

# Are the New Jobs Good Jobs?

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## Outline of Today's Presentation

- Motivation
- Literature review
- Data – CPS, OES
- Basic results
- Summary and extensions

## Motivation

- Paper studies trends in job quality in the U.S. economy since the mid-1990s
  - Are we adding “good” jobs?
  - Have changes in the mix of employment opportunities contributed to observed trends in wage inequality?
- Focus on occupation and industry as proxies for job quality

## Motivation

- Previous research has used Current Population Survey data to study the evolution of employment by occupation and industry
- CPS data have two important limitations:
  - Small sample sizes preclude analysis of detailed occupations and industries
  - Individuals may misreport the nature of their work

# Motivation

<b>Comparison of employment data from the 1998 OES and CPS</b>				
Unpublished tabulations provided by Michael Horrigan				
Occupational group	Number		Percent	
	Matrix	CPS	Matrix	CPS
Executive, administrative and managerial	14,770	19,054	10.50%	14.50%
Professional specialty occupations	19,802	19,883	14.10%	15.10%
Technicians and related support occupations	4,949	4,261	3.50%	3.20%
Marketing and sales occupations	15,341	15,850	10.90%	12.10%
Administrative support, including clerical	24,461	18,410	17.40%	14.00%
Service occupations	22,548	17,836	16.00%	13.60%
Agriculture, forestry, fishing, and related	4,436	3,502	3.20%	2.70%
Precision production, craft, and repair	15,619	14,411	11.10%	11.00%
Operators, fabricators, and laborers	18,588	18,256	13.20%	13.90%
Total, all occupations	140,514	131,463	100.00%	100.00%

# Literature Review

- Following the 1991 recession, and particularly leading up to the 1992 national election, quality of new jobs an important topic
- Occupation results from CPS
  - Of the 20 million jobs created 1993-1999, managers accounted for 33% and professionals for 31%
  - These are the 2 (of 8) highest paying occupations
  - Easy to conclude that “good jobs” were being created
- Industry results from CES
  - Of the 20 million jobs created 1993-1999, services accounted for 50% and retail for 17%
  - These are the 2 (of 9) lowest paying industries
  - Easy to conclude that “bad jobs” were being created

## Literature Review

- BLS research studied growth in employment for occupation by industry cells (Ilg MLR June 1996, Ilg and Haugen MLR March 2000). Over the period 1989-1999:
  - Employment in the highest third of the earnings distribution increased by 27%
  - Employment in the middle third of the earnings distribution increased by 1%
  - Employment in the lowest third of the earnings distribution increased by 16%
- See Levine and Labonte (2004) for further discussion

## Literature Review

- All of these analyses rely on the occupation and industry wage structures changing only slowly over time
- The Ilg and Haugen methodology does not yield robust results when applied to the 2001-2004 data (again a recession followed by a national election):
  - There are large employment cells that lie on the earnings boundaries that separate the thirds (and the halves) of the earnings distribution
  - Trying to increase the industry and occupational detail from the CPS leads to small cell sizes
  - Results are also sensitive to base year and end year
- Our contribution to the literature is to use OES data to analyze employment trends by occupation and industry

## Data -- CPS

- Current Population Survey (CPS)
- Monthly household survey that collects information about the labor force status of those aged 16 and older
- Survey conducted in person or by telephone
- Approximately 50,000 households interviewed each month, with a single respondent generally reporting for all members of the household
- Households are in the sample for 4 months, out for 8 months, and in for another 4 months
- Survey sample in each month represents the civilian non-institutionalized population

## Data -- CPS

- CPS employment estimates count *people* not *jobs*
- Data on occupation and industry of main job collected every month for all employed persons
  - Coding for occupation and industry changed in 2003; tabulations on both old and new bases available for 2000-2002
- Data on earnings collected for those in their 4<sup>th</sup> and 8<sup>th</sup> month of participation (outgoing rotation groups)
  - Collected in whatever form respondent finds easiest to report (hourly, weekly, monthly, annual), but converted to a weekly earnings figure using information on hours of work

## Data -- CPS

- CPS program office has prepared annual estimates of employment and weekly earnings of wage and salary workers by occupation and industry
  - These are the data analyzed by Ilg (1996) and Ilg and Haugen (2000).
- Tabulations that we have used cover two different time periods:
  - 1994-2002 – 9 occupations, 10 industries
  - 2000-2006 – 11 occupations, 13 industries
- Weekly earnings data for each occupation by industry cell include overall median, overall mean, median for full-time workers and mean for full-time workers
  - Last of these most comparable to OES

## Data -- OES

- Occupational Employment Statistics (OES)
- Annual mail survey measuring occupational employment and wages by geography and industry.
- Approximately 400,000 establishments are surveyed each year.
- In 1996 the OES program began collecting wage data along with occupational employment data
- The survey is designed as a three-year sample, with data collected from one-third of both the certainty and the non-certainty units in the sample each year.

