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ABSTRACT

This report provides information about occupations that have median earnings (as of 1996) for full-time workers in the Great Lakes states of \$30,000 a year or more. Data were gathered from the Current Population Survey of the Bureau of Labor Statistics. The data analysis showed that more than half of the good-paying occupation do not require a four-year degree. The common characteristic of the 47 good-paying occupations that do not require a four-year degree is the need for training beyond high school. These occupations require advanced skills learned on the job, in apprenticeship programs, or at community colleges or technical schools. A new feature of this year's report is research on the fastest growing good-paying occupations; 30 occupations have employment growth of at least 15,000 workers and 20 percent growth from 1992-1997. Twelve of these occupations require a four-year degree, 18 do not. Another new feature of this year's report is research on the relationship between employment earnings and education attainment. Although those with the highest education attainment on average earn the most, a four-year degree is not required to have employment earnings of \$30,000 a year or more. Tables report employment earnings by occupation, by educational attainment, and by age for full-time, year-round workers. (KC)

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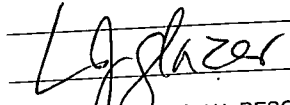
ED 419 139

**GOOD-PAYING OCCUPATIONS:  
A STUDY OF OCCUPATIONAL WAGES  
IN THE GREAT LAKES STATES**  
Updated and Expanded

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# OVERVIEW

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This report is designed to answer two questions:

- \* Are there good paying occupations that do not require a four-year degree in today's economy?
- \* If so, are these opportunities available to younger workers?

The research grows out of the work of Michigan Future, Inc. MFI is a non-profit, citizens organization focused on providing the citizens of Michigan with quality information about the rapidly changing economy.

In its work with citizens across the state, MFI has found that most Michigianians believe that the only reliable path to good-paying work is by obtaining a four-year college degree or more. This belief, however, contradicts reports from employers in almost every industry that they cannot fill good-paying jobs that do not require a bachelors degree.

In particular, people strongly believe that good-paying career options are shrinking for younger workers—largely limited to doctor, lawyer and engineer. The belief is that other good-paying jobs were available to boomers and their parents, but not their children and grandchildren.

To find out what the facts are MFI asked Don Grimes of the Institute of Labor and Industrial Relations of the University of Michigan to research occupational wages in the Great Lakes States. *For a copy of the full report, please contact MFI at (734) 769-6391 or [mfi@autobody.org](mailto:mfi@autobody.org).*

## *Findings*

**In summary, the answer to both questions is yes. There are a wide variety of good paying occupations that do not require a four-year degree. These opportunities are available to younger workers.**

**This is particularly true for those with an occupational associates degree—where employment earnings are higher than for those with an academic associates degree or some college, but no degree. The value of the occupational associates degree is most pronounced for younger workers.**

# TABLE OF CONTENTS

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***I*** Methodology

***II*** Good Paying Occupations

***III*** Education Attainment and Earnings

***Appendix A*** Occupational Wages for Younger Workers  
(from 1997 report)

***Appendix B*** Wages by Occupation

***Appendix C*** Detailed Information on Education and Earnings

# I METHODOLOGY

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The data in this report are from the March, 1992 and March, 1997 Current Population Survey (CPS). The CPS is collected monthly by the Census Bureau for the Bureau of Labor Statistics in order to determine the unemployment rate and other labor force statistics. In March of each year the Census Bureau collects some supplemental information on earnings and income during the previous year. This data forms the basis for our analysis.

The CPS is based upon a national sample of about 55,000 households. Michigan Future would prefer information for Michigan alone, but the sample (about 2,000 households) would have been too small to provide detailed occupational employment information. Consequently we collected information on all of the Great Lakes states (Illinois, Indiana, Ohio, Michigan, and Wisconsin). Given their very similar economic structure—a relatively large share of durable and especially motor vehicle manufacturing—we felt that the information collected from all of these states taken together would provide a reliable picture of the labor markets in any one of them. We believe that the information contained in this report, while statistically valid only for the Great Lakes area as a whole, presents a reliable picture of the labor market in Michigan.

Data are collected in the CPS on about 500 individual occupational categories. We narrowed this list to 183 occupations where the sample size was large enough to be reliable. With respect to current year measures (like unemployment rate) individuals are assigned an occupation based upon their current job, or if unemployed upon their previous job. Unemployed individuals who have never held a job are not included in the occupational unemployment rate statistics. Consequently the aggregate unemployment rate for all occupations (the experienced unemployment rate) is slightly less (about 0.5 percent points) than the aggregate unemployment rate reported in the press.

With respect to measures of prior year activity (like earnings) individuals are assigned an occupation based upon their longest job in 1996. Consequently individuals who did not work during 1996 are excluded from the earnings analysis. Many people worked only part-time during 1996 or were employed full-time for only part of the year. Earnings information on these individuals could be used to paint a valuable picture of economic distress in 1996. This study, however, wanted to compare earnings across different occupations and needed to use a similar employment base for all occupations. Consequently our measures of earnings by occupation are based upon individuals who worked full-time (at least 35 hours a week) for the full-year (at least 50 weeks of employment). Also, the earnings measure includes information from all jobs not just the one which determined the individuals occupation.

The median earnings for all year-round full-time workers in the Great Lakes states in 1996 was slightly less than \$30,000. In categorizing occupations we arbitrarily chose to define an occupation as good-paying if the median earnings for that occupation was at or above the median for all occupations (\$30,000). These occupations are shown in Tables I and II.

We were interested in the educational necessary to obtain these good-paying jobs. The data from the CPS includes educational attainment for each individual. So we were able to calculate the percent of workers in each occupation who had a four-year degree or more. We arbitrarily define an occupation as requiring a four-year degree if 40% or more of those in an occupation have a four-year degree.

Second, we were interested in which occupations were growing. We compared employment levels—for all workers, not just full-time workers—in each occupation in March, 1992 and March, 1997, once again using data from the Current Population Survey for both years. We arbitrarily chose to define fast growing as an occupation where employment grew by 15,000 or more over the 5 year period and by 20% or more.

These growth statistics are net change in employment. We also looked at average age of workers in each occupation in hopes of determining which occupations have or will soon have the most retirements. Job seekers, of course, care about openings, not net new jobs. But we didn't find the average age statistics helpful in this analysis. Average age is included in Appendix B data.

Finally in Appendix A we reprint last year's analysis of the availability to younger workers of good-paying occupations that do not require a bachelors degree. We separated our sample of 1995 year-round, full-time workers into three age cohorts: those aged 20-34 in March 1996 (roughly generation X), those aged 35-49 (the baby-boomer generation), and those aged 50-64 (the depression and war generation). All individuals within each age cohort are then distributed across major occupational categories. If jobs in the good-paying occupations were not available to young people then the generation X workers should have a much lower share of employment in good-paying occupations than older cohorts.

## II GOOD-PAYING OCCUPATIONS

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This report updates and expands work on occupational wages in the Great Lakes States from a year ago. We have updated for 1996 the list of occupations that have median earnings for year round full-time workers of \$30,000 a year or more—our definition of good paying.

- \* Eighty-eight of the 183 occupations we studied met our criteria as good-paying occupations—41 that require a four-year degree, 47 that do not.
- \* In 1996 there were 5.2 million workers in the Great Lakes states that held year round, full-time jobs in the 41 occupations that require a four-year degree. In the 47 good-paying occupations that do not require a four-year degree, there were 3.7 million year round, full-time workers.
- \* The common characteristic of the 47 good-paying occupations that do not require a four-year degree is the need for training beyond high school. These occupations require advanced skills learned on-the-job, in apprenticeship programs, and/or at community colleges or technical schools.
- \* A new feature in this year's report is research on the fastest growing good-paying occupations. Thirty occupations met our criteria as fast growing by having employment growth of at least 15,000 workers and 20% from 1992 to 1997. Of the 30, 12 require a four-year degree, 18 do not.

