Primary inequality and redistribution through employer Social Security contributions: France 1976-2015

Antoine Bozio[1], Thomas Breda[2] and Malka Guillot [3]

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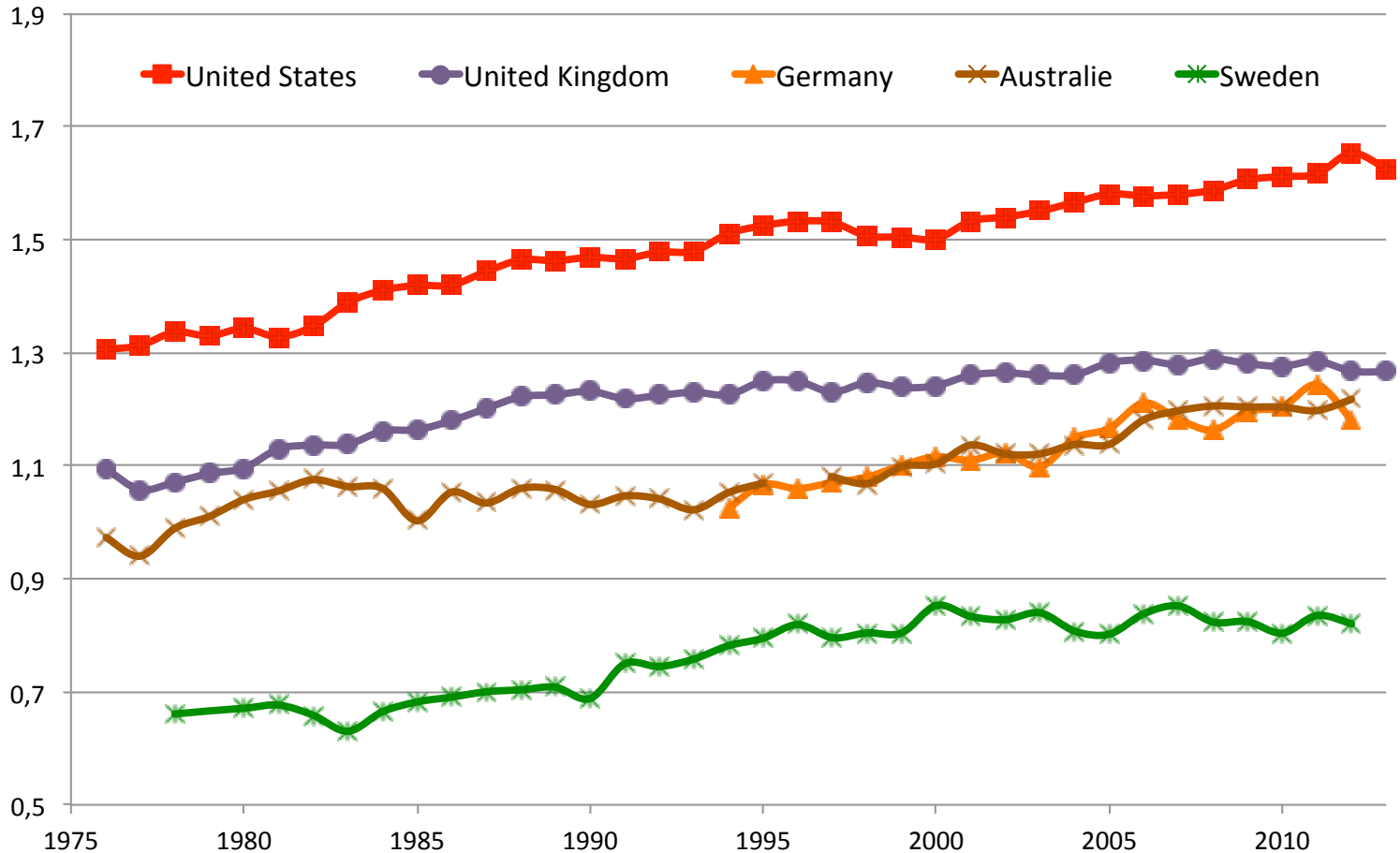
Motivation

Increase in wage inequalities in developed countries

Figure 1: Wage inequality (P90/P10 log gross wage ratio)

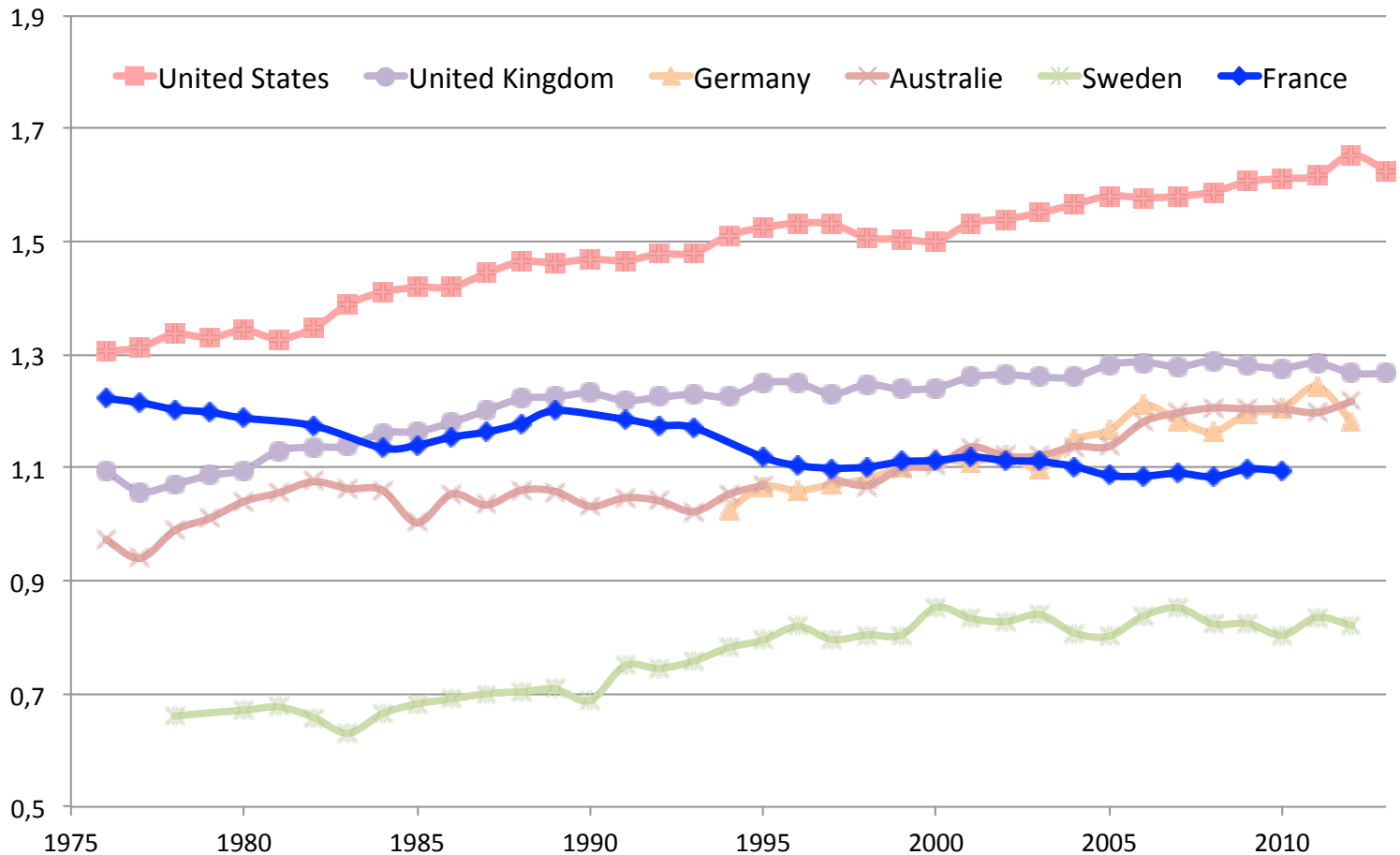


Source: OECD statistics.

Motivation

with the exception of France

Figure 2: Wage inequality (P90/P10 log gross wage ratio)



Source: OECD statistics.

