

Skill Changes, Skill-Increasing Activities, and Wage Growth

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Introduction

Motivation

- Knowing how workers accumulate human capital on-the-job is critical for understanding life cycle earnings
- **Challenges:**
 - The limited measurements of post-schooling investments in human capital production hamper researchers' ability to study this process (Heckman, Lochner, and Taber, 1998)
- **Job Experience:**
 - Researchers often use observable characteristics like job experience as a proxy for human capital accumulation
 - Such proxies assume that individuals accumulate human capital at the same rate as their experience increases

Introduction

Self-Reported Skill Changes and Skill-Increasing Activities

- **Self-reported skill changes:**

- describes how much worker's skills have changed on-the-job (large increase, small increase, no change, or skill decrease)
- reported at the individual-level
- observed in years 2014–2018 of LISA

- **Skill-increasing activities:**

- reported by workers' who increased skill (large or small)
- tells us which activities were important for creating skill (ten possible activities)
 - workers who reported multiple activities also report the activity that was most important for skill production
- observed in years 2014–2018

Introduction

Primary Objectives

1. Examine how self-reported skill changes and skill-increasing activities relate to worker characteristics over time to determine whether patterns are consistent with conventional predictions from human capital theory
2. Determine whether self-reported skill changes provide any value-added relative to standard proxies in explaining life cycle wage growth

Data Description

The Longitudinal and International Study of Adults (LISA)

- A representative household survey that examines changes in Canadian society over time
- Approximately 34,000 Canadians 15+ from 11,000 households
 - Collects information about jobs, education, health, family, skills, training, social services, and income
- Spans years 2012–2018 on biennial basis
- **Analysis sample:**
 - Unbalanced panel of men and women aged 25–60 as of 2012
 - Excludes workers who increased years of education passed 2012

Self-Reported Skill Changes

By Age and Education levels

	Skill Changes		
	No Increase in Skill	Small Increase	Large Increase
Age Groups:			
Full (25–60)	0.425	0.315	0.260
Early-career (25–35)	0.299	0.328	0.373
Mid-career(35–45)	0.419	0.335	0.246
Late-career (45–60)	0.524	0.291	0.185
Education Level:			
High School Dropouts	0.562	0.227	0.203
High School	0.485	0.282	0.233
College or Some University	0.430	0.296	0.274
BA+	0.369	0.363	0.268

Note: All rows sum to one. All proportions have been weighted by the AWRPW sample weights contained in LISA. 'No Increase in Skill' = Skill Decrease + No Change.

Self-Reported Skill Changes

Two-Year Real Weekly Wage Growth Regressions

Outcomes	(1) Two-year real weekly wage growth	(2) Two-year real weekly wage growth
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Regressors		
Change in years of experience	0.0250** (0.0111)	0.0229** (0.0111)
Small skill increase		0.0152*** (0.0057)
Large skill increase		0.0493***
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R^2	0.038	0.046
Worker characteristics	✓	✓
Year effects	✓	✓

Notes: standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

Skill-Increasing Activities

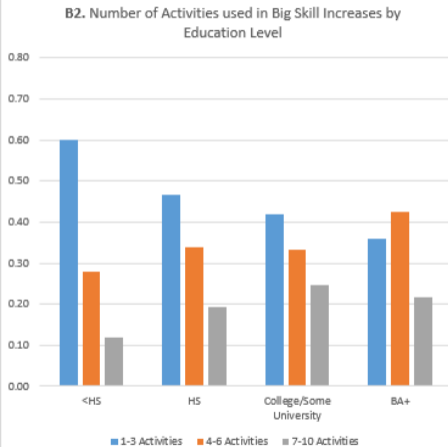
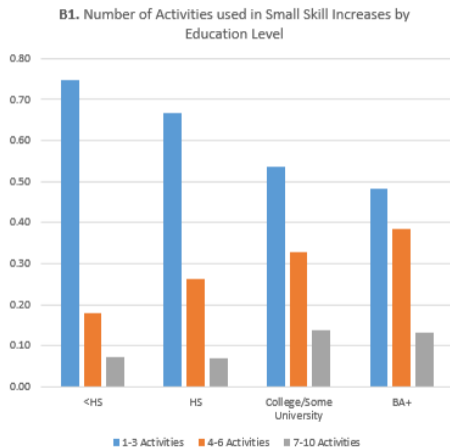
Fractions of Workers Who Selected Activities as Important in Their Skill Production Conditional on Age and Skill Increase

Activities:	Large Skill Increase			
	Full	Early-Career	Mid-Career	Late-Career
1. Practice	0.689	0.741	0.652	0.646
2. Discussions or Meetings	0.594	0.609	0.574	0.592
3. Self-Study	0.544	0.563	0.537	0.522
4. Reading Manuals	0.516	0.517	0.498	0.531
5. Workshops, Tutorials, and Seminars	0.474	0.471	0.469	0.483
6. Being Shown	0.441	0.495	0.417	0.383
7. Working With Others	0.376	0.420	0.361	0.322
8. Computer-Assisted or Online Training	0.351	0.324	0.351	0.394
9. Other Training Received Outside Employer	0.224	0.230	0.230	0.210
10. Formal Education	0.156	0.189	0.163	0.097

Note: Columns and rows do not sum to one. Each activity is a mutually exclusive variable that workers may respond 'yes' or 'no' to e.g., 43.2% of early-career said Self-study was important in skill production \implies 56.8% of early-career said it was not.

Skill-Increasing Activities

Activities Used in Small (B1) and Large (B2) Skill Changes by Education



Skill-Increasing Activities

Stratifying the Activities into Three Groups - 'Independent', 'Groups', and 'Formal Training'

- **Independent:** 'Practice', 'Self-Study', and 'Reading Manuals'
- **Groups:** 'Being Shown', 'Working With Others', and 'Discussions or Meetings'
- **Formal Training:** 'Workshops, Tutorials, and Seminars', 'Computer-Assisted or Online Training', 'Other Training Received Outside Employer', and 'Formal Education'

Skill-Increasing Activities

By Education Level and Age Groups

	Activity Groups		
	Independent	Groups	Formal Training
Education Level:			
High School Dropout	0.279	0.200	0.117
High School	0.512	0.406	0.319
College or Some University	0.562	0.485	0.430
BA+	0.700	0.581	0.538
Age Group:			
Full (25–60)	0.579	0.481	0.422
Early-career (25–35)	0.692	0.601	0.497
Mid-career (35–45)	0.659	0.541	0.480
Late-career (45–60)	0.446	0.356	0.332

Note: Columns and rows do not sum to one. Each activity is a mutually exclusive variable that workers may respond 'yes' or 'no' to e.g., 69.2% of early-career workers said Independent activities were important in skill production \implies 30.8% of early-career workers said that activity was not.

Key Takeaways

1. Substantial variation in skill accumulation across age and education groups
2. Self-reported skill changes are significant determinants of real two-year wage growth even after controlling for standard human capital accumulation proxies
3. Education levels and the magnitude of skill accumulation are correlated with the number of reported activities
4. Appears that workers' are engaged in a variety of activities to increase skill, especially independent activities