## Data -- OES

- The OES survey asks establishments to fill out the elements of a matrix, where occupations are listed on the rows and various wage ranges are listed in the columns.
- For each occupation, respondents are asked to report the number of employees paid within specific wage intervals.
- Separate OES survey forms are designed for each industry group, and list the occupations that are typical in the industry. Survey forms contain between 50 and 225 OES occupations, depending on industry and size of the establishment.

## Data -- OES

OCCUPATIONAL TITLE AND DESCRIPTION OF DUTIES	NUMBER OF EMPLOYEES IN SELECTED WAGE RANGES (Report Part-time Workers According to an Hourly Rate)													Total Employment
	A	B	C	D	E	F	G	H	I	J	K	L	T	
	Hourly (part-time or full-time)	under \$6.75	\$6.75 - 8.49	\$8.50 - 10.74	\$10.75 - 13.49	\$13.50 - 16.99	\$17.00 - 21.49	\$21.50 - 27.24	\$27.25 - 34.49	\$34.50 - 43.74	\$43.75 - 55.49	\$55.50 - 69.99	\$70.00 and over	
Annual (full-time only)	under \$14,040	\$14,040 - 17,679	\$17,680 - 22,359	\$22,360 - 28,079	\$28,080 - 35,359	\$35,360 - 44,719	\$44,720 - 56,679	\$56,680 - 71,759	\$71,760 - 90,999	\$91,000 - 115,439	\$115,440 - 145,599	\$145,600 and over		

### Management Occupations

(Managers in this section have other managers/supervisors reporting to them.)

Chief Executives - Determine and formulate policies and provide the overall direction of companies or private and public sector organizations within the guidelines set up by a board of directors or similar governing body.	A	B	C	D	E	F	G	H	I	J	K	L	T
11-1011													
General and Operations Managers - Plan, direct, or coordinate the operations of companies or public and private sector organizations. Duties include formulating policies.	A	B	C	D	E	F	G	H	I	J	K	L	T

## Data -- OES

- The OES is not a time series
  - 1999 change in occupational classification from OES to SOC
  - 2002 change in industry classification from SIC to NAICS
  - 2001 questionnaire change for reporting occupations not pre-printed on survey form
  - 2002 change in survey reference period, from 3-panel Oct/Nov/Dec to 6-panel May and November
  - 2002 change in mean wage methodology for workers earning above \$70 per hour
  - Certainty units are included in 3 year cycles

## Data -- OES

- Creating an OES time-series is key to our methodology
  - We have adopted concordances originally developed by Matt Dey to bridge the OES to SOC change in occupational classification and the SIC to NAICS change in industry classification
  - 19 occupations and 12 industries (excluding agriculture and public administration)
- Next draft of paper will attempt to create more detailed concordances



## Data -- OES

### Issue of weighting

- Each OES panel includes approximately 200,000 establishments. The OES survey currently is designed to produce estimates using six panels (3 years) of data. The full six-panel sample of 1.2 million establishments allows the production of estimates at detailed levels of geography, industry, and occupation. The three years of employment data are benchmarked to represent total employment for the reference period.
- This methodology makes it difficult to use OES data for comparisons across short time periods.

## Data -- OES

### Issue of weighting (continued)

- Question – can we use the November panels to create an annual time series of employment data at the national level?
- The OES microdata include a current weight that reflects probability of selection into the individual panel, adjusted to account for atypical reports, in addition to the benchmark weight that is used for publication using three years of data pooled together.
- The current OES is stratified by 686 MSA/BOS substate areas, 343 industries, and 7 size classes. Individual panels contain a significant number of empty cells and estimates of total employment constructed for a single panel using the current weights fall short of actual employment for the panel reference month.