Debated explanations

- **Technological change explanations**
  - Skill-biased technological change (SBTC)
    - Katz and Murphy (1992); Machin and Van Reenen (1998); Autor, Katz and Kearny (AKK, 2006); Michaels, Natraj and Van Reenen (2014)
  - Job polarization
    - Autor, Levy, Murnane (2003); Goos and Manning (2007); Autor and Dorn (2013); Goos, Manning and Salomons (2014)

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- **Globalization**
  - Feenstra and Hanson (2002); Autor, Dorn and Hanson (2013)
- **Institutional factors**
  - Minimum wage: Lee (1999), Card and Lemieux (2001)
  - Unions: Fortin and Lemieux (1997)
  - Education policies

Debated explanations

French case challenges the usual consensus

- **Some consensus**
  - Strong support for SBTC and technology-driven job polarization
    - in many countries, notably in the U.S., the U.K. and Germany (Dustmann et al. 2009)
  - Limited impact of U.S. minimum wage or unions (AKK, 2006; Autor, Manning and Smith, 2016)

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  - Limited impact of U.S. minimum wage or unions (AKK, 2006; Autor, Manning and Smith, 2016)
- **French case seems puzzling**
  - Wage compression and limited direct evidence on the role of technology (Card et al., 1999; Goux and Maurin, 2000; Koubi et al. 2005; Verdugo 2014; Charnoz et al., 2014; Harrigan, Reshef and Toubal, 2017; Albertini et al., 2018; Dares Analyses, 2015, 2017)
  - Even though exposed to SBTC and trade competition
  - High minimum wage may play a role but cannot explain the reduction in upper-tail inequalities

This paper

1. Compute labour cost, posted wages, and net wages measures of inequalities
    - Labour cost inequalities increased in France by about 20% between 1976 and 2015

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2. Revisit demand-side explanations using labour cost instead of gross wages
   - That's how it needs to be done
   - Would not change the picture in the U.S.
3. Discuss the impact of income and payroll taxes on inequalities
   - Seem to have been neglected in the debate opposing technology to institutions
   - Depends on the long-run incidence of taxes

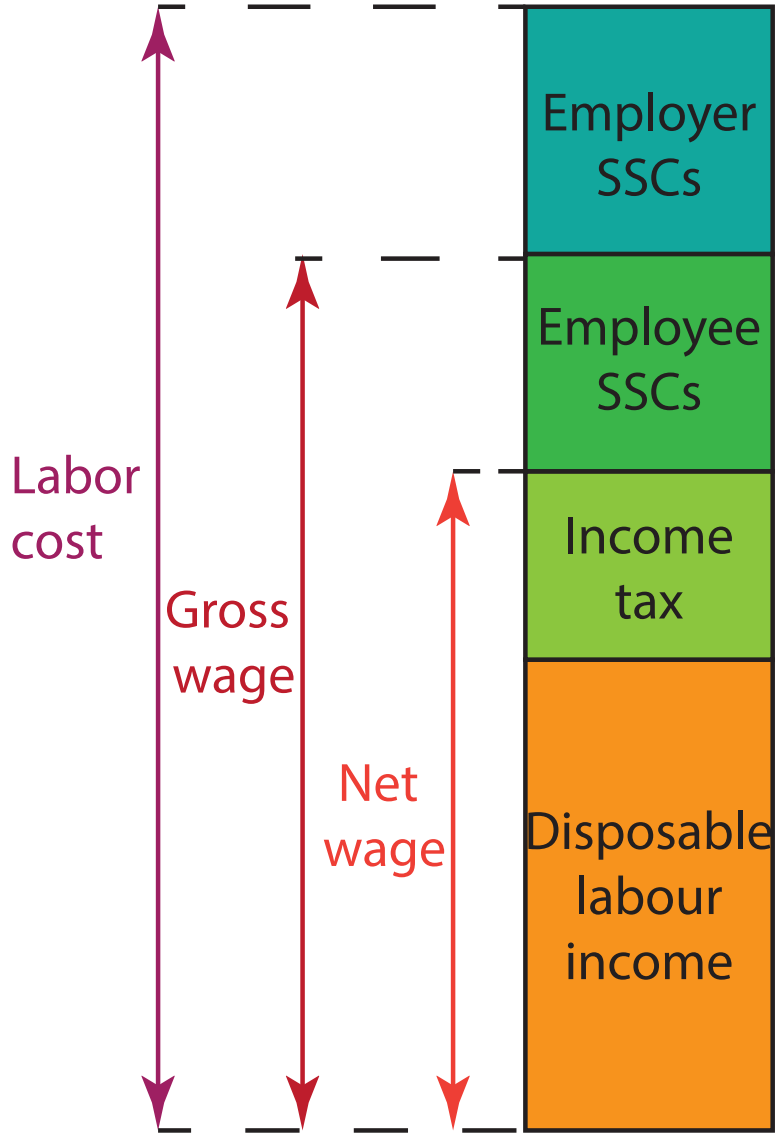
Outline

1. Data
2. SSC changes
3. Wage inequality measures
4. Revisiting demand shifts
5. Can taxation reduce net wage inequalities ?

Data

- Déclarations Annuelles de Données Sociales (DADS), 1976-2010.
  - Administrative data based on social security records
  - Sample : 1/24 before 1993, 1/12 after 1993
  - Wage variable: annual net earnings
- EDP (1968, 1975, 1982, 1990, 1999 and 2004 to 2010)
  - National censuses
  - Sample : 4/365
  - Educational attainment, demographic information

Figure 3: Illustration of main wage concepts



Computation of wage concepts

- **Net wage**= Posted wage − employee SSCs
  - Directly observed in DADS data (annual earnings of individuals working full-time the whole year).
- **Gross wage**= Posted wage= net wage + employee SSCs
  - Computed using the tax simulator of IPP, **TAXIPP**.
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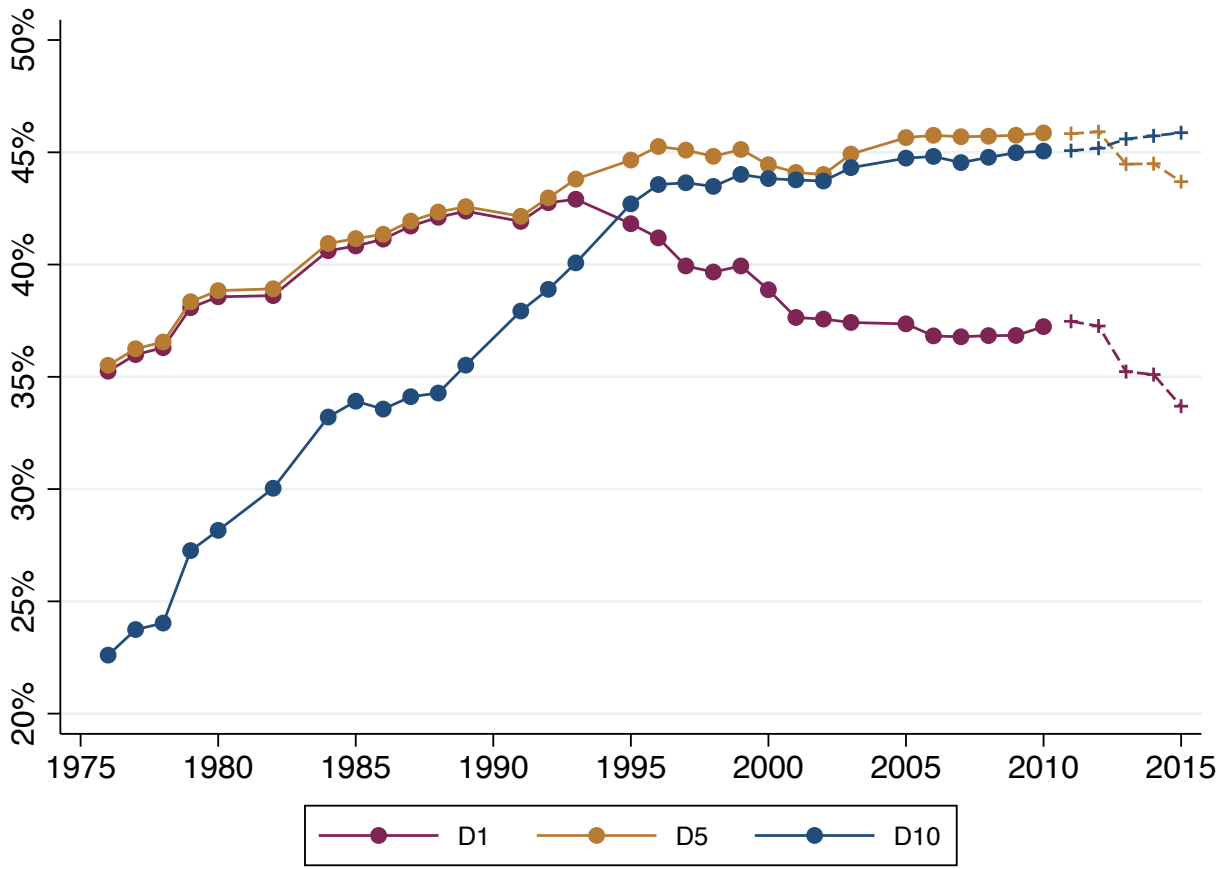
- **Net wage + contributive SSCs**: net wage + employer and employee contributions linked to future benefits (pensions and unemployment)
  - Computed using the tax simulator of IPP, **TAXIPP**.

