

Education and Work in the 21st Century: Credential Inflation or Transformation?

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Motivation for the Study:

- “It takes a B.A. to find a job as a file clerk” (Rampell, 2013)
- “the college degree is the new high school diploma” (Rampell, 2013)
- “the master’s as the new bachelor’s” (Pappano, 2011)
- “widening access to a college education lowers the value of credentials” (Brown, Lauder, & Ashton, 2011, p. 7)
- “Digital Taylorism” (Brown, Lauder, & Ashton, 2011)



Motivation for the Study

- "A college degree today . . . is the equivalent of what a high school degree was 50 years ago."
 - (U.S. Senator Bernie Sanders, Democratic Primary Debate, October 13, 2015)
- “[W]e’ll reignite the promise of America. Young people coming out of school . . . will find instead of no jobs, two, three, four, five job opportunities.”
 - (U.S. Senator Ted Cruz, Republican Primary Debate, September 16, 2015)



Significance of the Study

- But if credential inflation is perceived as true . . .
 - It suggests that increasing college access/success decreases the benefits of education
 - People may see government programs and support as wasteful
 - Suggests students should be reluctant to use student loans and financial aid



Significance of the Study

“Today, billions of dollars are spent on mobilizing American . . . workers in a bid to outsmart rivals in the competition for the best jobs, technologies, and companies. A vast edifice of policies, programs, and initiatives has been introduced . . . In anticipation of an innovative age of high-skill, high-wage work. . . . This book explains why much of this money, effort, and enterprise will be wasted as the neoliberal opportunity bargain fails to deliver on the promise of education, jobs, and rewards.” (Brown, Lauder, & Ashton, 2011, p. 5)



Credential Inflation and Digital Taylorism

- Credential inflation would predict that as
 - Education levels increased
 - Education was a weaker predictor of good employment and earnings in 2012 compared to 1994
- “Digital Taylorism” suggests that employers
 - Increase use of technology in the workplace
 - “to reduce costs and increase control”
 - “reduce the cost of knowledge work”
- “Digital Taylorism” would predict that
 - Employers may pay less to workers who use information communication technology at work (even if they’re more educated)



Transformation

- Education doesn't just respond to labor market; it changes the labor market
- Suggest that as Americans became increasingly educated
 - Job tasks became more complex
 - Education has a positive relationship with work and earnings
 - Credentials don't inflate



Research Questions

- **Between 1994 and 2012, what were the relationships between years of education, skills, and**
 - **employment status (any job; full-time job, supervisor),**
 - **type of employment (job tasks), and**
 - **earnings (adjusted for inflation)?**
- **Note: We ran separate sets of analyses using “years of education” and credentials. Results were similar, but in this presentation we report findings for “years of education.”**



Datasets in the Study

- 2012 Program for the International Assessment of Adult Competencies (PIAAC)
- 2003 Adult Literacy and Lifeskills (ALL) survey
 - Data retrieved from National Center for Education Statistics
- 1994 International Adult Literacy Survey (IALS)
 - Data retrieved from Statistics Canada
- Multiple imputation to account for missing data
- Analyzed surveys separately using Stata 13
- Appropriate weights and plausible values were used



RQ1: What were the Relationships between Years of Education, Skills, and Employment Status? (1994, 2003, 2012)

- **Methods - Logistic Regression**
 - Employed (IALS, ALL, PIAAC)
 - Full-time work (IALS, ALL, PIAAC)
 - Manager (IALS, ALL, PIAAC)
- **Controlled for age, gender, immigrant status, and parental education**



Findings - Employment Status

Odds-Ratios for Logistic Regressions Predicting Employment, by Survey

	IALS (1994)	ALL (2003)	PIAAC (2012)
Dependent Variable			
Employment	1.20*** (0.04)	1.08*** (0.02)	1.17*** (0.02)
Full-Time Employment	1.06 (0.04)	1.05 (0.07)	1.09*** (0.03)
Supervisor	1.20*** (0.03)	1.05** (0.01)	1.11*** (0.02)

$p < .05$, ** $p < .01$, *** $p < .001$

Note: All odds ratios for years of education are taken from models without *literacy*.



