

TECHNICAL APPENDIX

The primary data sources for this economic analysis are the 1990 Census and the 2013 American Community Survey. (Estimates for 2008 in this appendix come from the 2006–2008 American Community Survey.) These datasets were accessed through the Minnesota Population Center’s Integrated Public Use Microdata Series (IPUMS).¹

The sample consists of the non-institutionalized population aged 30–45. The sample excludes workers in the armed forces industry or those in military occupations (0.94 percent and 0.52 percent of the population aged 30–45 in 1990 and 2013, respectively). It also excludes workers in the agriculture, forestry, and fisheries industry and those in farming, forestry, and fishing occupations (1.61 percent and 1.21 percent of the population aged 30–45 in 1990 and 2013, respectively). Full-time, year-round workers refer to individuals who reported working at least 35 hours per week and at least 48 weeks per year during the previous calendar year.

Figures for occupational shares, median earnings within an occupation, and changes in annual earnings use a more-restricted sample. These figures are calculated using only workers who were employed at the time of the survey; who worked at least 750 hours during the previous calendar year; whose earnings were not imputed; who did not have negative business income; and whose earnings were not classified as outliers (i.e., earning more than \$400 or less than \$3.63 per hour). Loosening these restrictions changes the numbers only slightly, and does not substantively affect the trends. The five occupational groups displayed for each profile are the five most prevalent occupational groups in 2013 (based on occupational share) for that profile.

Education Groups: Individuals without a high school degree include those who did not receive a high school diploma and do not hold a General Educational Development (GED) test credential. Individuals with a high school degree or some college include individuals who received a high school diploma, who hold a GED, who have completed some college but did not obtain any degree, or those who obtained an associate’s degree. We include workers who hold GEDs in this group because the data do not separately identify high school graduates and GED recipients before 2008. Individuals with a bachelor’s degree include those who obtained a bachelor’s degree, but not an advanced degree. Individuals with an advanced degree include those who obtained a master’s degree, a professional degree beyond a bachelor’s degree, or a doctoral degree.

Earnings: A worker’s annual earnings are the sum of his or her pretax wage and salary income and income from an owned business or professional practice for the previous calendar year (1990 Census) or previous twelve months (2013 American Community Survey). Earnings figures are adjusted to 2013 dollars using the Personal Consumption Expenditures (PCE) deflator from the U.S. Bureau of Economic Analysis.

Occupations: The occupational categories we use closely follow those in the [1990 Census of Population Occupational Classification System](#) but are aggregated for simplicity. The “food, cleaning, and groundskeeping” occupation combines food preparation and service occupations, cleaning and building service occupations (except private household), and groundskeepers and gardeners (except farm). The “personal care” category combines private household occupations, health service occupations (aides), and personal service occupations. The “protective” category refers to protective service occupations. The “office and administration” category includes legal assistants. The “professionals” category includes airplane pilots and navigators as well as computer programmers.

Decompositions: In the economic analysis, we attribute a sizable share of the overall decline in the earnings of men without a bachelor’s degree to changes in the occupations they held over time. We implement the decomposition analysis using the propensity score reweighting approach of Dinardo, Fortin, and Lemieux (1996). Specifically, this exercise makes the pattern of occupations held in 2013—the hundreds of detailed ones and not just the aggregate categories presented in the analysis—closely resemble those of 1990, but allows the earnings for each detailed occupation to stay at their 2013 levels. It reveals what overall earnings would have been had the pattern of occupations not changed from 1990. The difference between this counterfactual and the actual 2013 earnings level, relative to the actual change in earnings between 1990 and 2013, yields the shares mentioned in the analysis.

¹ Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. 2010. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota.