Social Security contributions (SSCs)

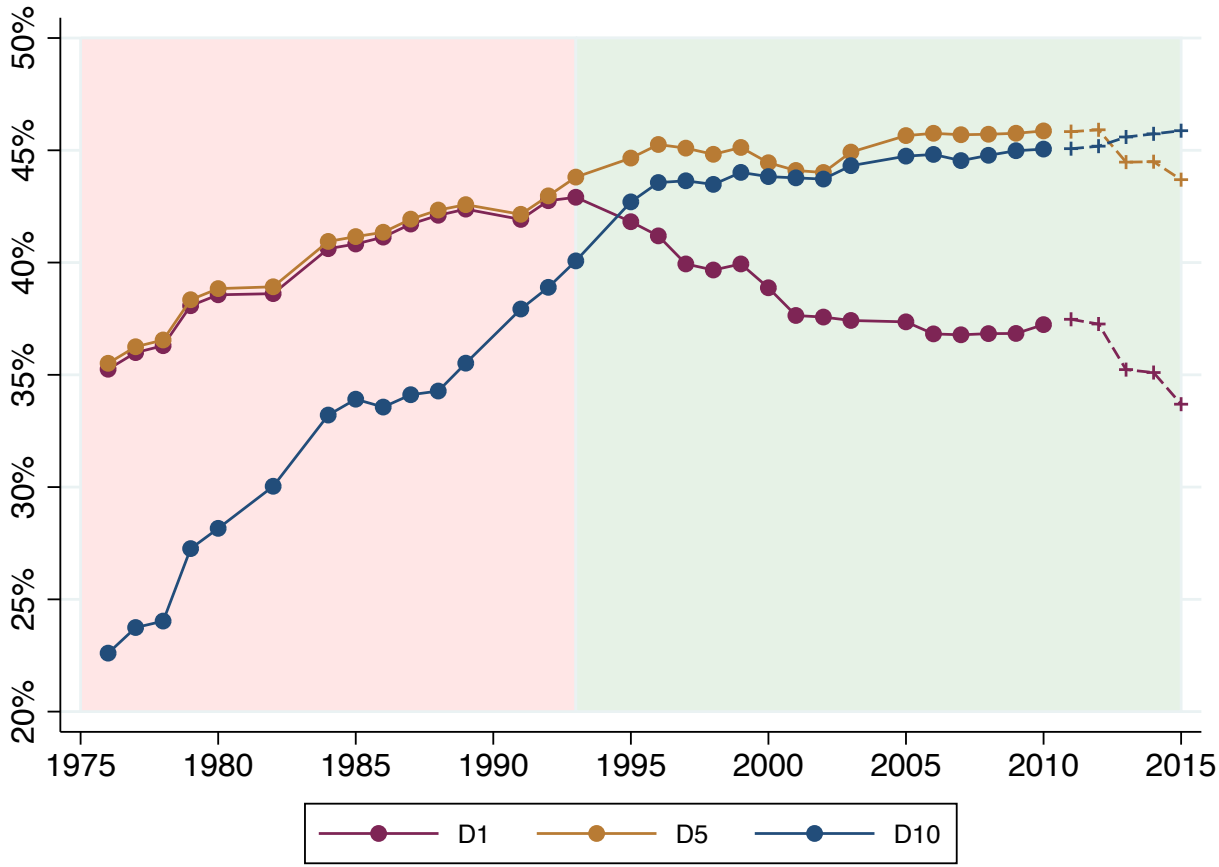
Figure 4: Total SSCs as a fraction of labour costs (by decile)



Sources: DADS data 1976-2010. The figure provides the ratio of the average total social security contributions (employer and employee part) to the average labour cost in each decile of the labour cost distribution.

Social Security contributions (SSCs)

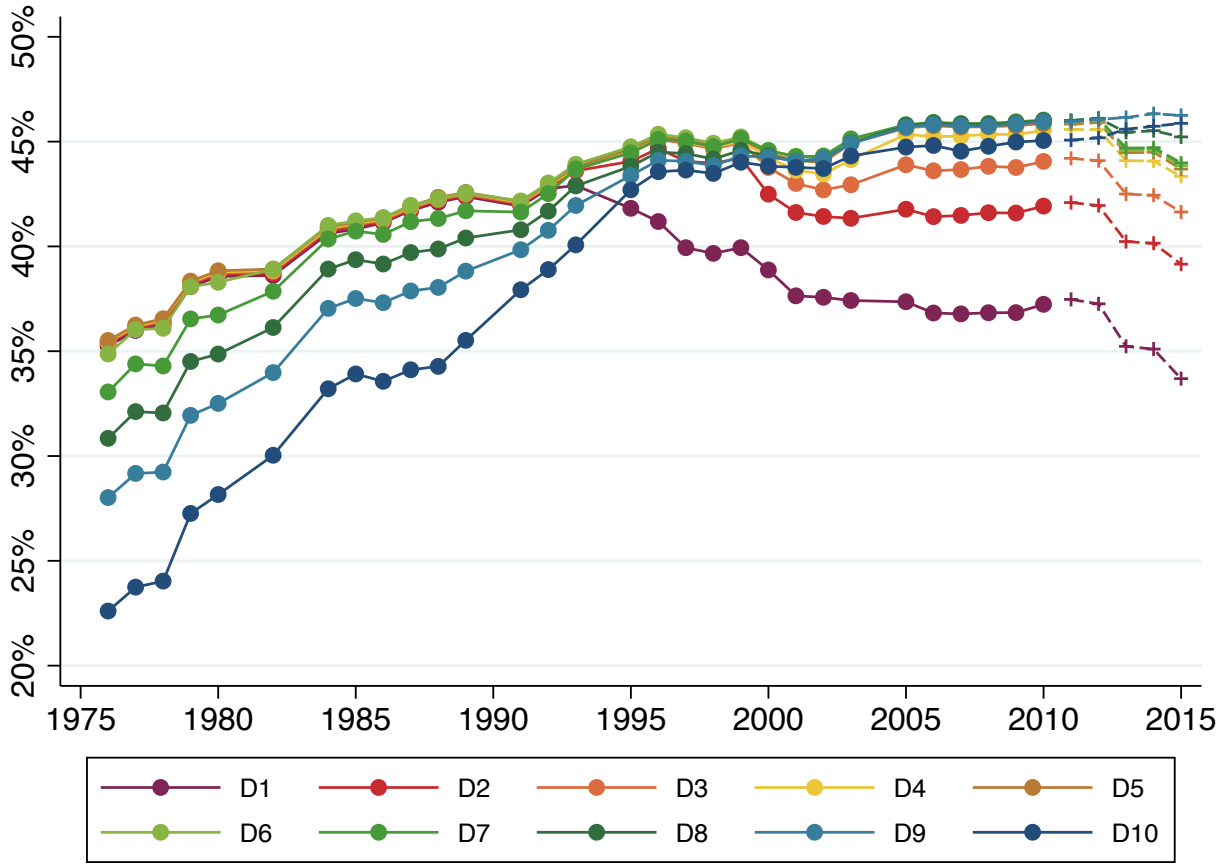
Figure 5: Total SSCs as a fraction of labour costs (by decile)



Sources: DADS data 1976-2010. The figure provides the ratio of the average total social security contributions (employer and employee part) to the average labour cost in each decile of the labour cost distribution.

Social Security contributions (SSCs)

Figure 6: Total SSCs as a fraction of labour costs (by decile)

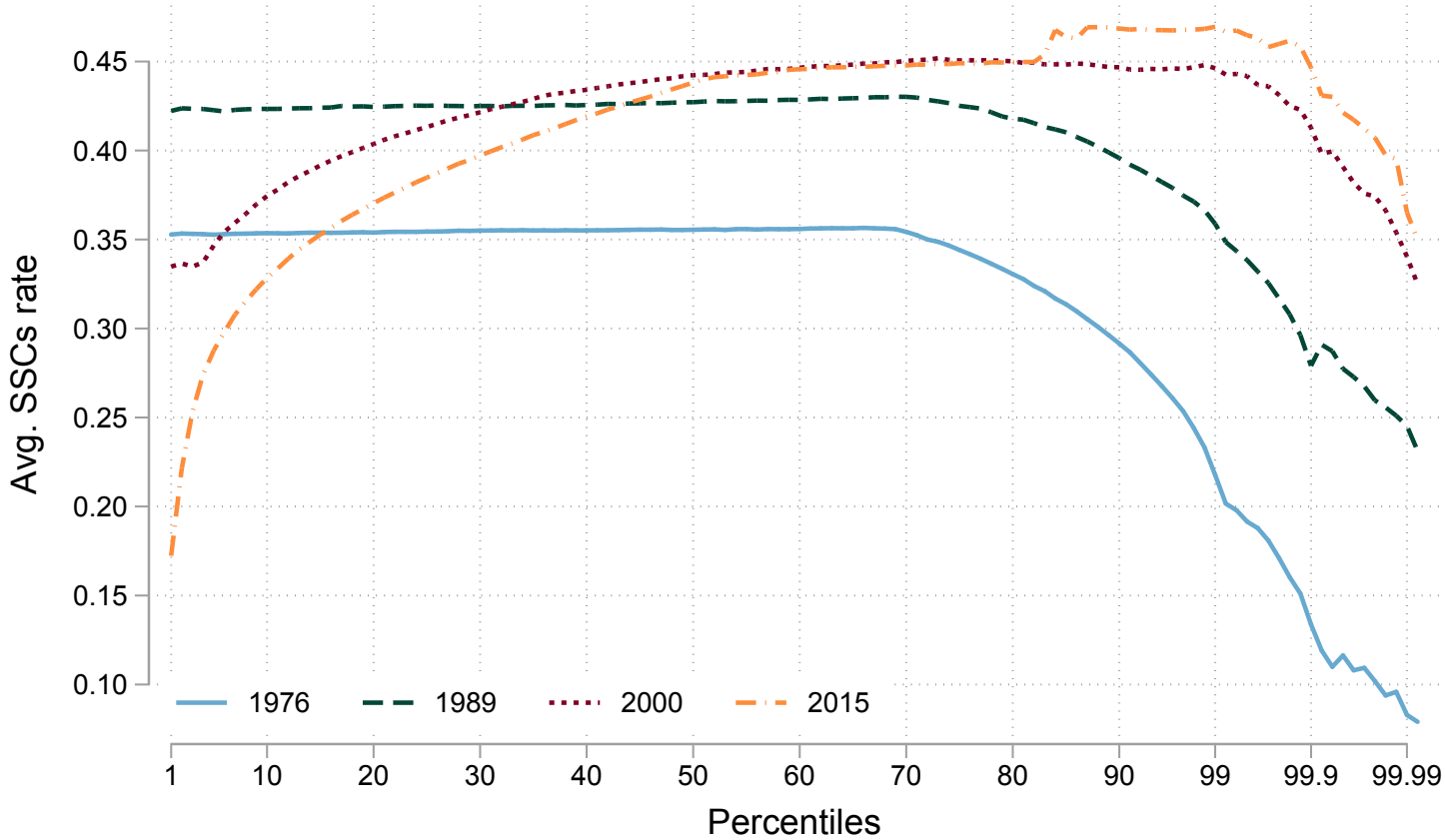


Sources: DADS data 1976-2010. The figure provides the ratio of the average total social security contributions (employer and employee part) to the average labour cost in each decile of the labour cost distribution.

