The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market

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Sargent Reading Group

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Wage Polarization. Cannot be accounted by the canonical model of SBTC.
Low-skill Occupations: Rise of Services

- Low-skill labor share: ↑ 30% in service, ↓ in non-service.
- This paper: SBTC + Services ⇒ Job Polarization.
Simple static model.

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- Services
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- Manual: low-skill labor $L_m$.
- Routine: low-skill labor $L_r$ and computers $K$.
- Abstract: high-skill labor $L_a$. 
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  \item Goods: \( Y_g = L_a^{1-\beta} [(L_r)^\mu + (K)^\mu]^\beta/\mu \).
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\( \beta \): routine-task intensity.
\( \mu \): \( L_r \) and \( K \) substitution.
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  - Low-skill: \( U = L_m + L_r \).
  - Homogeneous for \( L_m \).
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Missing: endogenous labor supply, heterogeneous households, endogenous SBTC, dynamic model, etc.
Employment Polarization: $U$ reallocates from $L_r$ toward $L_m$.

Wage Polarization: $\downarrow \frac{w_r}{w_m}$ and constant $\frac{w_a}{w_m}$. 
**Job Polarization**

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**SBTC**

- If the elasticity of substitution between $K$ and $L_r$ exceeds the elasticity of substitution between $c_g$ and $c_s$ then:
  Shares: reallocates $U$ labor from $L_r$ toward $L_m$.
  Wages: $\downarrow \frac{w_r}{w_m}$.

- If $c_g$ and $c_s$ are gross complements, $w_m$ grow at least as rapidly as $w_a$.

Mechanism: $\downarrow p_k \rightarrow$ substitutes $L_r$ by $K \rightarrow \uparrow L_m$ and $\downarrow \frac{w_r}{w_m}$.
If services and goods are complements: $w_m$ and $w_a$ grow at the same rate.
Extend to a spatial model to get testable implications.

- $J$ sectors, differentiated by goods $c_j$ and routine-task intensity $\beta_j$.
- Trade: goods and high-skill workers.
- Nontradable: services and low-skill workers.
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**SBTC**

Regions with larger $\beta_j$ will experience:

1. Greater adoption of information technology and displacement of $L_r$.
2. *Employment polarization*: Greater reallocation of low-skill workers from $L_r$ to $L_s$.
3. *Wage polarization*: Larger increases in $w_a$ and $w_m$. 
**Empirical Results**


- Routine Employment share:
  1. Create a measure of routine task-intensity for each occupation in DOT.
  2. Routine-intensive occupations: top 1/3 of the index.
  3. Calculate the routine employment share for each CZ.
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Job polarization in routine-intensive CZ

Commuting zones split on mean routine share in 1980

Skill percentile (ranked by 1980 occupational mean wage)
ΔSVC_{j}^{1980–2005} = -0.096 + 0.495 \times RSH_{j,1980} + e_{j}, t = 4.3, n = 64, R^{2} = 0.23
Routine-intensive CZ experienced:

acers

$\uparrow$ Computer adoption.

$\downarrow$ Employment and wages in routine-intensive occupations.

$\uparrow$ Service occupation.

$\uparrow$ Employment and earnings of noncollege workers in non-routine intensive occupations.

$\uparrow$ Employment polarization and wage polarization.
1. Rising employment and wages in service occupations may account for the job polarization.

2. *Mechanism:* SBTC substituted low-skill workers performing routine tasks. Low-skill workers reallocated their labor to service occupations (which demand increases due to the complementarity between goods and services).

3. Routine-intensive CZ exhibited greater job polarization.
POLARIZATION IN EMPLOYMENT WAGES

Change in real log hourly wage vs. Skill percentile (ranked by 1980 occupational mean wage)