*Tables I and II detail the good-paying occupations—highlighting those that are the fastest growing—in the Great Lakes States.*

Table I

## Good-Paying Occupations Not Requiring A Four-Year Degree

|   | Occupation   | Median Earnings<br>For<br>Full Time Workers |
|---|--|---|
|   | Millwrights  | \$60,000                                    |
|   | Household appliance & other electrical equipment repairers   | \$52,000                                    |
|   | Tool & die makers  | \$50,000                                    |
|   | Stationary engineers   | \$48,000                                    |
|   | Advertising & other business sales occupations               | \$45,000                                    |
| ⇒ | Rail & water transportation occupations                      | \$45,000                                    |
| ⇒ | Firefighting & fire prevention occupations                   | \$45,000                                    |
|   | Supervisors, mechanics & repairers                           | \$44,500                                    |
| ⇒ | Boilermakers, patternmakers & other precision metal working  | \$44,000                                    |
| ⇒ | Science technicians  | \$43,000                                    |
|   | Grinding & polishing machine operators                       | \$42,000                                    |
|   | Crain & tower operators                                      | \$41,600                                    |
|   | Other material moving equipment operators                    | \$41,000                                    |
| ⇒ | Industrial, mechanical & other engineering technicians       | \$40,600                                    |
| ⇒ | Supervisors, construction occupations                        | \$40,600                                    |
| ⇒ | Electricians & electrical power installers                   | \$40,000                                    |
| ⇒ | Plumbers, pipefitters, & steamfitters                        | \$40,000                                    |
|   | Operating engineers  | \$39,450                                    |
| ⇒ | Postal clerks, mail carriers, postal service                 | \$38,750                                    |
|   | Supervisors, precision production                            | \$38,000                                    |
|   | Power, water & other plant & system operators                | \$36,750                                    |
|   | Telephone & line installers & repairers                      | \$36,600                                    |
|   | Dietitians & physicians' assistants                          | \$36,000                                    |
|   | Precision inspectors, testers & related workers              | \$36,000                                    |
|   | Heating & air conditioning mechanics                         | \$36,000                                    |
|   | Electrical & electronic technicians                          | \$35,500                                    |
| ⇒ | Managers, medicine & health                                  | \$35,000                                    |
| ⇒ | Production coordinators                                      | \$35,000                                    |
|   | Dispatcher   | \$34,000                                    |
| ⇒ | Sales workers, motor vehicles & boats                        | \$34,000                                    |
|   | Electronic, data processing & industrial equipment repairers | \$33,500                                    |
| ⇒ | Manager, properties & real estate                            | \$32,500                                    |
| ⇒ | Purchasing agents & buyers                                   | \$32,400                                    |
| ⇒ | Brickmasons & tile setters                                   | \$31,500                                    |
|   | Industrial machinery repairers                               | \$31,500                                    |



**Table I**  
(continued)

## Good-Paying Occupations Not Requiring A Four-Year Degree

|   |   |          |
|---|---|----------|
|   | Drafting, surveying & mapping technicians       | \$31,100 |
|   | Other management support                        | \$31,000 |
| ⇒ | Truck drivers                                   | \$31,000 |
|   | Welders & cutters, solderers & brazers          | \$30,100 |
| ⇒ | Clinical laboratory & radiologic technicians    | \$30,000 |
|   | Sales workers, radio, TV, hi-fi, and appliances | \$30,000 |
|   | Supervisors, administrative support             | \$30,000 |
| ⇒ | Machinists                                      | \$30,000 |
|   | Other mechanics & repairers                     | \$30,000 |
|   | Mail clerks except postal service & messengers  | \$30,000 |
|   | Bus, truck, & stationary engine mechanics       | \$30,000 |
|   | Sheet metal workers                             | \$30,000 |

⇒ Fast Growing Occupations

Table II

## Good-Paying Occupations Requiring A Four-Year Degree

|   | Occupation  | Median Earnings<br>For<br>Full Time Workers |
|---|---|---|
| ⇒ | Physicians  | \$120,000                                   |
|   | Dentists  | \$100,000                                   |
|   | Veterinarians, optometrists & other health diagnosing occupations | \$80,000                                    |
|   | Lawyers & judges  | \$75,000                                    |
|   | Pharmacists   | \$60,000                                    |
|   | Surveyors & aerospace, chemical, nuclear, & other engineers       | \$60,000                                    |
| ⇒ | Managers, marketing public relations                              | \$60,000                                    |
| ⇒ | Computer systems analysts & scientist                             | \$52,500                                    |
|   | Natural scientist, except chemists                                | \$51,000                                    |
| ⇒ | Industrial & mechanical engineers                                 | \$50,500                                    |
|   | Teachers, post-secondary  | \$50,000                                    |
|   | Management analysis   | \$50,000                                    |
| ⇒ | Administrators, education   | \$50,000                                    |
|   | Electrical & electronic engineers                                 | \$50,000                                    |
|   | Supervisors, protective services                                  | \$50,000                                    |
|   | Mathematical scientists, statisticians, & actuaries               | \$49,500                                    |
| ⇒ | Labor relations, purchasing & other managers & administrative     | \$49,000                                    |
|   | Editors, reporters & public relations specialists                 | \$48,000                                    |
|   | Librarians, psychologists, economists, & social scientists        | \$45,000                                    |
|   | Airplane pilots & navigators, broadcast & other technicians       | \$44,750                                    |
|   | Chemists, except biochemists                                      | \$44,400                                    |
|   | Teachers, special education                                       | \$42,500                                    |
|   | Architects  | \$42,500                                    |
| ⇒ | Financial managers  | \$40,500                                    |
| ⇒ | Securities & financial services sales                             | \$40,000                                    |
|   | Registered nurses   | \$40,000                                    |
|   | Public administrators   | \$40,000                                    |
|   | Civil engineers   | \$39,000                                    |
| ⇒ | Computer programmers  | \$39,000                                    |
|   | Underwriters & other financial officers                           | \$37,750                                    |
|   | Insurance sales occupations                                       | \$37,500                                    |
|   | Police, detectives, sheriffs, bailiffs, & other law enforcement   | \$36,000                                    |
|   | Teachers, elementary school                                       | \$35,000                                    |
|   | Sales representatives-mining, manufacturing, & wholesale          | \$35,000                                    |
|   | Therapists  | \$34,000                                    |

**Table II**  
(continued)

## **Good-Paying Occupations Requiring A Four-Year Degree**

|   |                                  |          |
|---|----------------------------------|----------|
| ⇒ | Accountants                      | \$33,000 |
| ⇒ | Designers                        | \$32,600 |
|   | Teachers, secondary school       | \$32,000 |
|   | Inspectors & compliance officers | \$31,000 |
| ⇒ | Clergy & other religious workers | \$30,000 |
|   | Personnel, training specialists  | \$30,000 |

⇒ Fast Growing Occupations

### **III EDUCATION ATTAINMENT AND EARNINGS**

A new feature of this year's report is research on the relationship between employment earnings and education attainment. It provides another way of answering our two research questions.

Clearly those with the highest education attainment on average earn the most. But the education attainment statistics do confirm that one does not need a four-year degree to have employment earnings of \$30,000 a year or more. (Table III details the relationship between education attainment and employment earnings.)

- \* Sixty percent of full-time Great Lakes States workers who earn \$30,000 or more do not have a four-year degree. Of 7.4 million full-time workers with employment earning of \$30,000 or more in 1996, 4.4 million do not have a four-year degree.
- \* The median earnings for full-time workers age 25-64 is above \$30,000 for those with some college, academic associates degree and an occupational associates degree as well as for those with a four-year degree or more. For younger full-time workers (age 25-34) without a four-year degree, median employment earnings are \$30,000 only for those with an occupational associates degree.
- \* The median earnings for full-time workers go up substantially—particularly for younger workers (age 25-34)—with an occupational associates degree compared to some college and even an academic associates degree. In fact, younger workers with an occupational associates degree earn only slightly less than those with a bachelors degree. Yet only slightly more than 4% have an occupational associates degree.
- \* The more education one has the more likely one is to be a full-time worker. This is particularly true for younger workers and for those without an high school degree or with only a high school degree. (These findings are detailed in Tables IV and V.)

