Economic Development Committee Memorandum

Board of Regents, State of Iowa

Subject: Higher Education and the Iowa Economy: A Presentation by Staff from the National Center for Higher Education Management Systems

Prepared by: Anthony Girardi AGN

Date Submitted: July 21, 2004

Recommended Action:

Receive the report.

Executive Summary:

In response to an invitation from Dr. Barak, staff from the National Center for Higher Education Management Systems (NCHEMS) provided a presentation to the Iowa Coordinating Council for Post-High School Education in May, 2004. The presentation, attached, covers some factors in the relationship between education and economic prosperity in Iowa. It is organized with respect to four major categories. These are: 1) workforce; 2) college participation and completion; 3) net gain/loss of Iowa residents; and 4) the economy. In most cases, the slides allow for comparisons between Iowa and the other states. The data in the slides is drawn from a unique combination of data sources, including the U.S. Census Bureau, the Bureau of Economic Analysis, Postsecondary Education Opportunity, and NCES-IPEDS. Most of the slides present 2000 data.

The presentation indicates that Iowa outperforms most other states on many measures related to educational performance. For example, Iowa's workforce is relatively well-educated; the state compares favorably in terms of postsecondary enrollment and graduation statistics; and the state's postsecondary institutions are addressing demand for educated workers in key fields.

The presentation also suggests that Iowa nevertheless faces many challenges in assuring that education leads to well-paying jobs for Iowans and a strong state economy. For example, the state's workforce is relatively low-paid; over a recent five-year period Iowa lost well over three times as many educated residents aged 22-29 than it gained; and, during the period covered in the presentation, the state performed well below the top tier in attracting external research dollars.

Analysis:

Below is a summary of the four categories of the presentation.

Iowa's workforce is relatively well-educated and relatively low-paid.

Workforce

The slides having to do with the Iowa workforce present a fairly mixed picture. On most indicators related to the educational attainment of the Iowa workforce—for example, the percentage of 18-24 year-olds with at least a high school diploma—Iowa fares well by comparison to other states. On indicators having to do with the earnings and income of the workforce, however, Iowa tends to trail the U.S. average. Two factors contribute to this state of affairs for earnings and income: earnings of Iowa workers tend to be lower than those of workers in other states in the same job categories; and, Iowa workers are fairly disproportionately employed in relatively low-income job categories.

College Participation and Completion

The graphs pertaining to college participation and completion concern such matters as enrollment, graduation, and patterns in the awarding of degrees.

Iowa performs well on many enrollment and graduation indicators

In comparison to the other states, Iowa does well with respect to enrollment in postsecondary education. Iowa ranks particularly well with respect to the college-going rate of freshmen directly out of high school. Iowa is a also net importer from other states of first-time freshman college students, and indeed, ranks high in attracting freshmen to attend college in the state. Looked at in a slightly different way, Iowa residents tend to find it attractive to attend college in the state. In 2000, Iowa ranked sixth among the states in the percentage of bachelor's degree-seeking students graduating within six years.

Iowa's schools and postsecondary institutions form a relatively efficient educational pipeline

Graduation rates are a component of the state's performance in moving students through the educational pipeline; i.e., from the beginning of high school through college graduation. The percentage of 9th graders in Iowa high schools who go on to complete a postsecondary degree within 150% of the conventional length of time for completing the degree (i.e., six years for completing the bachelor's degree) equals that of the best performing state.

Iowa postsecondary institutions attend to the demand for educated workers

Several slides in the presentation concern the awarding of degrees in fields associated with relatively high-paying or high-demand occupations. These include the fields of engineering, engineering technology, computer science, registered nursing, health technology, and education. With respect to the number of bachelor's degrees per 1,000 occupations in a field, Iowa performs well above the U.S. average in all fields and, in many instances, in the top quartile of states.

Many of Iowa's educated young people leave the state

Net Gain/Loss of Iowa Residents

During the period 1995-2000, Iowa experienced a net loss of residents aged 22-64. During this period, the state was a net gainer of residents whose highest level of educational attainment was a high school diploma or less. But these gains were far offset by the out-migration of Iowa residents whose educational attainment included an associate's, bachelor's, graduate, or professional degree. For example, among 22-29 year-olds, Iowa was a net gainer of some 5,000 residents whose highest level of educational attainment was less than a high school diploma. However, Iowa lost roughly 19,000 residents in the same age group, or well over three times as many, whose educational attainment included some form of postsecondary degree.

The Iowa economy partly explains the state's net loss of educated residents	<u>Economy</u> The economy of Iowa, on the average, rewards postsecondary degree earners less than do the economies of nearly all other states. The slides at the bottom of page 9 in the attachment indicate that, across the country, median earnings for people whose highest level of educational attainment is the high school diploma are significantly lower than median earnings for people with postsecondary degrees. But in Iowa the difference in median earnings between postsecondary degree earners and non-degree earners is less than the difference for residents in all but three other states.
The state's ability to do advanced research is linked with a strong economy	The presentation data having to do with research and development expenditures speaks to the state's ability to generate advanced research, which is associated with strong economies and high-paying jobs. Iowa performs fairly well on a per-capita basis in research and development expenditures generally. However, and more importantly, Iowa does far less well in attracting federal research and development dollars specifically, i.e., in attracting dollars from external sources. According to the NCHEMS website, HigherEdInfo.org, "One step toward achieving this goal [of attracting external R&D dollars] is to increase the ability of institutions to attract and retain the best and brightest research faculty."
Follow-up meeting in spring, 2005	Staff from NCHEMS have been invited by the ICCPHSE leadership to join a discussion of this and other data at the spring, 2005 ICCPHSE meeting.

Piecing It All Together

Using Data from www.higheredinfo.org

Iowa

Patrick J. Kelly

May 5, 2004

National Center for Higher Education Management Systems
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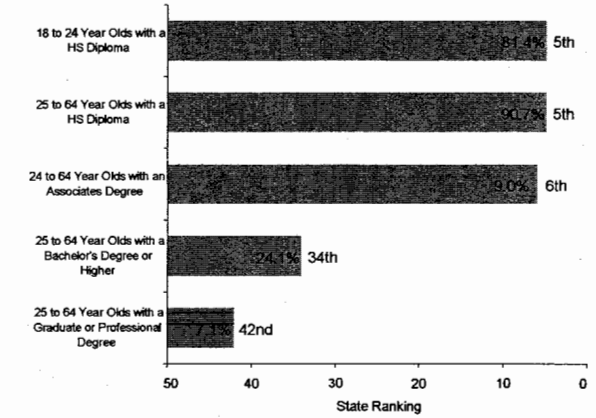
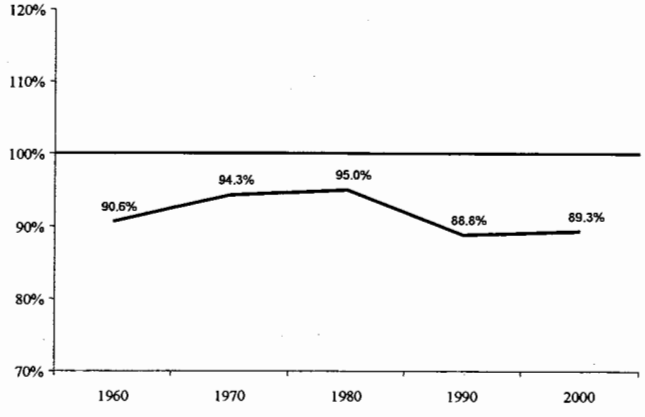
The Workforce

