The Quiet Revolution and the Automation of Routine Jobs

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Research Question

Employment shares and relative wages of **routine jobs** have declined since 1980's

- Both routine manual (manufacturing) and routine cognitive (clerical, sales)
- Leading explanation: exogenous improvements in computer technology

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"Quiet Revolution" among women born after 1950 (entering labor force in 1970's)

- Continuous LFP over life-cycle & entry to high-skill professions
- Qualitative change in female labor supply (Goldin, 2006)

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Question: Is the automation of routine cognitive tasks a response to the Quiet Revolution?

Hypothesis

Prior to Quiet Revolution, women worked **intermittently** over life-cycle

- Compatible with **routine cognitive** work (e.g. secretary, typist)
- Distorted supply of RC workers



Women working at the U.S. Capitol switchboard (Library of Congress)

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As Quiet Revolution progresses ⇒ women work **continuously** throughout life-cycle

- Access **non-routine cognitive** professions (e.g. lawyer, manager) with higher returns to experience
- Improved allocation of female talent → relative scarcity of RC labor supply

"Market size effect" → Incentive to adopt technologies that **automate RC tasks** and **complement NRC work**

Presentation Overview

1. Related Literature
2. Motivating Facts
   - Women account for $\uparrow$ NRC and $\downarrow$ RC
   - Quiet Revolution $\rightarrow$ women born after 1950 start working continuously
   - Link between NRC employment and continuous life-cycle LFP
3. Next Steps

Related Literature

1. Rising FLFP in the 20th Century
   - Big focus on determinants (Albanesi & Olivetti, 2016; Bailey, 2006; Fernández et al., 2004; Goldin & Katz, 2002; Greenwood et al., 2005; Rendall, 2017)
   - Less known of implications (Acemoglu et al., 2004; Fukui et al., 2018; Hsieh et al., 2019)

This project: Macro implications of Quiet Revolution with focus on technology adoption

2. Decline in Routine Jobs & Automation
   - Exogenous technological change (Autor & Dorn, 2013; Autor et al., 2003)
   - Empirical focus on routine manual jobs (Acemoglu & Restrepo, 2020)

This project: Endogenous automation & emphasis on routine cognitive jobs

3. Directed Technical Change
   - Market size effect (Acemoglu & Zilibotti, 2001; Caselli & Coleman II, 2006)

This project: Quiet Revolution shifts factor endowment

Fact 1: Rise in NRC & Fall in RC Driven by Women

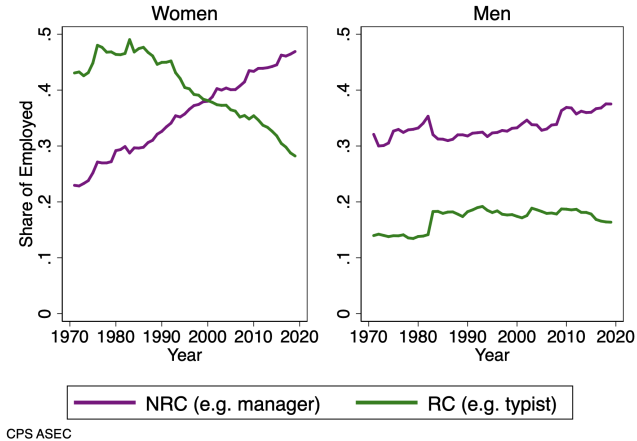
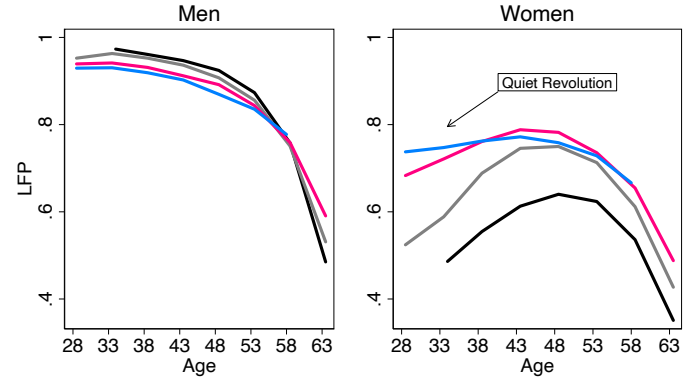


Figure 1: Share of Total Female and Male Employment (Ages 18-65) in RC and NRC Jobs

Fact 2: Women Born After 1950 Work Continuously



CPS ASEC

Figure 2: LFP over the Life-Cycle for Synthetic Cohorts

Fact 3: NRC Employment & Attitudes About Working Mothers (1977)

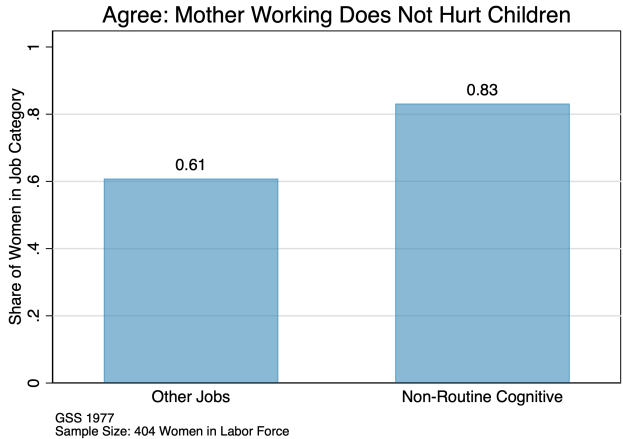


Figure 3: Beliefs of Working Women, by Job Category

→ Difference significant after controlling for education, age, marital status, and race

Next Steps

Empirical Analysis:

1. Isolate part of Quiet Revolution exogenous to other technological trends
   - Early legal access to birth control (Bailey, 2006; Bailey et al., 2012; Goldin & Katz, 2002)
   - Cross-sectional beliefs & work behaviour
   - Time variation in onset of Quiet Revolution across states
2. Does the rise in female $\frac{NRC}{RC}$ employment predict automation in 1980's & 90's?
   - CPS computer supplement (1980's, 1990's) & other measures of software adoption
   - Cross-state and cross-industry variation & shift-share-style analysis

Quantitative Model:

- Quantify macroeconomic implications of Quiet Revolution, especially tech adoption
- Distinguish welfare implications of endogenous v.s. exogenous automation

Thank you!

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