Occupational Change and Income Mobility from 1950-2000

(Preliminary Draft)

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Abstract

In the United States from the 1950s to the present there has been a dramatic change in the occupational structure: with a rise of employment in the service sector, a decline in industrial jobs, an increase of employment in the construction sector, and a dramatic increase in wages for management compared to other occupations. We examine these changes of rank and level of occupational income over time and develop a time varying socio-economic index to better model these trends. With this updated scale we estimate the changes in income mobility from 1972 to 2000 and compare these results to a model of social mobility based on the Duncan socio-economic index and a model based on a fixed occupational income scale. Last, we evaluate the usefulness of occupational scales for modeling income mobility, given the changes in within and between occupational incomes over the last half of the twentieth century.

Introduction

In the United States from the 1940s to the turn of the century there has been a dramatic change in the occupational structure with a rise of employment in the service sector, a decline in industrial jobs, and a dramatic decline in farm labor. The employment in the manufacturing sector dropped from over 25% in 1950 to 15% in 2000 while the construction sector grew from about 7% to over 20% during the same period. Service and technical occupations rose from 23 to 30% from 1950 to 2000 compared to a decline in operators, fabricators, and labors from about 17% to 7%. In addition to the changing compositions of industries and occupations, there have been notable changes in the rank order and magnitude of income rewards for differing occupations from 1940-present (see figures 1-4).

These findings contradict a longstanding claim of a consistent rank order of occupational status over time (Duncan 1968, Hauser and Warren 1997). Many studies of social mobility in the U.S. are based on occupational socio-economic scales that assume consistent rank order and/or consistent intervals between occupational categories over time (Diprete and Grusky 1990, Harding, Jencks, Lopoo, and Mayer 2005). Similarly

longitudinal cohort or panel studies that use an occupation based socio-economic scale (such as Duncan's SEI or the Hauser and Warren occupational income scale) could also be biased due this changing rank and changing intervals between occupational categories.

In this paper we document the changes in income between industrial and occupational categories from 1950 to 2000. We pose an alternative occupational income scale that accounts for the changing rank and level of occupation over time. We use this time varying occupational income scale to estimate the changes in income mobility from 1950 to the present. Next, we compare these results to Diprete and Grusky's (1990) model of social mobility based on the Duncan socio-economic index and a replication of Diprete and Grusky's model based on a fixed occupational income scale. We also compare these findings to contemporary findings of income mobility based on the Panel Study of Income Dynamics. And, last we evaluate the usefulness of occupational scales for modeling income mobility, given the changes in within and between occupational incomes.

Literature Review

Income inequality has risen dramatically since the 1970s however many argue that during this time income mobility has remained quite high and relatively stable with correlations between father's and son's incomes estimated between 0 and .40 (Becker and Tomes 1986, Beller and Hour 2006). This implies that while the rewards for different social positions have been growing higher during the last four decades the odds of moving from a lower to higher income have been relatively stable.

Several studies have argued that these estimates of income mobility are flawed (Goldberger 1989, Mazumder 2005). These critics have presented alternate estimates of income mobility that vary from .40 to .60. One notable reason for these differences is that estimate of income mobility differ if one is comparing one year of a parents versus one year of child's income, several years compared to several years of a child's income, or lifetime income of parents versus the lifetime income of children.

A problem with most of the studies of income mobility in the U.S. is that they are almost all based on the Panel Study of Income dynamics. While the PSID is a very rich data set with high quality measures of parent and child's incomes, it is limited to a narrow cohort range. From this one panel study which began with 5000 households in 1968 it is difficult to make any strong claims about trends in income inequality in the U.S. If we are interested in peak earning years from the ages of 30 to 50, we are limited to a birth cohort from

Ideally we would have several PSID type studies once every 5 or 10 years for the past forty years in order to estimate the trend in income mobility. Alas, we do not have such data sets. However, we do have very good measures of respondents and parent's occupation for numerous cross-sectional studies. Therefore occupational income scales can be used to generate income mobility with a wide range of available data sets. In addition, in the U.S., questions about occupations are much less sensitive than questions about income and therefore have a higher response rate. Last, occupational income can be a better proxy of occupational income that just one or several years of a respondents income.

There have been dramatic changes in the structure of occupations in the U.S. , the percentage of the population in different occupations, and the rewards for different occupations. (We will complete this literature review in the final draft.)