Educational Attainment—Iowa Attainment and U.S. Rank, 2000



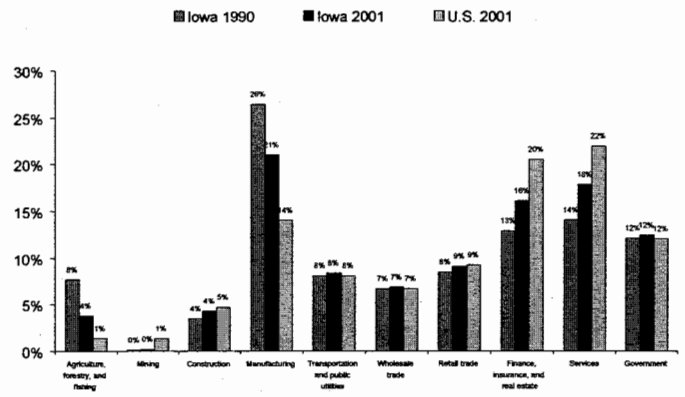
Source: U.S. Census Bureau

Iowa Per Capita Personal Income as a Percentage of U.S. Average, 1960-2000



Source: U.S. Census Bureau

Share of Gross State Product by Sector



Source: U.S. Bureau of Economic Analysis

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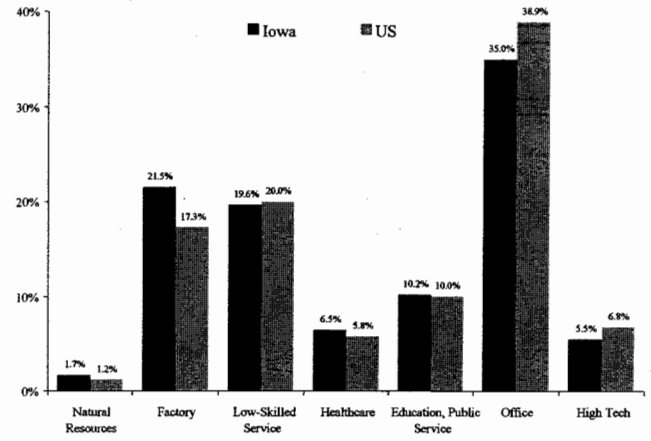
Employment by Job Type, 1998-2001 (Percent)



Source: Tony Carnevale, Donna Deroschers (ETS) – US Census Bureau, Public Use Microdata Samples, 2000.

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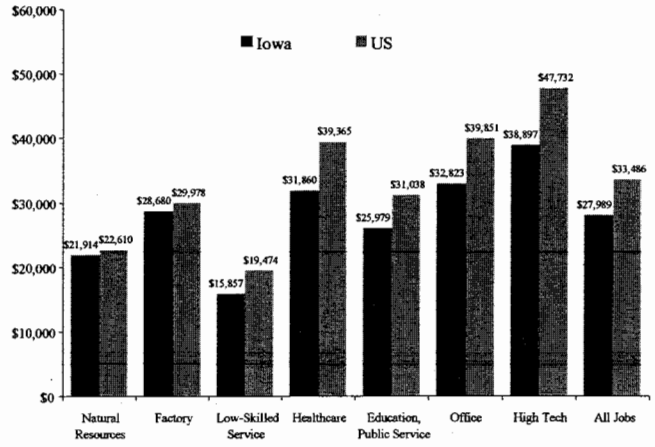
Earnings by Job Type, 1998-2001



Source: Tony Carnevale, Donna Deroschers (ETS) – US Census Bureau, Public Use Microdata Samples, 2000.

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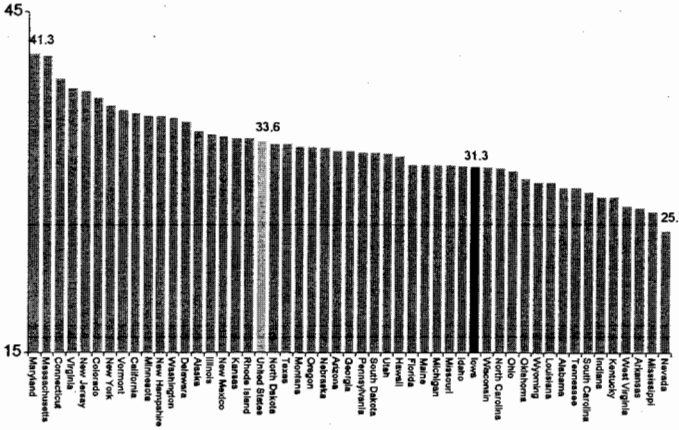
Percent Employment in Professional and Management Occupations, 2000



Source: U.S. Census Bureau

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College Participation and Completion

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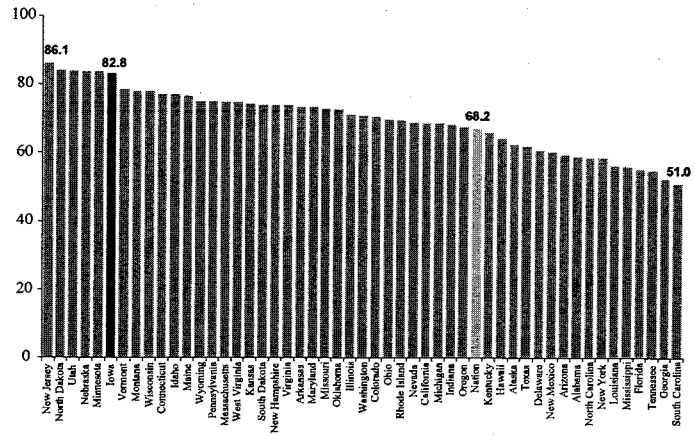
Public High School Graduation – 9th Graders Graduating Four Years Later (%) - 2000



Source: Tom Mortenson, Postsecondary Opportunity

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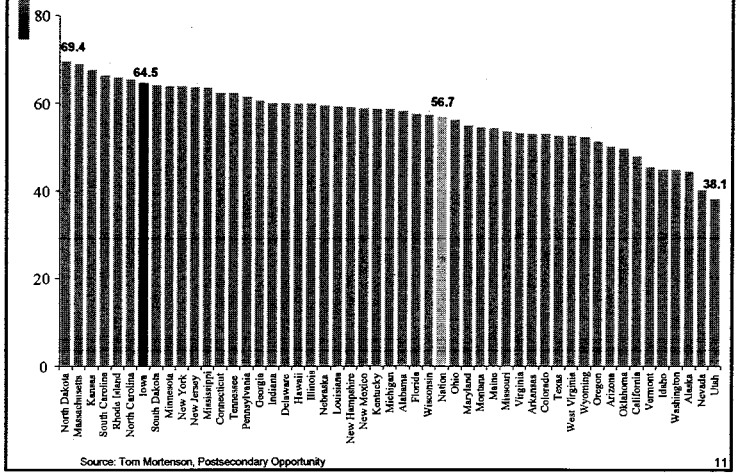
College Going Rates – First-Time Freshmen Directly Out of HS as a Percent of Recent HS Graduates (%) - 2000