Findings - Employment Status

Odds-Ratios for Logistic Regressions Predicting Employment, by Survey

	IALS (1994)	ALL (2003)	PIAAC (2012)
Years of Education			
Employment	1.15*** (0.04)	1.03 (0.03)	1.14*** (0.02)
Full-Time Employment	1.07 (0.05)	1.04 (0.03)	1.08** (0.08)
Supervisor	1.18*** (0.04)	1.04 (0.02)	1.10*** (0.02)
Literacy			
Employment	1.27** (0.09)	1.46*** (0.08)	1.17*** (0.06)
Full-Time Employment	0.96 (0.12)	1.06 (0.13)	1.05 (0.10)
Supervisor	1.12 (0.08)	1.10 (0.08)	1.09 (0.08)

$p < .05$, ** $p < .01$, *** $p < .001$



Findings - Employment Status

■ Employed

- For each additional **year of education**, Americans were 20% more likely to be employed in 1994 and 17% more likely to be employed in 2012
- After adding **literacy**, for each additional year of education Americans were 15% more likely to be employed in 1994 and 14% more likely to be employed in 2012
- A 50 point increase in **Literacy** (difference between Level 1 and Level 2 proficiency) was related to higher likelihood of employment (27% in 1994 and 17% in 2012)
- No statistically significant difference in relationship between **years of education** and likelihood of being employed in 1994 and 2012



Findings - Employment Status

- Full-time employment (at least 35 hours a week)
 - **Years of Education** had a positive, statistically significant relationship to full-time employment in 2012, not 2003, 1994
 - 9% per year in 2012 (8% after controlling for **Literacy**)
 - **Literacy** was not statistically significantly related to full-time employment



Findings - Employment Status

- Supervisor status
 - For each additional **year of education**, Americans were 20% more likely to be a supervisor in 1994 and 11% more likely to be a supervisor in 2012
 - **Years of Education** had a stronger relationship to supervisor status in 1994 than 2012
 - When we added **Literacy**, for each **Years of Education**, Americans were 18% more likely to be a supervisor in 1994 and 10% more likely in 2012
 - **Literacy** was not significantly related to supervisor status