Data and Sample

We use the 1950-2000 decennial census public use micro samples to calculate the percentage of individuals in each occupation and the mean income of each occupation and industry (See tables 1-4 and figures 1-4). Income is converted into 2000 dollars. The occupational codes vary slightly from the 1950 to the 1970s census and have quite dramatic changes between 1970 and 1980 and 1980 and 1990 occupational codes. To compare occupations over time we use the IPUMs 1950 and 1990 occupational codes. Ruggles et al. converted occupational codes from 1950 until 2000 into 1950s and 1990 occupational codes using the data from the census crosswalks. The analysis in tables 1-4 and figures 1-4 use the 1990s occupational codes. We replicated these analyses with the 1950 codes and found similar trends (results not shown). For all of these analyses we limit our sample to employed adults between the ages of 25 and 65. We use list wise deletion to deal with missing data.

Next we use the decennial census and the Census cross walks to generate a time varying occupational scale. We first constructed these scales using the 1990 occupational codes for all decades. We calculated the median income for each three-digit occupational code for each decade. Next, we did a linear interpolation of the occupational income for each occupation for each year between the decennial censuses. This gave us a matrix of median income for each three digit occupational code for every year between 1950 and

2000. This scale gives a more accurate occupational income for respondents than scales that are simply based on the 1950s occupational income (such as the IPUMS OCCINC variable) or the 1980s occupational income (used by the Hauser and Warren 1997 scale).

However, the 1990s occupational code did lead to some loss of data. When there was a change in occupational categories between censuses the IPUMS 1990occupational variable was calculated by taking the modal occupational category for a given census year and assigning that value to the census occupational category of the previous census. Given our interpolation between censuses this led a loss of information when we had an occupational category in one year that did not exist in a previous year (or vice-versa). To address this problem we generated our own cross walk of census categories reducing the census occupational categories from 1950 to 1990 such that every census had the exact same number of occupational categories. We converted the occupational scales to the 1970 and 1980 occupational codes. Instead of taking the modal value for occupation, we took the weighted average of occupational income based on the number of individuals who were in different occupations. (Appendix A provides an example of the codebook and the equations used for these calculations.)

To examine changes in social mobility we use the 1972-2006 GSS reports of respondents and father's occupations. We limit our sample to adults between the ages of 25 and 65. We use list wise deletion to deal with missing data. These occupations from 1972-1993 are coded using the 1970 occupational codes and from 1988-2006 are coded with the 1980 occupational codes. This difference in occupational codes has limited the ability to make comparisons across the entire range of GSS surveys from 1972 to 2006. However, the time varying occupational scale we generate allows us to convert both the

1970 and 1980s codes into a comparable occupational income scale. All respondents

were assigned the occupational income of the year of the interview and respondent's

parents were assigned the occupational income from the year the respondent was 16.

(The parent's occupation question asks: What was your father's occupation at age 16.)

We dropped respondents who were born 16 before 1950.

The key dependent variable in this analysis is a respondents occupational income,

the independent variables are father's occupational income when the respondent is 16,

race (white =1, nonwhite=0), years of education for the respondent. (See table 1 for the

descriptive statistics.)

Methods

We first document the changes in rank order and level of occupational income

over time by comparing the mean occupational income for one digit occupational

categories[1] (see figures 2 and 4). We also note the changes in the percentage of

individuals in each one digit occupational categories (see figures 1 and 3). We tested

whether the changes over time occupational income and occupational composition were

statistically significant with an ordinary least squares regression with a dummy variable

for decade on earnings for each one-digit occupational category. We also estimated OLS

regressions for dummy variables for one-digit occupational category on earnings for each

decade (see tables 2 and 3).

To examine the effect of these changes in occupational income on studies of

social mobility we estimate the following model of social mobility with three different

socio-economic scales: time varying occupational income, the Duncan socio-economic

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[1] We also examined median differences and found similar trends.

index, and 1950s occupational income. We estimate social mobility using the following "basic model" from DiPrete and Grusky (1990):

$$Y_{it} = B_{0t} + B_{1t}X_{1it} + B_{2t}X_{2it} + B_{3t}X_{3it} + E_{it} \qquad (1)$$

Where Y_{it} is the socio-economic status of the the ith respondent in the t-th sample year, X_1 is race, X_2 is educational attainment, and X_3 is father's socio economic status. Next we add a linear time only (see equation 1) and a linear and quadratic time variables (see equation 2).

$$B_{it} = \alpha_i + \gamma_i Z_{ti} \qquad (2)$$

$$B_{it} = \alpha_i + \gamma_i Z_{ti} + \gamma_i Z^2_{ti} \qquad (3)$$

Where i indexes each of the parameters B above, α is an intercept, and Z is time elapsed since 1972.