## Data -- OES

### Issue of weighting (continued)

- We have created weight adjustment factors that we apply to the OES current weights to replicate November CES national employment for each industry j:

$$ADJFACTOR_j = \frac{E_j^{CES}}{\sum_j CURRWT_{ij}^{OES} E_{ij}^{OES}}$$

- Weight adjustments constructed where possible at the 5-digit industry level
- This reweighting reproduces CES national industry employment trends in estimates based on the OES microdata

## Data -- OES

- We have microdata for OES employment for the period 1996-2004
- We also have microdata for OES wages in 2004 (we will incorporate wages from other years in the next draft)
- Note – still more work to do to create an OES time series of employment

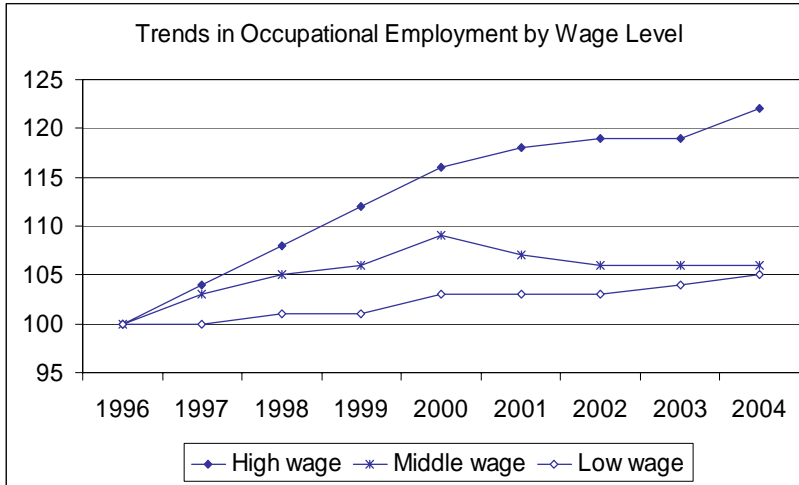
## Basic Results -- CPS

- Occupation cells (or occupation by industry cells) sorted in ascending order of mean weekly earnings of full time workers in 2000
- Cells assigned to the bottom third, middle third or top third of the distribution of overall employment, based on the mean weekly earnings of full-time workers in the cell
- Growth in employment by position in wage distribution estimated by applying the same assignments to data for other years
- Exercise carried out separately for 1994-2002 data and 2000-2006 data

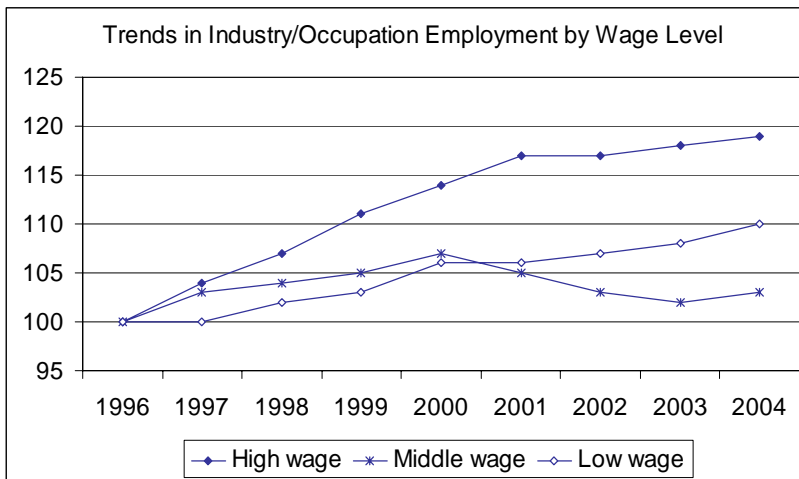
## Basic Results -- CPS

- Employment indexes for each wage group (low, middle, high) set to 100 in 1996
- Indexes for 1996-2000 period based on 1990 Census occupation and industry groupings (9 occupations and 8 industries excluding agriculture and public administration)
- Indexes for 2000-2004 period based on 2000 Census occupation and industry groupings (11 occupations, 11 industries excluding agriculture and public administration)
- Indexes linked in 2000

## Basic Results – CPS Occupation Cells



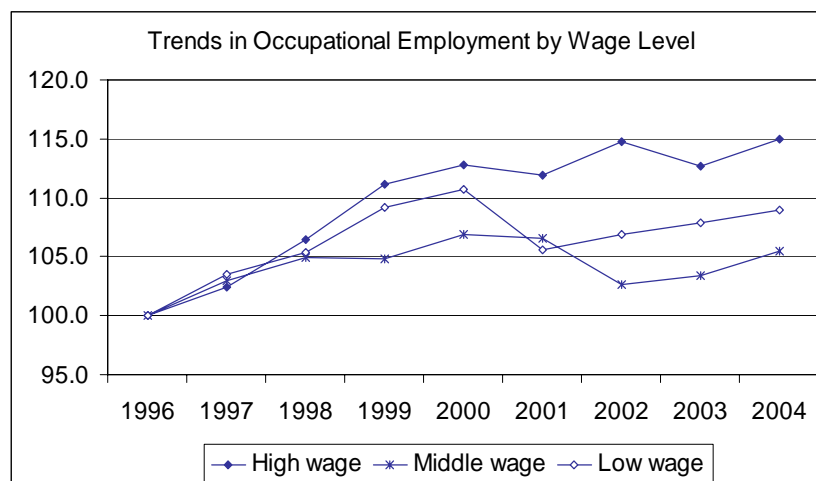
## Basic Results – CPS Occupation by Industry Cells



