Examining the Gender Earnings Gap: Occupational Differences and the Life Course

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Historically, summary measures have shown that women earn less than men.

Researchers have posited several explanations:

- Occupational Crowding -- Occupations dominated by women tend to have lower worth resulting in "female ghetto" occupations.

- Human Capital -- Historically, women had less education and work experience than men, and this reduced their comparative earning power.

- Discriminatory practices and devaluing by society of women (both are difficult to measure and are not addressed in this analysis).

Over the past few decades, the increase in women's human capital through education and work experience has translated into greater earnings for women, reducing the earnings gap. However, this narrowing of the earnings gap has slowed in recent years.

This suggests that other forces are at work.

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Life Course and Earnings

Some researchers postulate that the earnings gap may not close due to women's dual roles between work and family.

The tension between these roles may result in women being unable to accumulate human capital on the job as men do.

This paper explores three major life course characteristics:

- Marital status
- Parental status
- Age

In this analysis we take advantage of the large sample size of the American Community Survey to control for differences in training, education, and particular job skills by using detailed occupation to hold these constant.

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Analytic Questions

1. Does occupational "crowding" by women result in lower median earnings?

2. Does the gender gap in median earnings vary across occupations?

3. How do life course characteristics affect the earnings gap across occupations?

4. What accounts for the shift in the size of the earnings gap between men and women who work full time, year round?

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DATA

American Community Survey, 2005

- Collected data from 1.9 million household addresses, weighted to represent the total US population in 2005 of 288 million.

- Included detailed measures of occupation, annual earnings, demographic characteristics, and household composition.

- The female-to-male earnings ratio for full-time year-round workers 16+ is 0.767 (+/- 0.001)

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Analysis Universe

- Civilian employed full-time year-round population ages 25 to 64

    - 79.6 million people

- Occupations with at least 10,000 cases nationwide

- Occupations were excluded when classified into groups containing less than 75 sample cases

Note: This analysis uses full-time, year-round workers to standardize its earnings comparisons. This precludes consideration of people who change their work status due to life course events.

Independent variables

- Occupation
    - Measured for the week prior to the survey; classified to one of 510 detailed occupations corresponding to the Standard Occupation Classification system.

- Age

- Sex

- Marital status
    - Married/Not married

- Parental status
    - Presence of own child under age 18

Dependent variable

- Annual earnings
    - Measured for the 12 months preceding the interview.

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Occupation

- Occupation write-ins were coded to 510 detailed occupation categories.

- In this analysis, 301 detailed occupations were used for comparisons of men and women.

- Fewer occupations were used for more detailed demographic crosses.

41 For whom did this person work?

If now on active duty in the Armed Forces, mark (X) this box → ☐ *and print the branch of the Armed Forces.*

Name of company, business, or other employer

42 What kind of business or industry was this? *Describe the activity at the location where employed. (For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, bank)*

43 Is this mainly – *Mark (X) one box.*
☐ manufacturing?
☐ wholesale trade?
☐ retail trade?
☐ other (agriculture, construction, service, government, etc.)?

44 What kind of work was this person doing? *(For example: registered nurse, personnel manager, supervisor of order department, secretary, accountant)*

45 What were this person's most important activities or duties? *(For example: patient care, directing hiring policies, supervising order clerks, typing and filing, reconciling financial records)*

Employment Status

- The "civilian employed" population includes people who either were "at work" or were "with a job but not at work" who were not in the military.

28 LAST WEEK, did this person do ANY work for either pay or profit? *Mark (X) the "Yes" box even if the person worked only 1 hour, or helped without pay in a family business or farm for 15 hours or more, or was on active duty in the Armed Forces.*

☐ Yes
☐ No → *SKIP to question 34*

34 a. LAST WEEK, was this person on layoff from a Job?

☐ Yes → *SKIP to question 34c*
☐ No

b. LAST WEEK, was this person TEMPORARILY absent from a Job or business?

☐ Yes, on vacation, temporary illness, labor dispute, etc. → *SKIP to question 37*
☐ No → *SKIP to question 35*

c. Has this person been informed that he or she will be recalled to work within the next 6 months OR been given a date to return to work?

☐ Yes → *SKIP to question 36*
☐ No

Work Status & Annual Earnings

- **Work status includes people who were employed in the week preceding the interview.**

- **Full-time, year-round workers consisted of people who usually worked 35 hours or more per week for 50 to 52 weeks in the year preceding the interview.**

- **Earnings were defined as the sum of wages, salary income, and net income from self employment.**

- **Median annual earnings were calculated from reported earnings and rounded to two significant digits.**

38 During the PAST 12 MONTHS, how many WEEKS did this person work? *Count paid vacation, paid sick leave, and military service.*

Weeks

39 During the PAST 12 MONTHS, in the WEEKS WORKED, how many hours did this person usually work each WEEK?

Usual hours worked each WEEK

46 INCOME IN THE PAST 12 MONTHS.

a. Wages, salary, commissions, bonuses, or tips from all jobs. *Report amount before deductions for taxes, bonds, dues, or other items.*

☐ Yes → $ .00
☐ No   TOTAL AMOUNT for past 12 MONTHS

b. Self-employment income from own nonfarm businesses or farm businesses, including proprietorships and partnerships. *Report NET Income after business expenses.*

☐ Yes → $ .00   ☐ Loss
☐ No   TOTAL AMOUNT for past 12 MONTHS

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Analytic Measures

Female-to-male earnings ratio =   Median earnings for women

                                     Median earnings for men

Percent female   =   Number of women in each occupation   x 100

                                     Number of men and women in each occupation

Female-to-male age ratio   =   Median age of women

                                     Median age of men

Index of dissimilarity   =   Mean of proportional differences

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1. Does occupational "crowding" by women result in lower median earnings?

Yes, but only moderately.

The relationship between the percent female in an occupation and the median earnings of the occupation is slight despite the presence of outliers.

The outliers represent a handful of occupations which may create the impression that the smaller the proportion of women in the occupation the higher the earnings.