Table III

**Full-Time, Year Round Workers  
Median Employment Earnings By Education  
Attainment**

| <b>Education</b>                | <b>Median Earnings<br/>25-64 Years Old</b> | <b>Median<br/>Earnings<br/>25-34 Years<br/>Old</b> |
|---------------------------------|--|--|
| Not a high school degree        | \$20,900                                   | \$16,500   |
| High school graduate            | \$26,000                                   | \$24,000   |
| Some college (no degree)        | \$30,000                                   | \$25,000   |
| Associates degree, academic     | \$31,000                                   | \$25,000   |
| Associates degree, occupational | \$35,000                                   | \$32,000   |
| Bachelors degree                | \$39,900                                   | \$34,000   |
| Masters degree or more          | \$53,000                                   | \$40,000   |

Table IV

## Education Attainment 25-64 Year Olds

| <b>Education</b>                | <b>% of Total</b> | <b>Proportion Who Are Full Time Workers</b> |
|---------------------------------|-------------------|---|
| Not A High School Degree        | 10.2%             | 37.0%                                       |
| High School Graduate            | 39.8%             | 58.7%                                       |
| 1 or More Years, College        | 17.9%             | 64.1%                                       |
| Associates Degree, Academic     | 3.5%              | 66.6%                                       |
| Associates Degree, Occupational | 4.4%              | 69.6%                                       |
| Bachelors Degree                | 16.5%             | 70.6%                                       |
| Masters Degree or More          | 7.8%              | 71.7%                                       |

**Table V**

## **Education Attainment 25-34 Year Olds**

| <b>Education</b>                | <b>% of Total</b> | <b>Proportion Who Are Full Time Workers</b> |
|---------------------------------|-------------------|---|
| Not A High School Degree        | 8.3%              | 39.9%                                       |
| High School Graduate            | 35.6%             | 57.0%                                       |
| 1 or More Years, College        | 19.1%             | 61.9%                                       |
| Associates Degree, Academic     | 4.6%              | 68.9%                                       |
| Associates Degree, Occupational | 4.2%              | 77.8%                                       |
| Bachelors Degree                | 21.7%             | 75.5%                                       |
| Masters Degree or More          | 6.6%              | 70.7%                                       |

# Appendix A

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## Occupational Opportunities for Younger Workers (from 1997 report).

- \* The same pattern of good-paying work holds for younger full-time workers as for all year round, full-time workers.

There are good-paying opportunities for younger workers in both professional and non-bachelors degree occupations. There are a substantial proportion of younger workers earning more than \$30,000 in four areas that do not require a four-year degree:

- Technicians
- Precision production, craft and repair
- Sales
- Transportation and materials moving



## TABLE VI

### EARNINGS BY OCCUPATION FOR 20-34 YEAR OLDS GREAT LAKE STATES 1995

| <u>OCCUPATION*</u>                               | <u>** OF FULL TIME<br/>YEAR ROUND WORKERS</u><br>(Thousands) | <u>% EARNING \$30,000<br/>OR MORE</u> |
|--|--|---------------------------------------|
| *EXECUTIVE, ADMINISTRATIVE<br>AND MANAGERS       | 670  | 48.4                                  |
| *PROFESSIONAL                                    | 698  | 59.7                                  |
| *TECHNICIANS AND RELATED SUPPORT                 | 171  | 43.1                                  |
| *SALES   | 529  | 39.8                                  |
| *ADMINISTRATIVE SUPPORT                          | 693  | 17.3                                  |
| *SERVICES, EXCEPT HOUSEHOLD<br>AND PROTECTIVE    | 409  | 3.3                                   |
| *PRECISION PRODUCTION,<br>CRAFT AND REPAIR       | 641  | 44.4                                  |
| *MACHINE-OPERATORS,<br>ASSEMBLERS AND INSPECTORS | 496  | 21.0                                  |
| *TRANSPORTATION AND MATERIAL MOVING              | 225  | 34.7                                  |
| *HANDLERS, HELPERS AND LABORERS                  | 270  | 13.9                                  |

\*at least 150,000 workers

**TABLE VII****OCCUPATIONAL STRUCTURE BY AGE  
GREAT LAKES STATES, 1995**

|  | AGE: <u>20-34</u> | <u>35-49</u> | <u>50-64</u> |
|--|-------------------|--------------|--------------|
| EXECUTIVE, ADMINISTRATIVE & MANAGERIAL     | 13.4%             | 17.5%        | 17.0%        |
| PROFESSIONAL SPECIALTY                     | 14.0%             | 14.6%        | 14.6%        |
| TECHNICIANS AND RELATED SUPPORT            | 3.4%              | 3.8%         | 2.6%         |
| SALES                                      | 10.6%             | 10.5%        | 11.0%        |
| ADMINISTRATIVE SUPPORT                     | 13.9%             | 13.5%        | 14.7%        |
| SERVICES EXCEPT HOUSEHOLD & PROTECTIVE     | 8.2%              | 6.6%         | 7.3%         |
| PRECISION PRODUCTION, CRAFT & REPAIR       | 12.9%             | 12.7%        | 11.8%        |
| MACHINE OPERATORS, ASSEMBLERS & INSPECTORS | 10.0%             | 9.6%         | 10.1%        |
| TRANSPORTATION & MATERIAL MOVING           | 4.5%              | 5.0%         | 4.9%         |
| HANDLERS, HELPERS & LABORERS               | 5.4%              | 2.5%         | 3.8%         |
| OTHER OCCUPATIONS                          | 3.6%              | 3.9%         | 3.3%         |

## Appendix B

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Employment, Unemployment, Earnings and Age by Occupations for Great Lakes States in 1997.