▸ More

Social Security contributions (SSCs)

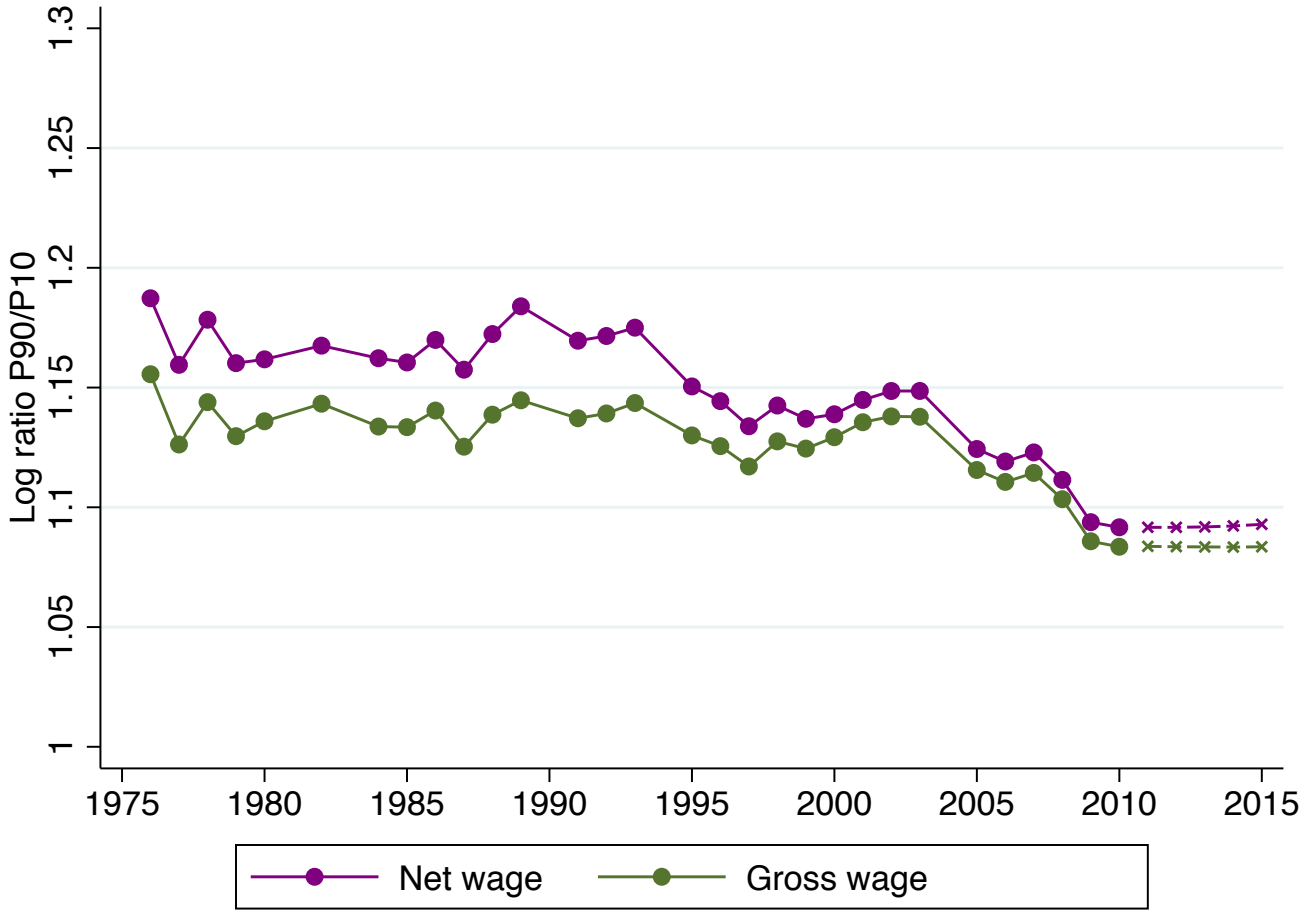
Figure 7: Total SSCs as a fraction of labour costs (selected years)



Sources: DADS data 1976-2015.

Wage inequalities: 3 measures

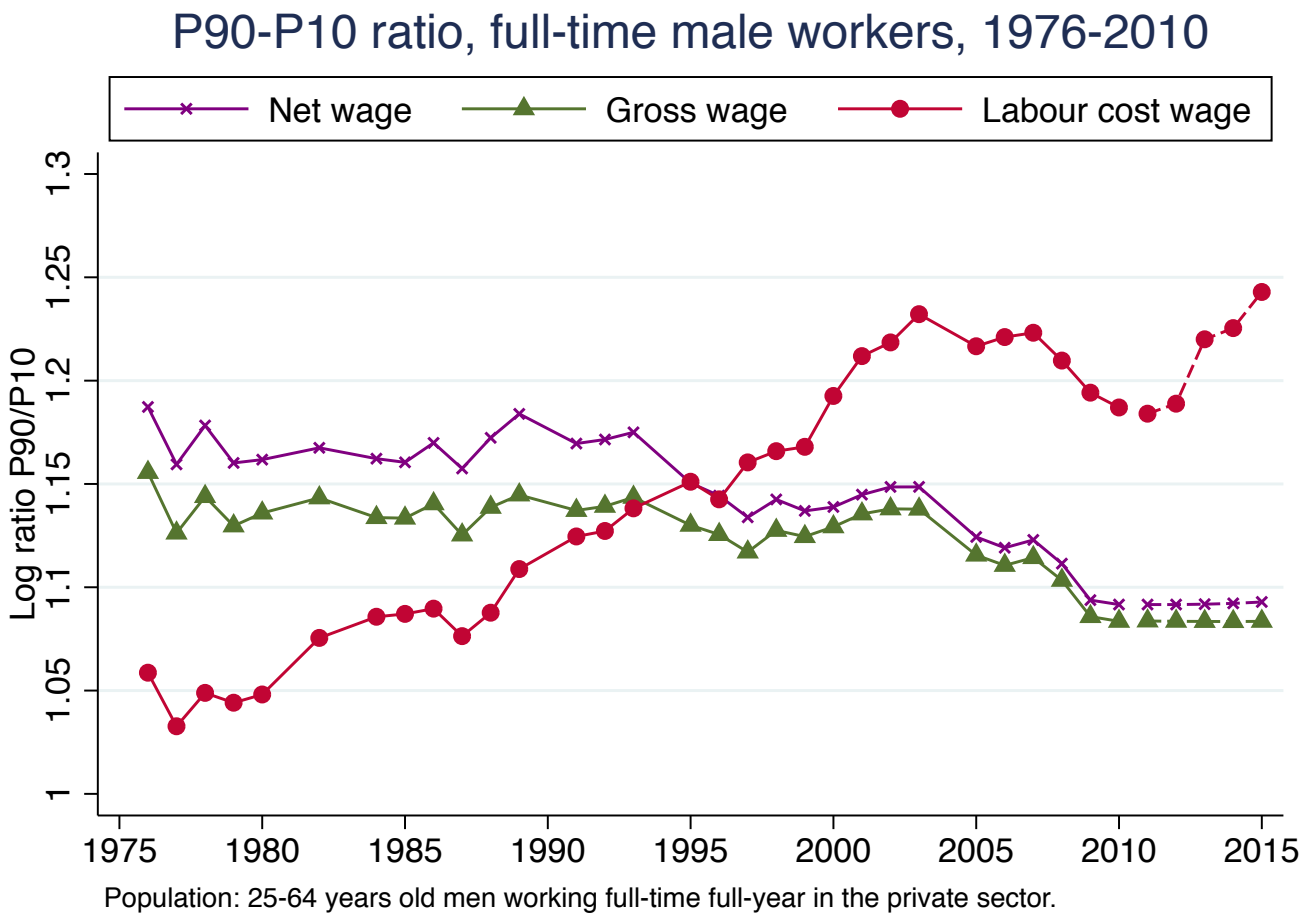
Figure 8: P90-P10 ratio, full-time full-year male workers



Sources: DADS data 1976-2010. The figure depicts the P90-P10 log wage gaps for net, gross and labour cost wages of male workers of the private sector working full-time full-year.