Percent female by median earnings

$y = -230.22x + 53284$

$R^2 = 0.0863$

Total median earnings

Percent female

♦ = Occupation

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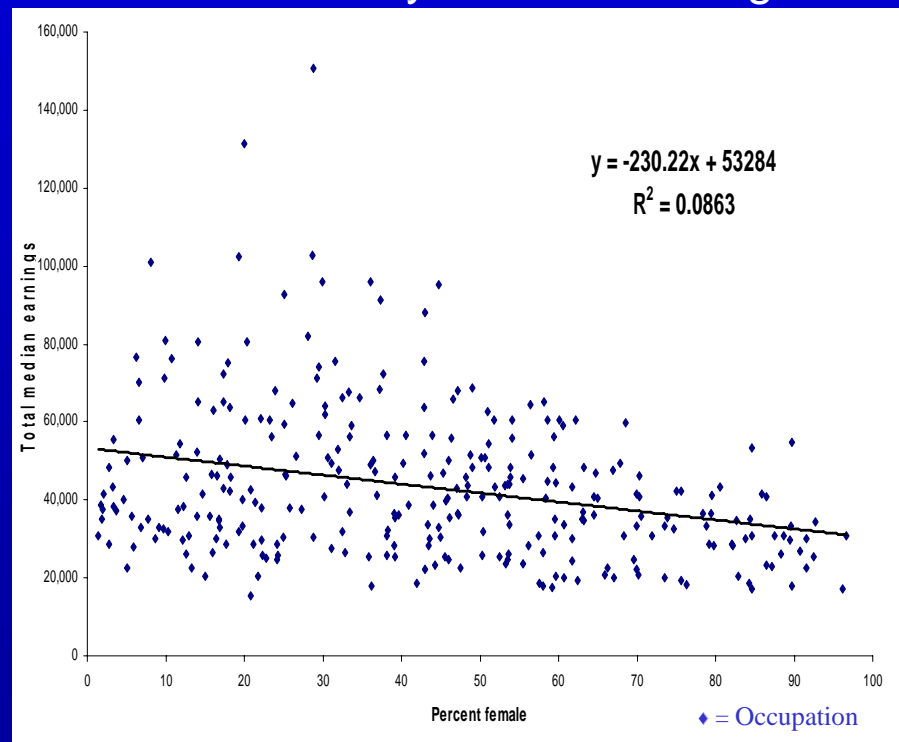
No relationship exists between the percent female and the female-to-male ratio of earnings.

The figure shows no systematic relationship between percent female in occupations and the ratio of female-to-male earnings. While the earnings ratio does vary among occupations, it does so without regard to the percentage of women in the occupation.

On average, men who work in female-dominated fields earn more than women in those fields, but an amount in proportion to the overall earnings potential of the occupation.

Percent female by female-to-male earnings ratio

$y = -3E-05x + 0.8087$

$R^2 = 0.00007$

Female-to-male earnings ratio

Percent female   ♦ = Occupation

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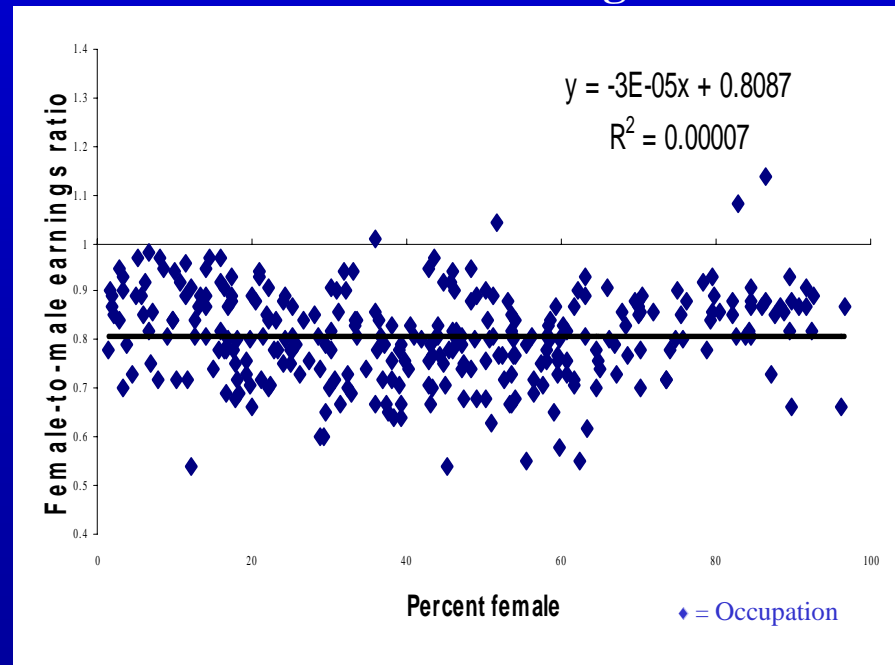
2. Does the gender gap in median earnings vary across occupations?

Yes, but not substantively.

- Women earn less than men in nearly every occupation.

- While there is some variation in the size of the gap, there is no systematic relationship between the size of the gap and the median earnings of the occupation.

Median earnings by earnings gap

$$y = -8162.6x + 49973$$

$$R^2 = 0.0015$$

Median earnings (y-axis, 0 to 160,000)

Female-to-male earnings ratio (x-axis, 0.5 to 1.2)