|  | March, 1997 |                   |                    | 1996        |                      |                        | Employment             |             |           |
|--|-------------|-------------------|--------------------|-------------|----------------------|------------------------|------------------------|-------------|-----------|
|  | Labor Force | Unemployment Rate | Percent Bachelors+ | Average Age | Full-time Year-round | Part-time or Part-year | Annual Earnings Median | March, 1992 | % ch92-97 |
|  |             |                   |                    |             |                      |                        |                        |             |           |
| Executive, administrative & managerial                     | 2,964,200   | 1.9%              | 45.1%              | 41.9        | 2,439,900            | 523,500                | \$40,000               | 2,305,445   | 26.1%     |
| Public administrators                                      | 74,648      | 2.6%              | 44.6%              | 45.6        | 68,059               | 13,856                 | \$40,000               | 78,324      | -7.2%     |
| Financial managers   | 146,900     | 1.2%              | 61.0%              | 41.3        | 137,900              | 11,800                 | \$40,500               | 72,570      | 100.0%    |
| Managers, marketing, public relations                      | 129,100     | 1.3%              | 57.3%              | 40.1        | 122,200              | 9,200                  | \$60,000               | 93,735      | 35.9%     |
| Administrators, education                                  | 107,900     | 0.0%              | 76.4%              | 47          | 87,215               | 23,385                 | \$50,000               | 87,520      | 23.3%     |
| Managers, medicine & health                                | 106,500     | 0.0%              | 34.2%              | 43.1        | 82,028               | 24,772                 | \$35,000               | 87,344      | 21.9%     |
| Managers, food service & lodging                           | 214,600     | 3.8%              | 13.3%              | 40.7        | 168,700              | 60,100                 | \$26,900               | 197,957     | 4.3%      |
| Managers, properties & real estate                         | 90,816      | 5.0%              | 26.7%              | 47.4        | 79,442               | 23,258                 | \$32,500               | 54,302      | 58.9%     |
| Administrative & administrative                            | 1,311,200   | 2.5%              | 41.4%              | 42.6        | 1,125,100            | 213,300                | \$49,000               | 1,011,917   | 26.3%     |
| Accountants  | 234,900     | 0.8%              | 72.2%              | 39          | 196,900              | 41,600                 | \$33,000               | 172,211     | 35.3%     |
| Underwriters & other financial officers                    | 138,262     | 2.6%              | 51.4%              | 41.3        | 118,433              | 14,733                 | \$37,500               | 129,627     | 3.9%      |
| Management analysts  | 42,566      | 0.0%              | 85.0%              | 43.2        | 24,507               | 19,161                 | \$50,000               | 35,177      | 21.0%     |
| Personnel, training specialists                            | 75,088      | 0.0%              | 54.0%              | 36.6        | 67,064               | 14,179                 | \$30,000               | 67,685      | 10.9%     |
| Purchasing agents & buyers                                 | 102,669     | 0.0%              | 34.8%              | 37.9        | 81,953               | 24,628                 | \$32,400               | 81,236      | 26.4%     |
| Inspectors & compliance officers                           | 20,154      | 0.0%              | 43.9%              | 48          | 11,275               | 10,470                 | \$31,000               | 50,934      | -60.4%    |
| Other management support                                   | 82,090      | 0.0%              | 32.8%              | 40.6        | 69,061               | 19,137                 | \$31,000               | 79,263      | 3.6%      |
| Professional specialty                                     | 3,188,200   | 1.4%              | 71.4%              | 39.8        | 2,127,200            | 1,035,200              | \$42,000               | 2,745,716   | 14.5%     |
| Architects   | 22,236      | 0.0%              | 83.1%              | 45.6        | 17,675               | 3,958                  | \$42,500               | 18,283      | 21.6%     |
| Civil engineers  | 26,642      | 0.0%              | 80.8%              | 34.7        | 23,889               | 0                      | \$39,000               | 29,820      | -10.7%    |
| Electrical & electronic engineers                          | 92,560      | 2.8%              | 64.5%              | 38.9        | 84,885               | 7,320                  | \$50,000               | 88,896      | 1.2%      |
| Industrial & mechanical engineers                          | 178,617     | 1.2%              | 69.3%              | 36.9        | 127,767              | 39,192                 | \$50,500               | 131,059     | 34.7%     |
| Surveyors & other engineers                                | 72,290      | 0.0%              | 79.9%              | 39.6        | 61,692               | 14,109                 | \$60,000               | 79,625      | -9.2%     |
| Computer systems analysts & scientists                     | 194,000     | 0.0%              | 76.7%              | 37.1        | 173,600              | 23,400                 | \$52,500               | 137,744     | 40.8%     |
| Mathematical scientists, statisticians, & actuaries        | 46,258      | 0.0%              | 68.0%              | 33.4        | 32,513               | 10,314                 | \$49,500               | 48,426      | -4.5%     |
| Chemists, except biochemists                               | 24,270      | 0.0%              | 71.2%              | 34.3        | 23,660               | 0                      | \$44,400               | 25,175      | -3.6%     |
| Natural scientists, except chemists                        | 34,807      | 0.0%              | 92.5%              | 36.2        | 28,381               | 3,042                  | \$51,000               | 28,985      | 20.1%     |
| Physicians   | 128,500     | 0.0%              | 100.0%             | 45.5        | 121,200              | 9,100                  | \$120,000              | 98,184      | 30.9%     |
| Dentists   | 20,063      | 0.0%              | 100.0%             | 38.1        | 18,085               | 1,721                  | \$100,000              | 21,640      | -7.3%     |
| Other health diagnosing occupations                        | 310,200     | 1.4%              | 100.0%             | 40.1        | 24,074               | 5,745                  | \$80,000               | 24,090      | 0.8%      |
| Registered nurses  | 40,951      | 0.0%              | 88.3%              | 40          | 26,066               | 14,023                 | \$40,000               | 281,766     | 8.6%      |
| Pharmacists  | 36,047      | 0.0%              | 28.4%              | 31.8        | 11,995               | 21,331                 | \$36,000               | 32,924      | 24.4%     |
| Dietitians & physicians' assistants                        | 58,709      | 0.0%              | 63.2%              | 37.4        | 32,603               | 34,837                 | \$34,000               | 29,629      | 21.7%     |
| Therapists   | 166,126     | 1.1%              | 88.7%              | 42.2        | 87,663               | 81,221                 | \$50,000               | 143,576     | 14.4%     |
| Teachers, post-secondary                                   | 62,206      | 0.0%              | 58.1%              | 35.4        | 28,247               | 43,001                 | \$18,298               | 58,576      | 6.2%      |
| Teachers, prekindergarten & kindergarten                   | 290,100     | 0.0%              | 91.8%              | 43.4        | 166,100              | 154,600                | \$35,000               | 313,200     | -7.4%     |
| Teachers, elementary school                                | 196,100     | 0.0%              | 93.6%              | 43.2        | 125,700              | 85,800                 | \$32,000               | 224,900     | -12.8%    |
| Teachers, secondary school                                 | 57,145      | 0.0%              | 96.5%              | 45.4        | 34,948               | 22,090                 | \$42,500               | 44,918      | 27.2%     |
| Teachers, special education                                | 141,000     | 4.2%              | 51.3%              | 36.4        | 75,092               | 72,500                 | \$24,000               | 98,308      | 37.4%     |
| Other teachers   | 47,902      | 0.0%              | 77.1%              | 36.1        | 28,371               | 21,772                 | \$29,851               | 54,762      | -12.5%    |
| Counselors, educational & vocational                       | 86,073      | 0.0%              | 65.7%              | 41.9        | 53,834               | 38,422                 | \$45,000               | 104,878     | -17.9%    |
| Librarians, psychologists, economists, & social scientists | 154,000     | 0.0%              | 68.5%              | 39.2        | 107,200              | 38,000                 | \$26,500               | 95,694      | 60.9%     |
| Social workers   | 76,376      | 2.8%              | 58.5%              | 44.2        | 72,217               | 10,949                 | \$30,000               | 57,876      | 28.3%     |
| Clergy & other religious workers                           | 117,800     | 3.0%              | 98.1%              | 42.5        | 98,725               | 19,575                 | \$75,000               | 104,500     | 9.3%      |
| Lawyers & judges   | 134,700     | 4.1%              | 45.5%              | 38.3        | 94,252               | 51,748                 | \$32,600               | 101,746     | 27.0%     |
| Designers  | 58,504      | 0.0%              | 70.0%              | 37.4        | 37,860               | 23,965                 | \$48,000               | 69,229      | -15.5%    |
| Editors, reporters & public relations specialists          |             |                   |                    |             |                      |                        |                        |             |           |

Source: March, 1997 and March, 1992 CPS compiled by Donald Grimes for Michigan Future.