In table 4 we examine the fit statistics for models 1, 2, and 3 for each of the three socio-economic indices. In table 5-7 I estimate the parameters for the full quadratic model for each of the three socio-economic indices for men and women. To compare these changes over time we plan to graph the effects of social mobility for each scale over time for men and women.

After identifying changes in income mobility we plan to estimate multilevel models to examine the hypotheses of deindustrialization, the increasing returns to skills, and the increasing inequality within the work place to explain changes in income mobility. We will test these hypotheses with the following variables: occupational composition, education, and the ratio between a respondents and managers occupational income.

Last we will examine the differences in within and between occupational incomes to assess another possible source of bias in using time varying occupational scales to assess occupational income.

Results

The quadratic analyses for the time varying occupational scale, the Duncan SEI scale and the fixed occupational income scales have some surprisingly similar patterns (see tables 5-7). All three showed a rise in the association between respondent's and parents' income or SES during the 1970s and 1980s and a decline during the 1990s and 2000s.

(To be completed in the final draft of the paper)

Conclusion

We find that the rank order and income for a given occupational categories has changed dramatically over the last half of the twentieth century. These changes suggest that one should use caution when using traditional occupational income scales for examining change over time.

However, our analyses with our time varying occupational income scale, Duncan SEI, and a 1950s occupational income scale found similar non-linear patterns in social mobility over time. These findings imply that the possible bias due to the changing level and rank of occupational income might not be as great as originally thought.

The dramatic changes in occupational scales used in the GSS and for different decennial censuses could be a source of substantial bias for these analyses. In future versions of this paper I will examine how sensitive these results are to different strategies

of constructing cross-walks over time. Here we will compare the use of a weighted mean versus the modal occupation.   We also will examine why there was such a high level of missing data in the parent's income variable. These missing data could have been due to the exclusion of parents from respondents who were 16 before 1950. We will examine these missing data and also test alternative strategies such using the 1950 scale to assign occupational income to parents of respondents who were 16 before 1950.

(To be completed in the final draft of the paper)

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Table 1: Descriptive Statistics for the GSS