Wage inequalities: 3 measures

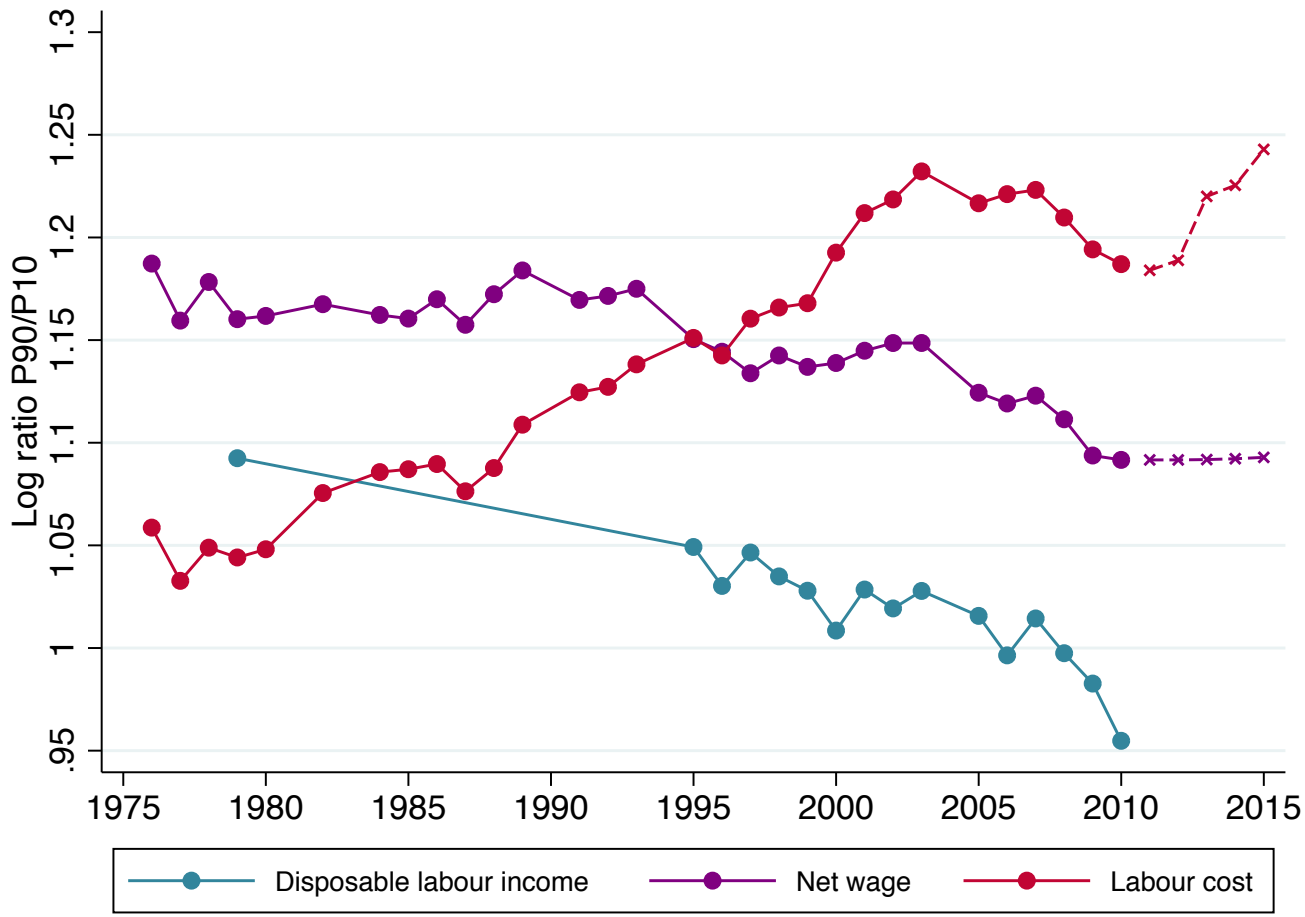
Figure 9: P90-P10 ratio, full-time full-year male workers



Sources: DADS data 1976-2010. The figure depicts the P90-P10 log wage gaps for net, gross and labour cost wages of male workers of the private sector working full-time full-year.

Disposable labour income and net wage: parallel trends

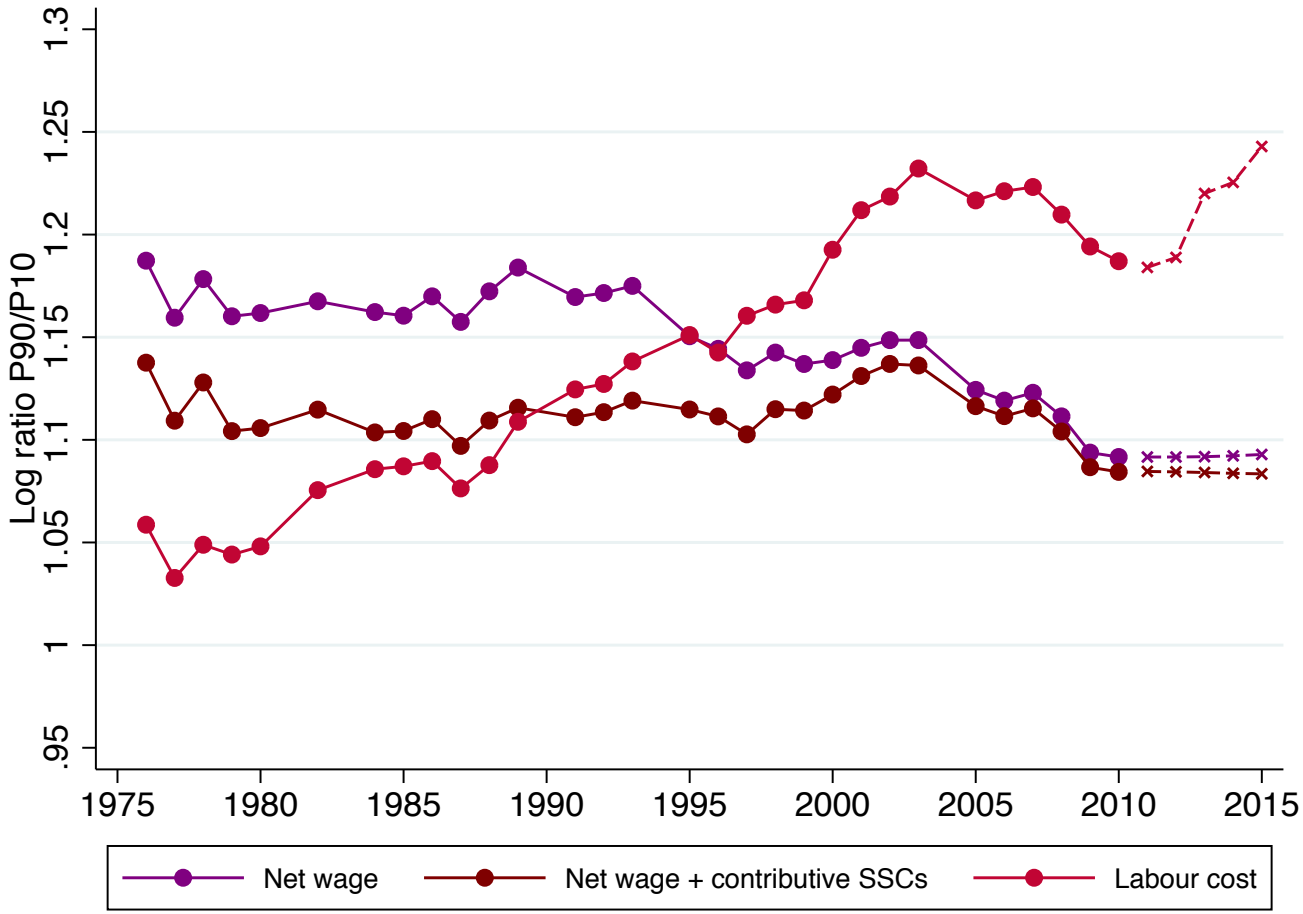
Figure 10: P90-P10 ratio, full-time full-year male workers



Note: The two additional series are in terms of net-of-tax wage and of net wage plus contributive employer and

Including contributive SSCs (as deferred revenues)