|  | March, 1997 |                   |                    | 1996        |                      |                        | Annual Earnings |             | Employment |          |
|--|-------------|-------------------|--------------------|-------------|----------------------|------------------------|-----------------|-------------|------------|----------|
|  | Labor Force | Unemployment Rate | Percent Bachelors+ | Average Age | Full-time Year-round | Part-time or Part-year | Median          | March, 1992 | %ch92-97   | ch92-97  |
|  |             |                   |                    |             |                      |                        |                 |             |            |          |
| Recreation workers, technical writers, artists, & entertainers | 196,994     | 4.5%              | 47.4%              | 36.2        | 94,546               | 76,206                 | \$24,103        | 138,699     | 35.6%      | 49,430   |
| Technicians & related support                                  | 826,943     | 4.4%              | 24.3%              | 38.6        | 619,090              | 251,362                | \$31,000        | 666,281     | 18.7%      | 124,276  |
| Clinical laboratory & radiologic technicians                   | 106,545     | 4.0%              | 25.5%              | 37.7        | 73,316               | 40,370                 | \$30,000        | 85,174      | 20.1%      | 17,109   |
| Licensed practical nurses                                      | 114,000     | 4.6%              | 0.0%               | 43          | 80,152               | 34,548                 | \$25,000        | 64,447      | 68.8%      | 44,309   |
| Denial hygienists, health record & other health technicians    | 191,003     | 2.6%              | 13.7%              | 36.5        | 128,991              | 67,474                 | \$23,000        | 88,534      | 110.1%     | 97,503   |
| Electrical & electronic technicians                            | 47,646      | 5.3%              | 24.6%              | 42.6        | 42,212               | 2,633                  | \$35,500        | 53,234      | -15.2%     | -8,113   |
| Industrial, mechanical & other engineering technicians         | 78,644      | 11.7%             | 10.8%              | 40.7        | 61,956               | 11,514                 | \$40,617        | 46,258      | 50.1%      | 23,185   |
| Drafting, surveying & mapping technicians                      | 66,824      | 3.2%              | 21.5%              | 40.2        | 42,995               | 24,665                 | \$31,080        | 69,238      | -6.6%      | -4,552   |
| Science technicians  | 53,187      | 4.0%              | 26.3%              | 39.3        | 31,159               | 13,258                 | \$43,000        | 25,999      | 96.4%      | 25,061   |
| Computer programmers   | 105,700     | 2.2%              | 62.4%              | 35.5        | 89,302               | 23,098                 | \$39,000        | 80,152      | 29.0%      | 23,222   |
| Legal Assistants   | 47,822      | 0.0%              | 38.8%              | 34.2        | 37,077               | 13,683                 | \$29,500        | 13,194      | 262.5%     | 34,628   |
| Other technicians  | 51,767      | 7.3%              | 48.6%              | 44.2        | 29,157               | 20,147                 | \$44,750        | 140,346     | -65.8%     | -92,358  |
| Sales occupations  | 2,731,400   | 4.4%              | 24.0%              | 37.4        | 1,625,500            | 1,229,000              | \$29,000        | 2,339,036   | 11.6%      | 272,182  |
| Supervisors & proprietors, sales occupations                   | 754,900     | 1.8%              | 28.2%              | 42.6        | 645,600              | 131,700                | \$29,000        | 668,538     | 10.9%      | 72,774   |
| Insurance sales occupations                                    | 94,955      | 0.0%              | 53.6%              | 39.9        | 89,749               | 9,803                  | \$37,500        | 99,974      | -5.0%      | -5,019   |
| Real estate sales occupations                                  | 114,600     | 0.0%              | 36.2%              | 46.6        | 82,618               | 37,382                 | \$29,000        | 82,617      | 38.7%      | 31,983   |
| Securities & financial services sales                          | 86,444      | 0.0%              | 59.6%              | 37.2        | 68,737               | 21,897                 | \$40,000        | 51,198      | 68.8%      | 35,246   |
| Advertising & other business sales occupations                 | 106,948     | 3.8%              | 34.9               | 34.9        | 62,658               | 40,808                 | \$45,000        | 103,274     | -0.4%      | -390     |
| Sales representatives mining, manufacturing, & wholesale       | 278,205     | 1.7%              | 50.3%              | 40          | 240,478              | 44,462                 | \$35,000        | 248,932     | 9.9%       | 24,543   |
| Sales workers, motor vehicles & boats                          | 60,794      | 3.6%              | 22.4%              | 40.9        | 44,236               | 14,890                 | \$33,970        | 42,710      | 37.2%      | 15,896   |
| Sales workers, apparel   | 78,677      | 12.0%             | 25.7%              | 32.7        | 23,924               | 69,456                 | \$23,000        | 75,460      | -8.2%      | -6,225   |
| Sales workers, furniture & home furnishings                    | 20,195      | 11.1%             | 11.1%              | 45.9        | 17,613               | 8,591                  | \$28,000        | 24,010      | -25.2%     | -6,057   |
| Sales workers, radio, TV, hi-fi, and appliances                | 30,867      | 0.0%              | 24.3%              | 31.9        | 12,786               | 20,099                 | \$30,000        | 25,880      | 19.3%      | 4,987    |
| Sales workers, hardware & building supplies                    | 42,750      | 5.2%              | 11.4%              | 39.4        | 24,887               | 34,118                 | \$21,000        | 40,507      | 0.0%       | 20       |
| Sales counter clerks   | 33,963      | 0.0%              | 31.7%              | 34.4        | 17,727               | 21,423                 | \$22,250        | 48,872      | -30.5%     | -14,909  |
| Cashiers   | 496,700     | 8.7%              | 3.7%               | 29.8        | 141,700              | 431,400                | \$13,000        | 453,584     | 0.0%       | 9,325    |
| Door to door sales   | 65,984      | 13.1%             | 10.1%              | 39.8        | 23,227               | 48,999                 | \$24,000        | 48,015      | 19.4%      | 9,255    |
| Other sales occupations  | 359,082     | 7.1%              | 12.8%              | 34.5        | 129,452              | 294,099                | \$15,000        | 325,930     | 2.3%       | 7,657    |
| Administrative support occupations                             | 3,211,200   | 2.6%              | 12.2%              | 39.1        | 2,090,100            | 1,298,800              | \$23,000        | 3,251,545   | -3.8%      | -123,836 |
| Supervisors, administrative support                            | 113,590     | 0.0%              | 10.3%              | 42.2        | 112,012              | 13,823                 | \$30,000        | 132,167     | -14.1%     | -18,577  |
| Computer equipment operators                                   | 44,955      | 0.0%              | 5.8%               | 41.9        | 36,483               | 11,982                 | \$25,000        | 132,992     | -66.2%     | -88,037  |
| Secretaries, stenographers, & typists                          | 731,470     | 2.3%              | 9.5%               | 40.9        | 409,740              | 331,889                | \$21,000        | 804,120     | -11.1%     | -89,474  |
| Receptionists  | 166,100     | 0.0%              | 8.4%               | 39.1        | 99,569               | 90,931                 | \$20,000        | 177,078     | -6.2%      | -10,978  |
| Interviewers, transportation & other information clerks        | 137,701     | 6.6%              | 7.6%               | 34.7        | 58,791               | 80,521                 | \$24,000        | 89,880      | 43.1%      | 38,733   |
| Records processing, except financial                           | 181,428     | 3.2%              | 17.5%              | 35.2        | 96,688               | 81,397                 | \$23,200        | 160,751     | 9.3%       | 14,871   |
| Bookkeepers, accounting, auditing clerks                       | 42,275      | 4.2%              | 0.0%               | 38.8        | 26,804               | 15,134                 | \$21,060        | 321,308     | -16.2%     | -52,127  |
| Payroll, timekeeping & billing clerks                          | 34,871      | 5.8%              | 12.7%              | 33.8        | 24,823               | 4,002                  | \$20,000        | 56,898      | -28.8%     | -16,399  |
| Billing, duplicating, mail, & other office machine operators   | 33,173      | 0.0%              | 10.5%              | 40.6        | 26,740               | 10,056                 | \$18,200        | 34,191      | -3.9%      | -1,343   |
| Telephone & other communication equipment operators            | 90,300      | 6.0%              | 2.9%               | 40.8        | 76,804               | 12,860                 | \$25,500        | 37,925      | -12.5%     | -4,752   |
| Postal clerks, mail carriers, postal service                   | 47,680      | 4.8%              | 0.0%               | 44          | 23,786               | 33,137                 | \$38,750        | 59,545      | 42.6%      | 25,337   |
| Mail clerks except postal service & messengers                 | 37,196      | 0.0%              | 0.0%               | 41.7        | 36,364               | 0                      | \$30,000        | 53,298      | -14.8%     | -7,906   |
| Dispatchers  | 66,063      | 0.0%              | 12.8%              | 39.9        | 62,962               | 8,348                  | \$34,000        | 33,636      | 10.6%      | 3,560    |
| Production coordinators  | 118,300     | 2.6%              | 11.8%              | 36.6        | 99,147               | 22,753                 | \$35,000        | 21,725      | 204.1%     | 44,338   |
| Traffic, shipping, & receiving clerks                          | 79,254      | 2.8%              | 6.3%               | 38.5        | 59,470               | 25,900                 | \$20,000        | 87,463      | 31.7%      | 27,761   |
| Stock & inventory clerks                                       | 89,494      | 6.7%              | 8.9%               | 38.8        | 57,365               | 24,184                 | \$25,613        | 101,816     | -24.3%     | -24,781  |
| Other material recording & scheduling clerks                   |             |                   |                    |             |                      |                        | \$25,943        | 39,369      | 112.1%     | 44,129   |