♦ = Occupation

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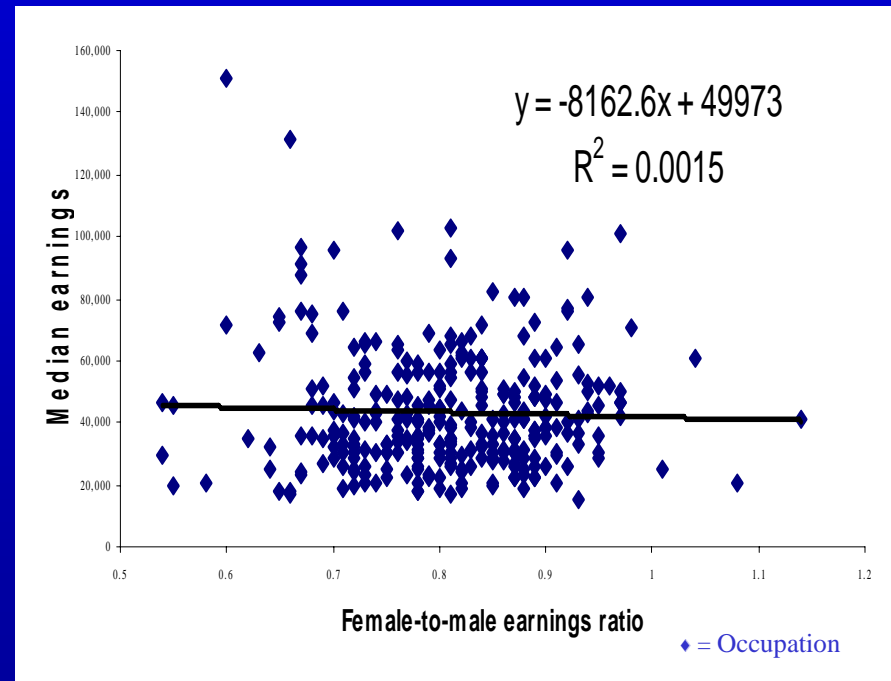
Median Earnings Across Occupations by Sex
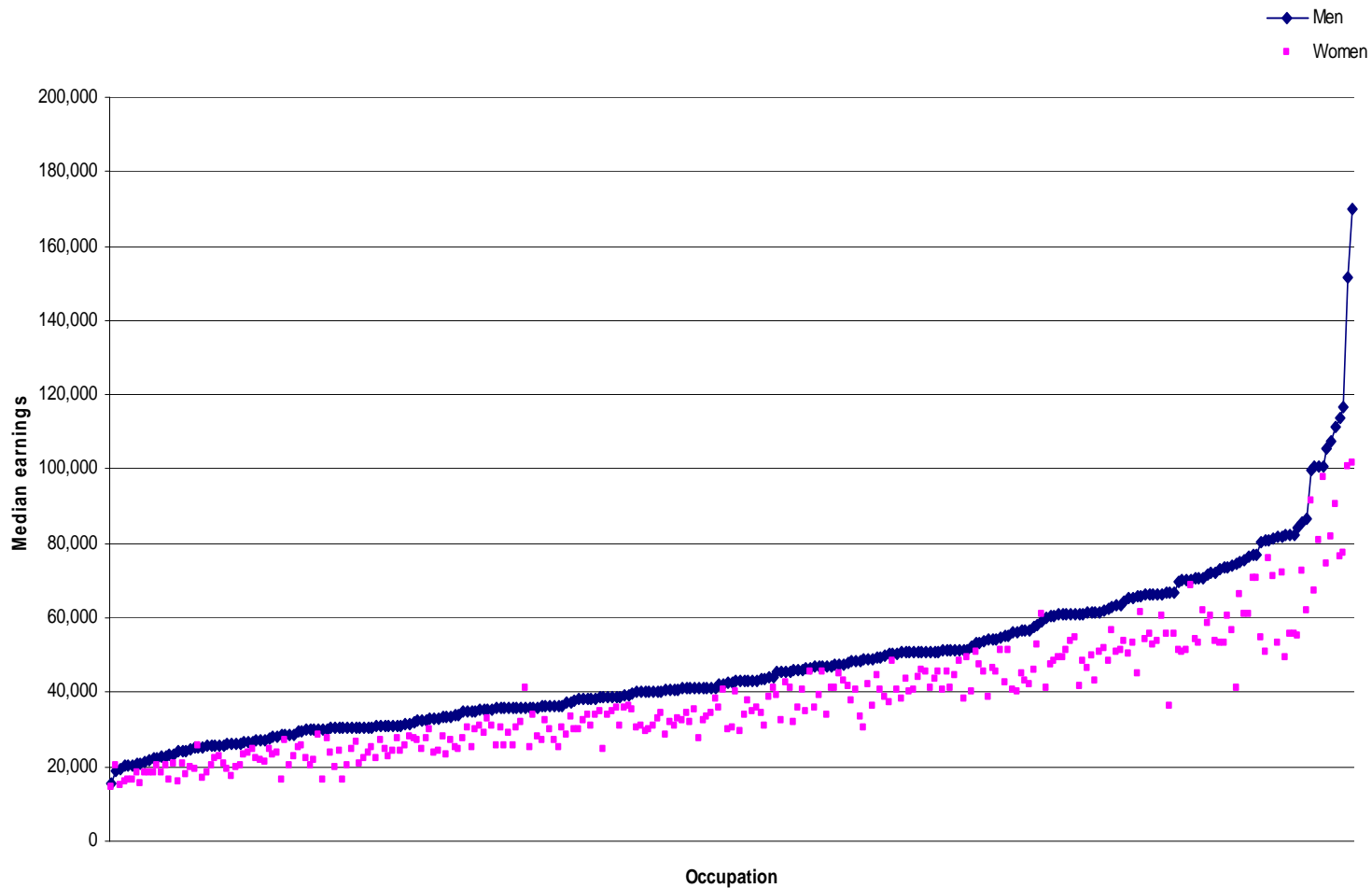
Source: American Community Survey, 2005.

Index of dissimilarity = 0.19

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Occupations with Some of the Highest Median Earnings

