

# Unemployment Fluctuations and Job Polarization: Evidence from France and the US in the Great Recession

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THEMA

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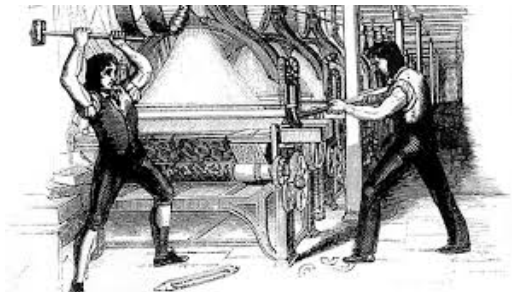


# Are machines taking over the job market?



Modern Times (1936)

# Old question

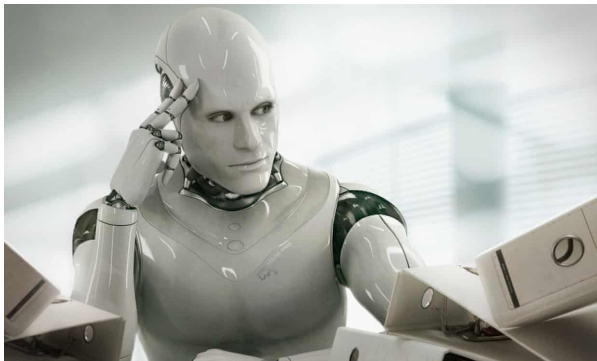


Luddites. 1811-1812. UK



# Technological revolution: Computers and ICT

Machines are substitutes for human brain



# Technological revolution

## Machines replace human labor

- Jobs involving repetitive tasks: "routine jobs"
- Hard and dull jobs disappear (in the factory and in the office)
  - bookkeeping, clerical work, and repetitive production tasks
  - routine tasks are increasingly codified in computer software and performed by machines or, alternatively, sent electronically to foreign worksites to be performed by comparatively low-wage workers.
- They happen to be in the middle of the wage distribution

# Technological revolution

Humans still outperform machines in 2 activities

- Creative, problem-solving, and coordination tasks
  - Managers, top business and financial occupations, professionals
  - high-skill workers, top-paid jobs, "Abstract jobs"
- In-person interactions, situational adaptability, manual dexterity, visual and language recognition
  - security personnel, personal care workers, cleaners, janitors, home health aides, assisting or caring for others
  - low-skill workers, low-paid jobs, "Manual jobs"

# Job polarization

The labor market is polarizing

- Employment growth in Abstract (high-skill, high-wage jobs) and Manual jobs (low-skill, low-pay jobs)
- Disappearance of Routine jobs
  - "Under pressure: The squeezed middle class" (OECD, 2019)

# Job polarization in the US

Panel A. Smoothed changes in employment by skill percentile, 1980–2005



Figure: Employment growth by skill. Autor and Dorn, AER 2013



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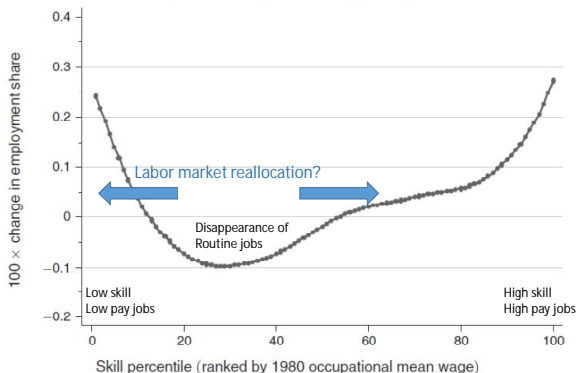
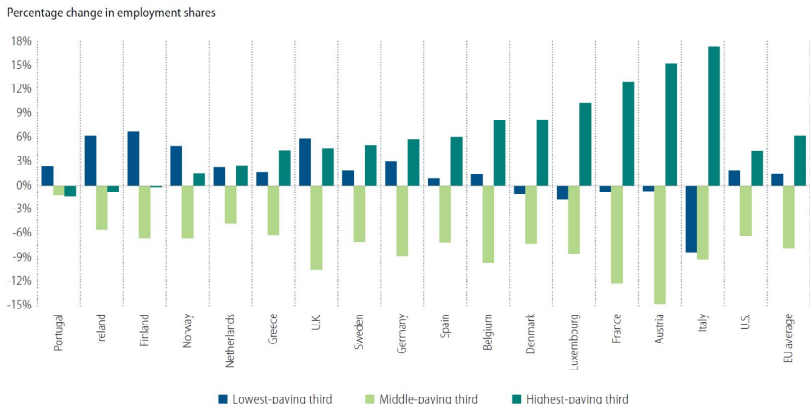


Figure: Employment growth by skill. Autor and Dorn, AER 2013

# Job polarization in Europe



Source: Data on EU employment are from from Goos, Manning and Salomons, 2009a.