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    Variable |       Obs        Mean    Std. Dev.         Min         Max
-------------+--------------------------------------------------------------
      roccinc |      27942    24378.25    15644.44           0    120640.8
     paoccinc |      18593    19576.75    15599.99    .6717853    100240.7
         rsei |      28813     39.7927    27.04553    .2981587          96
        pasei |      35618     28.2442    26.80447    .2981587          96
    roccscore |      28813    24.71588    12.89415    .1822081          79
-------------+--------------------------------------------------------------
   paoccscore |      35618    21.88506    15.04384    .1822081          79
         educ |      35813    12.89998    2.848093           0          17
         race |      35888    .8099365    .3923566           0           1
          SEX |      35888    1.554865    .4969876           1           2
         YEAR |      35888    1990.122    10.71696        1972        2006
-------------+--------------------------------------------------------------
          AGE |      35888    42.51457    11.46003          25          65
```

Table 2: OLS Regression of Changes in Occupation Income over Time by Single Digit Occupation

	1950	1960	1970	1980	1990	2000	Cons	R²
Professional	2753.96* [351.0512]	8313.64* [227.807]	*16263.95 [214.71]	18318.53* [209.269]	20041.31* [205.364]	23159.58* [202.61]	15283.9* [192.893]	.023
Farmers	836.01* [142.219]	1367.97* [104.419]	3566.615* [123.611]	5213.724* [129.25]	6498.165* [126.92]	8551.72* [136.834]	753.135* [62.376]	.0379
Managers	1924.592* [437.34]	11554.88* [296.115]	26685.5* [288.719]	27853.78* [267.91]	28111.78* [257.476]	32003.71* [252.865]	14026.67* [232.02]	.0381
Clerical	1873.521* [136.875]	-305.347* [86.99]	2615.79* [83.634]	5034.471* [82.239]	3768.43* [81.505]	4301.712* [81.035]	13456.15* [74.597]	.0101
Sales Workers	1744.815* [352.31]	1311.538* [226.01]	7130.13* [220.614]	10826.67* [219.30]	12584.05* [215.58]	16610.83* [212.909]	12595.94* [186.66]	.027
Craftsmen	5339.26* [158.12]	10185.14* [107.83]	15399.49* [104.63]	17932.92* [103.21]	13835.42* [102.52]	14099.09* [101.916]	*13433.95 [87.319]	.0417
Operatives	4846.38* [111.54]	*6353.452 [73.529]	*10116.29 [71.763]	*13431.96 [71.595]	10543.3* [72.235]	11716.9* [71.943]	9903.26* [58.376]	.0423
Service Workers	2579.09* [130.908]	1165.042* [79.25]	4064.334* [75.419]	5970.8* [73.677]	5982.63* [72.39]	7440.872* [71.5845]	6190.714* [63.858]	.0209