|   | March, 1997 |                   |            | 1996               |             |                      | Annual Earnings        |          | Employment  |           |
|---|-------------|-------------------|------------|--------------------|-------------|----------------------|------------------------|----------|-------------|-----------|
|   | Labor Force | Unemployment Rate | Employment | Percent Bachelors+ | Average Age | Full-time Year-round | Part-time or Part-year | Median   | March, 1992 | %ch192-97 |
| Insurance adjusters, examiners, & investigators                 | 81,309      | 0.0%              | 81,309     | 35.7%              | 37          | 75,900               | 9,718                  | \$26,850 | 64,091      | 17,218    |
| Investigators & adjusters, except insurance                     | 182,500     | 1.1%              | 180,493    | 21.3%              | 38.7        | 134,500              | 52,100                 | \$23,000 | 128,411     | 52,081    |
| Bill & account collectors                                       | 25,449      | 0.0%              | 25,449     | 36.2%              | 40.1        | 22,182               | 2,181                  | \$21,500 | 14,855      | 10,594    |
| General office clerks   | 113,300     | 1.9%              | 111,147    | 13.7%              | 37.1        | 83,181               | 59,719                 | \$21,500 | 145,074     | -33,927   |
| Bank tellers  | 86,003      | 0.0%              | 86,003     | 10.7%              | 37.7        | 45,453               | 52,164                 | \$17,000 | 99,189      | -13,186   |
| Data-entry keyers   | 123,900     | 2.6%              | 120,679    | 18.1%              | 36.2        | 60,189               | 71,011                 | \$21,500 | 90,610      | 30,069    |
| Teachers aides  | 90,519      | 0.0%              | 90,519     | 20.8%              | 44.6        | 31,689               | 71,111                 | \$17,550 | 98,202      | -7,683    |
| Other administrative support occupations                        | 186,959     | 3.7%              | 180,042    | 17.6%              | 39.4        | 147,499              | 82,263                 | \$23,767 | 267,200     | -32,6%    |
| Private household service occupations                           | 71,892      | 9.4%              | 65,134     | 0.0%               | 30.4        | 12,579               | 101,184                | \$10,000 | 138,391     | -73,256   |
| Protective service occupations                                  | 310,464     | 1.1%              | 307,049    | 23.8%              | 40.5        | 256,399              | 117,784                | \$35,000 | 343,946     | -36,897   |
| Supervisors, protective services                                | 28,804      | 0.0%              | 28,804     | 48.0%              | 47.6        | 28,202               | 2,021                  | \$50,000 | 28,047      | 757       |
| Firefighting & fire prevention occupation                       | 47,394      | 0.0%              | 47,394     | 11.8%              | 36.3        | 35,318               | 6,881                  | \$45,000 | 20,744      | 26,650    |
| Police, detectives, sheriffs, bailiffs, & other law enforcement | 91,766      | 0.0%              | 91,766     | 47.8%              | 41.3        | 91,680               | 2,403                  | \$36,001 | 105,879     | -14,113   |
| Correctional institution officers                               | 42,922      | 0.0%              | 42,922     | 12.5%              | 39.1        | 38,702               | 3,540                  | \$29,000 | 48,146      | -5,224    |
| Guards & other protective service occupations                   | 103,098     | 3.3%              | 99,696     | 5.3%               | 40.4        | 62,497               | 102,940                | \$20,000 | 140,903     | -41,207   |
| Service occupations, except protective & household              | 2,487,200   | 6.0%              | 2,337,968  | 5.4%               | 35          | 1,065,700            | 1,811,100              | \$15,550 | 2,222,499   | 115,469   |
| Supervisors, service occupations, except protective services    | 93,887      | 3.3%              | 90,789     | 2.3%               | 34.4        | 56,521               | 64,788                 | \$22,000 | 87,032      | 4.3%      |
| Barbers   | 80,931      | 0.0%              | 80,931     | 0.0%               | 38.7        | 34,545               | 59,032                 | \$13,000 | 50,257      | 61.0%     |
| Waiters & waitresses  | 187,500     | 3.6%              | 180,750    | 10.5%              | 27.5        | 42,310               | 190,890                | \$11,550 | 230,010     | -21.4%    |
| Cooks   | 366,900     | 6.0%              | 344,886    | 3.0%               | 32.9        | 169,900              | 281,300                | \$13,000 | 301,804     | 43,082    |
| Food counter & related occupations                              | 76,339      | 0.0%              | 76,339     | 0.0%               | 23.9        | 10,829               | 86,083                 | \$7,000  | 63,401      | 20.4%     |
| Waiters & waitresses' assistants                                | 108,400     | 5.9%              | 102,004    | 9.5%               | 25.8        | 20,939               | 105,661                | \$18,000 | 47,717      | 113.8%    |
| Kitchen workers & other food preparation occupations            | 173,134     | 12.9%             | 150,800    | 5.7%               | 31.8        | 43,317               | 146,145                | \$13,064 | 154,628     | -2.5%     |
| Dental assistants & health aides, except nursing                | 102,980     | 0.0%              | 102,980    | 1.9%               | 38.2        | 60,000               | 34,056                 | \$18,000 | 101,979     | 1.0%      |
| Nursing aides, orderlies & attendants                           | 287,200     | 3.4%              | 277,435    | 6.6%               | 38.3        | 157,600              | 148,400                | \$16,000 | 247,974     | 11.9%     |
| Maids & housemen  | 78,569      | 0.0%              | 78,569     | 7.2%               | 41.3        | 34,841               | 78,959                 | \$15,000 | 92,030      | -14.6%    |
| Janitors & cleaners   | 447,100     | 4.9%              | 425,192    | 3.4%               | 39.5        | 235,800              | 259,200                | \$19,029 | 438,607     | -3.1%     |
| Barbers, hairdressers & cosmetologists                          | 130,585     | 0.0%              | 130,585    | 7.2%               | 37.7        | 67,031               | 64,473                 | \$15,900 | 147,048     | -11.2%    |
| Family & child care providers                                   | 215,135     | 4.0%              | 206,530    | 8.4%               | 34.3        | 78,369               | 160,432                | \$9,000  | 165,754     | 24.6%     |
| Other service occupations                                       | 101,320     | 8.0%              | 93,214     | 11.5%              | 30          | 33,691               | 89,948                 | \$24,000 | 125,033     | -25.4%    |
| Farming, forestry, & fishing occupations                        | 365,583     | 7.1%              | 339,627    | 6.9%               | 40.5        | 199,687              | 271,044                | \$19,500 | 322,427     | 5.3%      |
| Farm operators & managers                                       | 191,396     | 1.4%              | 188,716    | 7.3%               | 47.2        | 112,390              | 90,276                 | \$23,534 | 167,451     | 12.7%     |
| Farm occupations, except managerial                             | 42,460      | 14.1%             | 36,473     | 6.7%               | 26.1        | 19,163               | 42,762                 | \$12,000 | 75,400      | -51.6%    |
| Groundskeepers & gardeners, except farm                         | 110,300     | 28.2%             | 79,195     | 7.4%               | 31.9        | 34,637               | 121,763                | \$20,500 | 50,426      | 57.1%     |
| Other related agricultural, forestry & fishing occupations      | 50,410      | 0.0%              | 50,410     | 5.5%               | 33.9        | 33,470               | 16,300                 | \$15,144 | 28,959      | 74.1%     |
| Precision production, craft, & repair occupations               | 2,590,900   | 5.7%              | 2,443,219  | 4.6%               | 39.4        | 2,097,700            | 711,800                | \$32,750 | 2,263,502   | 7.9%      |
| Mechanics & repairers   | 751,836     | 2.4%              | 733,792    | 4.3%               | 38.9        | 686,910              | 117,469                | \$30,000 | 809,491     | -9.4%     |
| Supervisors, mechanics & repairers                              | 35,022      | 0.0%              | 35,022     | 0.0%               | 40.6        | 24,330               | 5,303                  | \$44,500 | 39,931      | -12.3%    |
| Automobile mechanics  | 149,700     | 3.3%              | 144,760    | 1.7%               | 36.6        | 121,700              | 36,100                 | \$23,000 | 140,018     | 3.4%      |
| Bus, truck, & stationary engine mechanics                       | 52,500      | 6.4%              | 49,140     | 0.0%               | 33.2        | 49,209               | 7,262                  | \$30,000 | 74,422      | -34.0%    |
| Automobile body repairers                                       | 30,352      | 0.0%              | 30,352     | 0.0%               | 33.8        | 25,867               | 5,637                  | \$25,500 | 38,144      | -20.4%    |
| Heavy equipment mechanics                                       | 31,501      | 12.9%             | 27,437     | 0.0%               | 40.7        | 30,302               | 2,009                  | \$25,000 | 34,612      | -20.7%    |
| Industrial machinery repairers                                  | 103,100     | 0.0%              | 103,100    | 6.2%               | 43          | 103,000              | 0                      | \$31,500 | 132,951     | -22.5%    |
| Other mobile equipment repairers                                | 32,017      | 0.0%              | 32,017     | 25.2%              | 34.6        | 25,639               | 4,345                  | \$29,900 | 39,287      | -18.5%    |
| Electronic, data processing & industrial equipment repairers    | 46,437      | 4.5%              | 44,347     | 11.4%              | 33.1        | 46,086               | 16,330                 | \$33,500 | 51,992      | -14.7%    |
| Telephone & line installers & repairers                         | 27,268      | 0.0%              | 27,268     | 0.0%               | 42.5        | 23,977               | 6,363                  | \$36,612 | 15,811      | 72.5%     |