For civilian employed year-round, full-time workers 25 to 64 years old

For civilian employed year-round, full-time workers 25 to 64 years old

Source: American Community Survey, 2005

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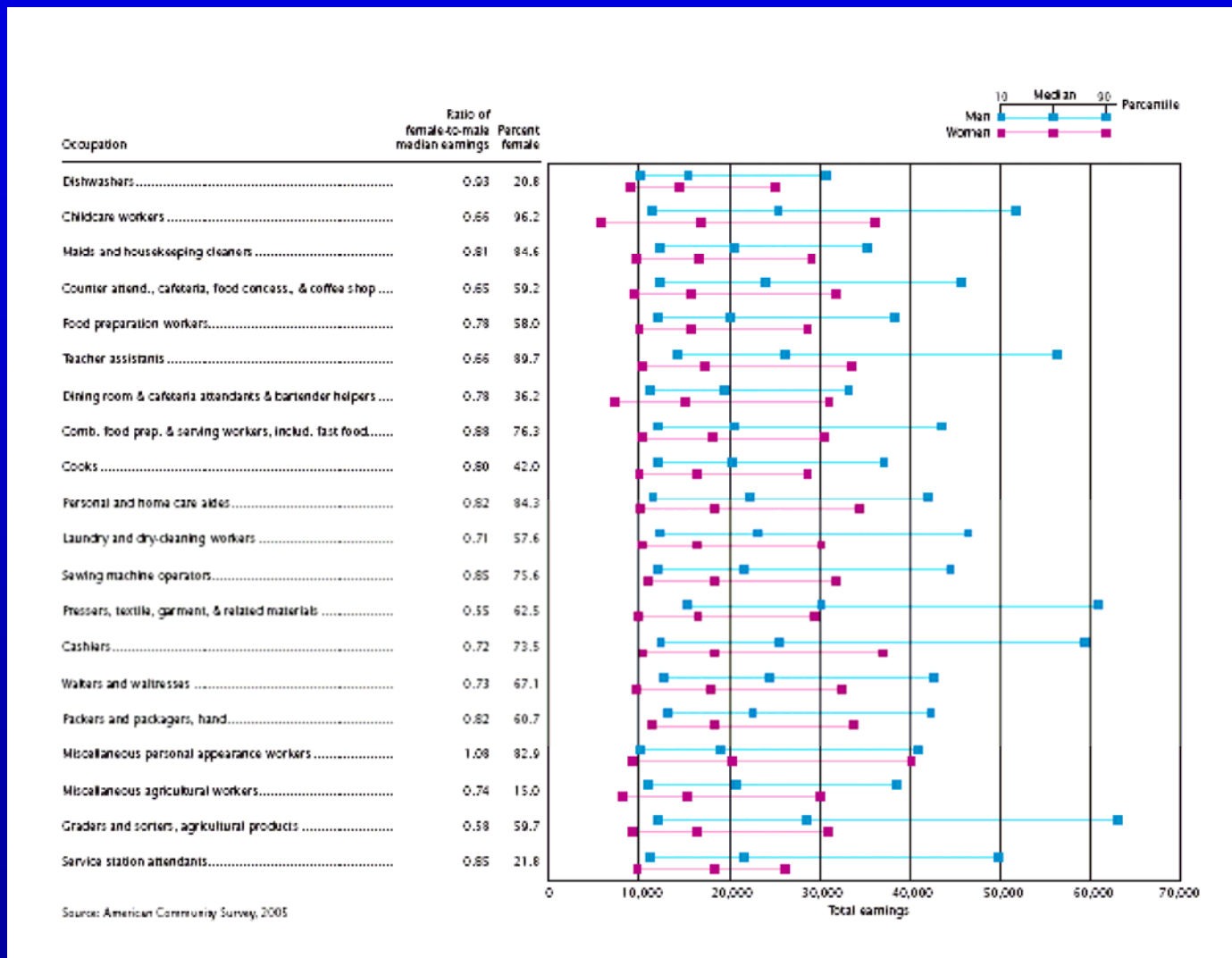
3. How do life course characteristics affect the wage gap across occupations?

Marital status:

- The earnings gap appears to be larger among married workers compared with not married workers across occupations.

Parental status:

- Similar to the effect of marital status, the earnings gap appears to be larger among workers with children compared with those without children.

Age:

- Age structure differences within occupations do not explain the earnings gap. However, occupations in which men are on average older than women have higher earnings. This may reflect lingering effects of past restrictions on occupational choices of women.

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Median Earnings For Not Married and Married People Across Occupations by Sex

Not married
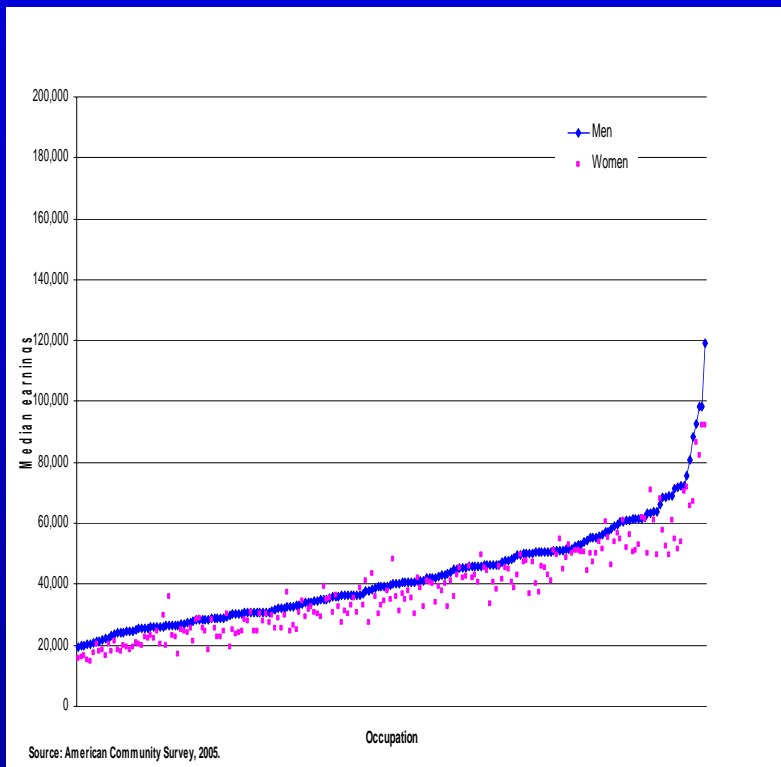
Married
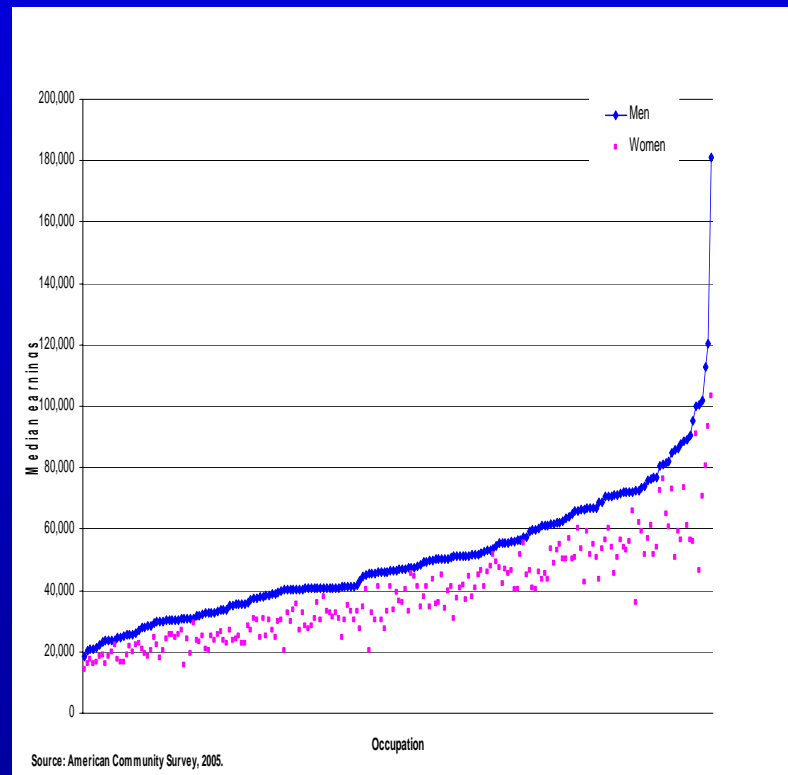
Index of dissimilarity = 0.11