Source: Tom Mortenson, Postsecondary Opportunity

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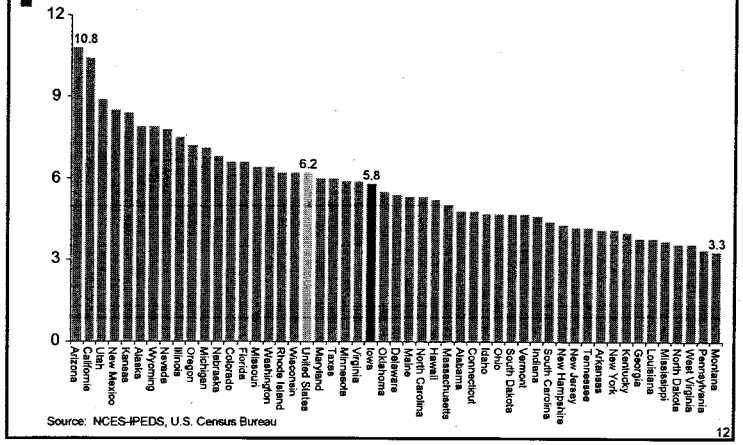
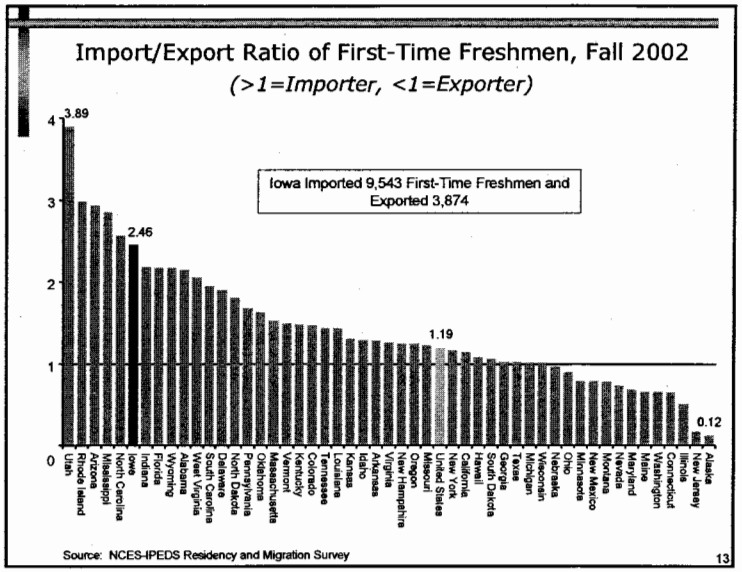
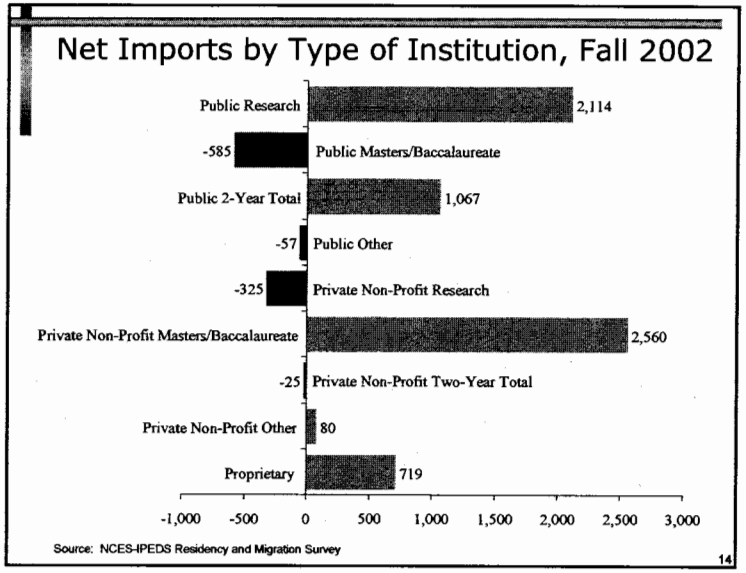
Part-Time Undergraduate Enrollment as a Percent of 25- to 44-Year-Olds, 2000