Men Without a High School Degree	1990		2008		2013	
<i>Employment and Earnings Statistics</i>						
Share of men age 30–45		15%		14%		13%
Employment rate		74%		75%		72%
Full-time, full-year rate		55%		59%		55%
Median annual earnings (in 2013 dollars)		\$31,900		\$29,800		\$25,500
<i>Most Prevalent Occupations and Median Earnings*</i>						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Operators and laborers	40%	\$31,900	36%	\$29,800	34%	\$25,500
Production	31%	\$33,600	31%	\$33,100	29%	\$28,000
Food, cleaning, and grounds-keeping	11%	\$21,900	17%	\$22,300	21%	\$20,400
Sales	5%	\$33,800	5%	\$33,100	4%	\$26,500
Office and administration	4%	\$33,600	4%	\$29,000	4%	\$25,500
Men With a High School Degree or Some College	1990		2008		2013	
<i>Employment and Earnings Statistics</i>						
Share of men age 30–45		57%		56%		56%
Employment rate		89%		86%		82%
Full-time, full-year rate		76%		74%		68%
Median annual earnings (in 2013 dollars)		\$47,100		\$47,100		\$40,700
<i>Most Prevalent Occupations and Median Earnings*</i>						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Operators and laborers	24%	\$42,000	23%	\$40,800	23%	\$35,700
Production	27%	\$48,100	25%	\$48,500	23%	\$44,800
Managers	11%	\$57,200	11%	\$62,100	10%	\$56,000
Sales	11%	\$48,800	10%	\$49,700	10%	\$42,800
Food, cleaning, and grounds-keeping	5%	\$30,300	7%	\$29,800	9%	\$25,500
Men With a Bachelor's Degree	1990		2008		2013	
<i>Employment and Earnings Statistics</i>						
Share of men age 30–45		18%		19%		20%
Employment rate		95%		94%		92%
Full-time, full-year rate		83%		84%		83%
Median annual earnings (in 2013 dollars)		\$63,100		\$74,500		\$67,200
<i>Most Prevalent Occupations and Median Earnings*</i>						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Professionals	27%	\$61,400	30%	\$74,600	31%	\$71,300
Managers	31%	\$72,700	30%	\$91,900	29%	\$81,500
Sales	18%	\$67,300	16%	\$82,700	14%	\$71,300
Office and administration	7%	\$50,400	6%	\$55,100	7%	\$48,900
Production	6%	\$55,400	5%	\$55,900	5%	\$50,900
Men With an Advanced Degree	1990		2008		2013	
<i>Employment and Earnings Statistics</i>						
Share of men age 30–45		11%		10%		11%
Employment rate		96%		95%		95%
Full-time, full-year rate		81%		83%		85%
Median annual earnings (in 2013 dollars)		\$76,800		\$94,100		\$86,600
<i>Most Prevalent Occupations and Median Earnings*</i>						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Professionals	58%	\$75,700	57%	\$88,300	57%	\$81,500
Managers	25%	\$85,700	28%	\$113,000	28%	\$101,900
Sales	6%	\$84,100	6%	\$109,400	6%	\$91,700
Office and administration	3%	\$59,200	3%	\$70,800	3%	\$63,200
Protective	1%	\$67,900	1%	\$88,200	1%	\$81,500

*The five occupational groups displayed are the five most prevalent occupational groups in 2013 (based on occupational share) for each profile. Earnings figures are adjusted to 2013 dollars.

Women Without a High School Degree	1990		2008		2013	
Employment and Earnings Statistics						
Share of women age 30–45	14%		11%		11%	
Employment rate	50%		48%		45%	
Full-time, full-year rate	30%		30%		26%	
Median annual earnings (in 2013 dollars)	\$19,600		\$18,800		\$17,300	
Most Prevalent Occupations and Median Earnings*						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Personal care	16%	\$16,300	24%	\$17,400	26%	\$15,300
Food, cleaning, and grounds-keeping	15%	\$15,100	20%	\$16,500	23%	\$15,300
Operators and laborers	30%	\$20,200	20%	\$19,800	17%	\$18,300
Sales	10%	\$17,100	11%	\$18,600	11%	\$16,400
Office and administration	15%	\$25,200	12%	\$25,400	11%	\$22,400
Women With a High School Degree or Some College	1990		2008		2013	
Employment and Earnings Statistics						
Share of women age 30–45	62%		57%		53%	
Employment rate	73%		72%		69%	
Full-time, full-year rate	47%		51%		48%	
Median annual earnings (in 2013 dollars)	\$28,600		\$32,300		\$29,500	
Most Prevalent Occupations and Median Earnings*						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Office and administration	37%	\$28,600	32%	\$33,100	28%	\$30,600
Personal care	8%	\$20,200	14%	\$23,500	17%	\$21,400
Professionals	10%	\$35,000	11%	\$37,200	11%	\$35,700
Sales	10%	\$25,200	11%	\$30,200	11%	\$25,700
Managers	13%	\$37,000	11%	\$45,200	11%	\$40,700
Women With a Bachelor's Degree	1990		2008		2013	
Employment and Earnings Statistics						
Share of women age 30–45	16%		21%		22%	
Employment rate	78%		77%		78%	
Full-time, full-year rate	46%		53%		58%	
Median annual earnings (in 2013 dollars)	\$41,400		\$50,200		\$47,900	
Most Prevalent Occupations and Median Earnings*						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Professionals	44%	\$41,500	37%	\$49,600	37%	\$46,900
Managers	22%	\$49,400	27%	\$64,700	26%	\$61,100
Office and administration	16%	\$32,400	15%	\$41,200	16%	\$38,700
Sales	9%	\$43,700	10%	\$58,800	9%	\$50,900
Personal care	2%	\$28,600	4%	\$31,000	5%	\$29,600
Women With an Advanced Degree	1990		2008		2013	
Employment and Earnings Statistics						
Share of women age 30–45	8%		11%		14%	
Employment rate	87%		83%		85%	
Full-time, full-year rate	48%		57%		64%	
Median annual earnings (in 2013 dollars)	\$50,400		\$63,900		\$61,100	
Most Prevalent Occupations and Median Earnings*						
	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>	<i>Share</i>	<i>Earnings</i>
Professionals	69%	\$50,400	66%	\$61,200	66%	\$59,100
Managers	17%	\$62,200	21%	\$82,400	22%	\$76,400
Office and administration	5%	\$37,000	5%	\$49,400	5%	\$44,100
Sales	4%	\$52,100	4%	\$74,100	3%	\$66,200
Personal care	2%	\$31,800	2%	\$37,200	2%	\$38,700

* The five occupational groups displayed are the five most prevalent occupational groups in 2013 (based on occupational share) for each profile. Earnings figures are adjusted to 2013 dollars.