

OUTLOOK FOR THE 90'S

Iowa Department of Management
Second Edition
April 1989

Table of Contents

| | PAGE |
|---|------|
| PREFACE | |
| (1) THE ECONOMY | |
| Agriculture | 1 |
| Manufacturing | 2 |
| (2) DEMOGRAPHICS | |
| Overall Population | 5 |
| Births and Deaths | 8 |
| Marriages and Dissolutions | 8 |
| Minorities | 9 |
| Population Age Groups | 9 |
| (3) EMPLOYMENT AND THE WORKFORCE | |
| Occupational Projections | 12 |
| Unemployment | 13 |
| Non-Farm Employment | 13 |
| Employment by Firm Size | 14 |
| Training in the Workplace | 15 |
| Non-Traditional Workers | 15 |
| Employee Benefits | 15 |
| (4) EDUCATION | |
| Education and the Workforce | 16 |
| High School Enrollment and Graduation | 17 |
| Research and Development Activities | 17 |
| Substance Abuse | 17 |
| Educational Innovation | 18 |
| Business's Role in Education | 18 |
| Technology in the Classroom | 18 |
| (5) NEW TECHNOLOGY EXPLOSION | |
| Computer Integration in Manufacturing | 20 |
| New Office Tools | 20 |
| Biotechnology Computers Connect Home and Office | 20 |
| Computer Compatibility | 20 |
| Supercomputers | 20 |

(6) GLOBALIZATION OF THE ECONOMY

| | |
|----------------------------------|----|
| Europe 1992 | 22 |
| Foreign Ownership of U.S. Assets | 22 |
| U.S. Agriculture Exports | 22 |
| U.S. Small Business Exports | 23 |
| Export-Related Jobs | 23 |
| Cultural Awareness | 23 |

(7) FEDERALISM

| | |
|-----------------------------|----|
| Increasing Federal Mandates | 25 |
| Education Policy | 25 |
| Drug Policy | 25 |
| Taxes | 25 |
| Volunteerism | 25 |

(8) ENVIRONMENT AND ENERGY

| | |
|------------------------------|----|
| Coal as an Energy Source | 27 |
| Waste Disposal | 27 |
| Energy Efficiency | 27 |
| Photovoltaics | 27 |
| Market for Recycled Products | 27 |

(9) HEALTH

| | |
|----------------------------------|----|
| Health Care Expenditures | 29 |
| Uninsured | 30 |
| Hospital Admissions | 31 |
| Health Care Employment | 32 |
| Physicians Supplementing Incomes | 32 |
| Nursing Shortage | 32 |
| Elderly Health Care | 32 |
| Public and Rural Hospitals | 33 |

(10) AGING INFRASTRUCTURE

| | |
|---|----|
| Economic Development and Infrastructure | 34 |
| The "New Infrastructure" | 34 |
| Housing | 34 |
| The Federal Role in Infrastructure | 34 |

Sources for Graphs and Charts

| Graph/Chart | Page | Source |
|-------------------------------------|------|---|
| The Economy | | |
| Consumer Price Index | 1 | Data Resources, Inc. |
| Iowa Average Farmland Values | 1 | Iowa State University Extension |
| Number of Farms by Size Categories | 2 | US Census of Agriculture, USDA, 1989 |
| Industrial Production | 2 | Data Resources, Inc. |
| Per Capita Income: Iowa | 3 | Iowa Census Data Center |
| Total Receipts | 3 | Iowa Department of Management |
| Demographics | | |
| Iowa Population (Graph and Chart) | 5 | US Census Bureau, Iowa Dept. of Transportation, Iowa Census Data Center and the Iowa Dept. of Economic Development, and Woods & Poole Economics, Inc. |
| Total Estimated Population Change | 6 | Iowa Census Data Center |
| Iowa Net Migration | 6 | Iowa Census Data Center |
| Long Term Population Trends | 7 | Iowa Department of Management |
| Births and Deaths in Iowa | 8 | Vital Statistics of Iowa, 1987 |
| Marriages and Dissolutions in Iowa | 8 | Vital Statistics of Iowa, 1987 |
| Minority Population in Iowa | 9 | Iowa Census Data Center |
| Median Age of Iowans | 9 | Iowa Census Data Center |
| Age Group Projections | 10 | Iowa Census Data Center |
| Age Group Projections: 5 and 75 | 11 | Iowa Census Data Center |
| Employment and The Workforce | | |
| Iowa Occupational Projections | 12 | Iowa Dept. of Economic Development |
| Iowa Unemployment Rate | 13 | Iowa Dept. of Employment Services |
| Non-Farm Employment | 13 | Iowa Economic Forecasting Council |
| Iowa Employment by Firm Size | 14 | Iowa Dept. of Employment Services |
| Education | | |
| Labor Force Participation in Iowa | 16 | Iowa Dept. of Employment Services |
| Iowa High School Diplomas Issued | 17 | Iowa Dept. of Education |
| Use of Chemical Substances | 17 | Iowa Comprehensive State Plan for Substance Abuse |
| Globalization of the Economy | | |
| Iowa Farm Product Exports | 23 | Foreign Agricultural Trade of the US, USDA, 1988 |

Health

| | | |
|----------------------------------|----|---|
| Iowa Health Care Expenditures | 29 | US Center for Health Statistics, 1983 |
| Distribution of Iowa's Uninsured | 30 | US Census Bureau Population Survey, 1986 |
| Iowa Hospital Admissions | 31 | American Hospital Assn. Annual Survey |
| Health Professions in US | 32 | US Dept. of Labor |
| Health Professions in Iowa | 32 | Iowa Dept. of Public Health |
| Older Americans Needing LT Care | 32 | Statistical Handbook on Aging Americans |

PREFACE

The Iowa Department of Management (DOM) is in the second year of coordinating an issue scanning network in which executives and staff from a total of 14 other state agencies and Regents institutions participate. The purpose of this process is to systematically identify emerging issues and trends of significance to Iowa state government, and to begin to suggest some of the possible implications of these trends. Findings are shared through the quarterly publication of a bulletin called Policy Prospects, and more informally through contact between DOM Management Directors and department heads. Follow-up is left largely to the discretion of individual departments.

Since the inception of the scanning network one and one-half years ago, about 340 separate "issue scans" have been submitted, each scan being a one-page identification of facts and implications of a specific issue or idea. Using the scans as a base, DOM annually seeks to identify some basic trends, or environmental factors, which are likely to have a broad impact on the operation of state government in Iowa. A total of ten broad, key trends and 60 subtrends have been identified in this second edition of "Outlook for the 90's."

The list of key trends is by no means exhaustive, but it is focused on issues of significance to state government. As such, these trends can serve as a starting point to suggest the kinds of environmental factors or trends that ought to be considered in the development of Iowa's Futures Agenda. Several possible implications are suggested for each trend in order to illustrate how the trends information can be applied by state agencies in a concrete way. Selected charts and graphs are also included.

While the factors discussed in this document have broad relevance to all of state government, there certainly are more specific factors affecting the operation of individual agencies. In addition to analyzing the factors identified here, as appropriate, each agency should also identify the relevant trends in its own environment, and assess what these specific trends mean in terms of its direction and operation.

Acknowledgments: A special thanks to the following for their assistance in developing this document.

*Harvey Siegelman, Department of Economic Development
Mike Dare, Department of Public Health
Willis Goudy, Iowa State University
Dave Plazak, Department of Economic Development
Steve Smith, Department of Employment Services
Iowa Farm Bureau Federation*

THE ECONOMY

Trend:

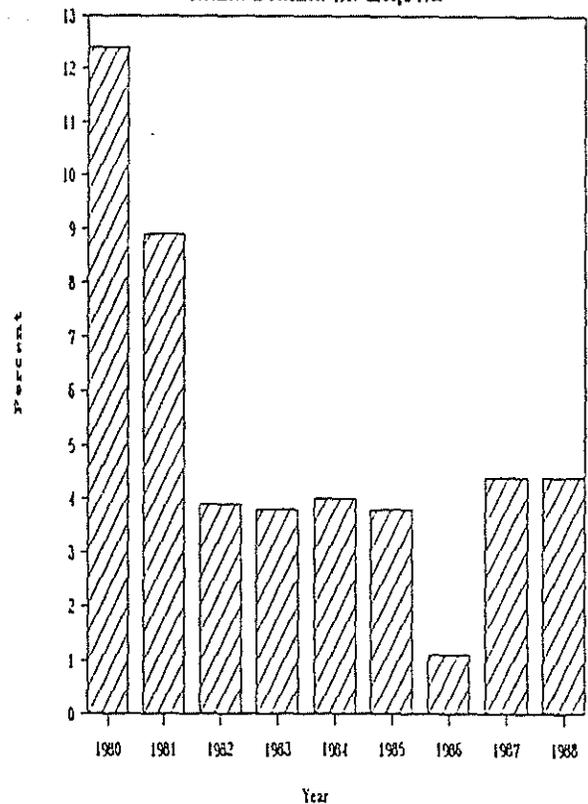
Iowa's economic picture continues to look bright in the near term. The agricultural sector shows signs of strengthening as profitability improves. 1988 saw the addition of 39,000 workers to the state workforce over 1987. The jobless rate ended the year at 4.6%, the lowest annual figure since 1979. State revenues continue to show strength, over half way into the fiscal year.

Subtrends:

(1) The long term outlook for Iowa's agricultural sector is less certain. Many concerns exist over the potential lingering of the drought into 1989. A large number of counties ended calendar year 1988 with less than half the normal precipitation. Additionally, recent inflationary fears have bumped short term interest rates up. Finally, compounding the fears for farmers is the ever-present discussion of a reduced federal role in agricultural subsidies.

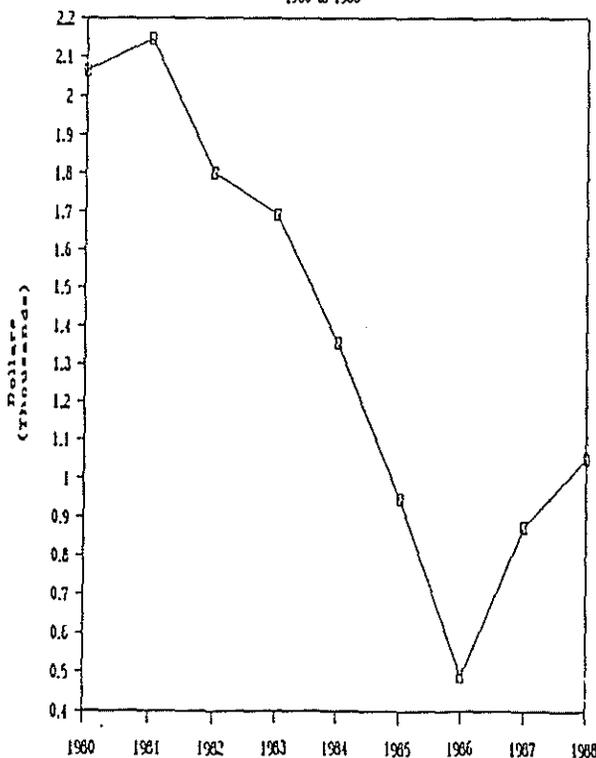
Consumer Price Index

December to December 1980 Through 1988



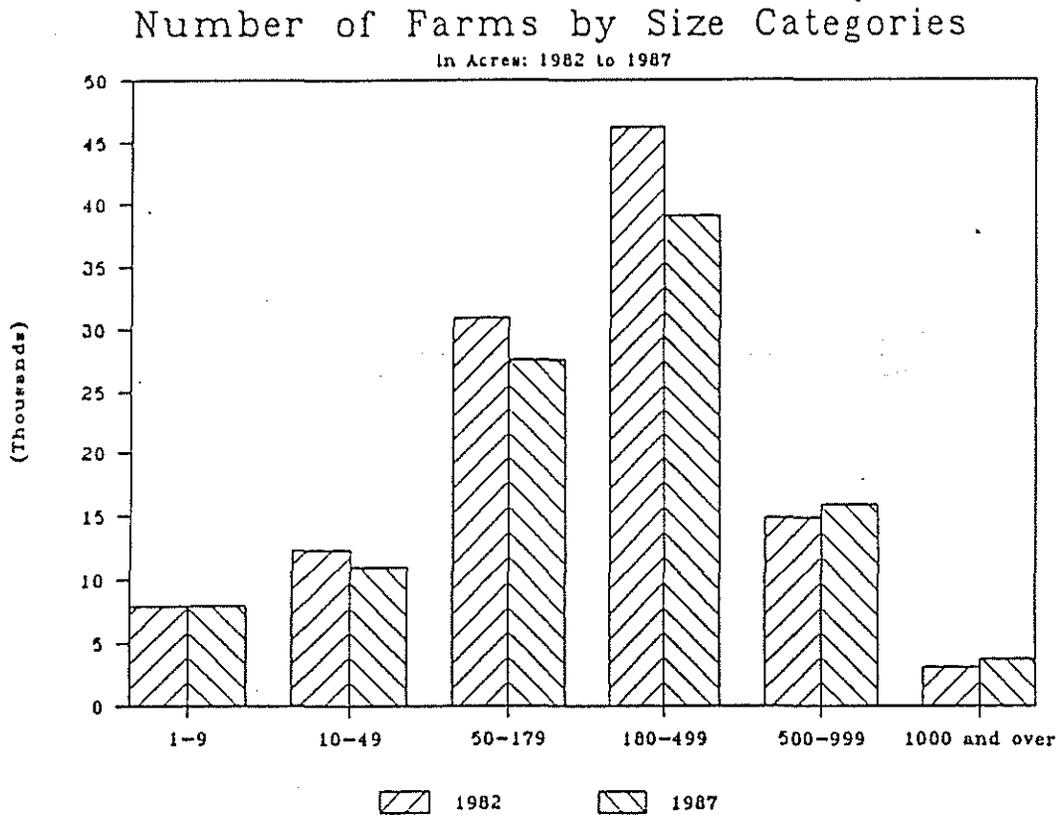
Iowa Average Farmland Values

1980 to 1988



Farmland values continue to rebound since their low in 1986. This turnaround in values is a reflection of the current profitability in farming. The persistence of the drought or a reduced federal farm subsidy role may have negative short-term impacts on this recovery.