Figure 11: P90-P10 ratio, full-time full-year male workers

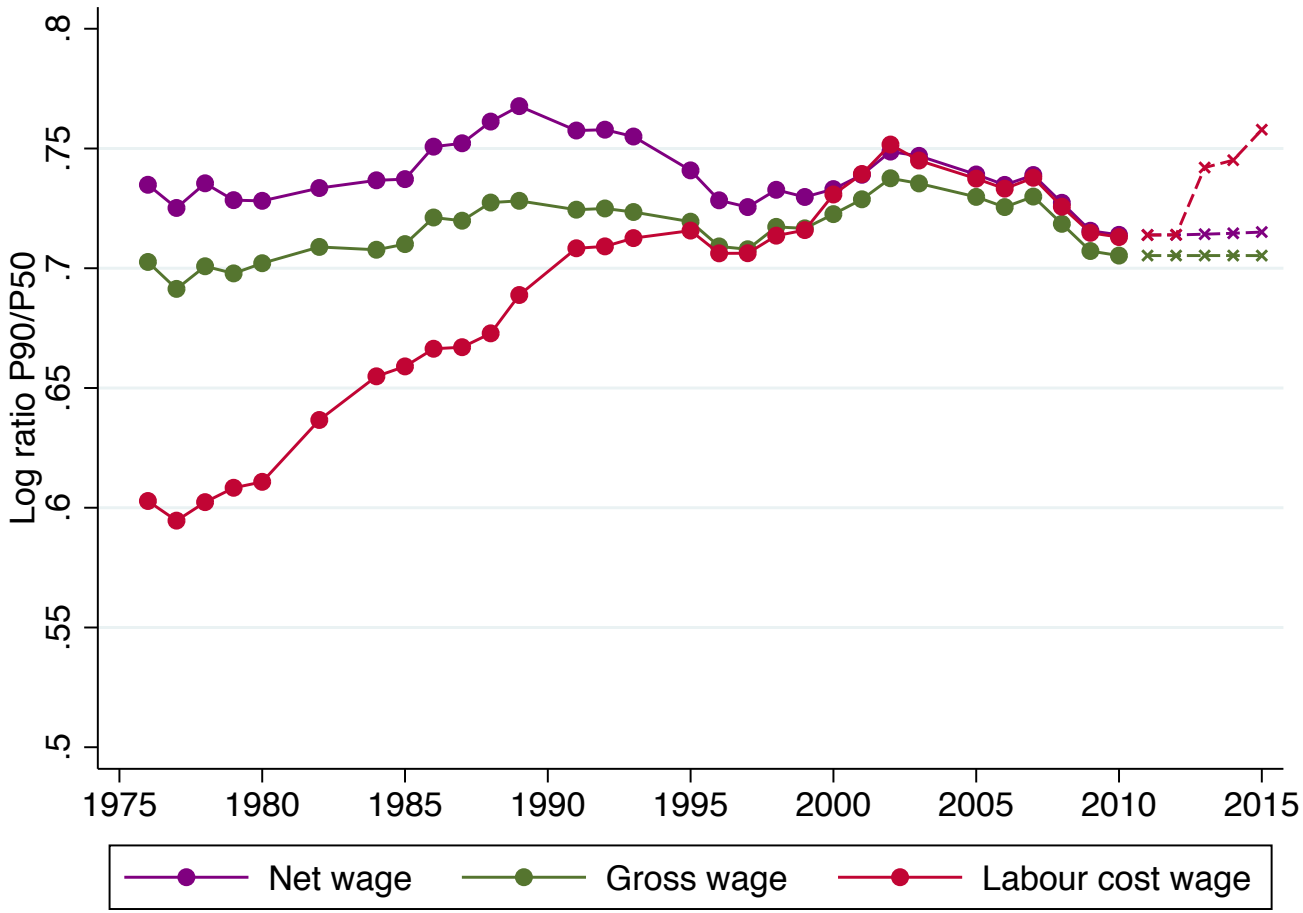


Note: The two additional series are in terms of net-of-tax wage and of net wage plus contributive employer and employe SSC.

▸ With unemployed

Upper-tail wage inequalities

Figure 12: P90-P50 ratio, full-time full-year male workers



Source: DADS data 1976-2010.

Lower-tail wage inequalities

Figure 13: P50-P10 ratio, full-time full-year male workers

SOURCE: DADS data 1976-2010.

Part III

Wage inequality: international comparisons

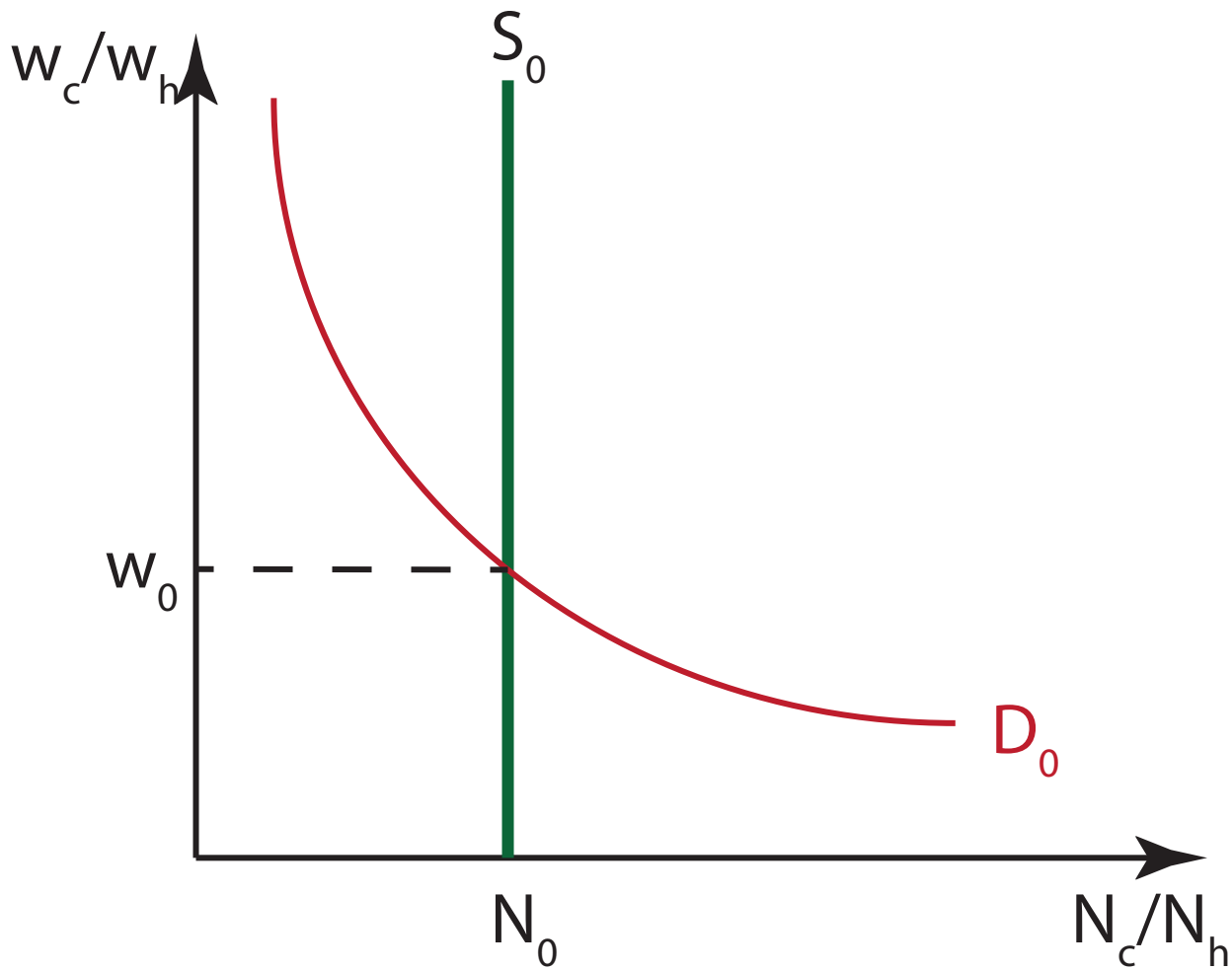
Table 1: Changes in P90/P10 by country, 1980-2010.

	1980	1990	2000	2010	% change, 1980-2010
Poland	2.81	2.88	3.56	3.96	0.33
U.S.	3.83	4.34	4.49	5.01	0.20
Sweden	1.96	1.99	2.35	2.23	0.20
U.K.	2.99	3.43	3.46	3.58	0.16
Australia	2.83	2.81	3.01	3.33	0.16
France labour cost	3.00	3.14	3.32	3.46	**0.13**
Finland	2.47	2.49	2.41	2.52	0.02
Japan	3.00	3.16	2.97	2.96	-0.01
France net wage	3.28	3.30	3.04	2.99	**-0.08**

Notes: net, gross and labor cost wages from the DADS data 1980-2010 for France, gross wage from the OECD for the other countries.