|  | March, 1997 |                   |                    | 1996        |                      |                        | Annual Earnings |             | Employment |         |
|--|-------------|-------------------|--------------------|-------------|----------------------|------------------------|-----------------|-------------|------------|---------|
|  | Labor Force | Unemployment Rate | Percent Bachelors+ | Average Age | Full-time Year-round | Part-time or Part-year | Median          | March, 1992 | % ch92-97  | ch92-97 |
| Household appliance & other electrical equip. repairers                | 27,655      | 0.0%              | 32.0%              | 40.6        | 23,823               | 5,055                  | \$52,000        | 31,560      | -12.4%     | -3,905  |
| Heating, & air conditioning mechanics                                  | 50,324      | 4.2%              | 0.0%               | 41.1        | 48,210               | 7,770                  | \$36,000        | 40,398      | 19.3%      | 7,812   |
| Millwrights  | 28,631      | 0.0%              | 0.0%               | 44.5        | 29,870               | 0                      | \$60,000        | 35,858      | -20.2%     | -7,227  |
| Other mechanics & repairers  | 121,654     | 3.0%              | 2.9%               | 40.9        | 142,128              | 21,269                 | \$30,000        | 130,936     | -9.9%      | -12,931 |
| Construction & mining occupations                                      | 935,842     | 10.6%             | 3.5%               | 37.9        | 660,222              | 411,978                | \$33,000        | 650,484     | 28.6%      | 186,159 |
| Supervisors, construction occupations                                  | 89,423      | 7.3%              | 7.2%               | 41.7        | 71,683               | 34,076                 | \$40,600        | 64,216      | 29.1%      | 18,679  |
| Brickmasons & tile setters   | 50,001      | 7.6%              | 7.1%               | 39.1        | 34,771               | 21,859                 | \$31,500        | 23,073      | 100.2%     | 23,128  |
| Carpet installers  | 22,308      | 0.0%              | 0.0%               | 32.06       | 13,112               | 10,436                 | \$28,000        | 21,073      | 5.9%       | 1,235   |
| Carpenters   | 255,500     | 8.5%              | 2.9%               | 37.8        | 170,000              | 119,700                | \$26,250        | 183,596     | 27.3%      | 50,187  |
| Electricians & electrical power installers                             | 162,757     | 8.9%              | 5.5%               | 38.2        | 129,046              | 40,683                 | \$40,000        | 103,318     | 43.5%      | 44,953  |
| Painters, paperhangers, & plasterers                                   | 86,205      | 27.4%             | 2.4%               | 35.1        | 51,589               | 62,184                 | \$23,000        | 91,677      | -31.7%     | -29,112 |
| Plumbers, pipefitters, & steamfitters                                  | 120,600     | 3.5%              | 4.6%               | 39.4        | 87,951               | 45,649                 | \$40,000        | 86,271      | 34.9%      | 30,108  |
| Other construction & mining occupations, including apprentices         | 154,325     | 14.4%             | 1.5%               | 37.6        | 105,756              | 77,390                 | \$28,000        | 82,324      | 60.5%      | 49,778  |
| Precision Production Occupations                                       | 900,007     | 3.4%              | 6.1%               | 41.2        | 747,008              | 182,371                | \$33,075        | 798,570     | 8.9%       | 70,837  |
| Supervisors, precision production                                      | 279,800     | 5.4%              | 7.7%               | 41.7        | 245,600              | 40,200                 | \$38,000        | 261,751     | 1.1%       | 2,940   |
| Tool & die makers  | 56,295      | 0.0%              | 0.0%               | 40.9        | 50,843               | 3,461                  | \$50,000        | 46,143      | 22.0%      | 10,152  |
| Machinists   | 160,500     | 0.0%              | 3.6%               | 38.1        | 140,000              | 31,100                 | \$30,000        | 124,022     | 29.4%      | 36,479  |
| Sheet metal workers  | 32,494      | 0.0%              | 0.0%               | 41.6        | 26,154               | 5,658                  | \$30,000        | 23,978      | 35.5%      | 8,516   |
| Boilermakers, pattemakers, apprentices & other precision metal working | 39,444      | 6.0%              | 5.2%               | 45.1        | 27,854               | 16,793                 | \$44,000        | 17,945      | 106.6%     | 19,132  |
| Precision woodworking, textile & apparel machine workers               | 67,923      | 2.7%              | 5.6%               | 41.6        | 38,755               | 24,852                 | \$20,000        | 32,149      | 105.6%     | 33,940  |
| Electrical & electronic assemblers                                     | 30,196      | 0.0%              | 0.0%               | 40.7        | 29,957               | 7,823                  | \$22,750        | 91,258      | -66.9%     | -61,062 |
| Other precision workers, assorted materials                            | 38,028      | 5.2%              | 5.6%               | 37.6        | 30,931               | 10,977                 | \$28,000        | 44,069      | -18.2%     | -8,018  |
| Butchers & meat cutters  | 56,398      | 4.3%              | 0.0%               | 40.7        | 40,698               | 16,058                 | \$24,000        | 41,010      | 31.6%      | 12,963  |
| Bakers & food batchmakers  | 35,213      | 11.3%             | 6.8%               | 42.2        | 22,631               | 11,661                 | \$20,500        | 40,435      | -22.8%     | -9,201  |
| Precision inspectors, testers & related workers                        | 38,959      | 0.0%              | 13.9%              | 41.9        | 21,008               | 7,364                  | \$36,000        | 27,166      | 43.4%      | 11,793  |
| Stationary engineers   | 36,479      | 0.0%              | 21.4%              | 40.3        | 31,984               | 6,460                  | \$48,000        | 27,732      | 31.5%      | 8,747   |
| Power, water & other plant & system operators                          | 28,159      | 0.0%              | 14.9%              | 42.5        | 30,589               | 0                      | \$36,750        | 20,064      | 40.3%      | 8,095   |
| Machine operators, assemblers, & inspectors                            | 1,915,800   | 7.1%              | 3.0%               | 37.7        | 1,779,778            | 530,700                | \$25,000        | 1,700,453   | 4.7%       | 79,325  |
| Punching & stamping press operators                                    | 46,381      | 4.8%              | 0.0%               | 39.5        | 33,865               | 10,401                 | \$21,000        | 52,719      | -16.2%     | -8,565  |
| Grinding & polishing machine operators                                 | 38,793      | 10.9%             | 7.8%               | 46.2        | 35,284               | 14,100                 | \$42,000        | 46,072      | -25.0%     | -11,507 |
| Other metal & plastic working machine operators                        | 82,346      | 8.5%              | 7.6%               | 37.5        | 49,556               | 12,080                 | \$27,500        | 82,453      | -8.6%      | -7,107  |
| Metal & plastic processing machine operators                           | 65,140      | 0.0%              | 4.3%               | 35.4        | 48,546               | 12,226                 | \$25,000        | 64,487      | 1.0%       | 653     |
| Woodworking machine operators  | 19,817      | 0.0%              | 0.0%               | 38          | 17,519               | 5,225                  | \$19,000        | 19,406      | 2.1%       | 411     |
| Printing machine operators   | 94,058      | 3.5%              | 2.9%               | 41.1        | 74,975               | 19,468                 | \$28,000        | 64,566      | 40.6%      | 26,200  |
| Textile sewing machine operators                                       | 34,404      | 14.5%             | 0.0%               | 40.5        | 24,142               | 11,339                 | \$13,410        | 39,263      | -25.1%     | -9,847  |
| Pressing, laundering, dry cleaning & other textile machine operators   | 36,531      | 10.9%             | 0.0%               | 37.2        | 28,179               | 15,077                 | \$19,760        | 68,925      | -52.8%     | -36,376 |
| Packaging & filling machine operators                                  | 77,989      | 19.5%             | 3.2%               | 39.6        | 46,607               | 30,500                 | \$25,000        | 62,604      | 0.3%       | 177     |
| Painting & paint spraying machine operators                            | 45,794      | 0.0%              | 5.7%               | 34.2        | 41,329               | 9,022                  | \$22,000        | 40,205      | 13.9%      | 5,589   |
| Slicing & cutting machine operators                                    | 43,972      | 0.0%              | 0.0%               | 38.3        | 32,370               | 11,574                 | \$21,900        | 63,897      | -31.2%     | -19,925 |
| Other machine operators, assorted materials                            | 528,352     | 6.5%              | 3.0%               | 36.3        | 373,686              | 138,325                | \$26,000        | 418,902     | 17.9%      | 75,108  |
| Welders & cutters, solderers & brazers                                 | 155,044     | 13.5%             | 0.0%               | 35.8        | 102,707              | 45,586                 | \$30,100        | 164,897     | -18.7%     | -30,784 |
| Assemblers   | 431,900     | 5.5%              | 3.5%               | 38.8        | 314,800              | 135,100                | \$25,000        | 300,463     | 35.8%      | 107,682 |
| Other hand working occupations   | 18,446      | 0.0%              | 0.0%               | 41.3        | 14,918               | 15,393                 | \$22,500        | 25,987      | -29.0%     | -7,541  |
| Production inspectors, testers & weighers                              | 154,465     | 1.4%              | 3.8%               | 37.6        | 131,117              | 45,136                 | \$27,550        | 185,565     | -17.9%     | -33,262 |
| Transportation & material moving equipment                             | 1,028,100   | 6.2%              | 4.8%               | 40.2        | 746,030              | 312,070                | \$31,000        | 801,789     | 20.3%      | 162,568 |
| Supervisors, transportation & material moving                          | 19,878      | 10.2%             | 12.2%              | 37.4        | 14,240               | 4,949                  | \$26,000        | 9,825       | 81.7%      | 8,025   |