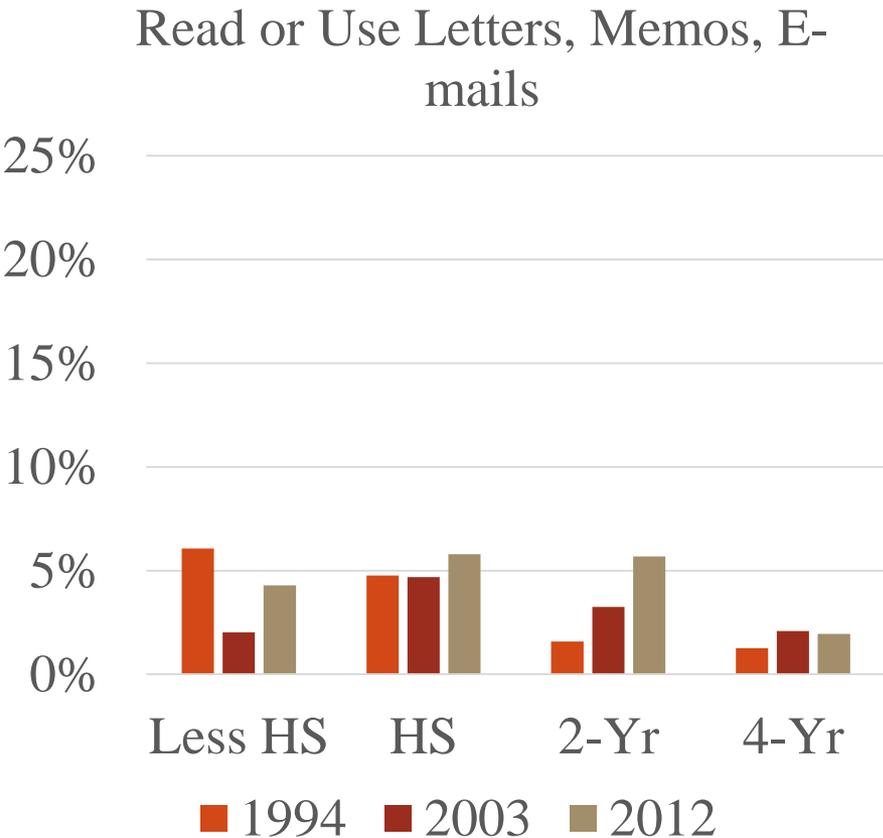
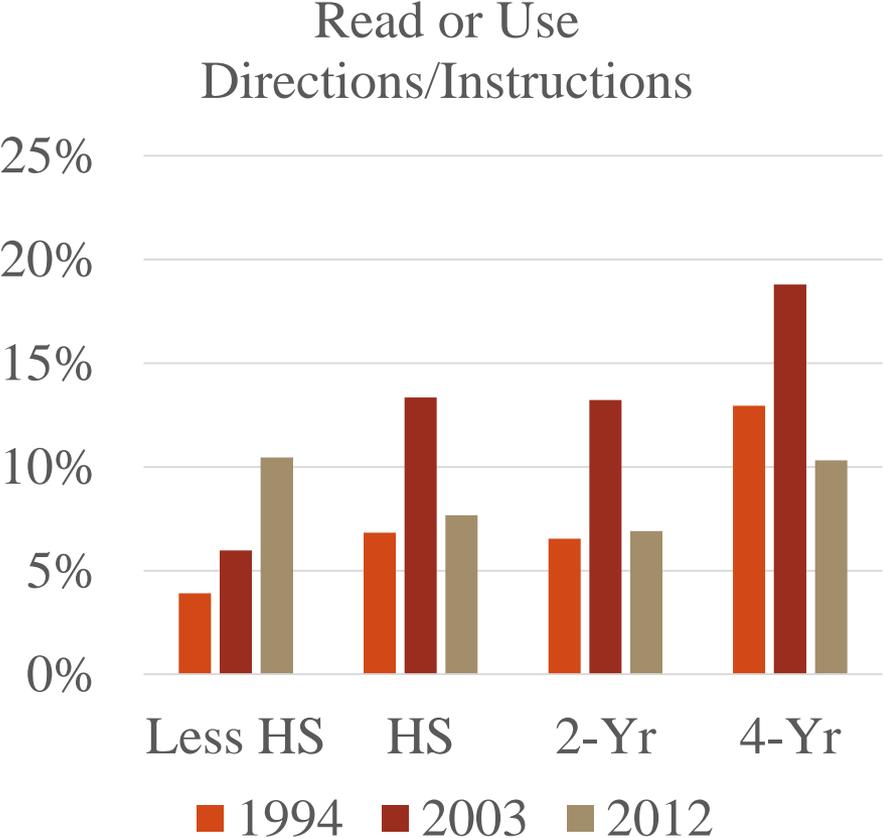


RQ2: What were the Relationships between Years of Education, Skill, & Job Tasks over time? (1994, 2003, 2012)

- **Methods**
- **Multinomial Logistic Regression (IALS, ALL, PIAAC)**
 - Reading directions or instructions
 - Reading letters, memos, or e-mails
 - Reading reports, articles, magazines, or journals
 - Reading manuals, reference books, or catalogues
 - Reading bills, invoices, spreadsheets, or tables
 - Reading diagrams or schematics
- Reference group was “rarely or never” performed task
- Controlled for age, gender, immigrant status, and parental education