**Figure:** Change in employment shares by occupation in 16 European countries. Occupations grouped by wage tercile: Low, middle, high, 1993-2006

# What we do: Originality of our work

- Short-run effects of the secular trend
  - Intuition : Job losses during the 2008 recession were mainly concentrated among middle-skill workers in the US, the same group that has suffered the most from the disappearance of routine jobs.
  - Does job polarization accelerate in recession?
- Interaction between job polarization and labor market duality?
  - Intuition : manual jobs are more "unstable"
  - OECD : "Non standard work" (not full-time, not permanent contract)

# What we do: 1.stocks and 2.flows

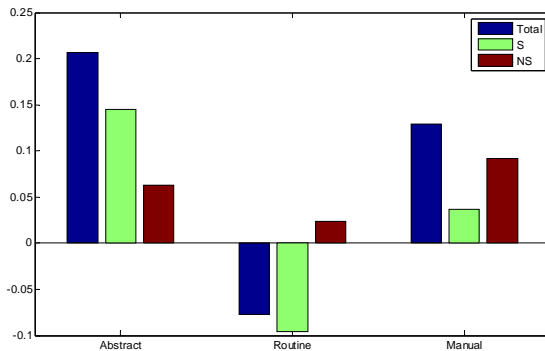
## 1. **Stocks:** Number of people that are:

- employed  $E$ 
  - 3 tasks  $A, R, M$
  - 2 types of jobs: standard/non-standard  $N, NS$
- unemployed  $U$
- not in labor force or inactive  $N$

= 8 labor market status

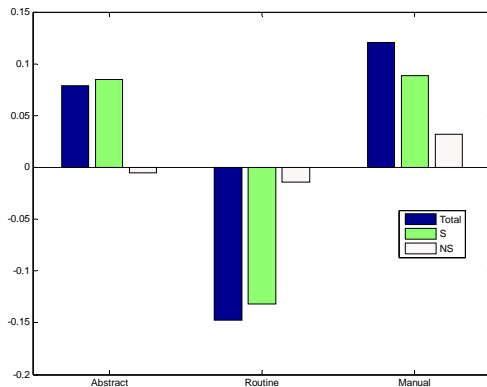
$$E^{AS-S}, E^{A-NS}, E^{R-S}, E^{R-NS}, E^{M-S}, E^{M-NS}, U, N$$

# Job polarization in France: Duality



**Figure:** Employment growth by task in France. Authors' calculation. LFS 2003-2016

# Job polarization in the US



**Figure:** Employment growth by task in the US. Authors' calculation. LFS 2003-2016

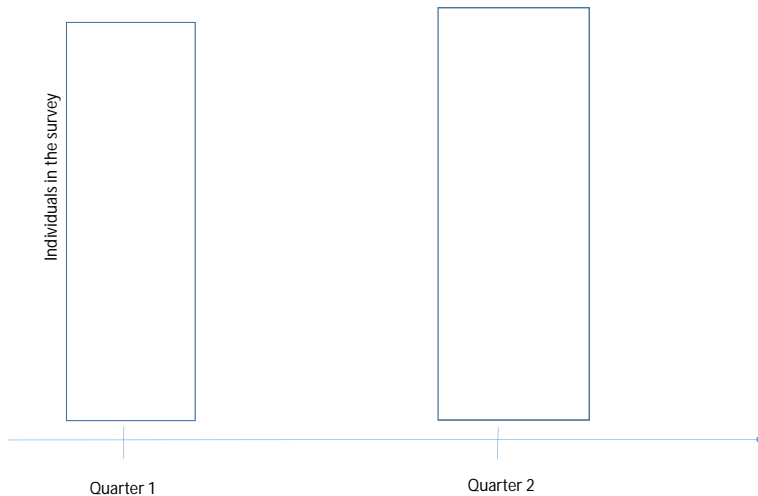
# What we do: 1.stocks and 2.flows

## 1. 8 labor market status

## 2. **Worker flows**

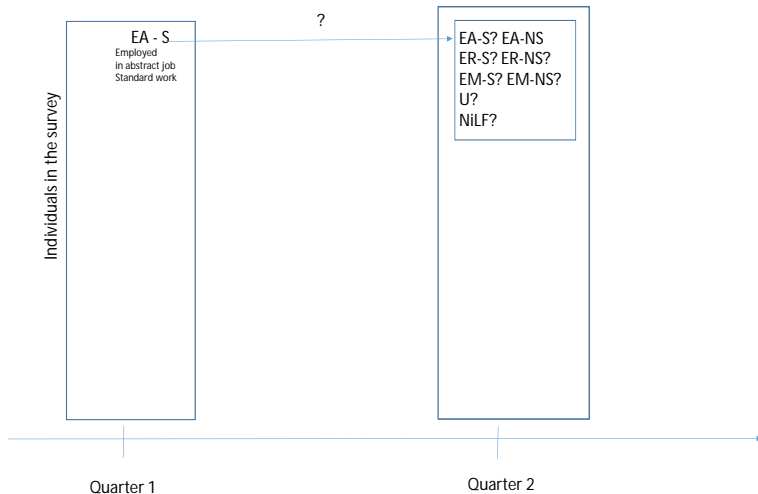
- Labor market transition from 1 labor market status to the other
- "stock-flow fallacy": a stock might appear constant, with large inflows and outflows
- We want to understand the ins and the outs
- Method
  - Quarterly labor force surveys
  - Match individuals across survey
  - Look at their labor market transition from 1 quarter to the next