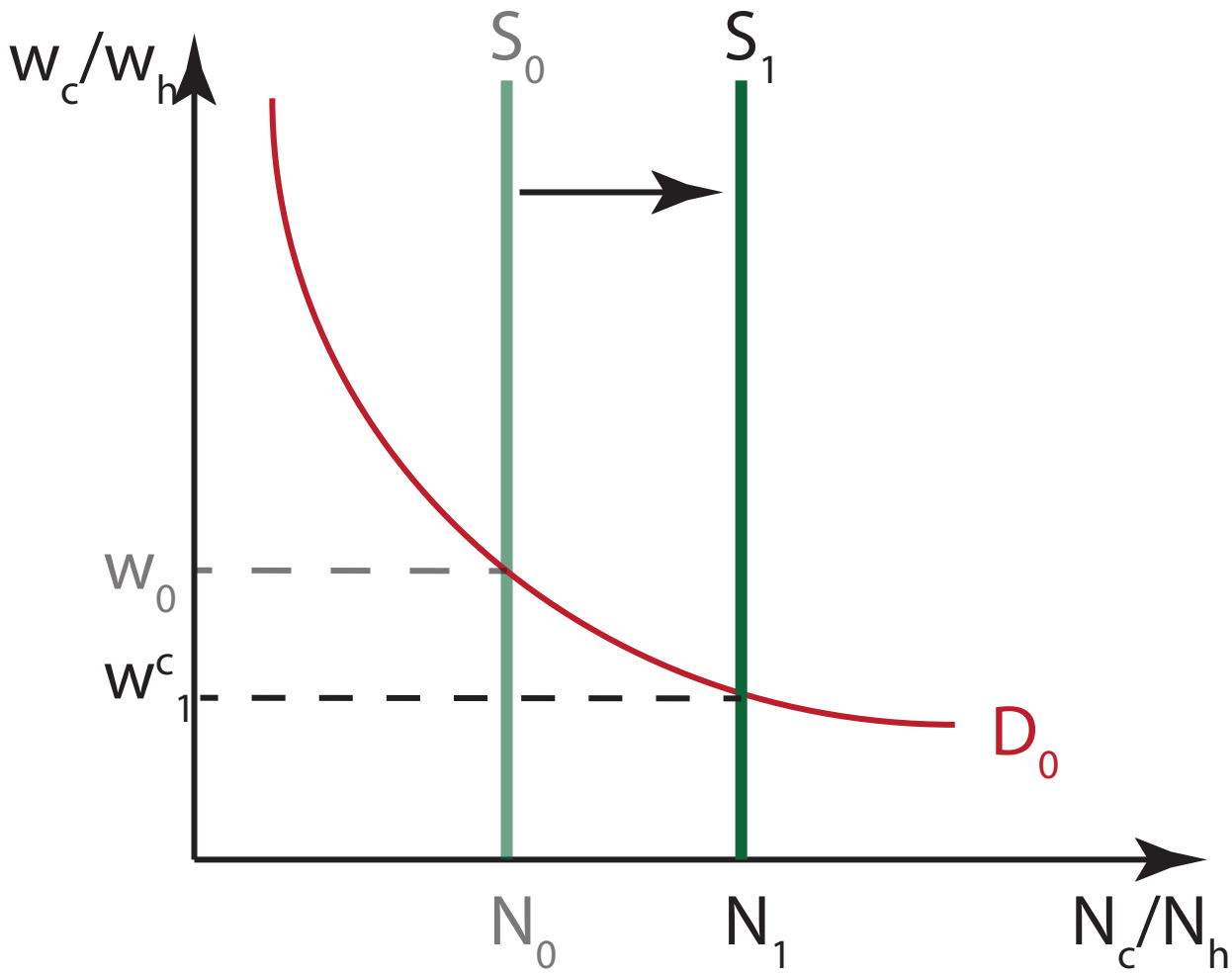
Revisiting SBTC. Part 1: the "canonical model"