Farm Laborers	1282.889* [130.521]	1611.223* [4585.47]	4585.469* [97.59]	7776.013* [107.17]	7406.052* [106.813]	9420.126* [104.53]	2356.31* [57.405]	.0899
Laborers	5223.81* [166.46]	6145.997* [104.563]	8206.613* [100.076]	10676.68* [95.89]	8009.06* [92.508]	8766.886* [92.71]	6876.95* [70.26]	.0378

1940 omitted

(These are based on the 1950s occupational codes)

Table 3: OLS Regression of Relative Occupational Income by Decade

	1940	1950	1960	1970	1980	1990	2000
Professional	omitted	omitted	omitted	omitted	omitted	omitted	Omitted
Farmers	-14530.8* [66.21]	-16448.78* [139.16]	-21476.5* [114.53]	-27228.16* [178.807]	-27635.64* [202.665]	-28073.98* [222.33]	-29138.69* [305.69]
Managers	-1257.298* [71.02]	-2086.666* [132.892]	1983.946* [89.48]	9164.256* [104.264]	8277.951* [91.605]	6813.169* [87.8104]	7586.827* [98.898]
Clerical	-1827.815* [66.42]	-2708.253* [121.884]	-10446.8* [72.577]	-15475.97* [77.836]	-15111.87* [74.942]	-18100.69* [76.8312]	-20685.69* [89.406]
Sales Workers	-2688.021* [74.273]	-3697.166* [139.426]	-9690.121* [86.434]	-11821.83* [99.424]	-10179.88* [101.628]	-10145.28* [105.533]	-9236.777* [124.0105]
Craftsmen	-1850.014* [64.015]	735.286* [116.622]	21.491* [75.28]	-2714.467* [84.029]	-2235.63* [83.189]	-8055.909* [87.579]	-10910.51* [104.001]
Operatives	-5380.701* [60.054]	-3288.281* [111.814]	-7340.887* [71.024]	-11528.36* [79.2037]	-10267.28* [79.455]	-14878.71* [85.687]	-16823.38* [102.234]
Service Workers	-9093.25* [64.584]	-9268.125* [126.01]	-16241.85* [76.54]	-21292.86* [83.006]	-21440.98* [80.2835]	-23151.93* [81.807]	-24811.96* [94.817]
Farm Laborers	-12927.65* [71.869]	-14398.73* [154.898]	-19630.07* [119.79]	-24606.13* [173.584]	-23470.17* [211.184]	-25562.91* [236.057]	-26667.11* [287.5054]
Laborers	-8407.01* [66.027]	-5937.162* [145.287]	-10574.65* [99.066]	-16464.34* [115.671]	-16048.86* [113.586]	-20439.26* [116.989]	-22799.71* [144.536]
Constant	15283.96* [51.393]	18037.92* [93.864]	23597.6* [57.178]	31547.91* [59.3378]	33602.5* [55.617]	35325.28* [54.695]	38443.55* [60.711]
R^2	.1843	.1529	.1291	.1327	.1203	.1133	.0915

(These are based on the 1950s occupational codes)

Table 4: Model Fit Statistics

Panel A: Time varying occupational income for the male sample
----
              |Basic Model   Linear Model   Quadratic Model
--------------+---------------------------------------
         N | 10366.00   10366.00   10366.00