This graph visually displays the continuation of two long-standing agricultural trends. First, nearly 10,000 fewer farms existed in 1987 than in 1982. Medium-sized farms, those in the 180 - 499 acre range, have suffered the greatest numeric loss; 6800 fewer in 1987. Further, farms are getting larger. 1987 saw nearly 1600 more farms 500 acres in size or larger than in 1982.



(2) The outlook for Iowa manufacturing is good. According to Data Resources, Inc. (DRI), manufacturing will be the "strength of the state" through 1989. DRI projects that the production of non-electrical machinery and printing and publishing will be among those industries leading the nation in growth; two industries where Iowa has strong representation. DRI sees a positive outlook for the state's trade and service industries, which will expand slightly faster than the region through 1991.

Industrial Production

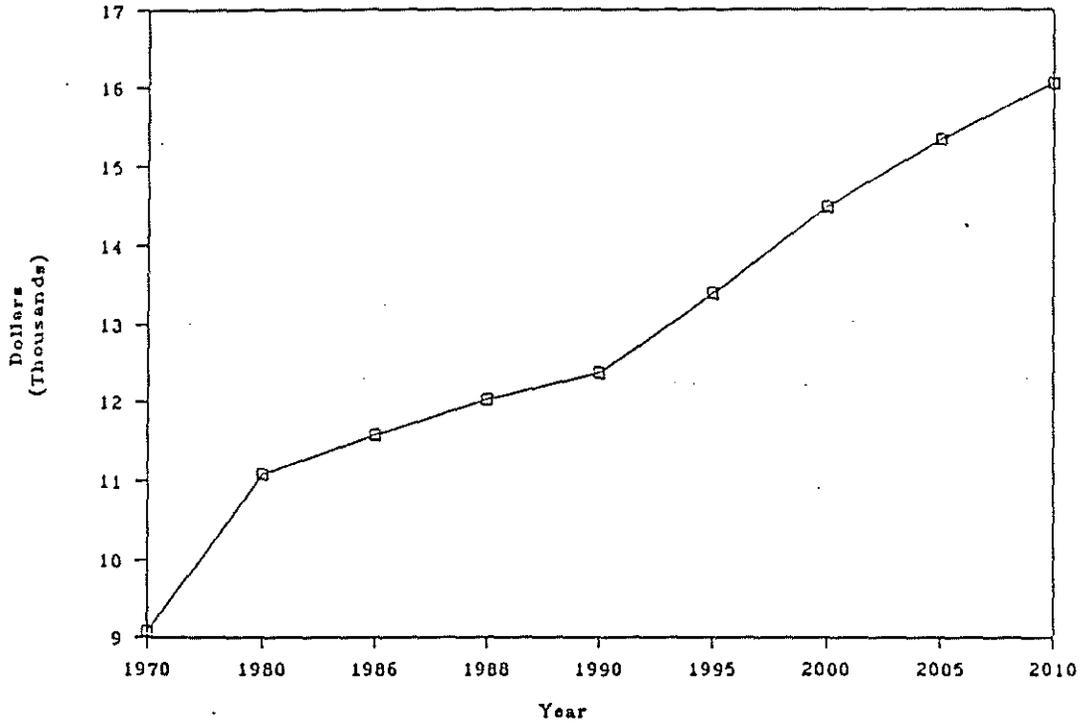
(Average annual percent growth)

| | Projection | | |
|------------------------------|----------------|----------------|------------------|
| | <u>1963-75</u> | <u>1975-88</u> | <u>1988-2013</u> |
| Rubber and Plastics Products | 7.0 | 6.9 | 4.6 |
| Instruments | 7.4 | 5.0 | 4.3 |
| Electrical Machinery | 5.1 | 6.7 | 4.1 |
| Non-electrical Machinery | 5.3 | 5.6 | 3.7 |
| Printing and Publishing | 2.6 | 6.3 | 3.1 |

(3) While the increase in per capita income in Iowa slowed during the 1980's, projections are for increases to return to their pre-1980 levels.

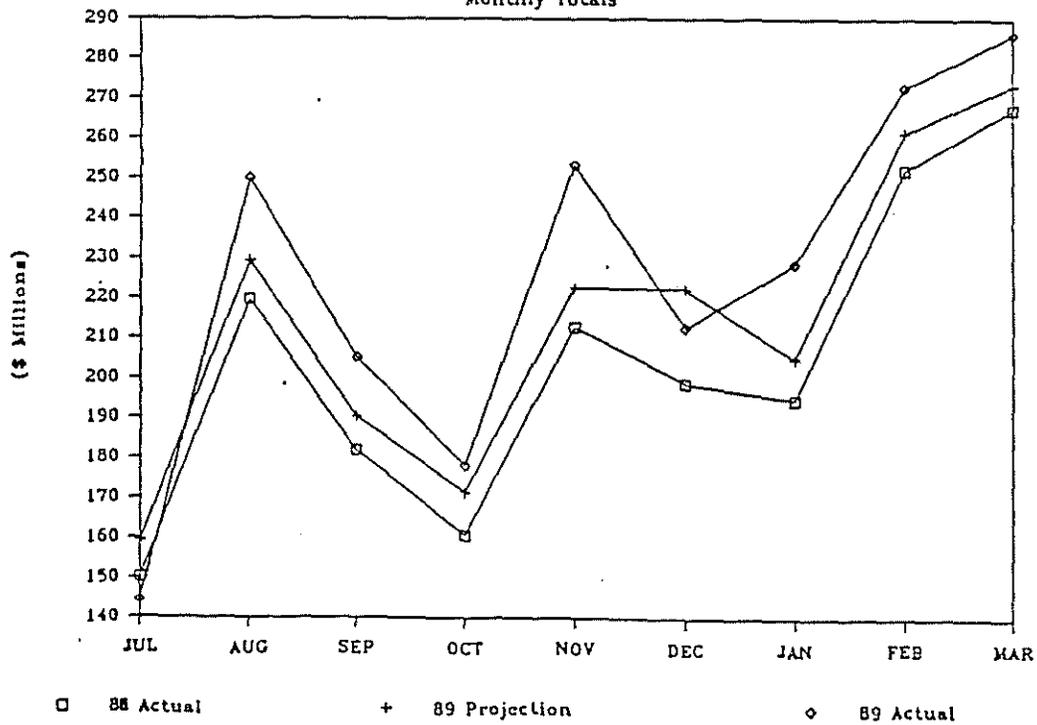
Per Capita Income: Iowa

Actual and Projected 1970 to 2010



TOTAL RECEIPTS

Monthly Totals



(4) State income tax collections, both personal and corporate, indicate that Iowa continues to enjoy its recovery. As of April 3, 1989, year-to-date total receipts are up 10.5 percent, while the annual estimated rate of increase is 9.4 percent for fiscal year 1989. It is expected that state revenues will continue to show strength through the balance of fiscal year 1989.

Implications for State Government:

(1) The expected strength in manufacturing within the state in the coming years could afford Iowa the opportunity to take an "economic breather" and reinvigorate its efforts to further diversify the economy toward non-agricultural interests. A positive economic climate may also provide an opportunity to take a longer-term perspective on the pay-offs from economic development efforts.

(2) Continued improvements in manufacturing, particularly among small rural firms, may assist in lending economic stability to Iowa rural areas.

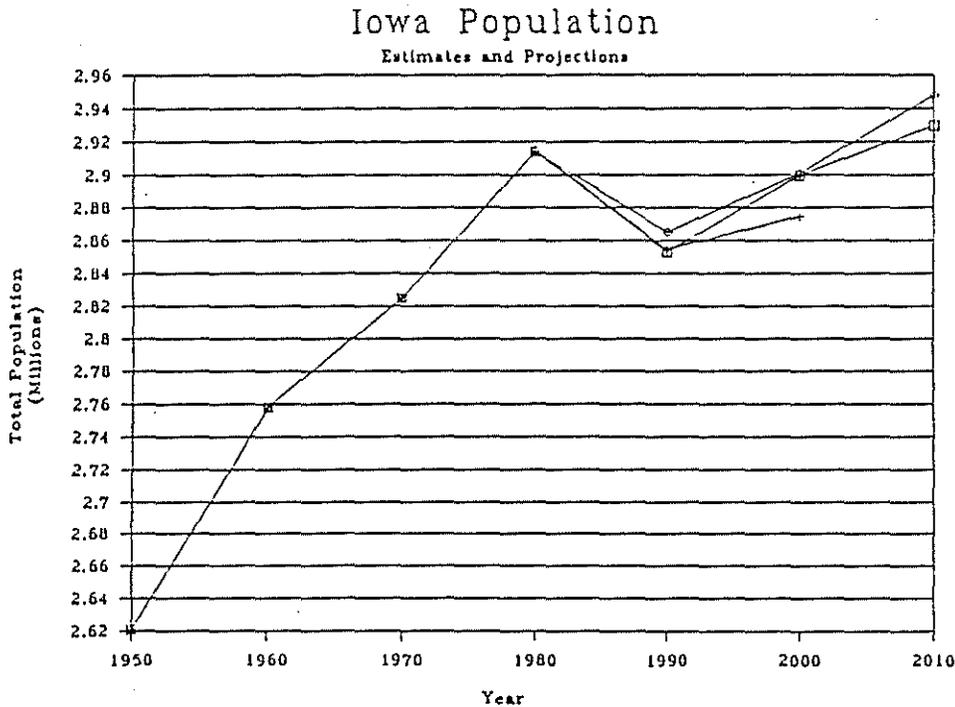
(3) While the farm recovery has improved Iowa's agricultural-based economy, fears of interest rate increases, decreased federal subsidies, and continuation of the drought may slow or act to stop the recovery all together. This, in turn, may have effects on farm manufacturers throughout the state.

(4) Iowa's smallest rural communities will continue to face difficult adjustments as the farm population shrinks. Well-diversified communities with off-farm employment opportunities will be less impacted than less-diversified, farm service-based communities. Iowa still has over 50 counties which are 20% or more dependent on agricultural income and nearly 30 which are 30% or more dependent.

DEMOGRAPHICS

Trend:

While population estimates place Iowa with 2.7% fewer persons in 1988 than our peak 10 years ago, it is evident a demographic turnaround is underway. The state experienced net immigration during 1988 for the first time in more than a decade, as well as the first net yearly increase in population since 1981. Every forecast points to a return to the long term pattern of slow growth for the state's population.