Index of dissimilarity = 0.24

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Median Earnings of People With and Without Children Under 18 Across Occupations by Sex
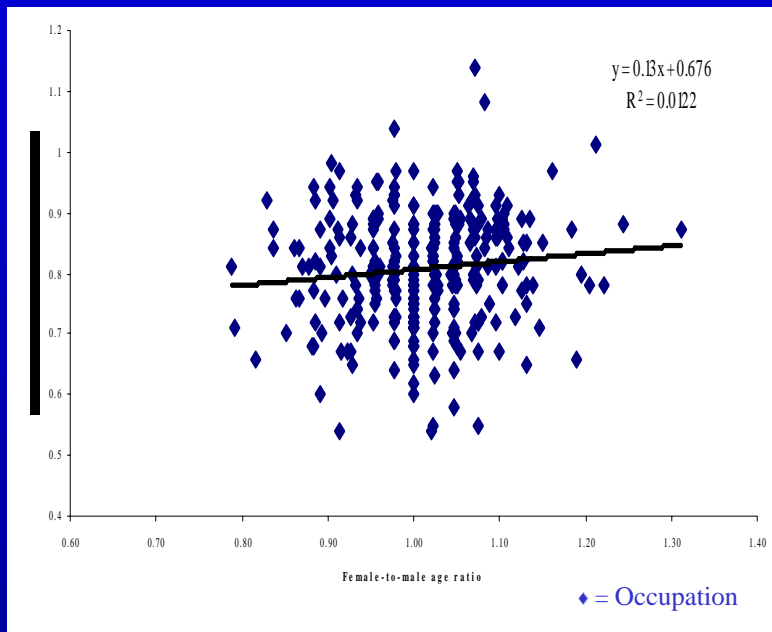
No children under 18   Children under 18
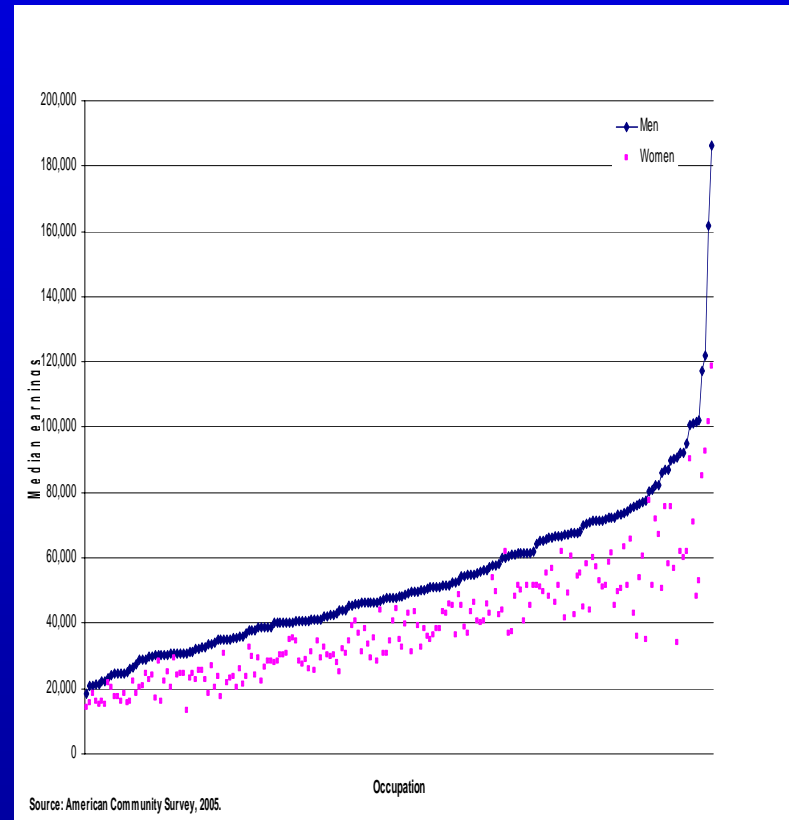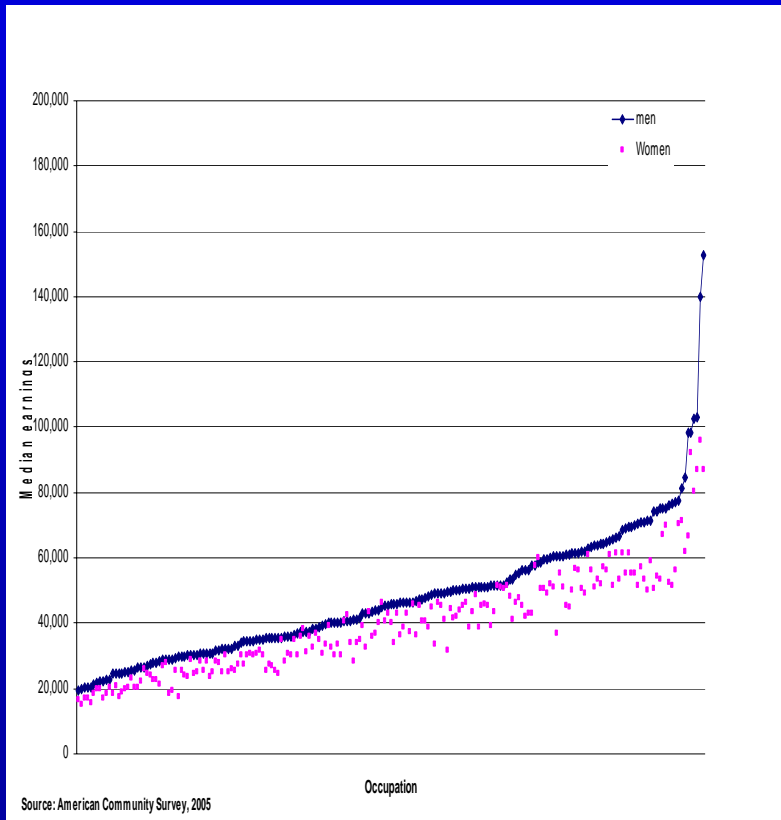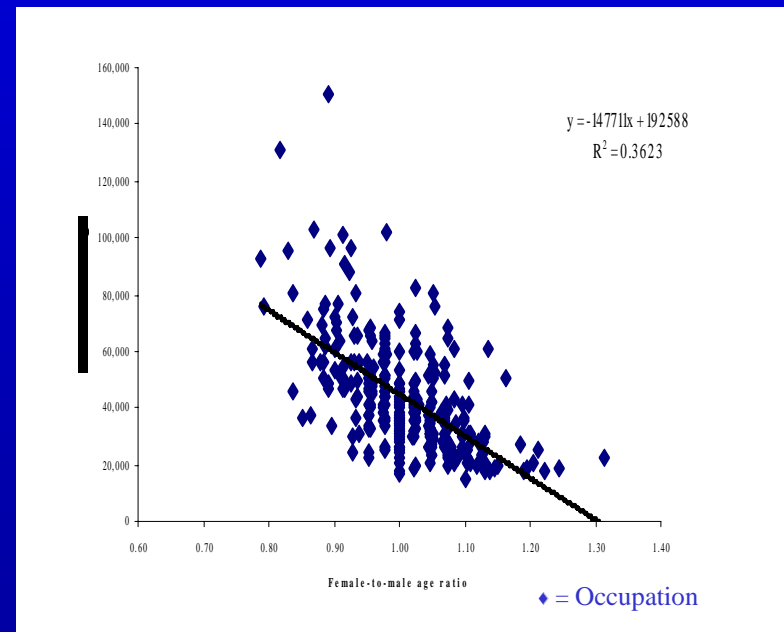