# Worker flows

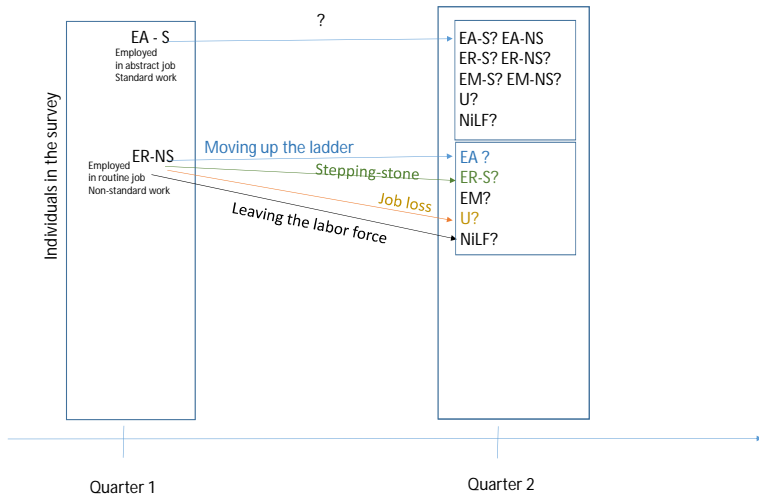




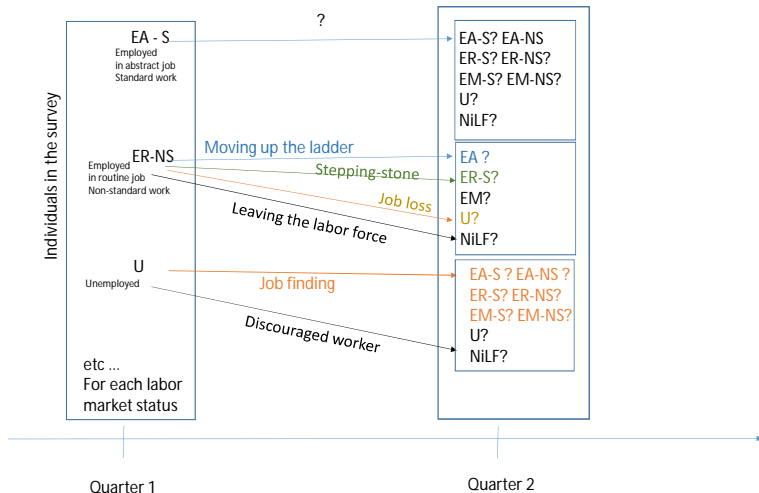
# Worker flows



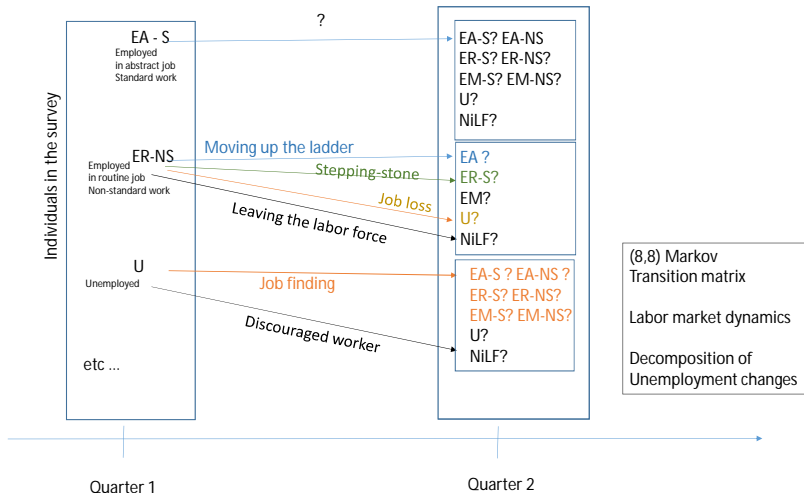
# Worker flows



# Worker flows



# Worker flows



## Results:

Table: Unemployment changes 2003Q1-2016Q4

	France	US
<b>Job loss</b>	<b>23.7</b>	<b>24.3</b>
RS-U	12.6	13.3
RNS-U	7.7	2.8
<b>Job Finding</b>	<b>41.2</b>	<b>47.8</b>
U-RS	9.1	20.4
U-RNS	21.3	8.8
U-MS	0.1	4.5
U-MNS	5.1	7.6
<b>Inactivity</b>	<b>36.8</b>	<b>31</b>
Total NSW	37.7	24.5

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# Conclusion

## Research agenda on job polarization

- Paris Seine Initiative (2017)
- ANR: TOPAZE (2018-2022)
  - 3 institutions: Thema, Essec, Science Po Paris
  - 18 researchers, in France and abroad
  - 338 150 euros
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