Employment, Unemployment, Earnings, and Age by Occupation for the Great Lakes States, 1997

|   | March, 1997 |                   |                    | 1996        |                      |                        | Employment             |             |          |
|---|-------------|-------------------|--------------------|-------------|----------------------|------------------------|------------------------|-------------|----------|
|   | Labor Force | Unemployment Rate | Percent Bachelors+ | Average Age | Full-time Year-round | Part-time or Part-year | Annual Earnings Median | March, 1992 | %ch92-97 |
|   |             |                   |                    |             |                      |                        |                        |             |          |
| Truck drivers                                     | 573,000     | 4.2%              | 2.6%               | 41.3        | 434,300              | 169,900                | \$31,000               | 447,372     | 22.7%    |
| Driver-sales workers                              | 42,151      | 0.0%              | 0.0%               | 37.5        | 30,874               | 9,399                  | \$28,500               | 58,694      | -28.2%   |
| Bus drivers                                       | 79,451      | 0.0%              | 9.3%               | 41.9        | 37,502               | 50,496                 | \$20,000               | 56,722      | 40.1%    |
| Taxicabs, & other motor vehicle operators         | 40,601      | 11.6%             | 11.2%              | 42          | 17,965               | 27,542                 | \$15,000               | 37,349      | -3.9%    |
| Rail & water transportation occupations           | 46,869      | 0.0%              | 13.3%              | 39.1        | 41,880               | 4,465                  | \$45,000               | 25,726      | 82.2%    |
| Operating engineers                               | 34,406      | 24.9%             | 14.2%              | 43.2        | 20,853               | 18,518                 | \$39,450               | 15,159      | 70.5%    |
| Crain & lower operators                           | 25,533      | 0.0%              | 0.0%               | 32.6        | 24,340               | 0                      | \$41,600               | 19,904      | 28.3%    |
| Industrial truck & tractor equipment operators    | 109,500     | 4.5%              | 0.0%               | 38.3        | 99,194               | 15,706                 | \$29,000               | 98,306      | 6.4%     |
| Other material moving equipment operators         | 38,887      | 11.0%             | 6.6%               | 39.8        | 24,852               | 11,167                 | \$41,000               | 32,745      | 5.7%     |
| Handlers, equipment cleaners, helpers, & laborers | 1,018,800   | 17.0%             | 3.8%               | 32.3        | 428,677              | 711,423                | \$21,000               | 803,840     | 5.2%     |
| Helpers & laborers, construction trades           | 190,516     | 37.2%             | 1.3%               | 35.2        | 60,684               | 124,185                | \$23,025               | 112,866     | 6.0%     |
| Stock handlers & baggers                          | 235,300     | 6.4%              | 1.7%               | 28.1        | 78,486               | 198,814                | \$16,000               | 140,963     | 56.2%    |
| Vehicle washers & equipment cleaners              | 68,171      | 29.5%             | 0.0%               | 25.1        | 26,775               | 63,817                 | \$20,000               | 39,193      | 22.6%    |
| Handpackers & packagers                           | 44,352      | 0.0%              | 6.8%               | 33.5        | 26,678               | 27,939                 | \$19,200               | 68,946      | -35.7%   |
| Laborers, except construction                     | 245,400     | 16.9%             | 4.4%               | 35.5        | 134,200              | 161,200                | \$23,000               | 231,725     | -12.0%   |
| Other handlers and helpers                        | 208,084     | 8.3%              | 8.6%               | 31.8        | 101,894              | 135,502                | \$23,000               | 209,712     | -9.0%    |



## Appendix C

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Employment and Income in 1996 by Education Attainment for all residents of the Great Lakes States.

Employment and Income in 1996 of all residents of Great Lakes states aged 25 to 64 in March, 1997

| All persons 25 to 64 in March, 1997, Employment and Earnings in 1996 |            |             |              |            |                          |                          |                 |
|--|------------|-------------|--------------|------------|--------------------------|--------------------------|-----------------|
| Education  | Total      | Non-workers | Part-year or |            | Full-time, full-year     |                          |                 |
|  |            |             | Part-time    | Full-year  | Earning \$30,000 or more | Percent \$30,000 or more | Median Earnings |
| Not a high school graduate   | 2,276,763  | 889,518     | 545,151      | 842,094    | 233,484                  | 27.7%                    | \$20,900        |
| High school graduate   | 8,961,000  | 1,535,000   | 2,163,000    | 5,263,000  | 2,236,700                | 42.5%                    | \$26,000        |
| 1 or more years college  | 4,025,000  | 523,000     | 921,000      | 2,581,000  | 1,257,600                | 48.7%                    | \$30,000        |
| Associates degree, academic  | 797,800    | 93,785      | 173,115      | 530,900    | 284,614                  | 53.6%                    | \$31,000        |
| Associates degree, occupational                                      | 986,200    | 76,678      | 222,722      | 686,800    | 427,836                  | 62.3%                    | \$35,000        |
| Bachelors degree   | 3,707,000  | 341,400     | 748,600      | 2,617,000  | 1,863,400                | 71.2%                    | \$39,892        |
| Masters degree or more   | 1,759,400  | 99,935      | 397,565      | 1,261,900  | 1,111,700                | 88.1%                    | \$53,000        |
| All levels   | 22,513,163 | 3,559,316   | 5,171,153    | 13,782,694 | 7,415,334                | 53.8%                    | \$31,500        |

Employment and Income in 1996 of all residents of Great Lakes states 16 or older in March, 1997

| All persons 16 or older in March, 1997, Employment and Earnings in 1996 |            |             |                           |                         |                             |                             |                    |
|---|------------|-------------|---------------------------|-------------------------|-----------------------------|-----------------------------|--------------------|
| Education   | Total      | Non-workers | Part-year or<br>Part-time | Full-time,<br>Full-year | Full-time, full-year        |                             |                    |
|   |            |             |                           |                         | Earning \$30,000<br>or more | Percent<br>\$30,000 or more | Median<br>Earnings |
| Not a high school graduate  | 6,153,654  | 3,440,180   | 1,710,577                 | 1,002,897               | 257,156                     | 25.6%                       | \$20,000           |
| High school graduate  | 12,310,000 | 3,375,000   | 3,135,000                 | 5,800,000               | 2,320,600                   | 40.0%                       | \$25,188           |
| 1 or more years college   | 6,206,000  | 1,278,000   | 2,003,000                 | 2,925,000               | 1,288,600                   | 44.1%                       | \$28,000           |
| Associates degree, academic   | 942,600    | 137,500     | 235,000                   | 570,100                 | 286,814                     | 50.3%                       | \$30,000           |
| Associates degree, occupational   | 1,197,000  | 172,500     | 266,300                   | 758,200                 | 442,718                     | 58.4%                       | \$33,000           |
| Bachelors degree  | 4,401,000  | 686,600     | 947,400                   | 2,767,000               | 1,928,600                   | 69.7%                       | \$38,000           |
| Masters degree or more  | 1,970,600  | 218,514     | 455,886                   | 1,296,200               | 1,138,215                   | 87.8%                       | \$52,000           |
| All levels  | 33,180,854 | 9,308,294   | 8,753,163                 | 15,119,397              | 7,662,703                   | 50.7%                       | \$30,000           |

| All persons 25 to 34 in March, 1997, Employment and Earnings in 1996 |           |             |              |           |                          |                          |                 |
|--|-----------|-------------|--------------|-----------|--------------------------|--------------------------|-----------------|
| Education  | Total     | Non-workers | Part-year or |           | Full-time, full-year     |                          |                 |
|  |           |             | Part-time    | Full-year | Earning \$30,000 or more | Percent \$30,000 or more | Median Earnings |
| Not a high school graduate   | 430,299   | 137,366     | 121,139      | 171,794   | 28,114                   | 16.4%                    | \$16,500        |
| High school graduate   | 1,843,000 | 209,100     | 582,900      | 1,051,000 | 368,729                  | 35.1%                    | \$24,000        |
| 1 or more years college  | 990,300   | 98,351      | 279,349      | 612,600   | 205,940                  | 33.6%                    | \$25,000        |
| Associates degree, academic  | 236,100   | 25,160      | 48,340       | 162,600   | 61,139                   | 37.6%                    | \$25,000        |
| Associates degree, occupational                                      | 217,500   | 6,673       | 41,627       | 169,200   | 93,460                   | 55.2%                    | \$32,000        |
| Bachelors degree   | 1,125,000 | 72,643      | 203,357      | 849,000   | 536,521                  | 63.2%                    | \$34,000        |
| Masters degree or more   | 339,668   | 19,838      | 79,671       | 240,159   | 182,795                  | 76.1%                    | \$40,000        |
| All levels   | 5,181,867 | 569,131     | 1,356,383    | 3,256,353 | 1,476,698                | 45.3%                    | \$23,000        |



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