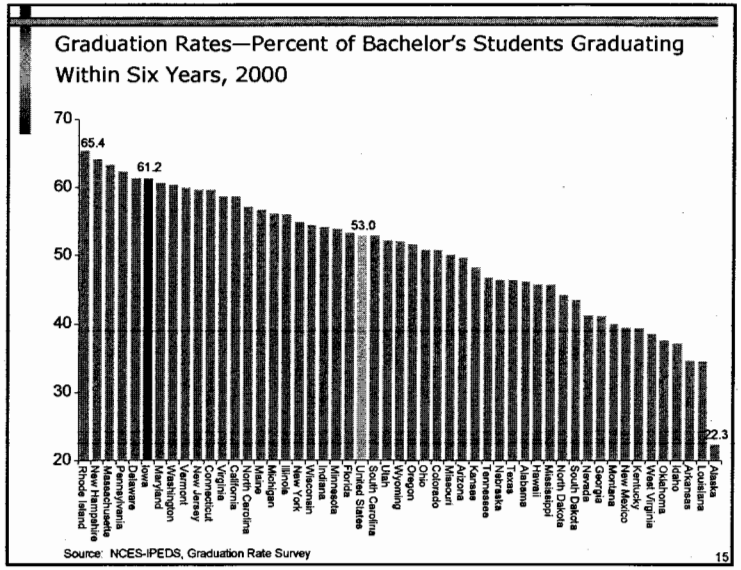


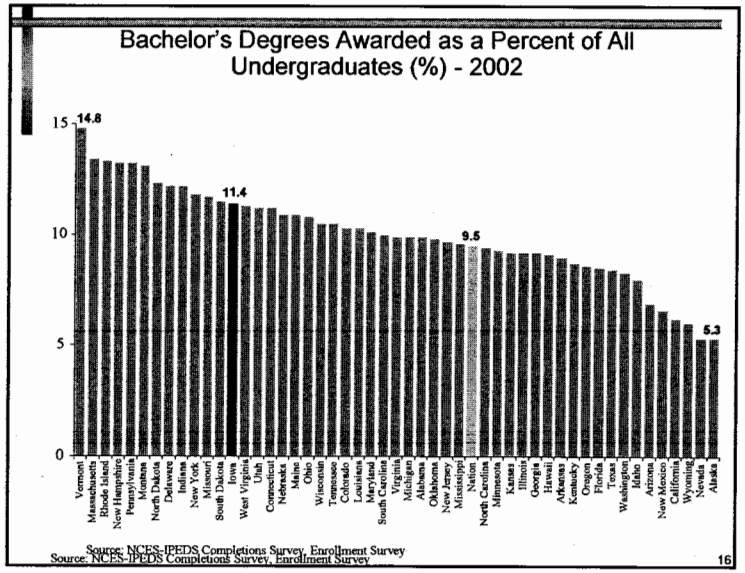
Source: NCES-IPEDS, U.S. Census Bureau

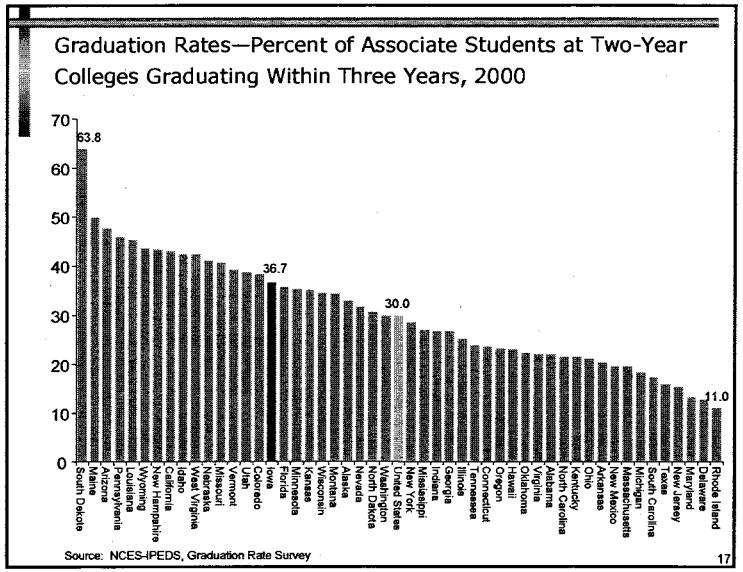
12

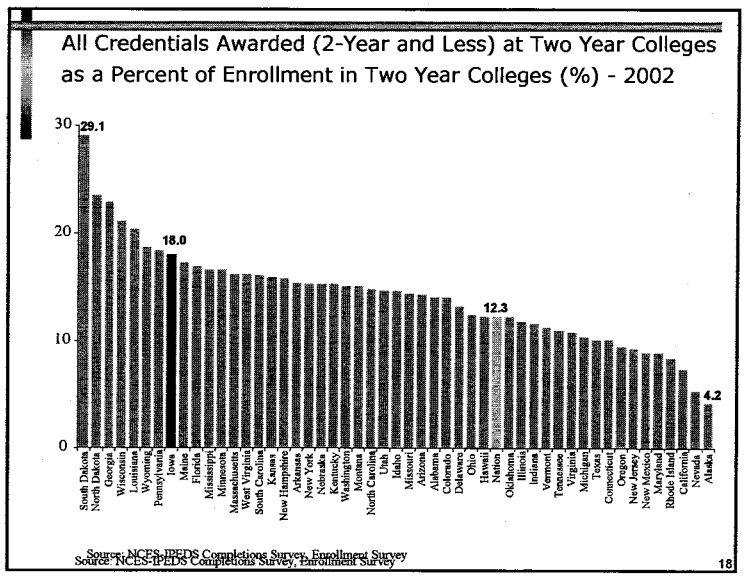

Import/Export Ratio of First-Time Freshmen, Fall 2002
(>1=Importer, <1=Exporter)
Iowa Imported 9,543 First-Time Freshmen and Exported 3,874
3.89
2.46
1.19
0.12
Source: NCES-IPEDS Residency and Migration Survey
13

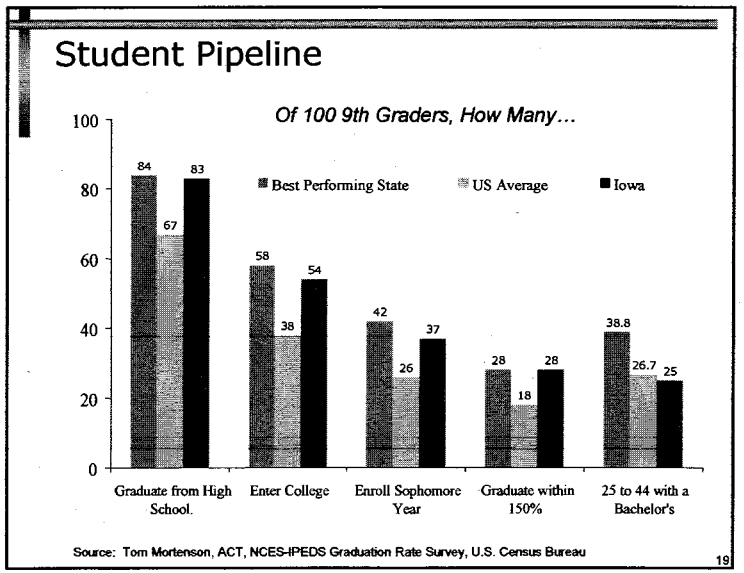

Net Imports by Type of Institution, Fall 2002
Public Research 2,114
-585 Public Masters/Baccalaureate
Public 2-Year Total 1,067
-57 Public Other
-325 Private Non-Profit Research
Private Non-Profit Masters/Baccalaureate 2,560
-25 Private Non-Profit Two-Year Total
Private Non-Profit Other 80
Proprietary 719
Source: NCES-IPEDS Residency and Migration Survey
14

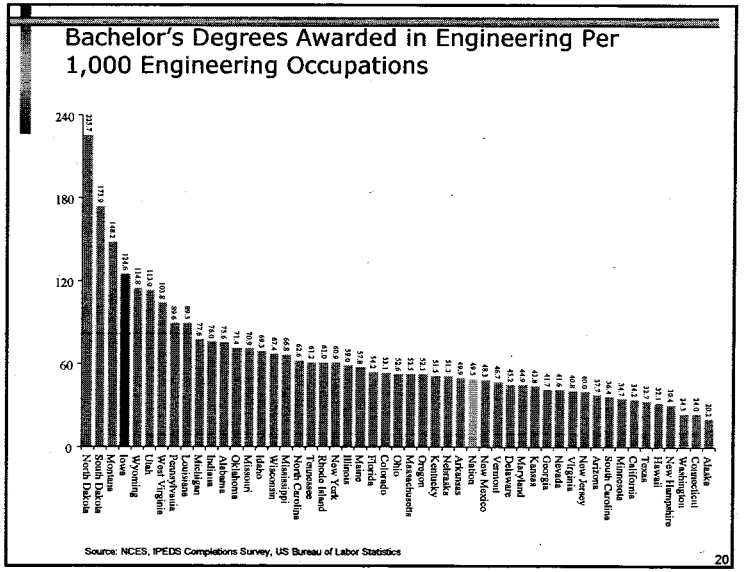

Graduation Rates—Percent of Bachelor's Students Graduating Within Six Years, 2000
65.4
61.2
53.0
22.3
Source: NCES-IPEDS, Graduation Rate Survey
15

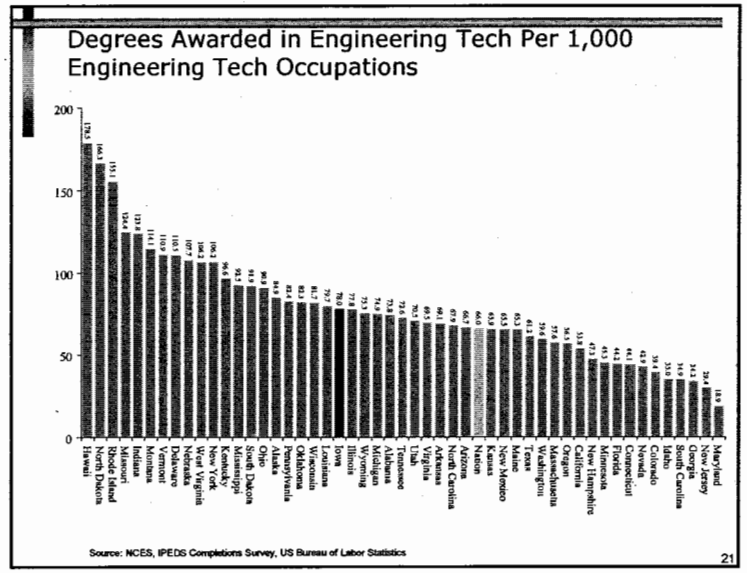

Bachelor's Degrees Awarded as a Percent of All Undergraduates (%) - 2002
14.8
11.4
9.5
5.3
Source: NCES-IPEDS Completions Survey, Enrollment Survey
16