        r2 | 0.12   0.13   0.14
       bic | 229168.11   229077.89   228954.45

Panel B: Time varying occupational income for the female sample
----
              |Basic Model   Linear Model   Quadratic Model
--------------+---------------------------------------
         N | 13036.00   13036.00   13036.00
        r2 | 0.16   0.18   0.19
       bic | 284515.71   284208.68   284125.83

Panel C: 1950 occupational income scale for the male sample

              |Basic Model   Linear Model   Quadratic Model
--------------+---------------------------------------
         N | 17103.00   17103.00   17103.00
        r2 | 0.05   0.07   0.09
       bic | 134500.60   134263.99   133986.39

Panel D: 1950 occupational income scale for the female sample
----
              |Basic Model   Linear Model   Quadratic Model
--------------+---------------------------------------
         N | 21795.00   21795.00   21795.00
        r2 | 0.08   0.09   0.11
       bic | 173499.25   173321.70   172947.29

Panel E: Duncan SEI for the male sample

              |Basic Model   Linear Model   Quadratic Model
--------------+---------------------------------------
         N | 17103.00   17103.00   17103.00
        r2 | 0.10   0.11   0.12
       bic | 159252.02   159186.46   159099.11

Panel F: Duncan SEI for the female sample

              |Basic Model   Linear Model   Quadratic Model
--------------+---------------------------------------
         N | 21795.00   21795.00   21795.00
        r2 | 0.12   0.12   0.13
       bic | 203727.47   203611.18   203445.22

Table 5: Social Mobility Regression with a Time Varying Occupational Income Scale

Parameters	Intercept (1971)	Linear Effect	Quadratic Effect	Total Change
Male sample				
CONSTANT	10805.84* (2374.913)	-209.012 (343.779)	-16.193 (10.822)	-27151.8
PAOCCINC	-.298* (.0397)	.0597* (.0051)	-.0017* (.00015)	0.007
RACE	8249.19* (1527.95)	-557.349* (204.249)	12.336* (6.089)	-4395.62
EDUC	1351.096* (170.269)	-64.854* (24.814)	3.91* (.7819)	2519.86
Female sample				
CONSTANT	-2774.02 (2079.1)	-206.423 (292.709)	-4.047 (9.037)	-12182.4
PAOCCINC	-.1959* (.0317)	.0403* (.0041)	-.0011* (.00012)	0.063
RACE	1431.373 (1172.013)	-25.185 (154.005)	2.542 (4.525)	2232.475
EDUC	1763.078* (156.083)	-50.48* (22.03)	2.629* (.682)	1453.725

Parameters	Total Change	1970s Change	1980s Change	1990s Change	2000-2006 Change	INFLECTION POINT
Male sample						
CONSTANT	-27151.8	-3192.74	-6107.48	-9022.22	-6307.79	1965
