation in reading, writing, and math disaggregated by race/ethnicity. State and Public Institutions, no benchmark. (Minnesota-specific data)

Data Sources:

(1) Minnesota Office of Higher Education.

(2) New data collection required.

- *Background:* NAEP scores, disaggregated by race/ethnicity. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (8th grade available, 11th grade preferred)

Data Source:

U.S. Department of Education (nces.ed.gov/nationsreportcard/aboutnaep.asp).

- *Background:* Average performance of high school students on MCA-11 assessments in reading (10th grade) and math (11th grade), disaggregated by county and by race/ethnicity. State Only, no benchmark. (Minnesota-specific data)

Data Source:

Minnesota Department of Education.

- *Background:* Percentage of high school graduates completing rigorous math and science coursework. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

(1) Council of Chief State School Officers
(www.ccsso.org/Projects/Science_and_Mathematics_Education_Indicators/).

(2) Alternatively, directly from the Minnesota Department of Education.

4. Contribute to the development of a state economy that is competitive in the global market through research, workforce training, and other appropriate means.

- *Supporting:* R&D expenditures per capita in key fields. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Research expenditures by field—National Science Foundation (www.nsf.gov/statistics/showpub.cfm?TopID=8&SubID=1).
- (2) Denominator: Total population—U.S. Census Bureau, American Community Survey.

- *Background:* Percent of workforce employed in high-tech industries. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Source:

Bureau of Labor Statistics (www.bls.gov/oes/home.htm).

- *Background:* GSP per Employed Population. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

- (1) Numerator: Gross State Product—Bureau of Economic Analysis (www.bea.gov/bea/regional/gsp.htm).
- (2) Denominator: Employed population—Bureau of Labor Statistics (www.bls.gov/sae/home.htm).

- *Background:* Rankings on the State New Economy Index. State Only, benchmarked to Best-Performing States.

Data Source:

Progressive Policy Institute (www.neweconomyindex.org/states/).

- *Background:* Percent of jobs paying a “living wage” (150% of poverty level or above). State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Source:

Bureau of Labor Statistics (www.bls.gov/oes/current/oes_mn.htm).

- *Background:* Percent of population below poverty. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (U.S. Decennial Census, ACS)

Data Source:

U.S. Census Bureau, American Community Survey.

- *Background:* Infant Mortality per 1,000 live births. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Source:

National Center for Health Statistics (www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_16.pdf).

- *Background:* Trends in rankings on state health index. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (United Health Foundation)

Data Source:

United Health Foundation (www.unitedhealthfoundation.org/shr2005/index.html).

- *Background:* Percent of population on welfare (with Public Assistance Income). State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (U.S. Decennial Census)

Data Source:

U.S. Census Bureau, American Community Survey.

- *Background:* Percent of persons 18 years old and over voting in the last presidential election. State Only, benchmarked to Best-Performing States and average of top ten New Economy States. (CPS)

Data Source:

U.S. Bureau of the Census—*Current Population Survey, November Voting and Registration*.

- *Background:* Percent declaring charitable gifts for those itemizing federal income tax deductions. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Source:

IRS Annual State Tax Reports (www.irs.ustreas.gov/taxstats/index.html).

5. Provide access, affordability, and choice for all students.

- *Background:* Average loan amount students borrow each year as a percentage of median earnings of bachelors degree graduates age 21-29. State Only, benchmarked to Best-Performing States and average of top ten New Economy States.

Data Sources:

(1) Numerator:

- U.S. Department of Education, National Center for Education Statistics, *FFELP Report, AY2002-03: Total Loan Guarantees for Undergraduates Only*, and *Direct Loans to Undergraduates, AY2002-03: Number of Loans and Gross Commitments*.
- *Measuring Up: The State-by-State Report Card for Higher Education*.

(2) Denominator: Average earnings of bachelor's degree holders age 21-29—U.S. Census Bureau, American Community Survey.