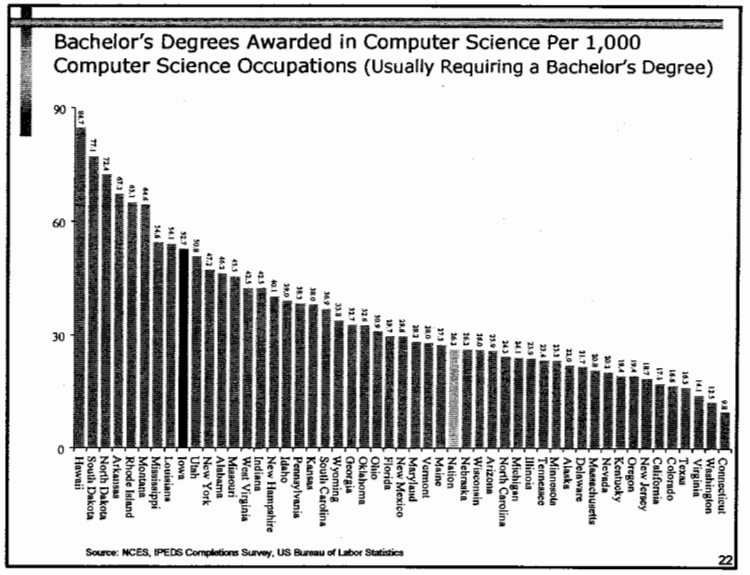

Graduation Rates—Percent of Associate Students at Two-Year Colleges Graduating Within Three Years, 2000
70
60
50
40
30
20
10
0
63.8
36.7
30.0
11.0
South Dakota
Maine
Arizona
Pennsylvania
Louisiana
Wyoming
New Hampshire
California
Idaho
West Virginia
Nebraska
Missouri
Vermont
Utah
Colorado
Iowa
Florida
Minnesota
Kansas
Wisconsin
Montana
Alaska
Nevada
North Dakota
Washington
United States
New York
Mississippi
Indiana
Georgia
Illinois
Tennessee
Connecticut
Oregon
Hawaii
Oklahoma
Virginia
Alabama
North Carolina
Kentucky
Ohio
Arkansas
New Mexico
Massachusetts
Michigan
South Carolina
Texas
New Jersey
Maryland
Delaware
Rhode Island
Source: NCES-IPEDS, Graduation Rate Survey
17

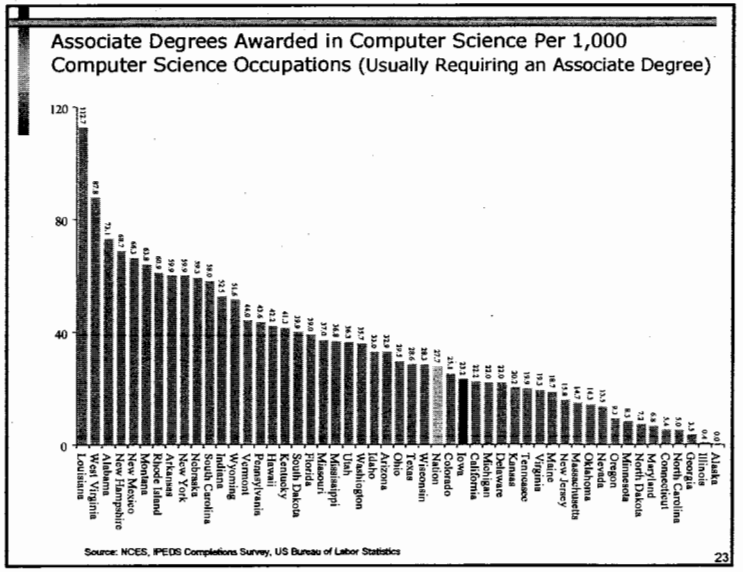

All Credentials Awarded (2-Year and Less) at Two Year Colleges as a Percent of Enrollment in Two Year Colleges (%) - 2002
30
20
10
0
29.1
18.0
12.3
4.2
South Dakota
North Dakota
Georgia
Wisconsin
Louisiana
Wyoming
Pennsylvania
Iowa
Maine
Florida
Mississippi
Massachusetts
West Virginia
South Carolina
Kansas
New Hampshire
Arkansas
New York
Kentucky
Washington
Montana
North Carolina
Utah
Idaho
Missouri
Arizona
Alabama
Colorado
Ohio
Hawaii
Nation
Oklahoma
Illinois
Indiana
Vermont
Tennessee
Virginia
Michigan
Texas
Connecticut
Oregon
New Jersey
New Mexico
Maryland
Rhode Island
California
Nevada
Alaska
Source: NCES-IPEDS Completions Survey, Enrollment Survey
Source: NCES-IPEDS Completions Survey, Enrollment Survey
18

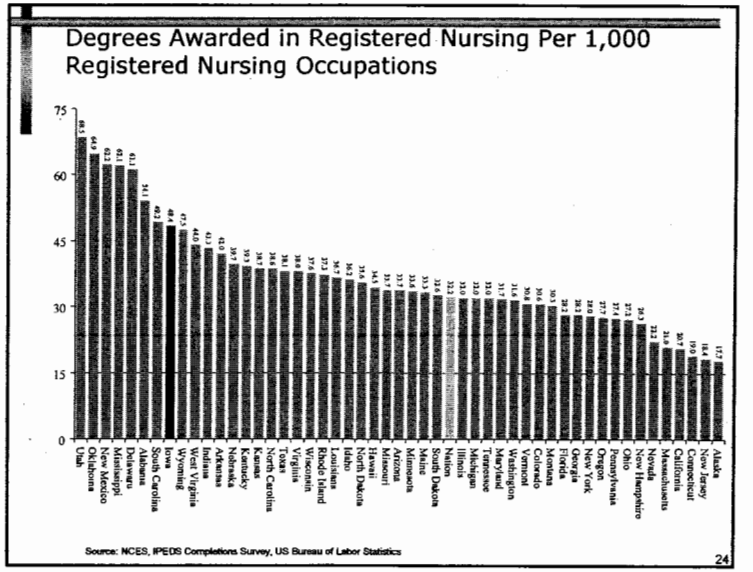

Student Pipeline
Of 100 9th Graders, How Many...
100
80
60
40
20
0
Best Performing State
US Average
Iowa
84
67
83
58
38
54
42
26
37
28
18
28
38.8
26.7
25
Graduate from High School.
Enter College
Enroll Sophomore Year
Graduate within 150%
25 to 44 with a Bachelor's
Source: Tom Mortenson, ACT, NCES-IPEDS Graduation Rate Survey, U.S. Census Bureau
19


Bachelor's Degrees Awarded in Engineering Per 1,000 Engineering Occupations
240
180
120
60
0
Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics
20

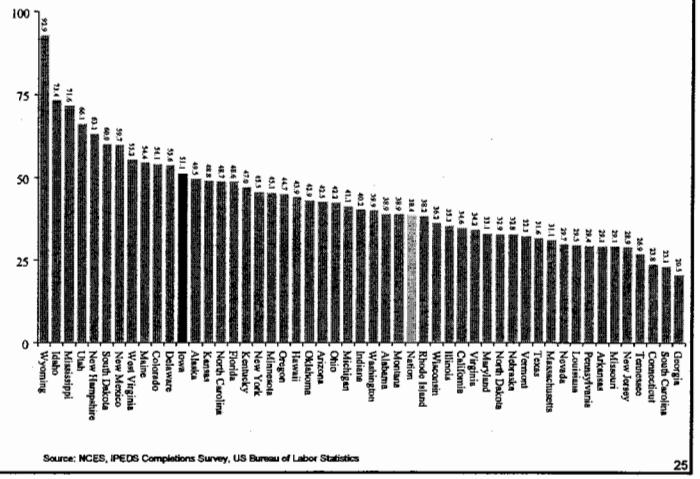

Degrees Awarded in Engineering Tech Per 1,000
Engineering Tech Occupations
Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics
21


Bachelor's Degrees Awarded in Computer Science Per 1,000
Computer Science Occupations (Usually Requiring a Bachelor's Degree)
Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics
22


Associate Degrees Awarded in Computer Science Per 1,000
Computer Science Occupations (Usually Requiring an Associate Degree)
Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics
23


Degrees Awarded in Registered Nursing Per 1,000
Registered Nursing Occupations
Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics
24