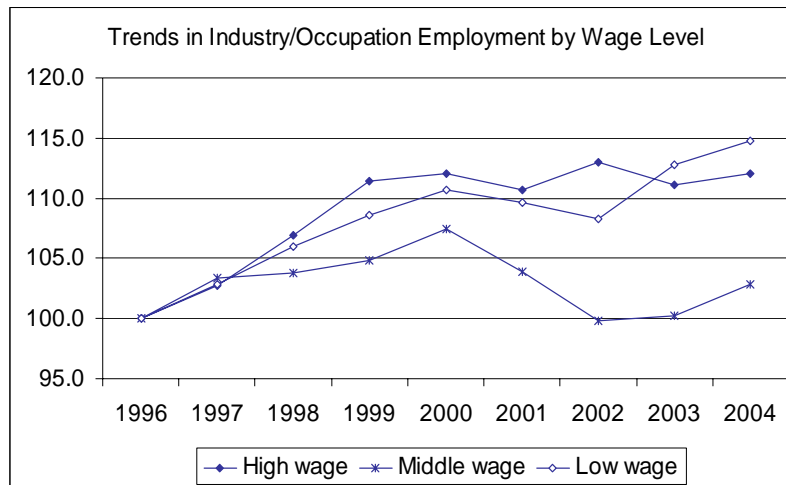
## Basic Results -- OES

- Index calculations for OES similar to what we did with CPS data
- Some differences:
  - Occupation cells (or occupation by industry cells) sorted in ascending order of mean hourly earnings in 2004
  - Exercise carried out for 1996-2004 data
  - Indexes based on our occupation and industry concordances (19 occupations, 12 industries excluding agriculture and public administration)

## Basic Results – OES Occupation Cells



## Basic Results – OES Occupations by Industry Cells



## Basic Results – CPS and OES

- Using broad occupations, over the 1996-2004 period, employment increased by the following percentage amounts:

	CPS	OES
Low Wage	5.3%	9.0%
Middle Wage	5.6%	5.5%
High Wage	21.8%	15.0%

## Basic Results – CPS and OES

- Using broad occupations and broad industries, over the 1996-2004 period, employment increased by the following percentage amounts:

	CPS	OES
Low Wage	10.4%	14.8%
Middle Wage	2.8%	2.8%
High Wage	18.9%	12.1%

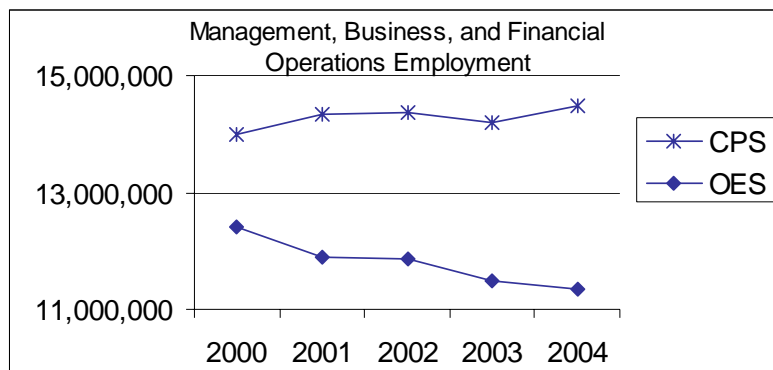
## Summary

### Key features of findings for occupation/industry cells

- The CPS shows more growth in high wage cells and less growth in low wage cells than does the OES during 1996-2004
- The CPS and the OES agree that employment in the middle wage cells grew only slightly (2.8%) during 1996-2004, while employment grew by more than 10% in both the top and the bottom wage cells

## Summary

One possible explanation for more rapid growth  
In high-wage CPS cells



## Summary

- Both the CPS and the OES detailed data are consistent with recent work on the “polarization” of the U.S. Labor Market
  - Autor, Katz, & Kearney (AER May 2006)



## Summary and Extensions

### Still much more to do

- Develop industry and occupation time series at more detailed levels for both CPS and OES
- Use the publicly available OES I/O matrix from 1983-2000 to extend our analysis back in time
  - Note: Wage data were not collected in OES prior to 1996
- Use the large sample size of the OES to look at quartiles, quintiles, deciles, ...