Subtrends:

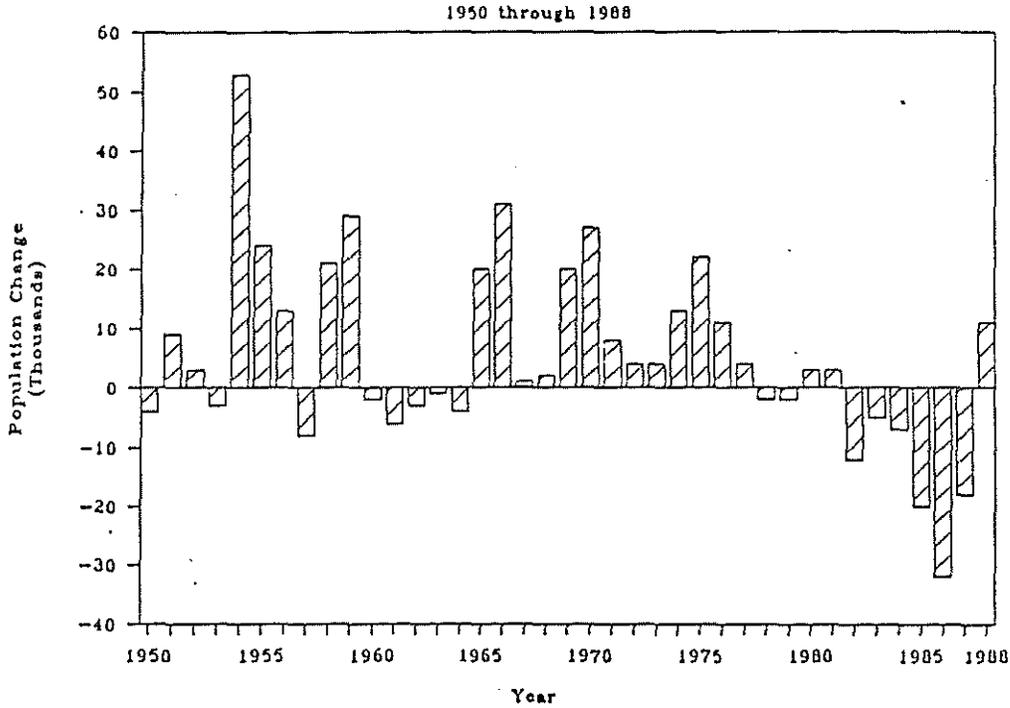
(1) Statewide population estimates continue to vary, but not as widely as the year previous. Current estimates place Iowa's 1990 population near 2.9 million and 2000 population slightly higher. Significantly, all current forecasts show Iowa population on the increase.

POPULATION ESTIMATES AND FORECASTS (In Millions)

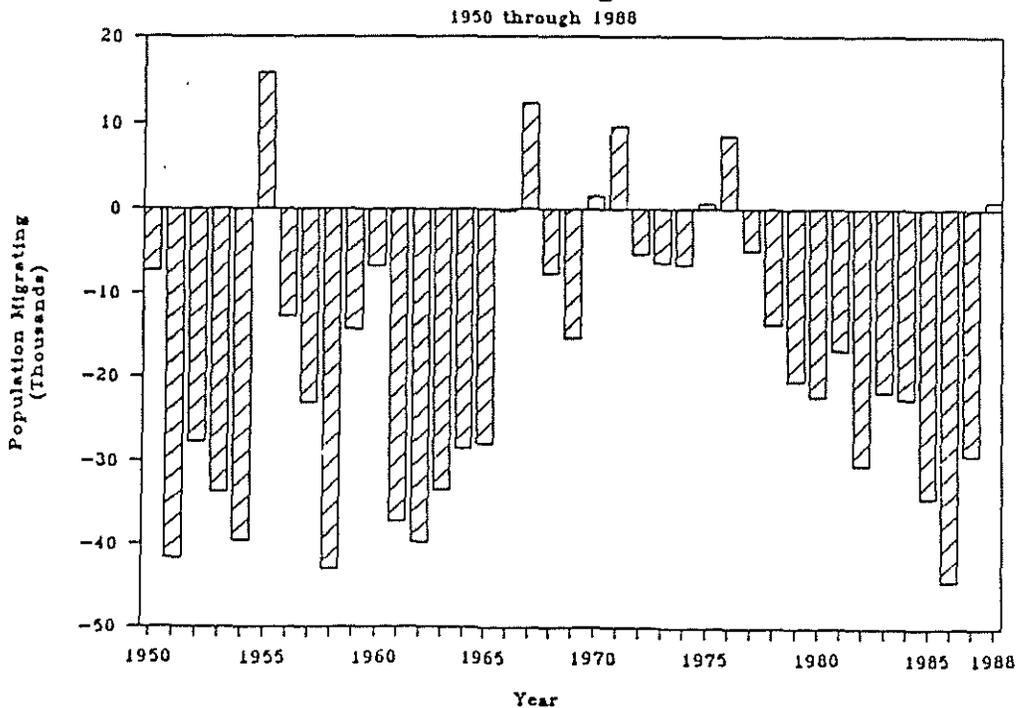
| <u>Source</u> | <u>1980</u> | <u>1990</u> | <u>2000</u> | <u>2010</u> |
|---------------|-------------|-------------|-------------|-------------|
| DOT | 2.914 | 2.853 | 2.900 | 2.930 |
| Woods & Poole | 2.914 | 2.865 | 2.875 | 2.948 |
| ISU/DED | 2.914 | 2.855 | 2.875 | |

(2) Historically, Iowa's population has shown a pattern of gradual increase. This is because natural change (births minus deaths) has outpaced the outmigration patterns through this period. Beginning with the last half of the 1970's, however, outmigration has driven total population downward. Estimates for 1988 indicate that for the first time in over ten years, the outmigration pattern has reversed, resulting in an additional 900 residents migrating into the state. That estimate, combined with a natural increase of 10,100, has resulted in the first net increase in total population since 1981.

Total Estimated Population Change



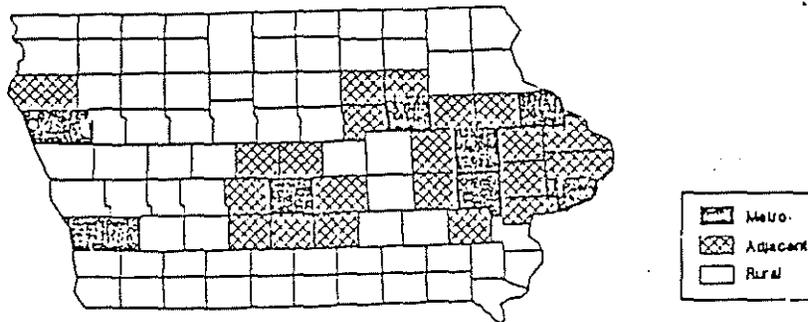
Iowa Net Migration



(3) For purposes of illustrating differences in growth trends between urban and rural areas, Iowa's counties have been classified into three groups: Metro, Adjacent-to-Metro and Rural. Metro counties are those with a 50,000 population center located in the county, and Adjacent-to-Metro are those where roughly five percent or more of the workforce commutes into a Metro county. Rural counties are those which are relatively remote from a metropolitan area.

Groups of Counties

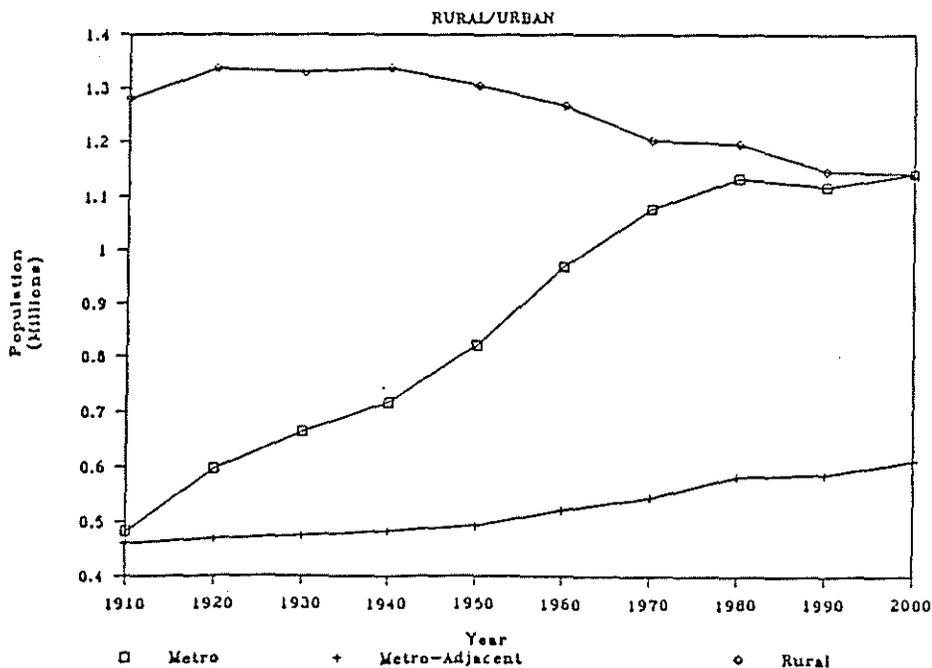
Based upon population and work commuting patterns



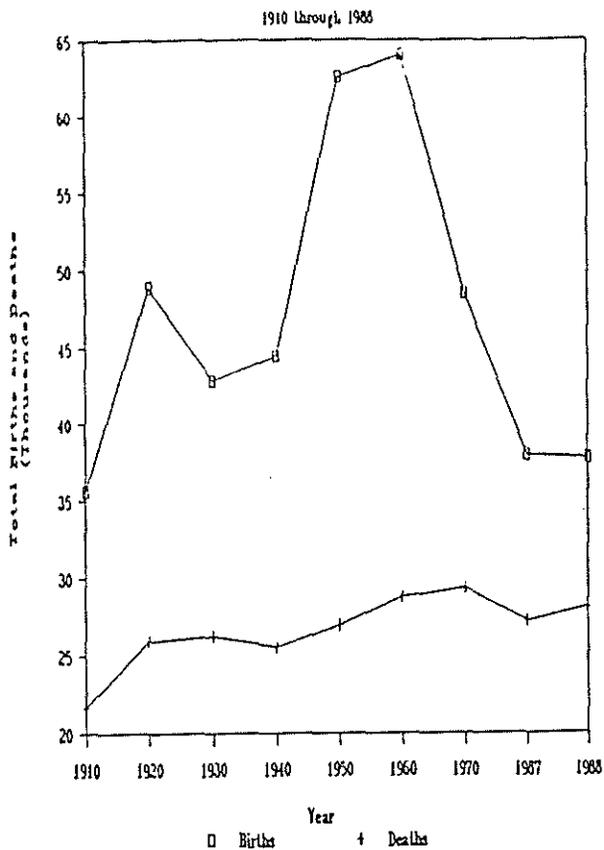
The long-term population trend has been distinctly different for each county group: steadily increasing for Metro counties, gradually increasing for Adjacent to Metro counties, and gradually decreasing for Rural counties.

The most recent loss in population between 1980 and 1987 has occurred disproportionately in rural counties. Though accounting for only 41 percent of the state's total population in 1987, rural counties accounted for 66,135, or 83 percent, of the 79,708 net loss that occurred statewide over that period. In some rural counties, the number of deaths per year is exceeding the number of births.

LONG-TERM IOWA POPULATION TRENDS



Births and Deaths in Iowa



(4) Iowa's overall trend in birth rates has been down since the mid-1950's. The state's current birth rate, 13.4 per 1000 population, is the lowest since 1915. Death rates have remained virtually stable since 1915, ranging between 10 and 11 per 1000 population. Since 1975, death rates have dropped below 10 per 1000 population, and in the short run, no significant movements in this trend are foreseen.

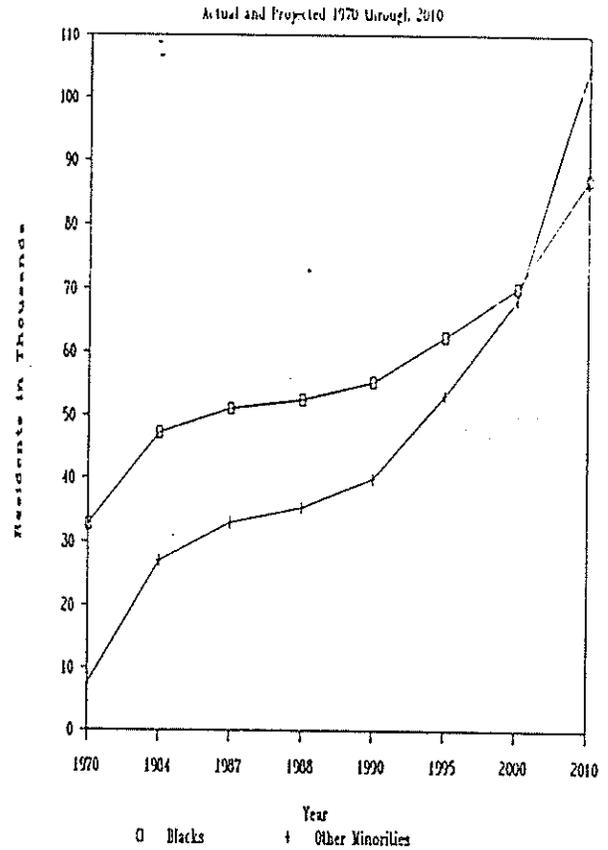
(5) Since the early 1970's, marriage rates have remained stable, ranging between 9.0 and 9.6 per 1000 population. More recently, rates have risen to the current 8.8 per 1000 for 1988, up from 8.1 in 1987. This unexpected jump in the marriage rate may be tied to such forces as younger Iowans returning to the state. It has been suggested this trend may also result in an increase in the birth rate. Rates of dissolution should also remain stable in the near term at current figures. This rate gradually rose through the decade of the 1970's, peaking at 4.1 per 1000 in 1980 and 1981. The current rate has remained stable since 1982 at approximately 3.7 per 1000.