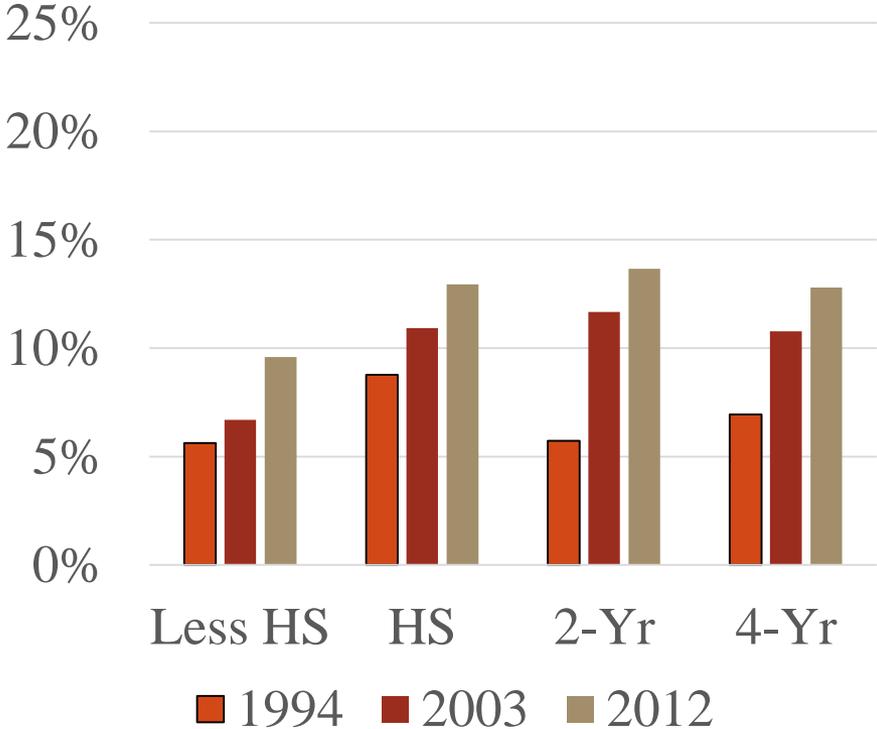


Percentage of Workers Performing Task “Less Than Once Per Week” by Year and Education

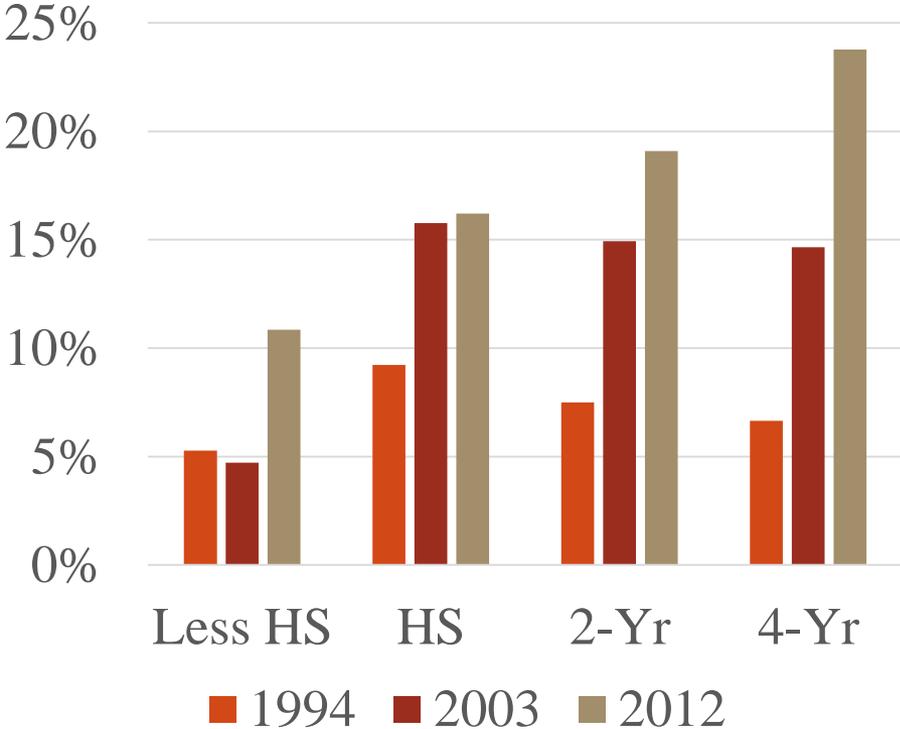


Percentage of Workers Performing Task “Less Than Once Per Week” by Year and Education