Index of dissimilarity = 0.16   Index of dissimilarity = 0.26

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Age

Age ratio to earnings ratio

$y = 0.13x + 0.676$
$R^2 = 0.0122$

♦ = Occupation

Age ratio to median earnings

$y = -147711x + 192588$
$R^2 = 0.3623$

♦ = Occupation

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4. What accounts for the shift in the size of the earnings gap between men and women who work full time, year round?

Do marriage and having children exert independent influences on earnings?

- Married men earn more than not married men.

- Married women earnings are more similar to not married women.

- The same pattern appears for men and women's earnings when compared by parental status.

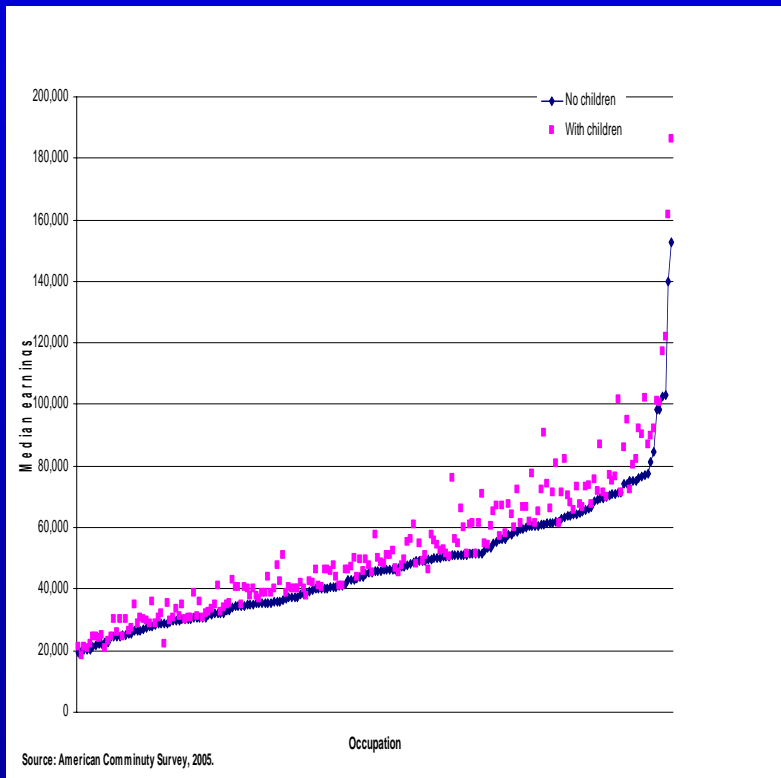# Median Earnings of Men and Women Across Occupations by Marital Status
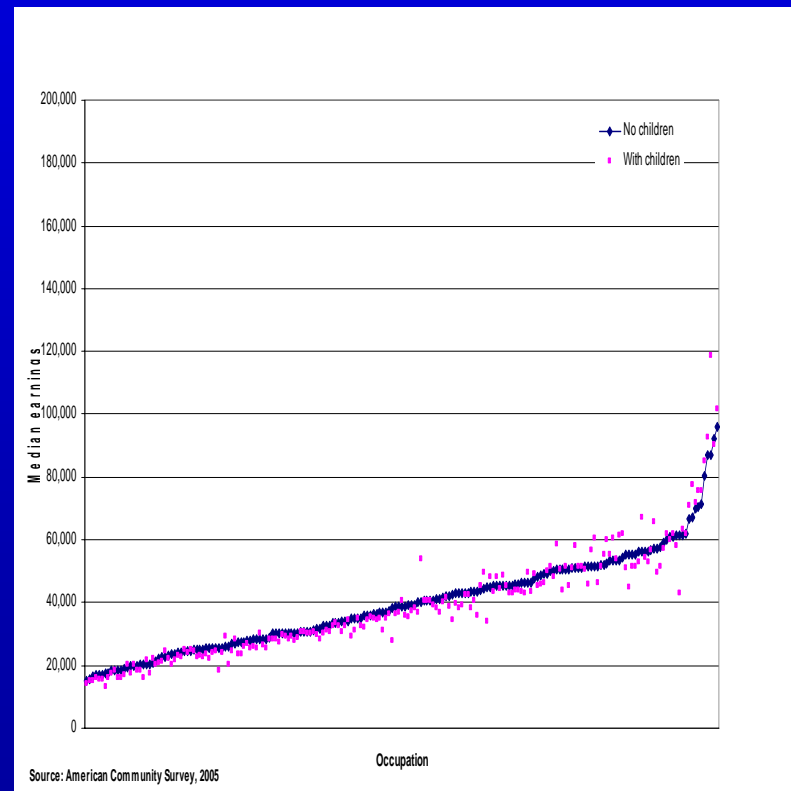
Men
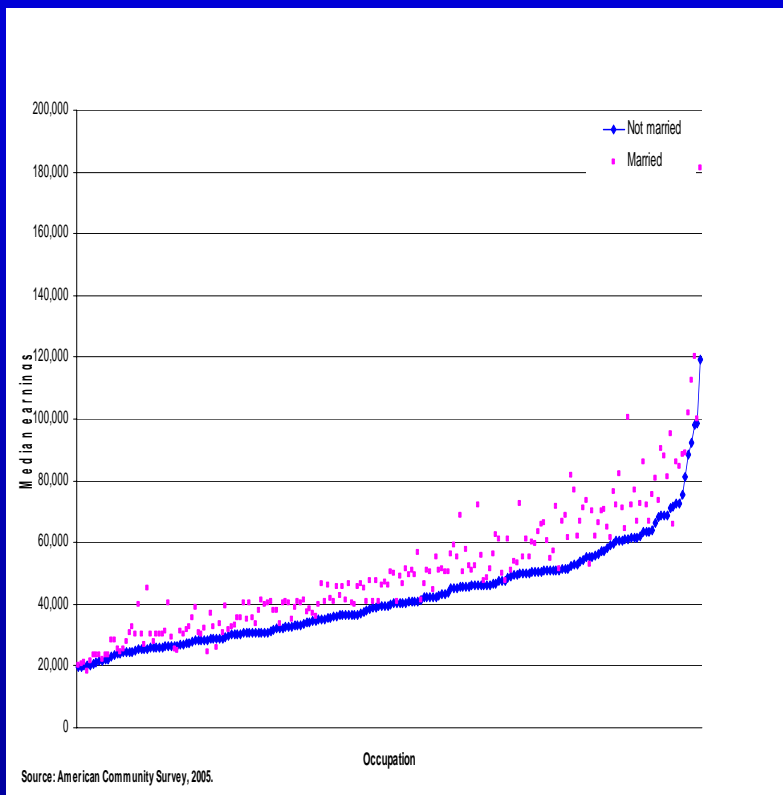
Women
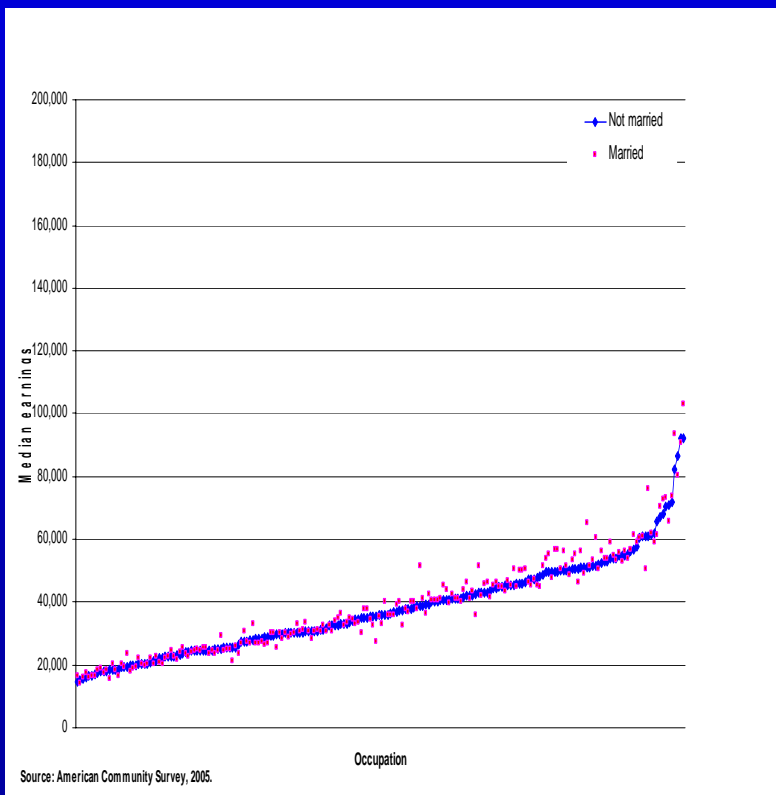
Index of dissimilarity = -0.19

Index of dissimilarity = -0.01

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Median Earnings of Men and Women Across Occupations by Parental Status
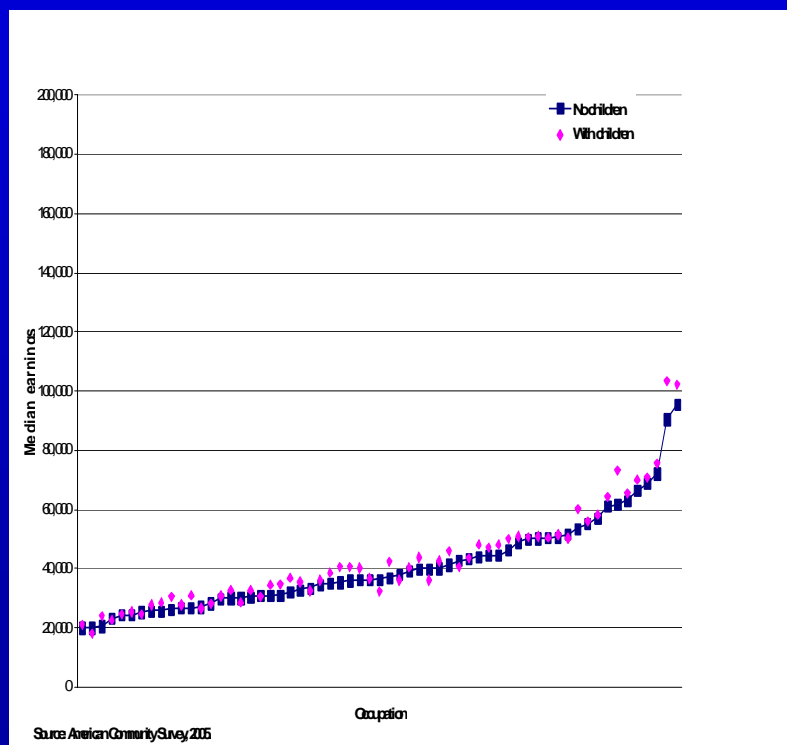
Men