Marriages and Dissolutions in Iowa

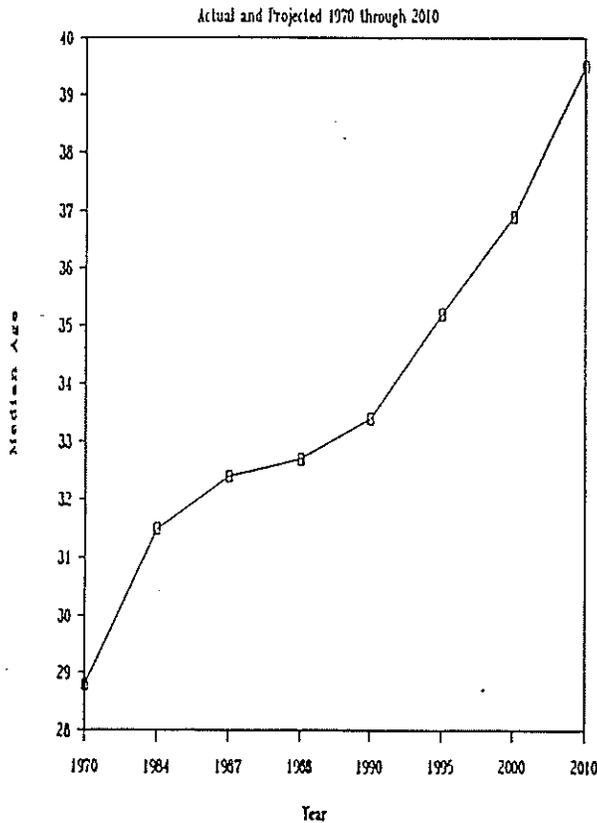


(6) While the overall minority population is projected to increase in Iowa, the mix of minorities is expected to shift. By the year 2000, non-black minorities will nearly equal blacks and will outnumber them by 2010.

Minority Population in Iowa



Median Age of Iowans

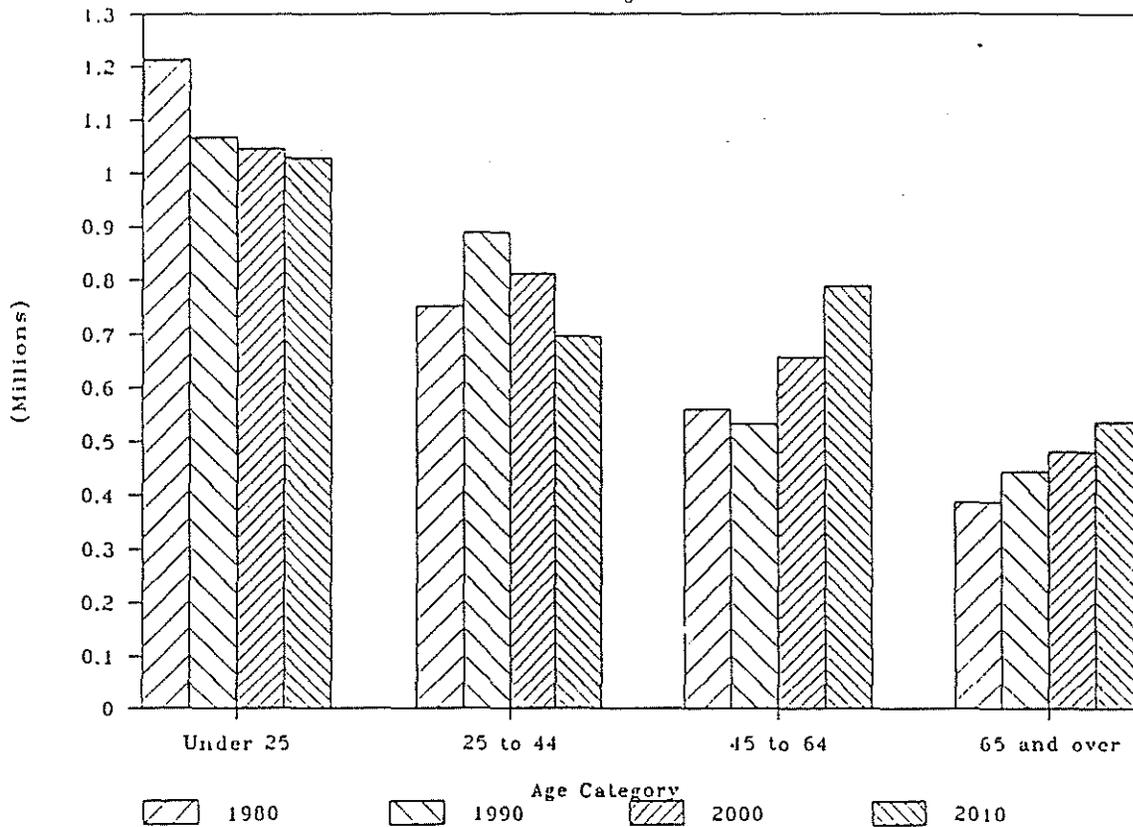


(7) The aging of Iowa's population can be seen from the graph. In 1970, the median age was 28.76 years. By 1988, it has increased to 32.74 years and by 1995 is projected to be 35.16 years.

This aging of the population can also be seen graphically when looking at population groupings. Baby-boomers are clearly moving through these age categories and the ripple effect can be seen. As they begin to age, the society is replacing them with fewer young people. Estimated births in 1989 are expected to nearly mirror 1987's historic low levels.

AGE GROUP PROJECTIONS: IOWA

1980 through 2010

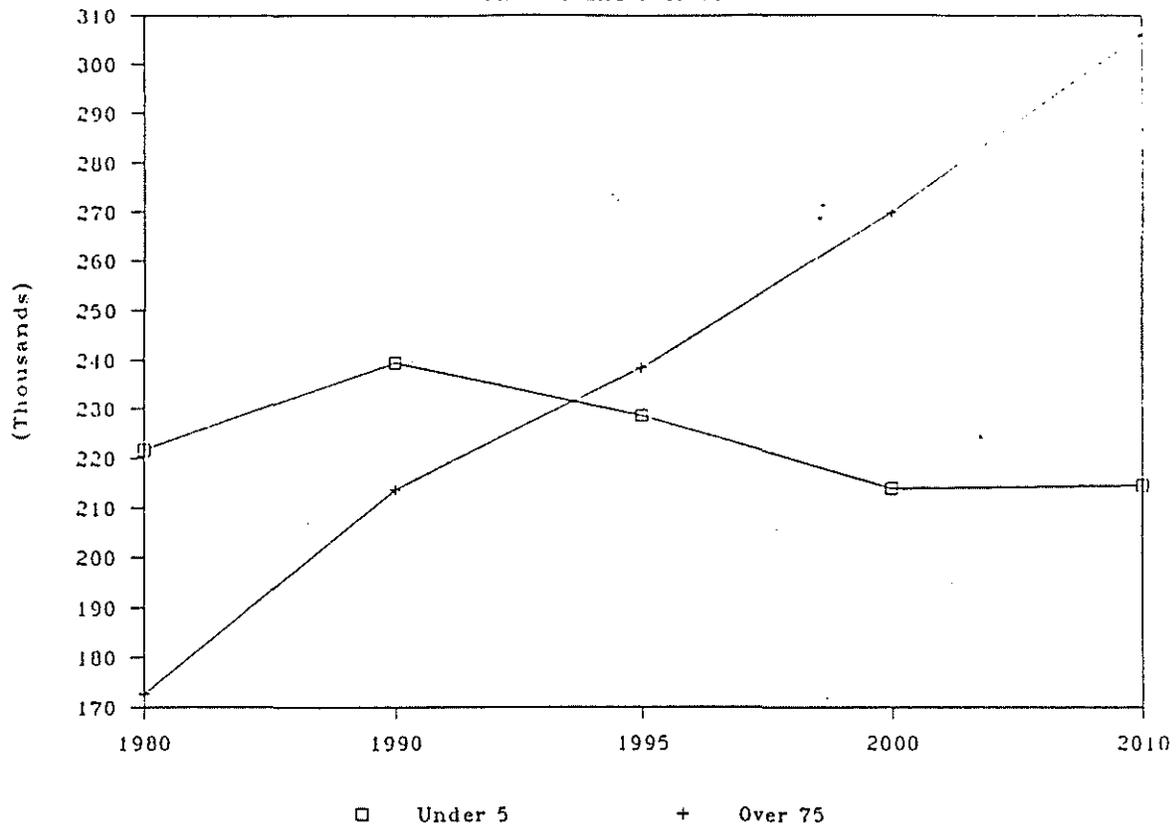


In comparing the under 5 and over 75 age groups, it can be clearly seen that the elderly population will become more numerous and continue to be so well into the next century. Projections of the increase in the 75 and over age category range from 31 percent to 56 percent between 1980 and 2000. Woods and Poole Economics projects 104 percent increase in the 85 and over category between 1980 and 2000.

Beginning in 1990, the "leading edge" of the baby boomers will move into the 45 to 64 age category. For the next 20 years, this age group will experience the largest absolute growth.

Age Group Projections: Iowa

Under 5 and Over 75



Implications for State Government:

- (1) Fewer young people means fewer individuals available for entry-level positions in both the public and private sectors of Iowa's economy. Ways of facilitating the utilization of older, disabled, and disadvantaged Iowans may warrant some consideration. Government and business will be less able to rely on entry-level workers for keeping the workforce current in state-of-the-art skills and training.
- (2) With the decline in the number of young people, pressures for school consolidation and restructuring higher education will continue.
- (3) The continuing increase in elderly population suggests problems as well as opportunities. Problems consist of those issues as long-term health care, increase in demand for medical professionals, increase in demand for public transit, and needs for adequate housing. Opportunities include increasing availability of volunteer and experienced labor, and marketing opportunities for tourism and other leisure activities.
- (4) As baby boomers move into middle age, the savings rate will increase. It will be increasingly important to ensure that income is reinvested in the state.
- (5) Iowa is likely to lose one seat in the U.S. House of Representatives when reapportionment is completed before the 1992 election. Population-based formula funding will also be affected.

EMPLOYMENT AND THE WORKFORCE

Trend:

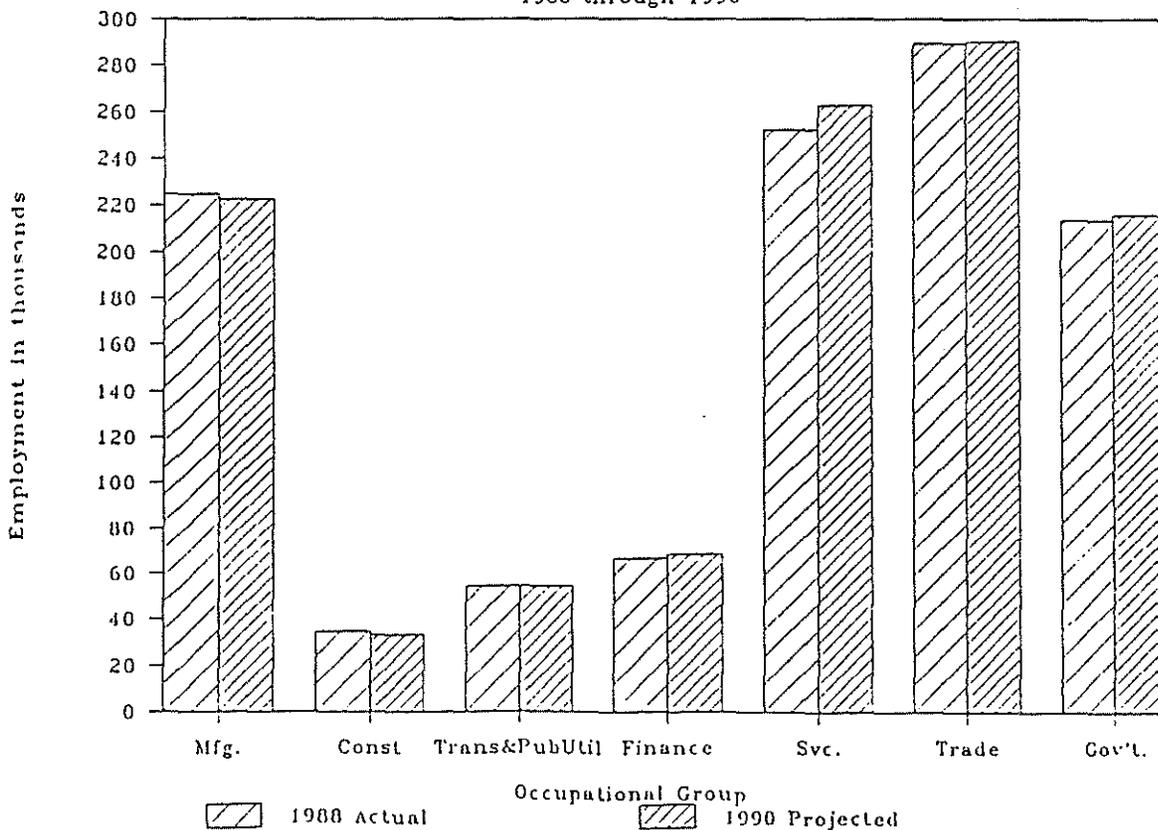
Since 1985, Iowa's jobless rate has steadily decreased. 1988 saw the addition of more than 39,000 workers to the workforce over 1987. Clearly, economic recovery is occurring in the state. But employment challenges persist. Demographic trends signal a tightening labor force in the near term, which some industries are already experiencing within the state. Both industry and educational institutions will be challenged to ensure the skills of Iowa's workforce match the needs of Iowa's economy.