Reports, Articles, Magazines, or Journals

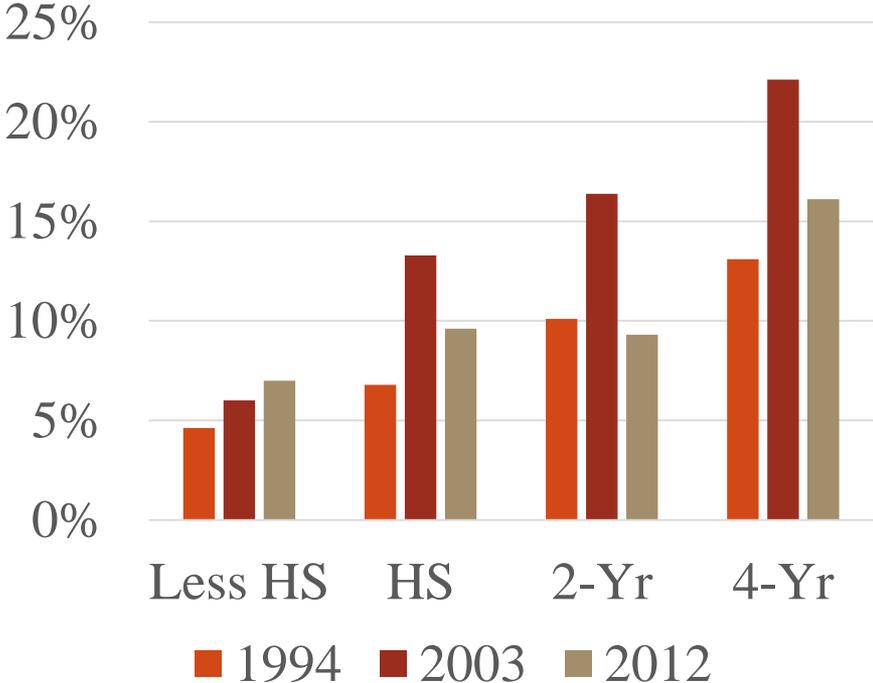


Manuals, Reference Books, Catalogues

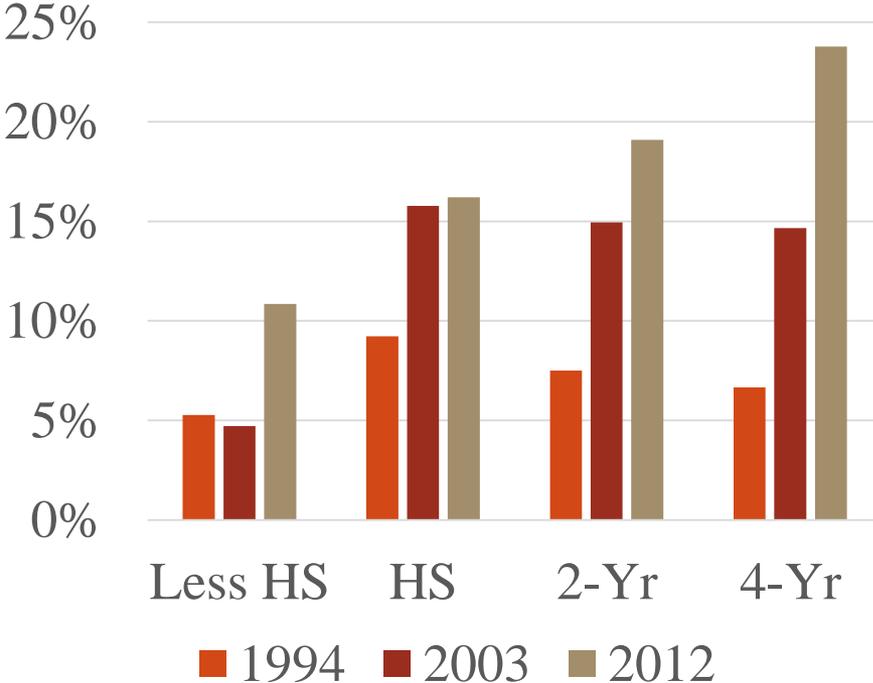


Percentage of Workers Performing Task “Less Than Once Per Week” by Year and Education

Read or Use Diagrams or Schematics



Manuals, Reference Books, Catalogues



Findings - Job Tasks

- Positive relationship between **years of education** and **literacy**, and performing some job tasks more than once a week.
 - Letters, memos, e-mails
 - IALS (90% versus 32%)
 - ALL (72% versus 25%)
 - PIAAC (84% versus 37%)
 - Reports, Articles, Magazines, Journals
 - IALS (80% versus 29%)
 - ALL (41% versus 25%)
 - PIAAC (30% versus 36%)



RQ3: What were the Relationships between Years of Education, Skill, & Earnings?