Women

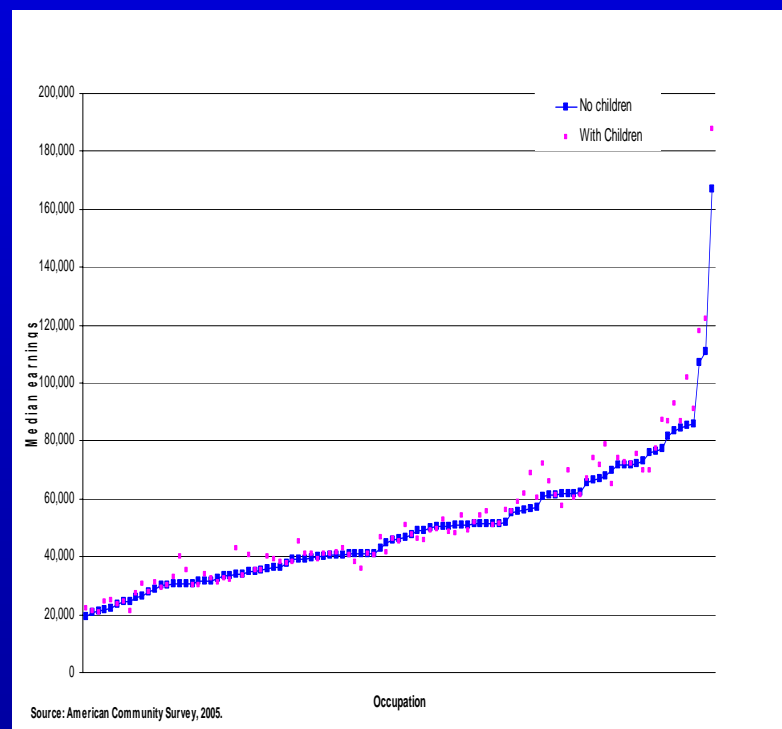Index of dissimilarity = -0.11

Index of dissimilarity = 0.03

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Median Earnings of Men Across Occupations by Marital Status and Parental Status

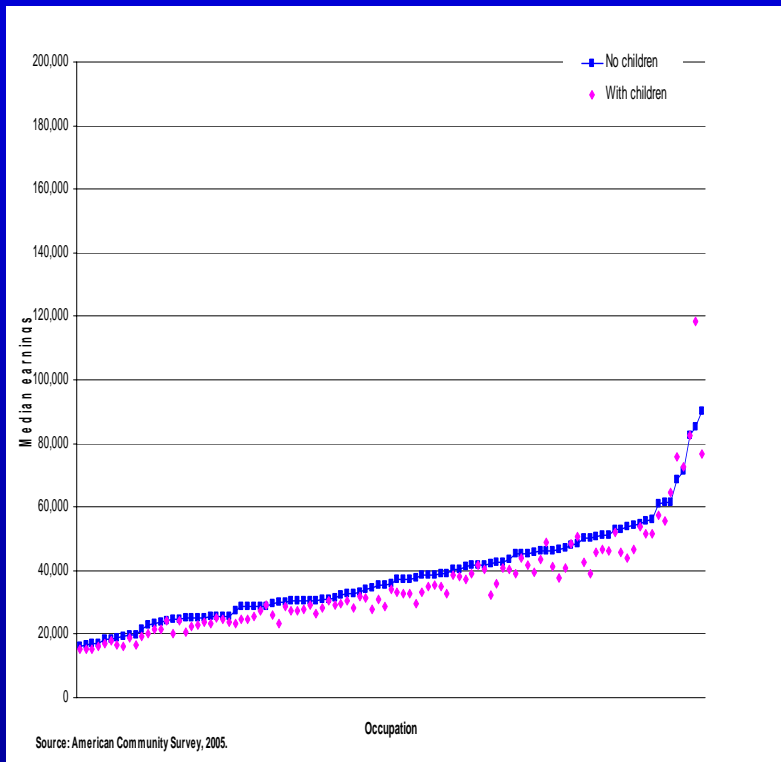Not married

Married

Index of dissimilarity = -0.05*

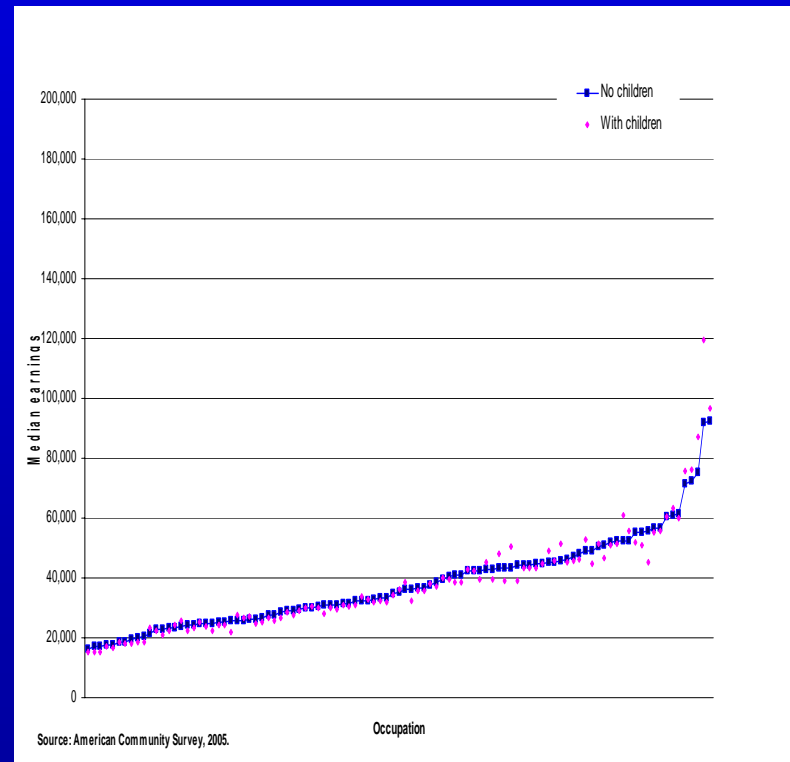Index of dissimilarity = -0.04*

*Difference not significant

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Median Earnings of Women Across Occupations by Marital Status and Parental Status

Not married

Married

Index of dissimilarity = 0.08

Index of dissimilarity = 0.01

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Summary

- Forces other than occupational differences and occupational crowding are at work in maintaining the remaining gender earnings gap.

- The gender earnings gap affects occupations across all earning levels.

- Men and women experience different earning consequences from the same life course characteristics.

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