Subtrends:

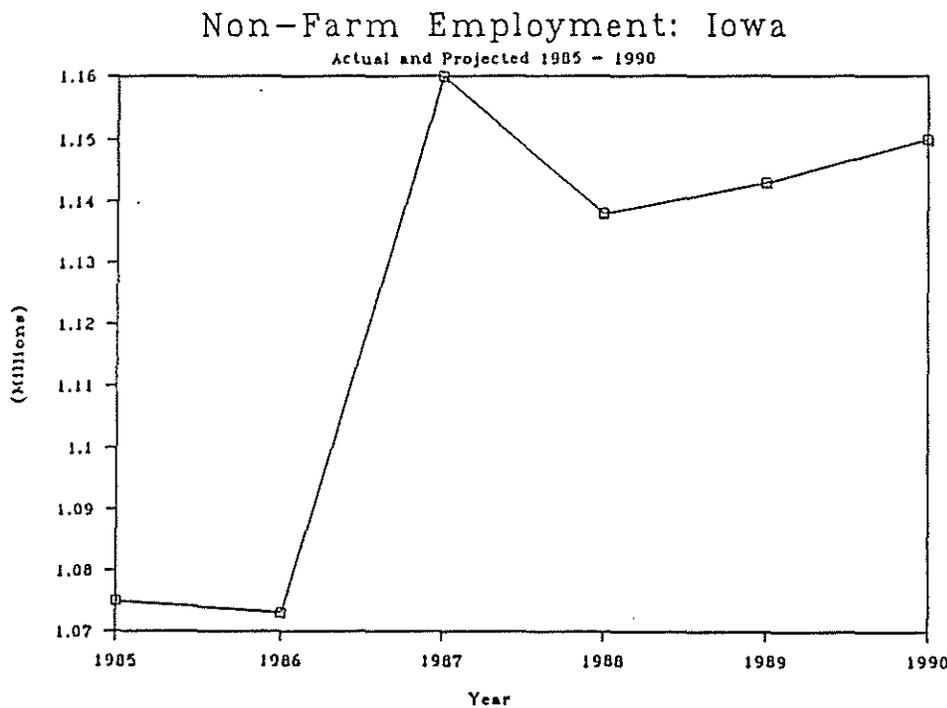
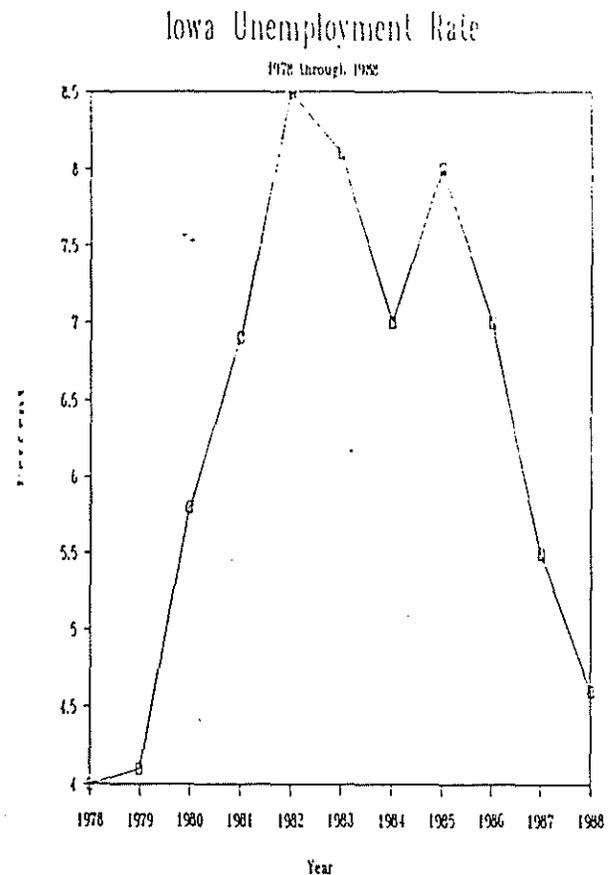
(1) While in 1988 Iowa's employment strength was found in many of the state's traditional manufacturing industries such as food processing and farm machinery manufacturers, projections are for service industries to lead employment gains into 1991. Simultaneously, food processing and machinery manufacturing are expected to decrease or show negligible gains in future employment. This forecast clearly favors employment opportunities in the service sector in Iowa.

IOWA OCCUPATIONAL PROJECTIONS

1988 through 1990



Currently, Iowa's unemployment rate is at its lowest level during the decade of the 1980's. While fluctuations in this rate are difficult to determine, the Iowa Economic Forecasting Council expects 11,800 non-farm jobs to be added during 1989 and 1990. While predictions are for manufacturing and food processing industries to reduce employment over the 2 year period, 10,500 of those additional jobs are expected to be in service industries within the state.

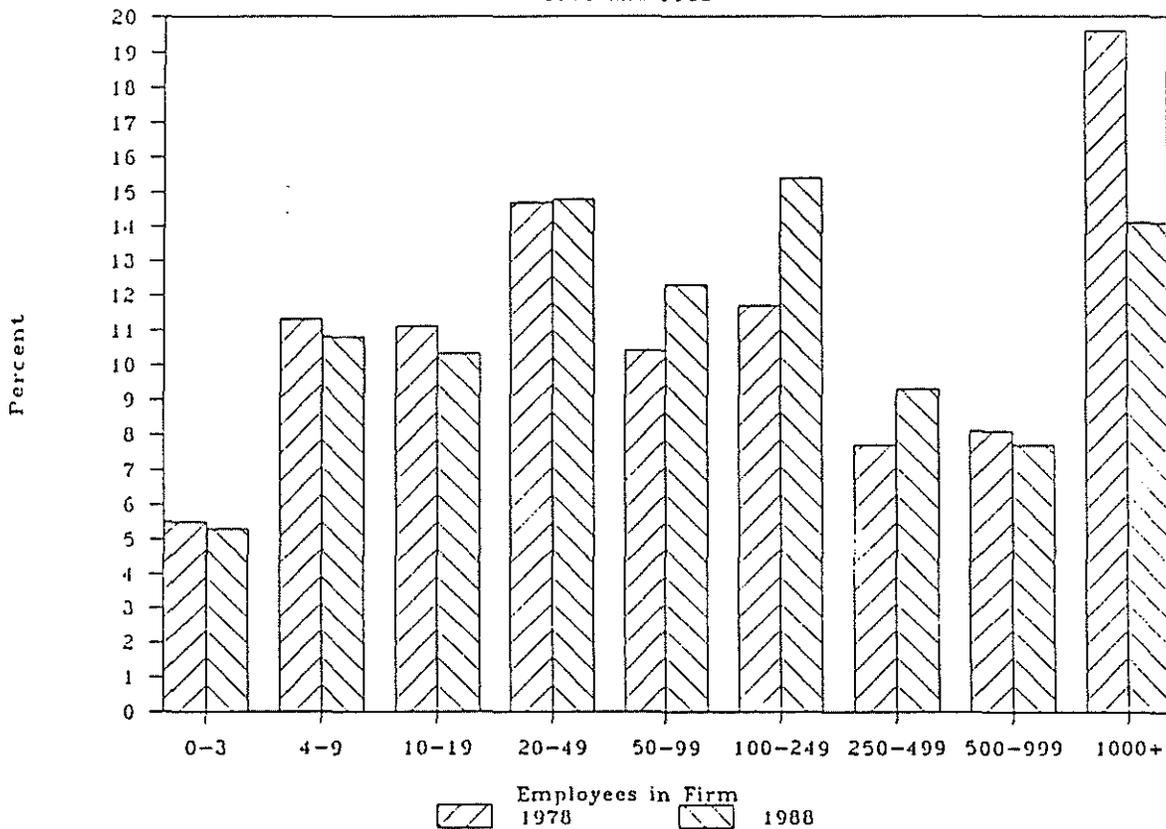


(2) Data Resources, Inc. predicts that a slowly growing labor supply may limit growth of Iowa's finance sector, particularly, through 1989. However, this labor force pressure is expected to ease by 1991, allowing Iowa's finance sector to be among the leaders in the region for employment growth in this area.

Several industries within the state have experienced difficulties in finding available skilled labor. Insurance companies have experienced shortages of skilled clerical labor and some manufacturers have also experienced skill shortages. The state is likely to continue to experience spot labor shortages into the 1990's and further as the population continues to age and the birth rate remains low.

(3) The nature of job creation continues to favor small and, particularly, medium-sized businesses. Simultaneously, larger companies (those employing over 1000 workers) continue their trend of employing fewer workers. Improvements in technology and companies retooling for these innovations, in part, explain larger companies' decreased reliance on labor. Smaller companies are finding they are in a position to more quickly respond to the changing market.

Iowa Employment by Firm Size
1978 and 1988



(4) As technology continues to advance and new forms of organization are adopted, all workers, young and old, will find it necessary to continue training in order to maintain their productivity. Recognizing this need, companies are already placing more emphasis on training and, consequently, placing resources into this effort. Estimates indicate U.S. companies are spending \$40 billion per year to deliver education to about 8 million workers.

(5) Predictions are that both the public and private sectors will be forced to lure traditional non-participants into the labor force. Both women and minorities will be prime targets for these employers as they attempt to fill jobs within their ranks.

(6) In order to lure these traditional non-participants into the workforce, employers are becoming more sensitive to such issues as improved employee benefits and childcare. The provision of childcare, in particular, will become a necessity for those parents who wish to enter the workforce but either have difficulty in locating or paying for these services. Employers are beginning to respond with informational services, flexible benefits and, in some cases, the provision of on-site care. Parental leave, which is a related benefit, is already an issue among employers and governments.

Implications for State Government:

(1) While overall employment trends are up, traditional Iowa industries such as manufacturing and food processing will see at best no increase and, at worst, a loss of jobs during the coming years. Training may play a key role in assisting with the apparent employment shift in the state from manufacturing to service industries.

(2) Training and education will also play a role in filling jobs with qualified workers. As current trends suggest, some industries may see shortages of skills. Preventive training and education efforts may help in preventing a tightening of certain labor markets.

(3) State government must also be cognizant that it will be competing in many of the same labor markets with private industry; many of which may see shortages and tightening of supply for certain positions. Government may need to re-examine its methods of recruitment as well as its plan for retention of workers to ensure that proper incentives are being offered for the maintenance of a quality work force.

(4) State government may have a role in providing information about successful methods of facilitating the use of "non-traditional" workers.