- **Methods**
- **Linear Regression**
 - **Income (ALL, PIAAC)**
- **Controlled for age, gender, immigrant status, and parental education**
- **Also considered occupations (ISCO) and information communication technology (ICT) skills**



Findings - Earnings

OLS coefficients for models of logged income on education and literacy

	ALL (2003)	PIAAC (2012)
Base Model		
Years of Education	0.07*** (0.01)	0.12*** (0.01)
Adding Literacy		
Years of Education	0.06*** (0.01)	0.10*** (0.01)
Literacy	0.13*** (0.03)	0.13*** (0.03)
Adding ICT at Work and Industry¹		
Years of Education		0.05*** (0.01)
Literacy		-0.02 (0.06)

$p < .05$, ** $p < .01$, *** $p < .001$



Findings - Earnings

- Years of education had larger, statistically significant effects on earnings in 2012 compared to 2003
 - For each year of education, workers earned 7% more in 2003, but 12% more in 2012.
- After adding literacy
 - Years of education fell slightly to 6% in 2003 and 10% in 2012
 - 50-point change in literacy was associated with a 13% increase in earnings
- Use of Information Communication Technology skills at work
 - 1 Point increase in ICT skills at work associated with 14% increase in wages



Other Findings

- Women were less likely to be unemployed in 2012 than 1994, but still lagged behind men in both categories
 - Employed
 - Men were almost 4x as likely to be employed in 1994
 - Men were only 2x as likely to be employed in 2012
- The gap in earnings by gender decreased from -0.50 in 2003 to -0.42 in 2012.
- Parental education was not significant in most models, suggesting that differences in social background were not important after accounting for one's education



Summary of Findings

- Little evidence of “credential inflation”
 - As aggregate education levels increased, economic returns to education did not decline
- Little evidence of “digital Taylorism”
 - Digital Taylorism suggested that ICT skills might be negatively related to earnings
 - We found ICT skills were positively related to earnings



Summary of Findings

- Some evidence of “transformation”
 - As Americans became more educated, people with similar levels of education were more likely to perform some complex job tasks in 2012 compared to 2003 or 1994
 - Appears that there is a dynamic relationship between education, literacy, and job tasks



Limitations

- Three cross-sectional datasets; not longitudinal or panel data
 - However, we used z-tests to distinguish whether differences in results across surveys were statistically significant
- This was only a preliminary test of “credential inflation” and “digital Taylorism” arguments
 - Brown, Lauder, and Ashton (2011) suggested that these are international processes brought on by globalization, but we only looked at domestic labor market
 - However, we controlled across occupational categories



Policy Implications

- Policymakers should not suggest that education is somehow less valuable in contemporary society
- Years of education was positively related to employment, supervisor status, earnings
 - Policymakers don't necessarily need to focus on full degree programs or attending selective institutions
 - Policymakers should continue to increase access to higher education across the life course, including broad-access community colleges, post-baccalaureate programs



Policy Implications

- Educational policymakers and practitioners should consider that the relationship between education, literacy, and job tasks may be dynamic
 - Workers may be increasingly asked to perform multiple types of tasks
 - Education and training should prepare students to enter complex workplaces



Policy Implications

- Practitioners should design curricula that improve cognitive (literacy) skills
 - Both years of education and literacy tended to have statistically significant, positive, independent effects
 - Similarly, we encourage development and use of ICT skills, which were positively related to earnings.



Concluding Thoughts

We hope our study encourages dialogue about the relationships between education, cognition, work, and society. Our report includes a more extensive breakdown of our findings. We ran additional analyses that we hope to disseminate in a series of journal articles. Please feel free to contact us to learn more about the data and methods.

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