Degrees Awarded in Health Tech Per 1,000 Health Tech Occupations



Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics

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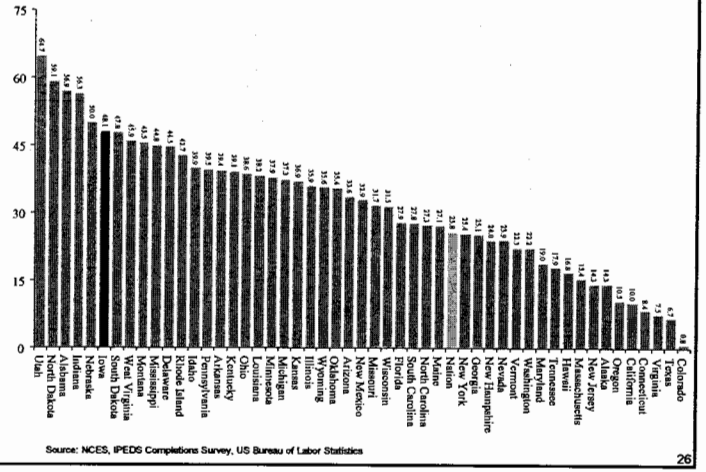
Bachelor's Degrees Awarded in Elem. And Secondary Education Per 1,000 Teaching Occupations



Source: NCES, IPEDS Completions Survey, US Bureau of Labor Statistics

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Net Gain/Loss of Iowa Residents

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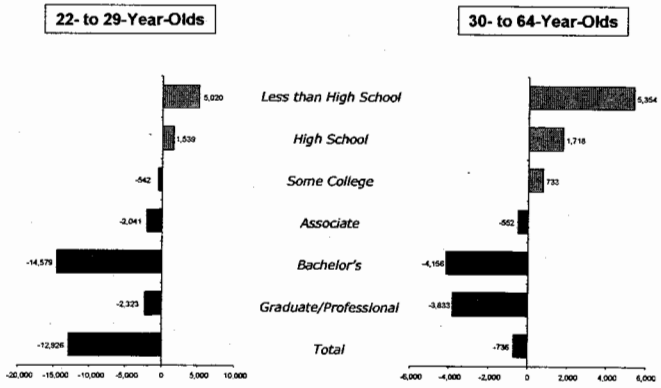
Iowa Net In-Migration by Degree Level and Age Group, 1995-2000



Source: U.S. Census, Public Use Microdata Samples, 2000

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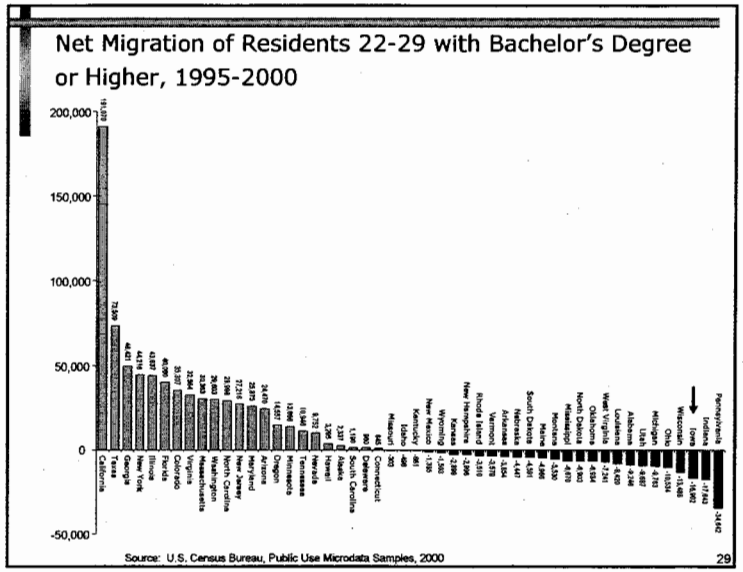
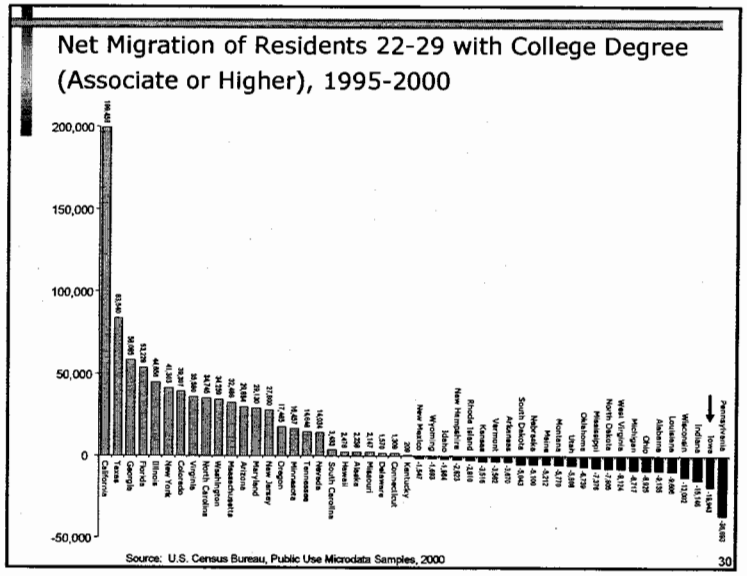
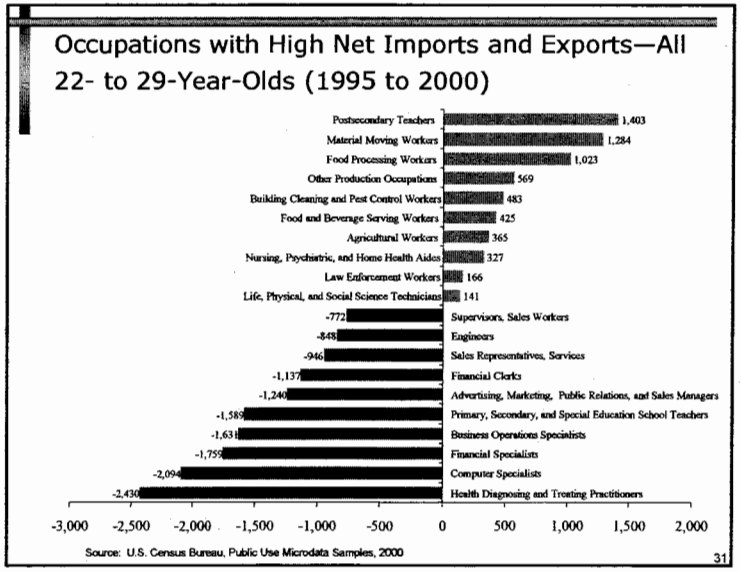
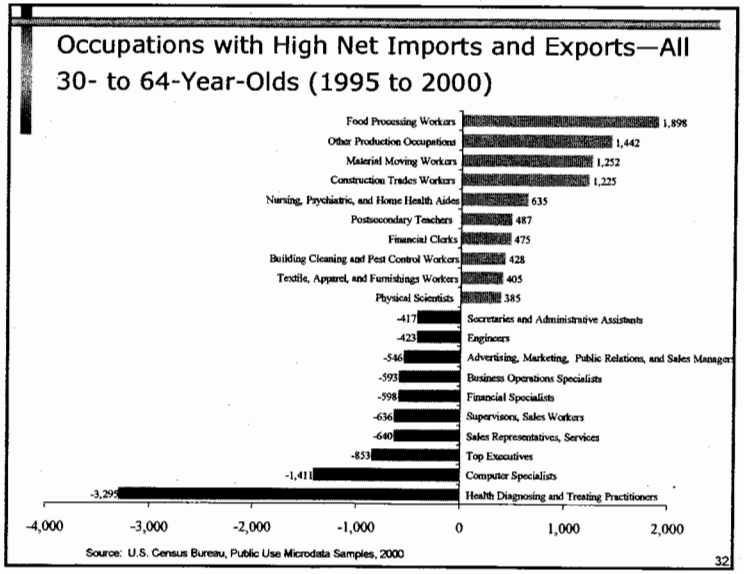