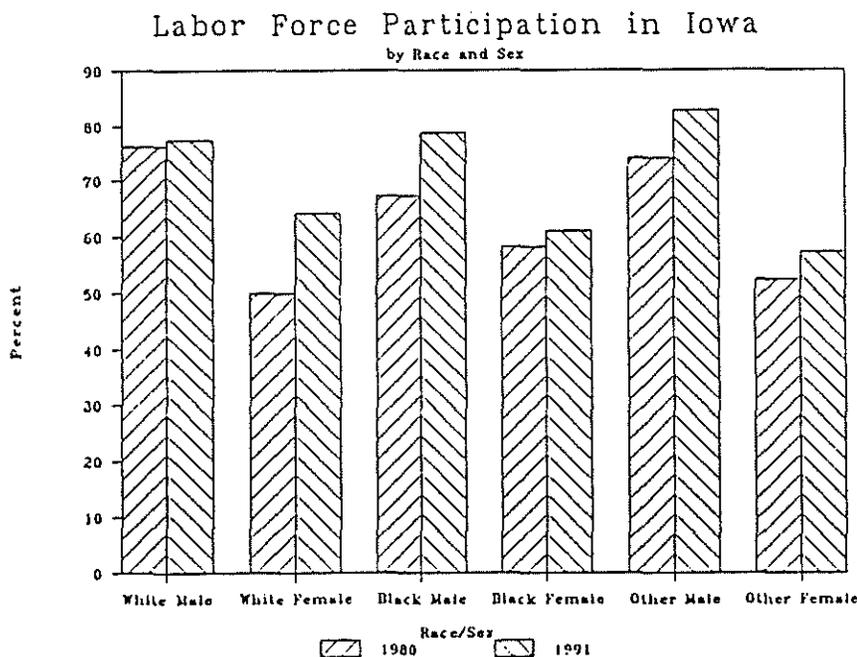
EDUCATION

Trend:

Since the publication of "A Nation of Risk" earlier this decade, educational improvement has been a "front-burner" issue. Iowa government has taken numerous actions to strengthen Iowa's educational system. Most recently, landmark legislation has been signed to allow Iowa school children to attend the school of their choice. Experience in other states suggests that educational reform typically involves a "second wave" following the introduction of competition. The second wave involves an increase in the autonomy of individual schools, accompanied by stricter accountability for results.

Subtrends:

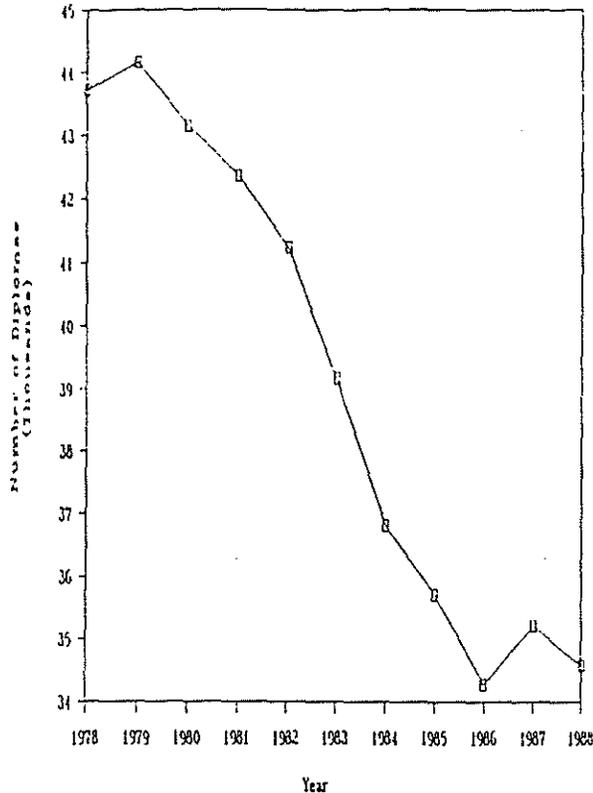
(1) Financing and quality improvements in both K-12 and post-secondary education will continue to receive attention. Educational institutions have not been immune to pressures for increased efficiency. Local school financing is being scrutinized for equity considerations, both in terms of effects on property taxes and rural vs. urban concerns. As the slowing growth in the nation's workforce manifests itself, more pressure will be placed upon current and prospective graduates to fill the needs of employers. Educational institutions will be positioned to positively



influence preparedness of new entrants to the workforce. Additionally, as the number of workers 16 and over declines, more emphasis will be placed on hiring those individuals normally not found in the workforce; namely women and minorities.

Iowa High School Diplomas Issued

1978 through 1988



(2) Local school districts in Iowa, particularly those in rural areas, will continue to fight the battle of declining enrollments. This is particularly significant as the state attempts to address equity in educational funding.

(3) Research and development activities will be key for universities as pressure continues to tie these activities to economic development. Iowa government has already established a strong link in this area. Specific innovations have been demonstrated in Ohio and New Mexico in establishing supercomputer networks which connect public and private entities with researchers for research and computing capacity purposes.

(4) Educational institutions are more and more being seen as a means by which our society may be able to cure our social ills. Recent vigorous efforts involving schools in reducing drug use is an example of this. More emphasis may be placed on the schools' role in these issues in the future.

Use of Chemical Substances High School Classes of 1987 and 1988

| | Never <u>Used</u> | Stopped <u>Using</u> | Current <u>(Past month) Use</u> | Daily <u>Use</u> |
|--|----------------------|-------------------------|------------------------------------|---------------------|
| Alcohol | | | | |
| United States | 7.8% | NA | 66.4% | 4.8% |
| Iowa | 14.6% | 9.9% | 75.5% | 2.0% |
| Marijuana | | | | |
| United States | 49.8% | NA | 21.0% | 3.3% |
| Iowa | 75.4% | 11.5% | 13.1% | 1.9% |
| Other Drugs (uppers, downers, hallucinogens) | | | | |
| United States | NA | NA | NA | NA |
| Iowa | 86.4% | 8.2% | 5.4% | .3% |

(5) In order for local districts to cope with new roles and mandates, one state has given locals more direct control over their affairs. Washington state has initiated a plan that would give local school districts more autonomy to encourage them to be innovative. Some districts are strengthening their local programs by enlisting community volunteers to assist in their efforts. More local control, accountability, and innovation seem to be the movement in the near future.

(6) Business has recently become more involved in educational improvement. With demographic forces indicating dramatically fewer entry-level workers will be available, business has recognized it has a vested interest in the improvement of the entry-level workforce. Business has become more training-oriented as well, ensuring that employee productivity will continue to increase in the face of both demographic and technological trends.

(7) While computers in the classroom are nothing new today, schools are becoming quicker in adopting other new technologies. The state of Iowa will soon be establishing the Iowa Telecommunications Network, which has the potential to link school districts, thereby lowering instructional costs and increasing the availability of course offerings. Such new technologies have the potential to greatly strengthen education at all levels.

Implications for State Government:

(1) Demographic trends will require educational institutions and employers to work more closely to prepare the future workforce for employment needs. Worker shortages may necessitate the entrance of non-traditional participants, such as women and minorities, into the workforce. In order to lure these potential labor force participants into the educational system, financial incentives may have to be strengthened and more flexibility allowed in times and methods of instruction.

(2) A potentially significant market opportunity exists for Iowa's higher education in the area of lifetime learning. As people increasingly learn in different settings and at all different ages, there is a need to innovate in methods of instruction. Iowa is well poised to develop and export instructional techniques and materials.

(3) Schools are addressing concerns over preparedness issues. An Alaska high school has initiated a program to expose students to Pacific Rim countries' economics and culture. Foreign language requirements are also being strengthened as educators recognize the trend toward globalization calls for international awareness.

(4) Many studies have also identified a need for increased concentration in technical fields; those areas which lay the basis for the development of new products. Science and math have been the recipients of much of this attention to better equip students for technical education and work.

(5) Demographics will also continue to impact Iowa's local school districts. As birth rates continue to be low, rural districts will struggle with issues relating to declining enrollments and equity financing. Telecommunications and other technologies may positively impact local districts as they strive to maintain viability.

(6) Local school districts and parents may expect more local autonomy as decision-makers strive to give appropriate incentives for educational reform.

NEW TECHNOLOGY EXPLOSION

Trend:

A new wave of technological innovation appears to be moving through the economy and will have dramatic implications in the classroom and in the workforce. New technologies leading the way include telecommunications, microprocessors, photovoltaics, composite materials, plastics, ceramics, superconductors, fiber optics, lasers, and biotechnology.

Subtrends:

(1) Computers will be fully integrated into manufacturing, all the way from product design through distribution and marketing. Productivity increases in manufacturing may bring about new forms of organization in factories (e.g., much smaller, highly flexible factories) and decreased employment in production, even as output rises.

(2) The lines between various office tools (e.g., telephones, computers, copiers, telefax) will become increasingly blurred. Less time will be spent on traditional office tasks (typing, data crunching) and more on using and manipulating text, data, and graphics. Computerized "expert systems" will be developed to aid managers and professionals. An increase will be seen in individual output, especially among professionals, who are essentially project managers.

(3) On the farm, a new "agricultural revolution" involving biotechnology products has begun. This revolution will rival those brought about by mechanization and the application of chemical technology.

(4) The availability and increased utilization of personal computers, fax machines and other technologies is leading to increasing numbers of workers who do not commute to the office regularly, but, rather, perform many of their duties at home.

(5) Computers and computer equipment manufactured by different companies are often incompatible. However, the computer industry is attempting to set standards allowing all computers to readily exchange information. A shift is occurring to a standard known as Open Systems Intercommunication which will eventually lead to an easy-to-use system for making contact with any other computer user in the world.

(6) A national network for computer information, tying together supercomputer facilities around the U.S., is slowly being developed. This will eventually allow for instantaneous nationwide electronic distribution of complex knowledge, such as data banks, entire textbooks and computer-generated images. It could also make many computer facilities around the country accessible to university researchers.

Implications for State Government:

- (1) State government will be affected by explosion in office technology in many ways. Changes in telecommunications and electronic funds transfer are already leading to such developments as "credit card welfare" and point-of-sale food stamps. These sorts of opportunities may offer some opportunity for improved public service at lower cost.
- (2) State workers will increasingly need to be trained in computer skills as well as skills which allow them to effectively use language and data and to communicate ideas. Managers will also need to have computer and project management skills to operate effectively.
- (3) Iowa's agricultural sector may be due once again for rapid change brought about by technology. A recent field test of a biological pesticide represents the introduction of this new wave of technology.
- (4) Because of declining federal effort and competition with other states, Iowa state government and its universities may need to become directly involved in R & D activities for technologies in which they wish to become leaders. Benefits from R & D activities will mainly be long-term ones.
- (5) The electronic home office may lead to greater choice in residential location and decreased need for state office space and energy use. Opportunities for handicapped individuals might also increase.
- (6) Some future technologies -- microelectronics, ceramics, superconductors, biotechnology -- will require substantial research and development expenditures in order to stay on the leading edge, with commercial payoffs not foreseen for 10 to 20 years. Many Iowa companies cannot afford to make the needed investment when the payoff is so far off and uncertain. State government will have to play a leading role in developing new technologies.
- (7) Planning for the most efficient application and use of emerging technologies in the operation of state government will need to take place.
- (8) As the level of computerization within state government rises, direct access to government computer files by the public may become more of an issue.

GLOBALIZATION OF THE ECONOMY

Trend:

Regional and national economies will likely continue to give way to the predominance of the global economy. The United States is no longer the clearly dominant economic power. Japan has strengthened itself particularly in the electronics and auto market. The ratification of the US/Canada Trade Pact will open vast market opportunities for both countries. The "Europe 1992" initiative seeks to establish a barrier-free Europe, in terms of trade, among its 12 member nations.

Subtrends:

(1) The trend toward an international economy will strengthen as other countries begin to penetrate these markets. Once the European Economic Community (EEC) initiative is complete at the end of 1992, it will represent the single largest market in the world. The Japanese have clearly established themselves in several key markets and should continue to remain a key economic power in the foreseeable future. The US/Canada Trade Pact will place the United States into a larger North American market.

(2) As globalization of the economy continues, the economic future of US companies will be found more and more in their ability to successfully export and thereby compete in the world economy. Unwieldy restrictions on trade, such as import tariffs, could put the brakes on or slow the globalization effort. Some observers in the US and Japan are currently uneasy over the possibilities for protectionism raised by the EEC's 1992 unification initiative. The current weak dollar should continue to make US and Iowa goods and services attractive for exporting into the near future.

(3) Further evidence of the international economy can be found in foreign ownership of US assets. While Great Britain, for several years, has been the largest foreign real estate investor, the Japanese are investing large amounts in West Coast real estate, particularly California, and on the East Coast in metropolitan centers. The Japanese also have been purchasing many banking institutions on the West Coast.

(4) Export data from 1981 through 1986 indicate that the Japanese have become the major international importer of US agricultural products. While Japan was not as predominant in 1982, today they are the greatest importer of agricultural products from the US in goods ranging from beef to corn, soybeans and wheat. 1987 data indicate that Iowa led the nation in exports of feed grains and was number two in exports of soybeans. Iowa is second nationally in the export of farm products.