PAOCCINC	0.007	0.3996	0.0936	-0.2124	-0.254	1989
RACE	-4395.62	-4016.93	-1796.45	424.035	1222.455	1994
EDUC	2519.86	-266.976	436.824	1140.624	946.48	1979
Female sample						
CONSTANT	-12182.4	-2185.61	-2914.07	-3642.53	-2347.39	1945
PAOCCINC	0.063	0.2736	0.0756	-0.1224	-0.156	1989
RACE	2232.475	-20.763	436.797	894.357	700.225	1976
EDUC	1453.725	-241.371	231.849	705.069	602.025	1981

Table 6: Social Mobility Regression with the Duncan Socio Economic Index

Parameters	Intercept (1971)	Linear Effect	Quadratic Effect
Male sample			
CONSTANT	9.17* (2.526)	-.396 (.326)	.0065 (.0085)
PASEI	-.0226 (.026)	.0257* (.003)	-.0006* (.00008)
RACE	3.912* (1.872)	-.189 (.212)	.0045 (.0053)
EDUC	2.038* (.188)	-.0382 .024	.0017* (.0006)
Female sample			
CONSTANT	-3.007 (2.658)	-.181 (.3237)	.0143 (.0083)
PASEI	-.058* (.024)	.0324* (.0028)	-.00085* (.00007)
RACE	2.598 (1.739)	.1229 (.1909)	-.0039 (.0047)
EDUC	3.157* (.202)	-.0865* (.0245)	.0019* (.0006)

Parameters	Total Change	1970s Change	1980s Change	1990s Change	2000-2006 Change	INFLECTION POINT
Male sample						
CONSTANT	-5.8975	-3.0375	-1.8675	-0.6975	0.1325	2001
PASEI	0.1645	0.1827	0.0747	-0.0333	-0.0665	1992
RACE	-1.1025	-1.3365	-0.5265	0.2835	0.5175	1992
EDUC	0.7455	-0.2061	0.0999	0.4059	0.3615	1982
Female sample						
CONSTANT	11.1825	-0.4707	2.1033	4.6773	3.7425	1977
PASEI	0.09275	0.22275	0.06975	-0.08325	-0.11425	1990
RACE	-0.476	0.7902	0.0882	-0.6138	-0.653	1987
EDUC	-0.7	-0.6246	-0.2826	0.0594	0.185	1994

Table 7: Social Mobility Regression with a Fixed 1950s Occupational Income Scale

Parameters	Intercept (1971)	Linear Effect	Quadratic Effect
Male sample			
CONSTANT	17.566* (1.23)	-.4148* (.1579)	.0104* (.0041)
PAOCCSCORE	-.098* (.0226)	.0377* (.0025)	-.001* (.00006)
RACE	2.206* (.901)	-.211* (.102)	.0057* (.0025)
EDUC	.541* (.089)	-.0269* (.0115)	.001* (.0003)
Female sample			
CONSTANT	5.403* (1.33)	-.479* (.162)	.0219* (.0042)
PAOCCSCORE	-.1228* (.0216)	.0413* (.0024)	-.0011* (.00006)
RACE	1.0083 (.8645)	.0151 (.0949)	-.0006 (.0023)
EDUC	1.51* (.0997)	-.0461* (.0121)	.0007* (.0003)

Parameters	Total Change	1970s Change	1980s Change	1990s Change	2000-2006 Change	INFLECTION POINT
Male sample						
CONSTANT	-1.778	-2.8908	-1.0188	0.8532	1.306	1991
PAOCCSCORE	0.0945	0.2583	0.0783	-0.1017	-0.1365	1990
RACE	-0.4025	-1.4373	-0.4113	0.6147	0.7975	1990
EDUC	0.2835	-0.1611	0.0189	0.1989	0.1905	1984
Female sample						
CONSTANT	10.0625	-2.5371	1.4049	5.3469	4.7225	1982