Net Migration of Residents 22-29 with Bachelor's Degree or Higher, 1995-2000
200,000
150,000
100,000
50,000
0
-50,000
Source: U.S. Census Bureau, Public Use Microdata Samples, 2000
29


Net Migration of Residents 22-29 with College Degree (Associate or Higher), 1995-2000
200,000
150,000
100,000
50,000
0
-50,000
Source: U.S. Census Bureau, Public Use Microdata Samples, 2000
30


Occupations with High Net Imports and Exports—All 22- to 29-Year-Olds (1995 to 2000)
Postsecondary Teachers 1,403
Material Moving Workers 1,284
Food Processing Workers 1,023
Other Production Occupations 569
Building Cleaning and Pest Control Workers 483
Food and Beverage Serving Workers 425
Agricultural Workers 365
Nursing, Psychiatric, and Home Health Aides 327
Law Enforcement Workers 166
Life, Physical, and Social Science Technicians 141
-772 Supervisors, Sales Workers
-848 Engineers
-946 Sales Representatives, Services
-1,137 Financial Clerks
-1,240 Advertising, Marketing, Public Relations, and Sales Managers
-1,589 Primary, Secondary, and Special Education School Teachers
-1,631 Business Operations Specialists
-1,759 Financial Specialists
-2,094 Computer Specialists
-2,430 Health Diagnosing and Treating Practitioners
-3,000 -2,500 -2,000 -1,500 -1,000 -500 0 500 1,000 1,500 2,000
Source: U.S. Census Bureau, Public Use Microdata Samples, 2000
31


Occupations with High Net Imports and Exports—All 30- to 64-Year-Olds (1995 to 2000)
Food Processing Workers 1,898
Other Production Occupations 1,442
Material Moving Workers 1,252
Construction Trades Workers 1,225
Nursing, Psychiatric, and Home Health Aides 635
Postsecondary Teachers 487
Financial Clerks 475
Building Cleaning and Pest Control Workers 428
Textile, Apparel, and Furnishings Workers 405
Physical Scientists 385
-417 Secretaries and Administrative Assistants
-423 Engineers
-546 Advertising, Marketing, Public Relations, and Sales Managers
-593 Business Operations Specialists
-598 Financial Specialists
-636 Supervisors, Sales Workers
-640 Sales Representatives, Services
-853 Top Executives
-1,411 Computer Specialists
-3,295 Health Diagnosing and Treating Practitioners
-4,000 -3,000 -2,000 -1,000 0 1,000 2,000
Source: U.S. Census Bureau, Public Use Microdata Samples, 2000
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States to Which Iowa Loses Most of Its College-Educated Residents (Net Loss from 1995 to 2000)

22- to 29-Year-Olds		***30- to 64-Year-Olds***	
Illinois	-4203	Minnesota	-1766
Minnesota	-3400	Wisconsin	-1684
Colorado	-2156	Arizona	-1311
California	-1912	Missouri	-980
Kansas	-1410	Colorado	-866
Missouri	-1196	North Carolina	-849
Wisconsin	-1159	Florida	-822
Texas	-1038	Texas	-721
Arizona	-887	Ohio	-684
Florida	-843	Michigan	-617
Washington	-669	Oklahoma	-560
North Carolina	-611	Tennessee	-512
Georgia	-541	California	-481
Virginia	-460	Georgia	-475
New York	-441	Illinois	-374

Source: U.S. Census Bureau, Public Use Microdata Samples, 2000

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The Economy

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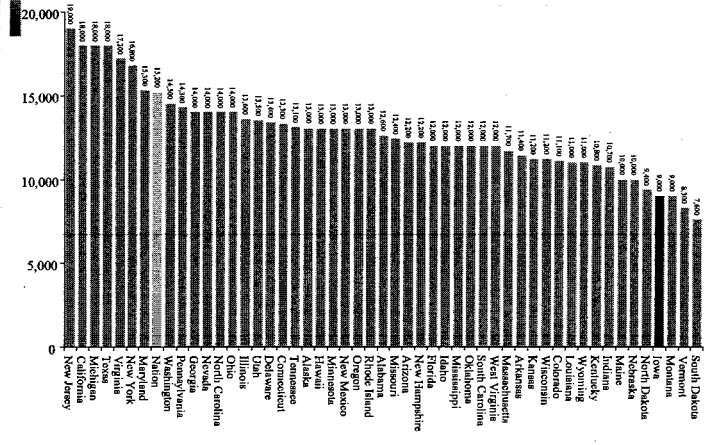
Difference in Median Earnings Between a High School Diploma and a Bachelor's Degree (2000)



Source: US Census Bureau, Public Use Microdata Samples, 2000

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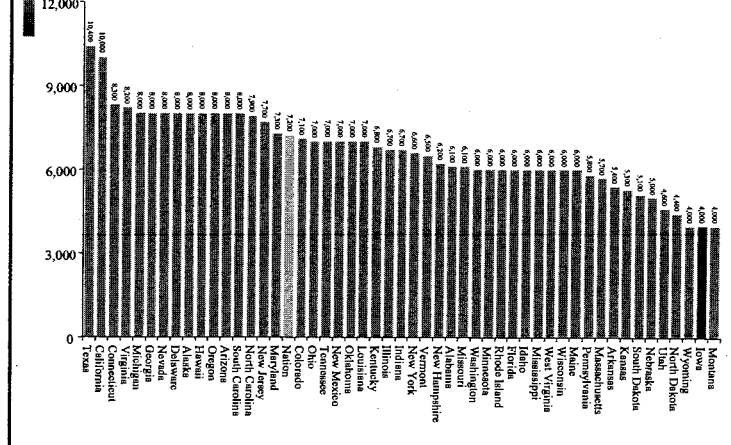
Difference in Median Earnings Between a High School Diploma and an Associates Degree (2000)



Source: US Census Bureau, Public Use Microdata Samples, 2000

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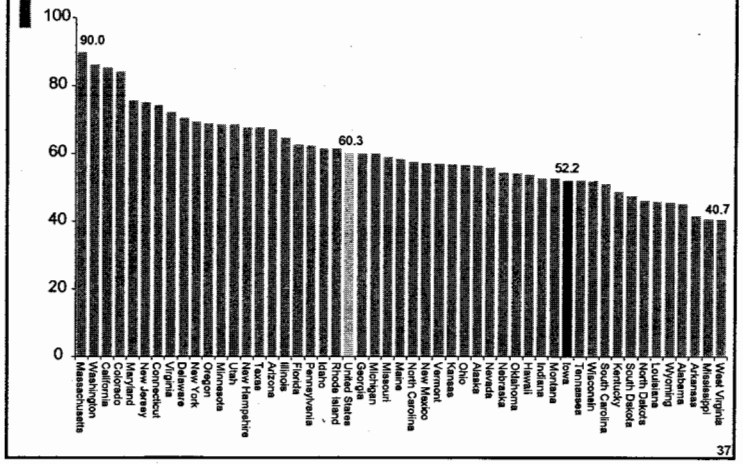
Progressive Policy Institute—"State New Economy Index" (2002)



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Development Report Card for the States, 2003—Iowa

Performance	Employment	B
	Earnings and Job Quality	A
	Equity	B
	Quality of Life	B
	Resource Efficiency	C
Business Vitality	Competitiveness of Existing Bus.	C
	Entrepreneurial Energy	D
Development Capacity	Human Resources	A
	Financial Resources	F
	Infrastructure Resources	B
	Amenity Resources	A
	Innovation Assets	C