IOWA FARM PRODUCT EXPORTS

(In Millions of Dollars)

| <u>Commodity</u> | <u>1987</u> | | <u>1986</u> | |
|-----------------------|----------------|----------------------|----------------|----------------------|
| | <u>Exports</u> | <u>National Rank</u> | <u>Exports</u> | <u>National Rank</u> |
| Soybeans and products | \$1,040 | 2 | \$ 823 | 2 |
| Feed Grains | 846 | 1 | 888 | 1 |
| Meat/live animals | 104 | 5 | 92 | 5 |
| Total | \$2,264 | 2 | \$2,056 | 3 |

Agricultural trade talks between the US and the EEC were unsuccessful in reaching an agreement as to levels of farm subsidies. Agreement on this issue will certainly effect the ability of US agriculture to compete internationally. Regardless, USDA economists predict a 3 percent annual increase in agricultural exports during the 1990's.

(5) Small business continues to play a big role in US export activity. The US Commerce Department says that 3000 companies, mostly small, participating in trade missions last year, generated \$200 million in initial export sales. Of 30,000 export companies tracked by Dun & Bradstreet, more than half employ fewer than 100 workers. One advantage small businesses have is that they can more readily react to changing market demands. The weak US dollar will continue to promote export activities.

(6) The US Census Bureau estimates nearly 50,000 Iowans worked in export-related jobs during 1986, the year in which the latest data are available. Since many of the jobs are in manufacturing and this sector has seen a 15 percent increase in jobs during the past three years, it is likely even more Iowans today are in export-related work.

(7) Globalization will require Americans to become more aware of other countries, both culturally as well as economically. The need for increased cultural awareness has persuaded one Alaska high school to offer a specific program to orient students to the Pacific Rim countries in Asia.

Implications for State Government:

(1) As globalization strengthens, there will be more to be gained from strengthening state government's emphasis in opening and maintaining foreign product markets for Iowa goods. The best opportunities for exporting will likely continue to be with Pacific Rim nations and with Canada, which is the United States' principal trade partner. The EEC initiative is a variable which will require close monitoring to determine its long range effects.

s, regulations, and attitudes relating to financial institutions and foreign investment to be re-examined in view of the trend toward globalization of the marketplace.

al institutions at all levels play a role in increasing the awareness of students and public to foreign cultures.

dominant place in the agricultural export community will be enhanced through the promotion of these products in foreign countries. The ability of Iowa to compete in the world market will be affected by the extent to which other nations support their farmers.

uring firms will need to continually modernize, innovate and concentrate on quality if they are to remain competitive. State government may need to enhance its assistance in this area, particularly to rural manufacturers.

FEDERALISM

Trend:

Dramatic changes are occurring in the way federal, state, and local governments relate to each other. The federal government has become increasingly preoccupied with reducing the trade deficit and its massive budget deficit while seeking to meet Gramm-Rudman-Hollings targets. At the same time, states and local governments are being called upon to become much more active in solving their own problems and developing their own opportunities. States and local governments have become much more capable over the past several decades and have also become much more willing to experiment with policies and programs.

Subtrends:

- (1) Federal programs involving grants-in-aid to states and local governments have been greatly reduced and will likely continue to suffer cuts as federal budget cuts are made. The Bush Administration's "flexible freeze" plan will result in cutbacks in current services in many discretionary grant-in-aid programs.
- (2) Federal mandates and regulations may be increased even as funds are cut. This may be most evident in the area of environmental protection.
- (3) The Bush Administration has expressed a commitment to building America's future through education. The Administration is committed to continuing the federal policy of broadening choice and flexibility at the local level. Federal funding in support of experiments in educational innovation and data collection whose results help states and localities find out what can work in their schools will remain a priority.
- (4) Federal efforts in combatting the drug problem will intensify. Congress created a new post of Director of National Drug Control Policy. Increased federal funding to states and local government drug prevention enforcement and treatment will focus on how to maximize our efforts and get the most from our drug resources.
- (5) Minor revenue enhancement (user fees, asset sales, and cuts in capital gains tax rates) will most likely be pursued rather than tax increases.
- (6) Volunteerism is being promoted as an alternative or supplement to federal government intervention.

Implications for State Government:

- (1) Increases in federal formula funding and discretionary grant-in-aid programs cannot be expected over the next several years. <
- (2) State and local governments in Iowa will have to adopt a more self-reliant posture; to do this, financial, planning, management, and leadership skills will have to be continually improved. <
- (3) Innovation by state and local governmental agencies should be encouraged and results shared. <
- (4) Relationships between the state and local governments in Iowa and between Iowa and other states may need to be strengthened. <
- (5) State and local governments may be forced to increase taxes and/or reallocate funding in order to supplement reduced federal funding aimed at reducing the deficit. <
- (6) Efforts at recruiting and utilizing volunteers may need to be enhanced. <

ENVIRONMENT AND ENERGY

Trend:

Clearly the environment has re-emerged as a top public policy issue. Quality of life is becoming more of a priority. There is growing support at the federal level and within Iowa for stricter environmental protection regulations and stepped up cleanup activities. Other major concerns about the environment include: acid rain, the "greenhouse effect", the depletion of the ozone layer, radon gas, asbestos and waste disposal. Iowa has toughened its groundwater protection laws and has begun to address the issue of waste disposal.

Energy prices and supplies have stabilized at attractive levels. This situation seems likely to continue for the short run. However, in the long run supplies of petroleum and natural gas are likely to decrease, while prices increase.

Subtrends:

- (1) New technological advances to produce cleaner burning coal may cause it to re-emerge as a key energy source for the nation.
- (2) Landfill capacity is dwindling and the cost of landfill disposal is increasing. Local governments are increasingly turning to waste generation reduction, waste-to-energy plants, composting, and recycling programs to address solid waste disposal concerns. Waste education is essential to improving solid waste management.
- (3) An increasing emphasis is being placed upon energy efficiency, with emphasis upon energy conservation diminishing.
- (4) The price gap between photovoltaic and fossil fuel driven electric generators is narrowing. However, Japan has surpassed the U.S. in developing solar technology.
- (5) Establishment of markets for recycled materials is becoming more of a problem.

Implications for State Government:

- (1) In encouraging recycling, government may need to play an increased role in seeing that sufficient markets exist to handle future supplies of recycled materials.
- (2) Iowa producers and consumers might benefit greatly from the development of cost competitive alternatives to petroleum fuels based on crops such as corn or soybeans.

(3) "Sustainable agriculture," which uses fewer inputs and emphasizes crop diversification, is compatible with environmental goals. As a result, it may warrant continued increasing attention from Iowa's educational institutions.

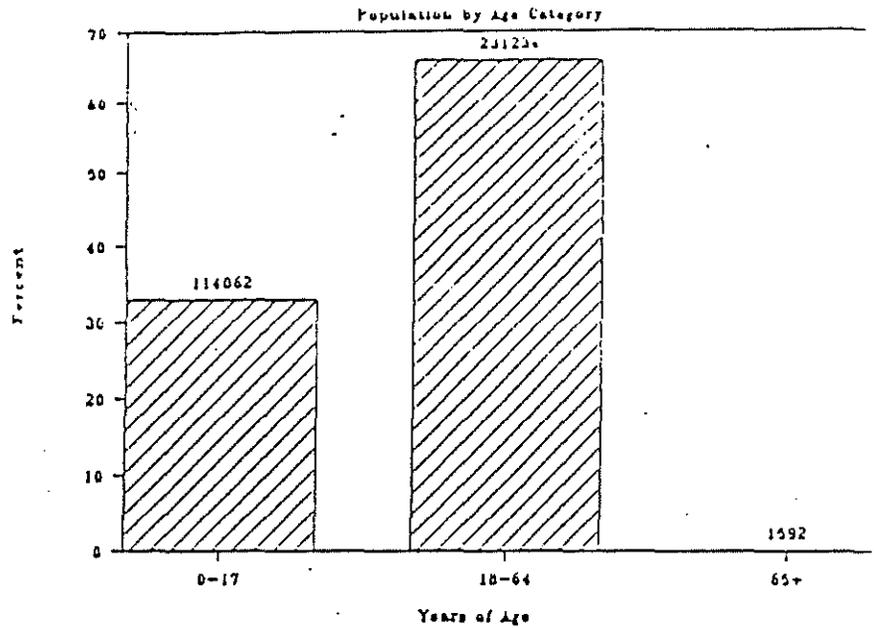
(4) A clean environment enhances the quality of life.

(5) Tax incentives may be needed to stimulate development of alternative energy forms and improvement in energy efficiency.

Subtrends:

(1) The number of Americans who are uninsured or underinsured continues to rise. By the mid-1990's, 35-40 million Americans are likely to be uninsured. In Iowa, approximately 345,000 persons are uninsured. Young adults between 18-29 years of age are more likely to be uninsured than any other age group. Massachusetts has mandated that business provide health care coverage for employees, and other states and the federal government are considering similar legislation.

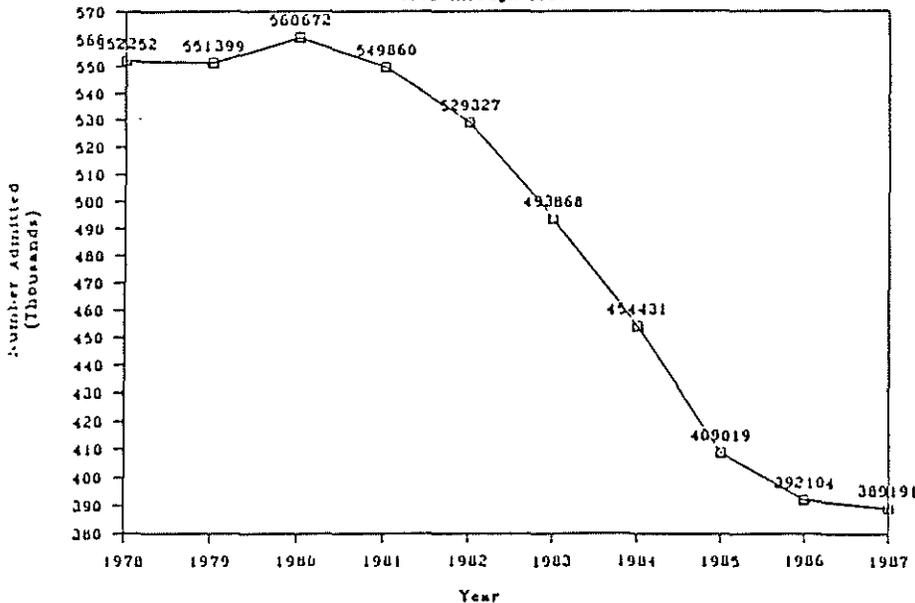
Distribution of Iowa's Uninsured



(2) Hospital admissions have declined precipitously in spite of the increasing elderly population.

Iowa Hospital Admissions

1978 through 1987



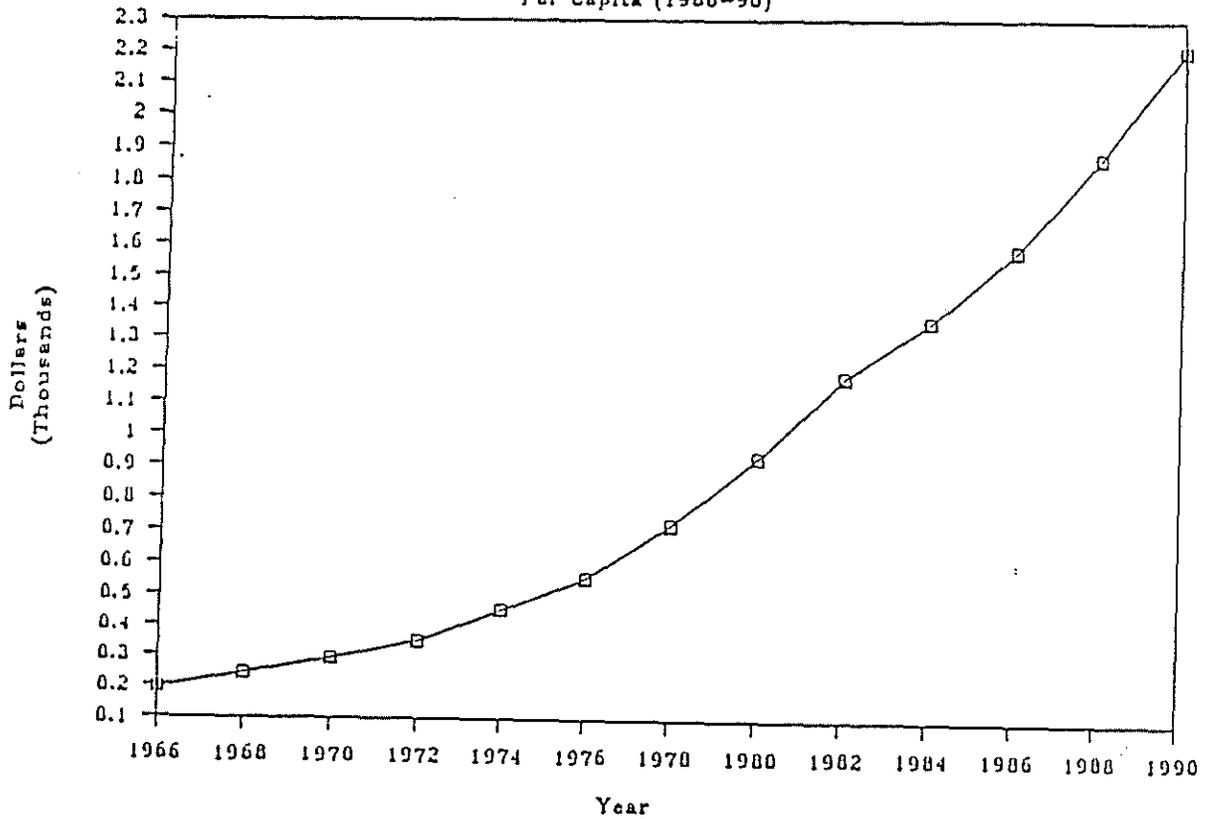
HEALTH

Trend:

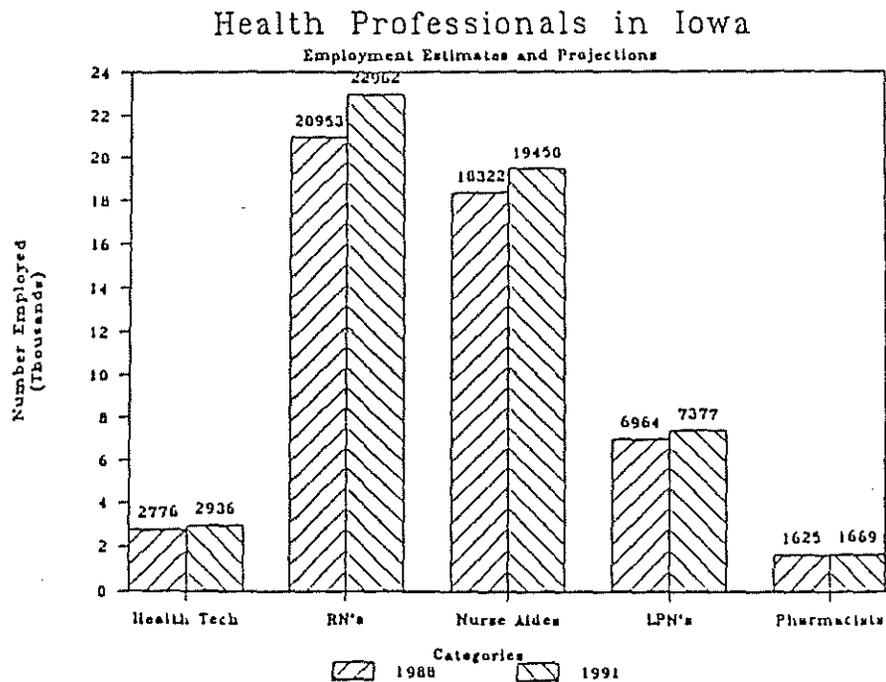
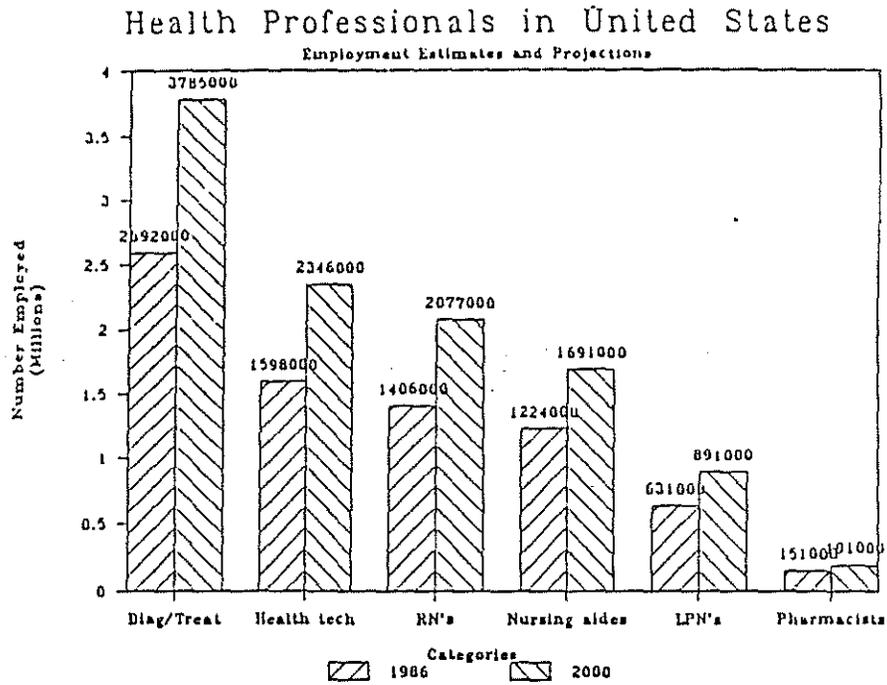
Health care costs in the U.S. continue to rise as Americans demand more and better health care services. Government and private employers continue to undertake efforts to contain health care costs. The use of hospitals has been reduced, and reimbursable amounts for hospital services have been limited. Care for some ailments has been limited to outpatient treatment, and patients must now contribute to the cost of some procedures. HMO's have emerged as an attractive, cost efficient alternative to the more traditional health insurers such as the Blues. HMO coverage of the population is expected to increase from today's 8% to 15-20% by 1995.

Iowa Health Care Expenditures

Per Capita (1966-90)



(3) Shortages of health care professionals are widespread while the need for health care professionals will continue to increase. At least one-third of all jobs will be related to health care by the year 2000.



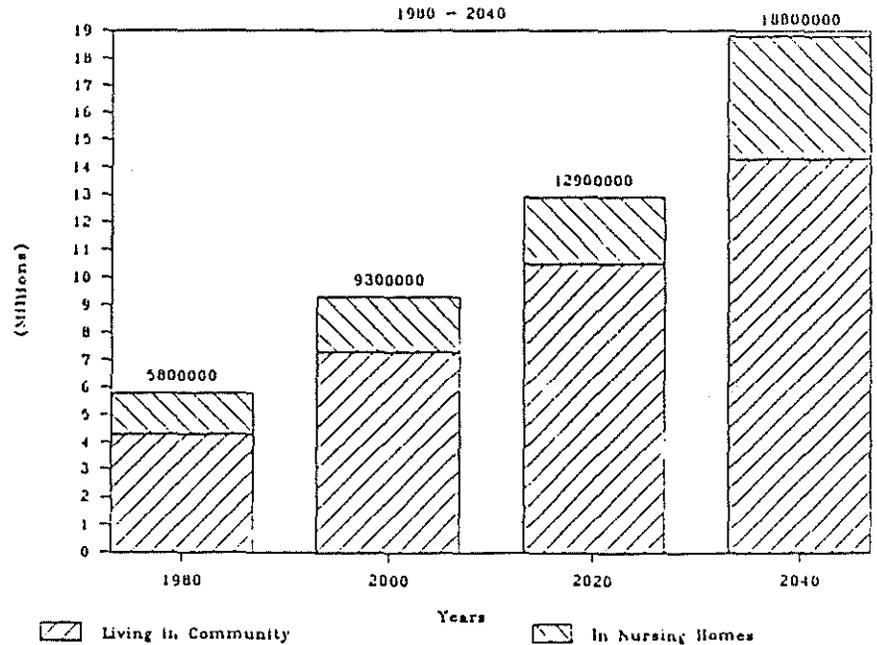
(4) Loss of income and control over patients has led many physicians to supplement their incomes by investing in labs, x-ray centers, and other medical facilities to which they then refer patients. Evidence suggests that self-referral adversely affects the quality and cost of patient care.

(5) In order to save costs of recruiting nurses, temporary nurse agencies, which rely increasingly upon foreign nurses and long-retired nurses, are emerging as an alternative for hospitals.

(6) As the average age of the population has increased, federal and personal out-of-pocket expenditures of older individuals for health care have risen. These expenditures averaged over \$1,500 or about 15 percent of total income in 1984; this is a higher proportion than personal health care expenditures amounted to before Medicare and Medicaid were enacted, and it is expected to increase in the future.

(7) As the number of elderly has risen so have admissions to nursing homes which are a less expensive alternative to hospital care.

Older Americans Needing Long-Term Care



(8) Public and rural hospitals are facing special problems. A study of 99 of the 100 largest U.S. cities indicated that public hospitals provided care to a larger percentage of the uninsured poor than did cities without public hospitals. Public hospitals also provide a disproportionate amount of health care for AIDS victims. Declining rural population growth has led to a decline in bed occupancy in rural hospitals. Occupancy in hospitals with less than 25 beds has declined by 28 percent since 1980, and occupancy in hospitals with 25-50 beds has declined by 14 percent.

Implications for State Government:

(1) The increasing emphasis upon cost containment will continually evoke questions about the quality of care. The key question will be what constitutes adequate, sufficient care.

(2) An increased emphasis upon quick hospital releases and outpatient care may generate a need for more in-home and clinic nurses, thereby exacerbating the current nursing shortage.

(3) As government continues to take an increasingly active role in the provision of health care, states may be delegated authority for implementation and oversight of programs aimed at further controlling and regulating the cost and provision of services.

(4) Continued declines in hospital bed occupancy, length of stay, and shortages of medical personnel may have detrimental effects on the ability of rural hospitals to remain in business.

(5) While many rural hospitals are beginning to discover innovative ways to keep their doors open, a fundamental shift in health care policy may call for a more fundamental response to the role of rural health care.

(6) Incentives may need to be offered in order to increase the number of students earning degrees in health care professions and to encourage health care professionals to remain in Iowa and to locate in rural areas where shortages may be particularly acute.

(7) As the number of HMO providers and HMO enrollments rises and competition among providers increases, regulation of providers may need to be strengthened in order to ensure quality care and minimize the risk of HMO failures.

AGING INFRASTRUCTURE

Trend:

Much of Iowa's traditional infrastructure (roads, bridges, sewer systems, airports, and water systems) is deteriorating from aging and overuse. Between now and the year 2000, much of the state's infrastructure will be reaching the end of the life for which it was originally designed. Some facilities have already reached the end of their intended design life.

In the next several decades, continued growth in the demands placed on infrastructure along with continued aging and deterioration will necessitate a large increase in recapitalization expenditures. Most new infrastructure spending will need to be directed to rebuild existing facilities.

Subtrends:

(1) State and local governments are becoming aware of the critical connection between economic development and infrastructure. Infrastructure projects stand a better chance of being funded when it can be demonstrated that the economic viability of a locality can be enhanced. Several recent studies suggest that the recent dearth of investment in infrastructure has had a negative impact on economic performance.

(2) The traditional definition of "infrastructure" is being expanded to include increasingly important telecommunications and computer networks, and government is beginning to perceive itself more as a developer of telecommunications. A number of states have implemented significant, regulatory reform measures that could dramatically improve the telecommunications infrastructure by encouraging new investment and stimulating the modernization of telecommunications networks.

(3) According to 1980 census statistics, Iowa's housing stock is aging at a rate greater than the national average. 44% of Iowa's housing units were built before 1940, compared to 26% nationwide. 5-10% of rental units in the state are in need of major maintenance. There has been a net loss of 65% housing units between 1980 and 1987, and, although housing demand will not grow substantially overall, it is expected to increase among certain sub-groups of the population, including low-income and elderly persons.

(4) Federal grant programs to pay for infrastructure encourage new construction instead of effective maintenance. At the same time, state and local governments have deferred maintenance on infrastructure which results in reduction of its useful life.

(5) The Federal government's role in financing infrastructure in Iowa has been shrinking, while the roles of the state, local governments, and the private sector have been increasing.

Implications for State Government:

- (1) Significant increases in spending for public infrastructure recapitalization are due, but potential needs will almost always exceed available resources. State government will have to play a lead role in resolving policy issues related to resource allocation. Strategic thinking along with improved analytical, budgeting, and programming skills will be needed.
- (2) To lessen the impact of decreased federal funding for infrastructure, state and local government will need to take more responsibility for its funding. Reliance upon user fees may need to be increased.
- (3) More experimentation with local government reorganization will occur in order to combine resources for infrastructure improvements.
- (4) State programs focused on providing for the housing needs of low income and elderly populations will need to be continued and monitored.