PAOCCSCORE	0.098	0.2826	0.0846	-0.1134	-0.151	1990
RACE	-0.2065	0.0873	-0.0207	-0.1287	-0.1195	1984
EDUC	-0.756	-0.3582	-0.2322	-0.1062	-0.003	2003

Table 8: Model of Social Mobility from Diprete and Grusky (1990)

SELECTED PARAMETER ESTIMATES FROM SECOND-ORDER POLYNOMIAL MODELS OF OCCUPATIONAL ATTAINMENT

MICRO-LEVEL PARAMETER	MACRO-LEVEL PARAMETERS						INFLECTION POINT (7)
	Intercept (1971) (1)	Linear Effect (2)	Quadratic Effect (3)	Total Change[a] (4)	1970s Change[b] (5)	1980s Change[b] (6)	
Male sample:							
1. CONSTANT (β_0 trend)	−11.35	−2.11	.81	−10.86	−10.00	−.86	1984
	(−3.16)	(−1.90)	(1.24)	(−81.2)	(92.1)	(7.9)	
2. PASEI (β_3 trend)	.15	−.0005	−.0011	−.035	−.012	−.023	1968
	(3.79)	(−.05)	(−.16)	(−22.8)	(33.1)	(66.9)	
3. RACE (β_1 trend)	8.73	−.72	.24	−4.57	−3.65	−.92	1986
	(3.42)	(−.98)	(.59)	(−56.8)	(79.8)	(20.2)	
4. EDUC (β_2 trend)	3.61	.13	−.035	.99	.69	.30	1989
	(12.7)	(1.46)	(−.70)	(26.4)	(70.0)	(30.1)	
Female sample:							
5. CONSTANT (β_0 trend)	−29.10	1.15	−.30	9.57	6.48	3.09	1990
	(−5.40)	(.75)	(−.35)	(34.2)	(67.7)	(32.3)	
6. PASEI (β_3 trend)	.13	−.011	.0036	−.067	−.054	−.013	1986
	(2.73)	(−.81)	(.50)	(−53.7)	(80.6)	(19.4)	
7. RACE (β_1 trend)	10.42	−.35	−.030	−5.94	−2.80	−3.14	1913
	(3.51)	(−.44)	(−.07)	(−59.0)	(47.2)	(52.8)	
8. EDUC (β_2 trend)	4.61	−.0098	.0030	−.072	−.053	−.019	1988
	(10.5)	(−.08)	(.04)	(−1.6)	(73.1)	(26.9)	

NOTE.—The parenthetic entries in cols. 1–3 are t-ratios. The coefficients in col. 3 were multiplied by 10 for purposes of presentation. In cols. 6 and 7, the entries may not always sum to the correct totals because of errors in rounding. See text for details.
[a] Entries in parentheses are percentage rates of change in the parameters from 1972 to 1987.
[b] Entries in parentheses are percentages of the total change taking place each decade.

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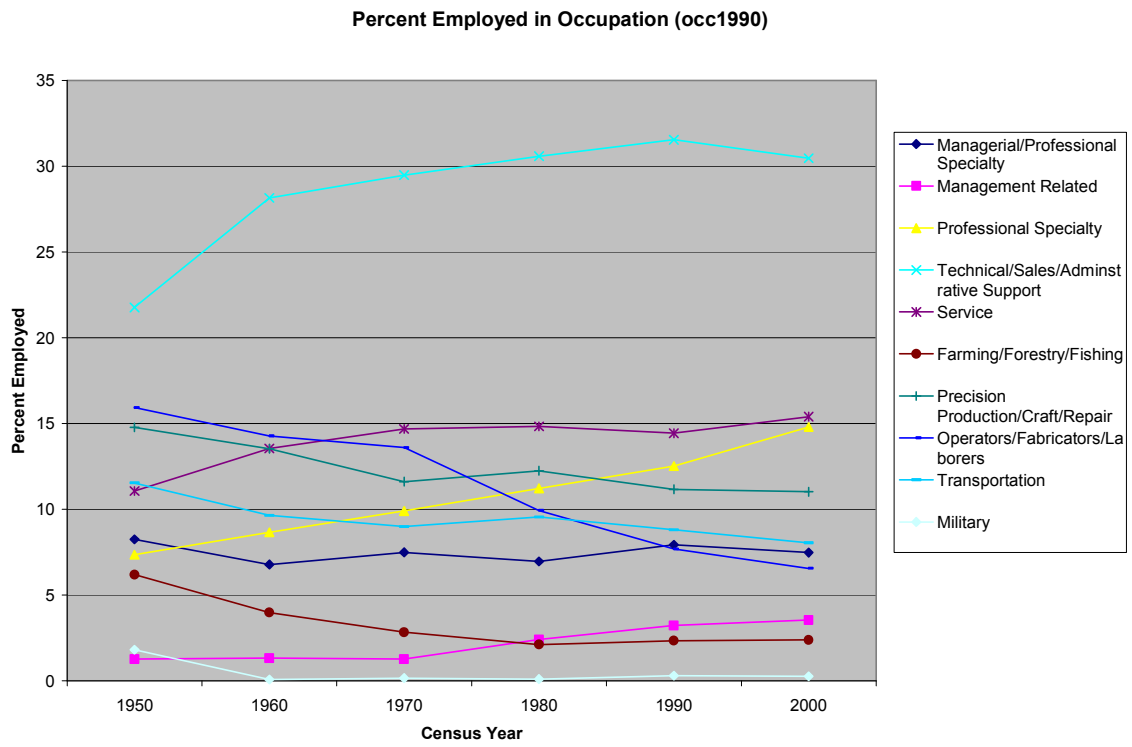Figure 1: Graph of Percentage of individuals employed in each occupation

Percent Employed in Occupation (occ1990)

Figure 2: Graph of occupational income in each occupation category

Mean Income of Individuals Employed in Each Occupation

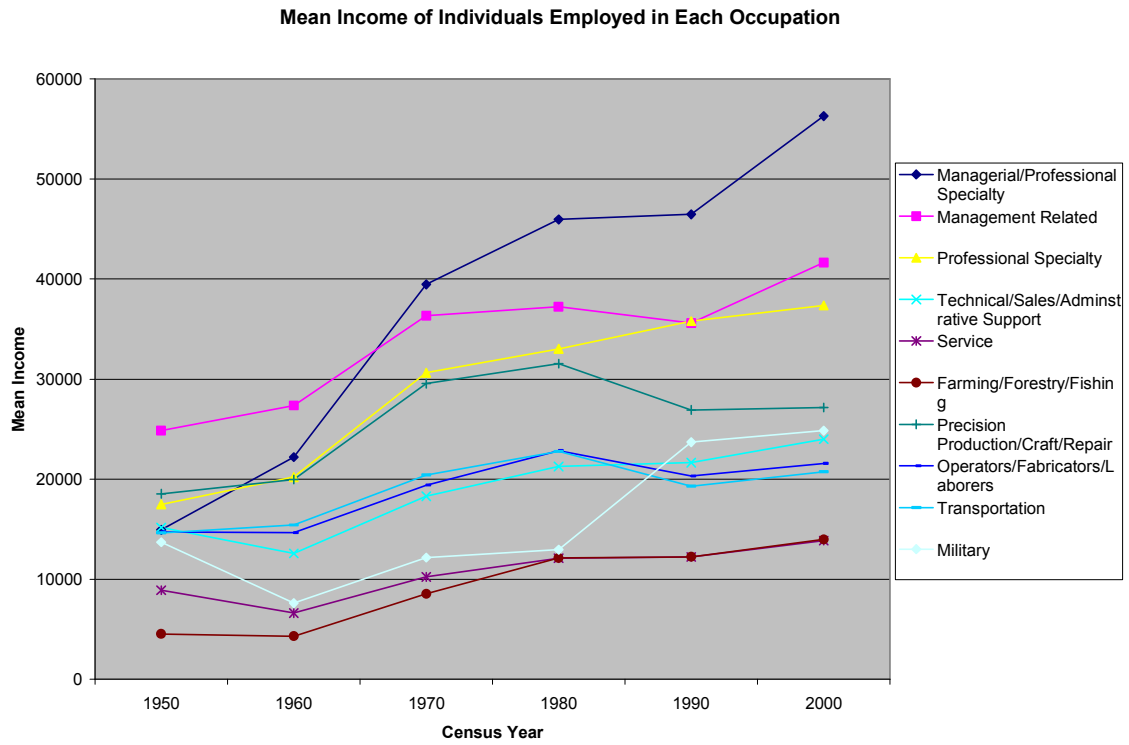Figure 3: Graph of Percentage of individuals employed in each industry

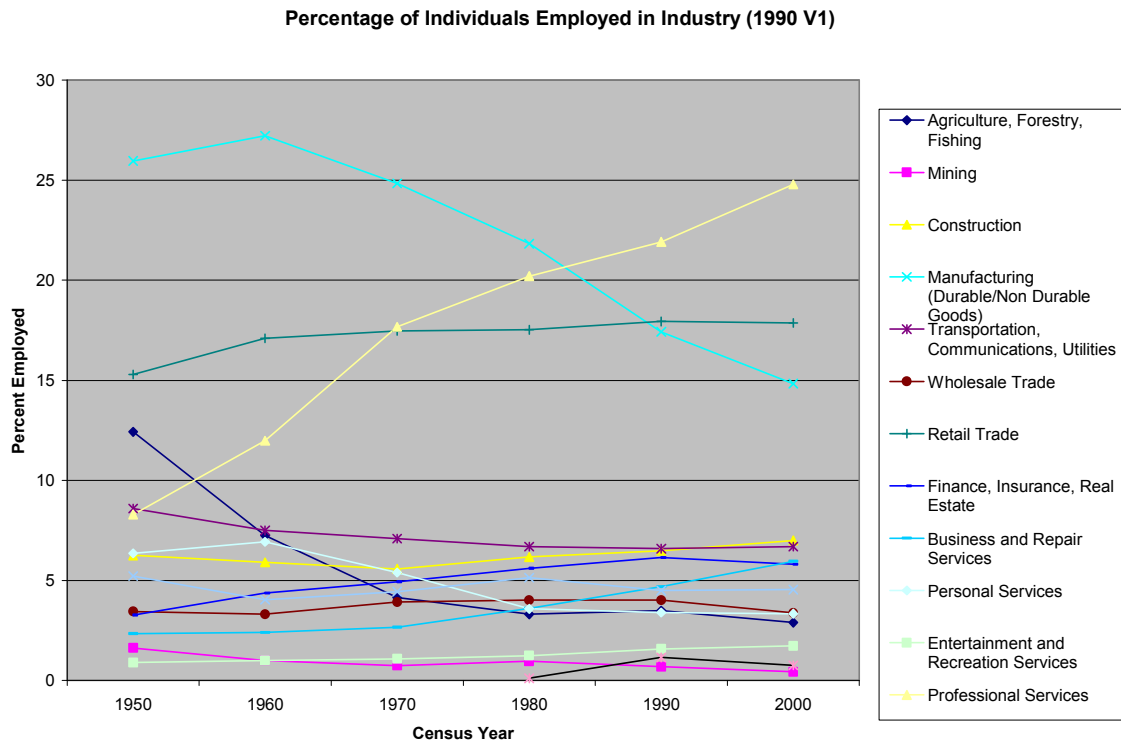**Percentage of Individuals Employed in Industry (1990 V1)**

Figure 4: Graph of industry income in each industry category

Mean Income by Individuals Employed in Each Industry V1