Rank	Measure
1	Highway Deficiency
1	Air Quality
1	Involuntary Part-Time Employment
2	Cost of Urban Housing
4	Income Distribution
4	Unemployment Rate
5	Employment Growth: Short Term
5	University R&D
7	Basic Educational Skills Proficiency—Reading
7	Employer Health Coverage
7	Poverty Rate
8	Voting Rate
8	Basic Educational Skills Proficiency—Math
8	Business Closings
9	High School Attainment
9	Uninsured Low Income Children
9	Teen Pregnancy

Rank	Measure
41	Private Lending to Small Businesses
43	Venture Capital Investments
44	Net Migration
46	SBIR Grants
47	Manufacturing Investment
49	New Companies

Source: Corporation for Enterprise Development

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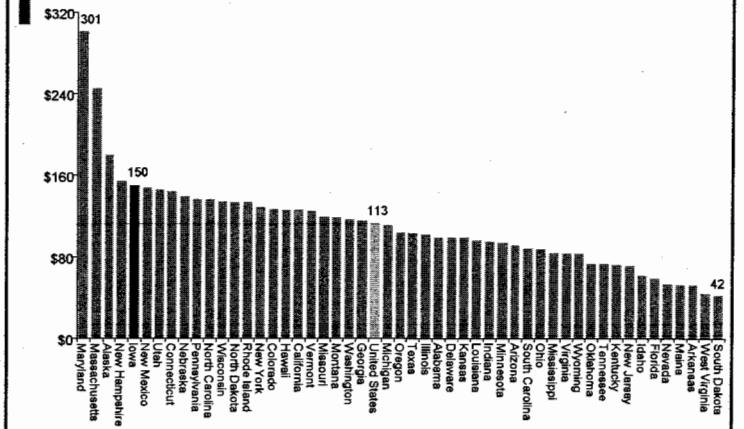
Total Research and Development Expenditures Per Capita, 2001



Source: National Science Foundation, U.S. Census Bureau

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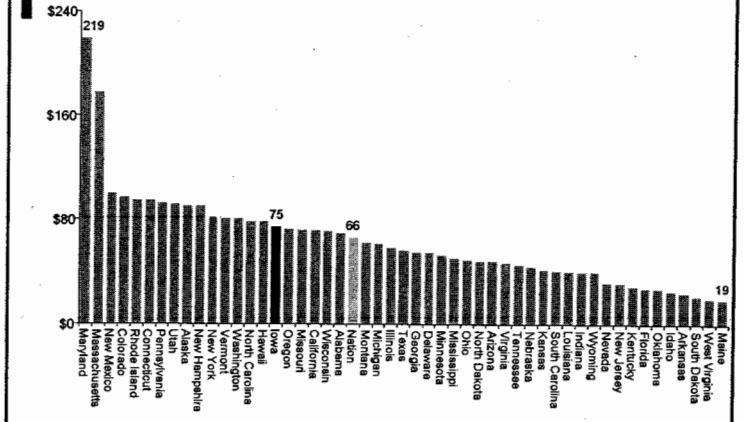
Federal Research and Development Expenditures Per Capita, 2001



Source: National Science Foundation, U.S. Census Bureau

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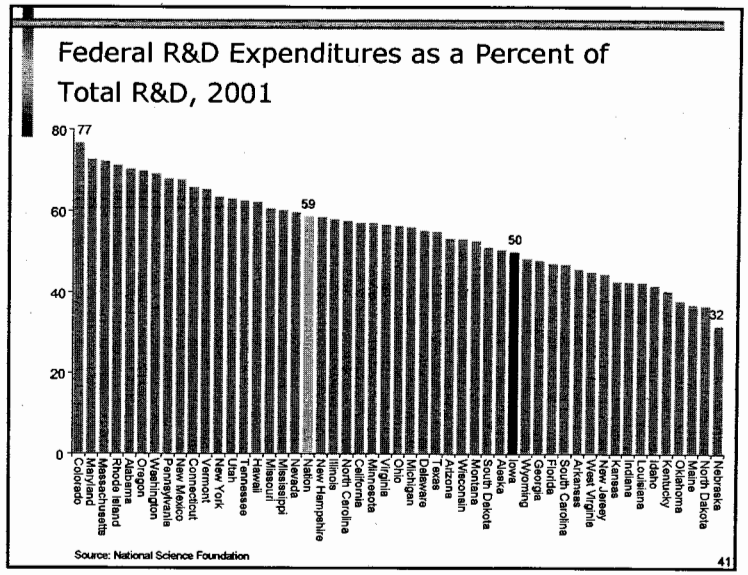

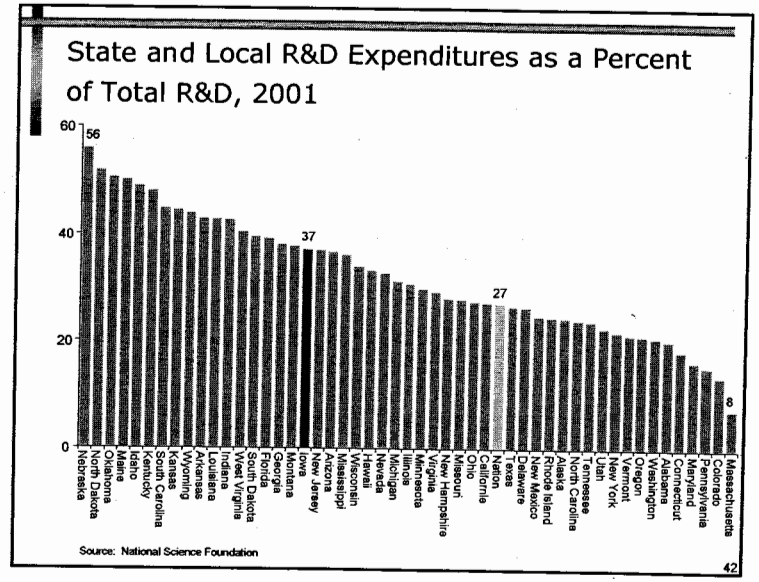

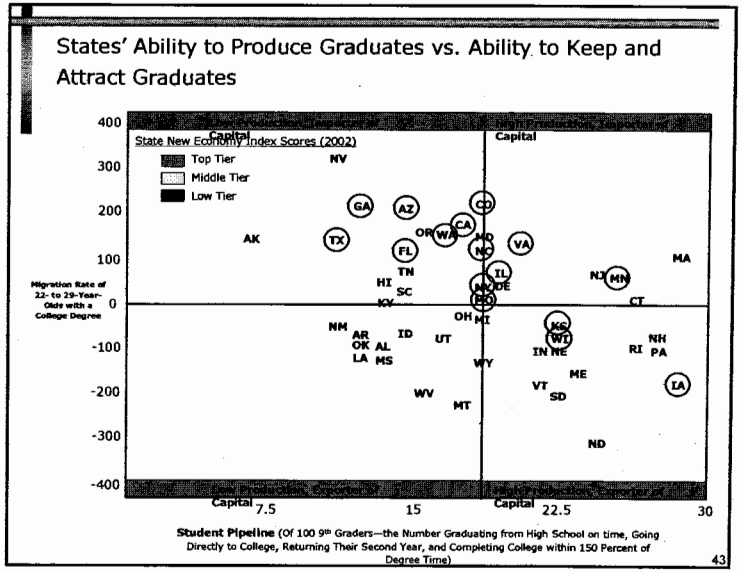

These data are available at:
http://www.higheredinfo.org

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