Figure 14: Supply and demand of skills framework



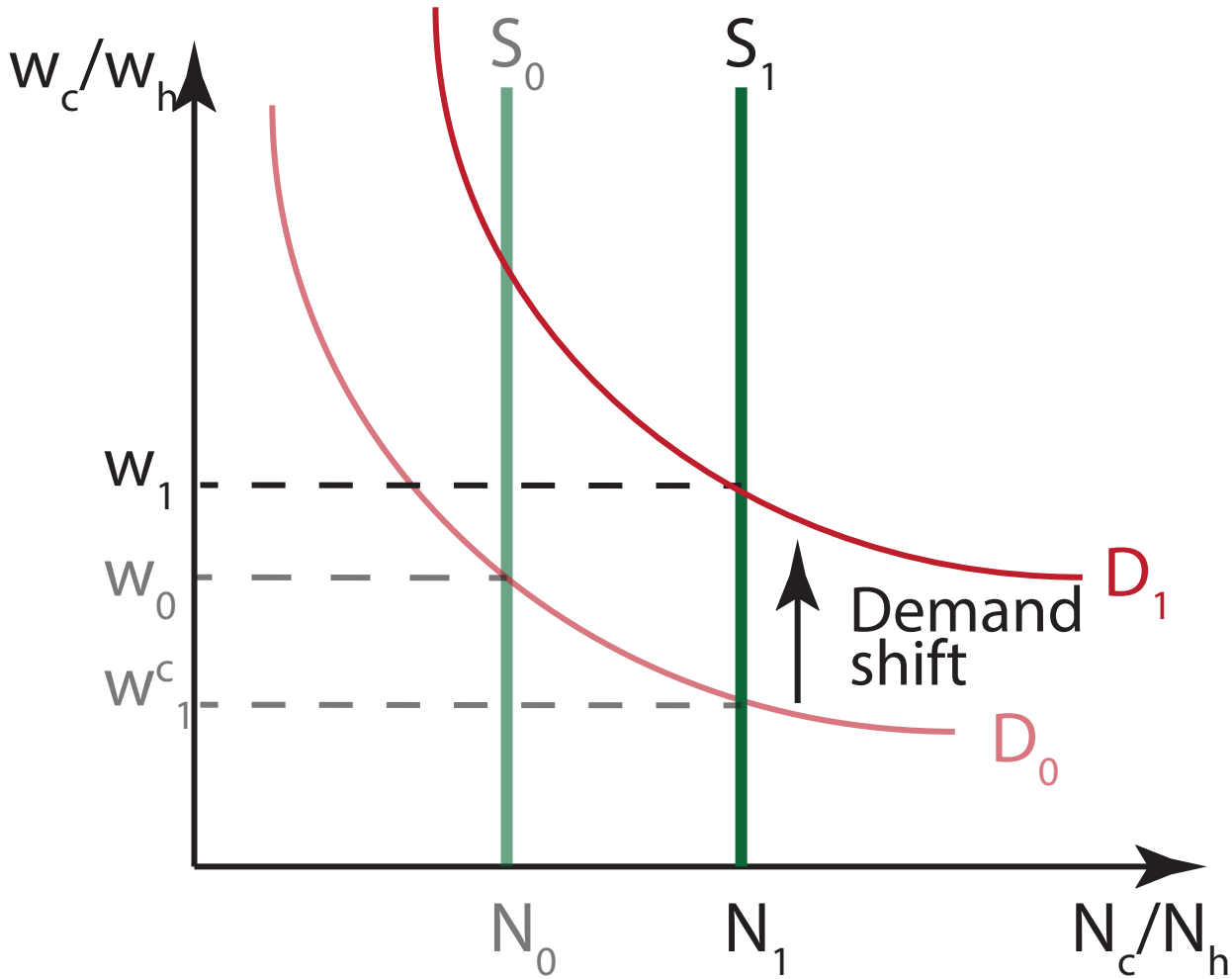
Revisiting SBTC

Figure 15: Supply and demand of skills framework



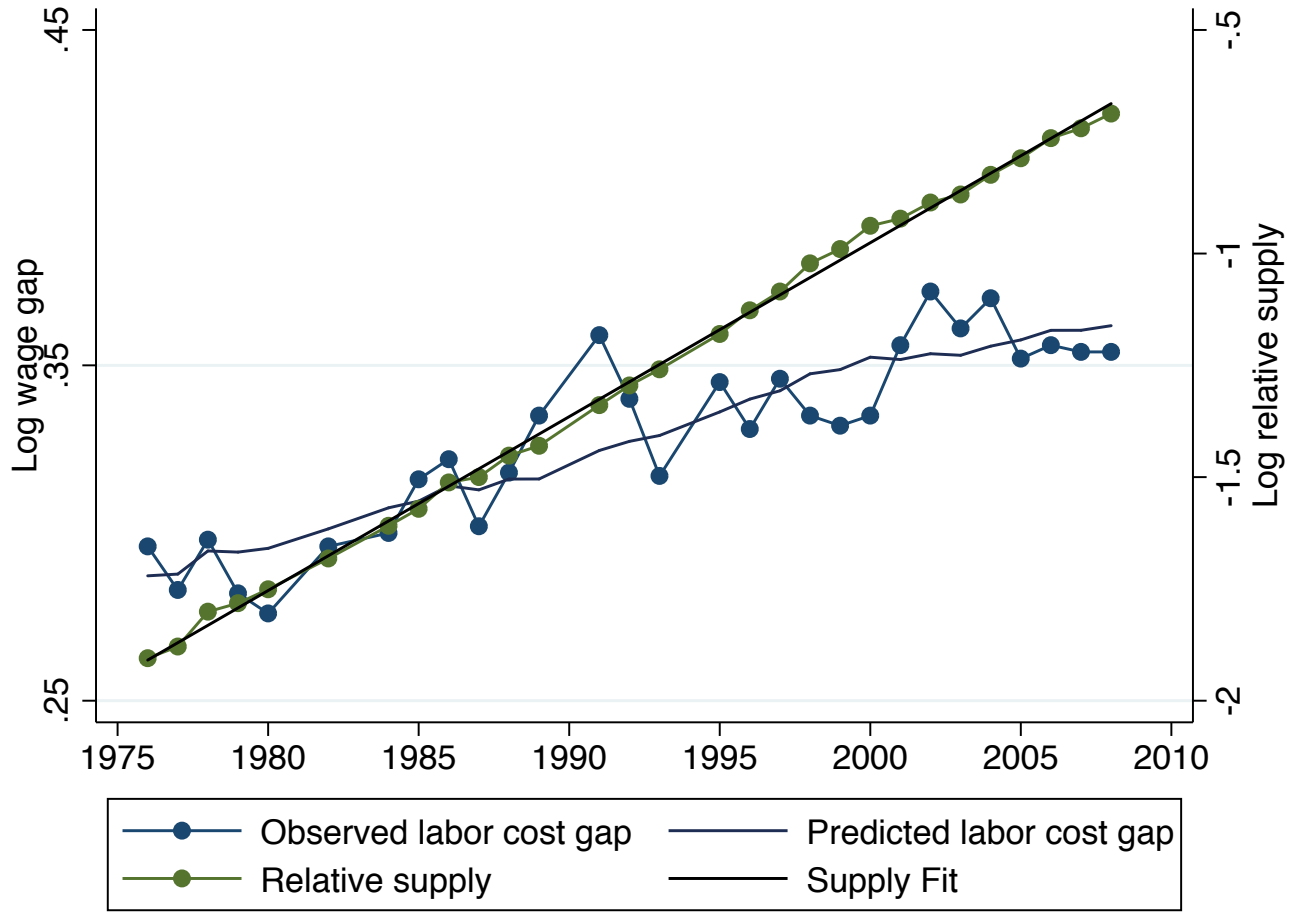
Revisiting Demand shifts

Figure 16: Supply and demand of skills framework



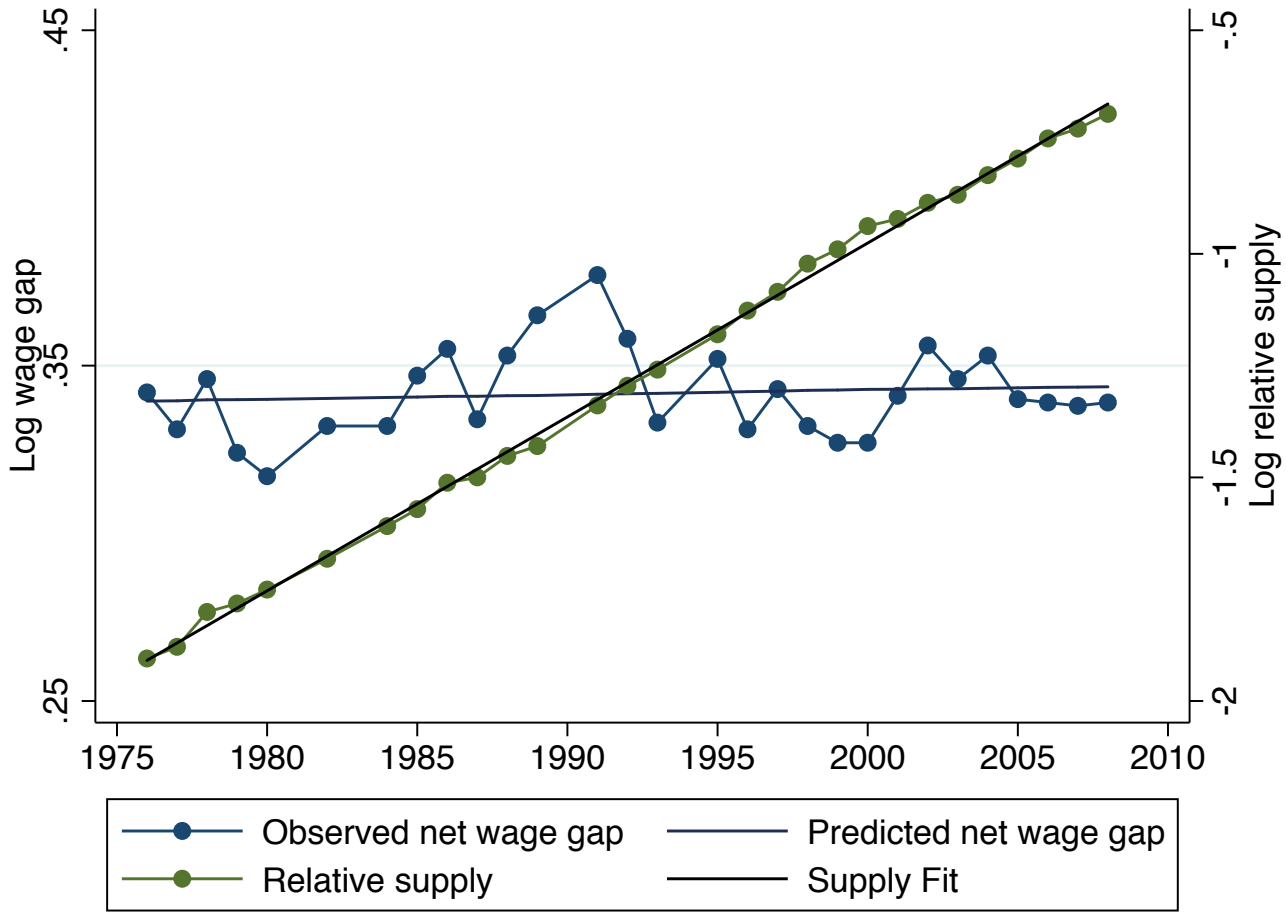
Revisiting SBTC using labour cost and the "canonical model"

Figure 17: Relative labour supply of skilled workers and labour cost wage premium: 1976 - 2008



Revisiting SBTC using net (or gross) wages and the "canonical model"

Figure 18: Relative labour supply and net wage premium: 1976 - 2008



Revisiting SBTC. Part 2: direct evidence that SBTC causes polarization

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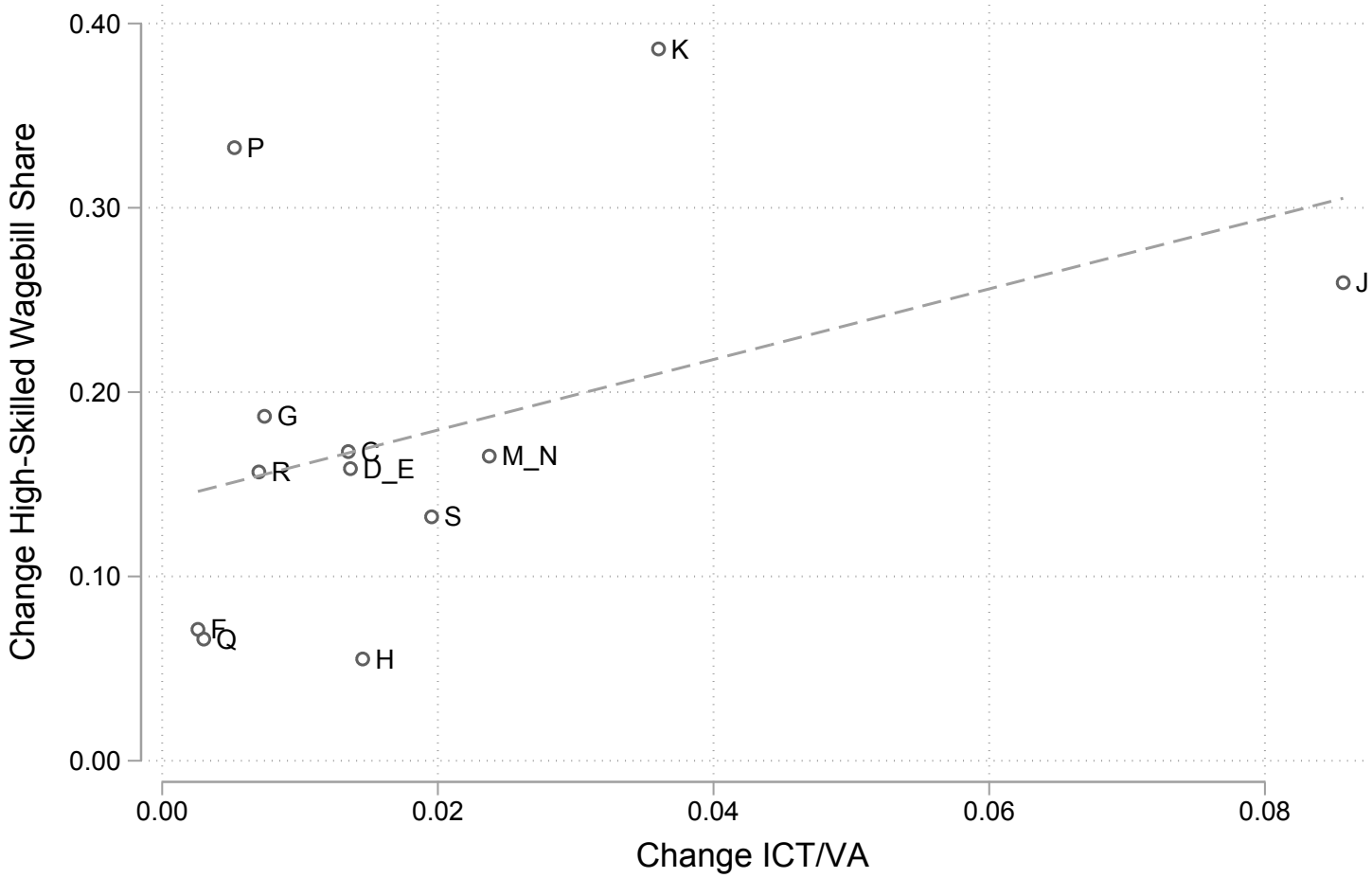
  - Compare the two evolutions
- We do it for France use labor cost shares of each education groups computed with the DADS+EDP data

Direct evidence that SBTC causes polarization

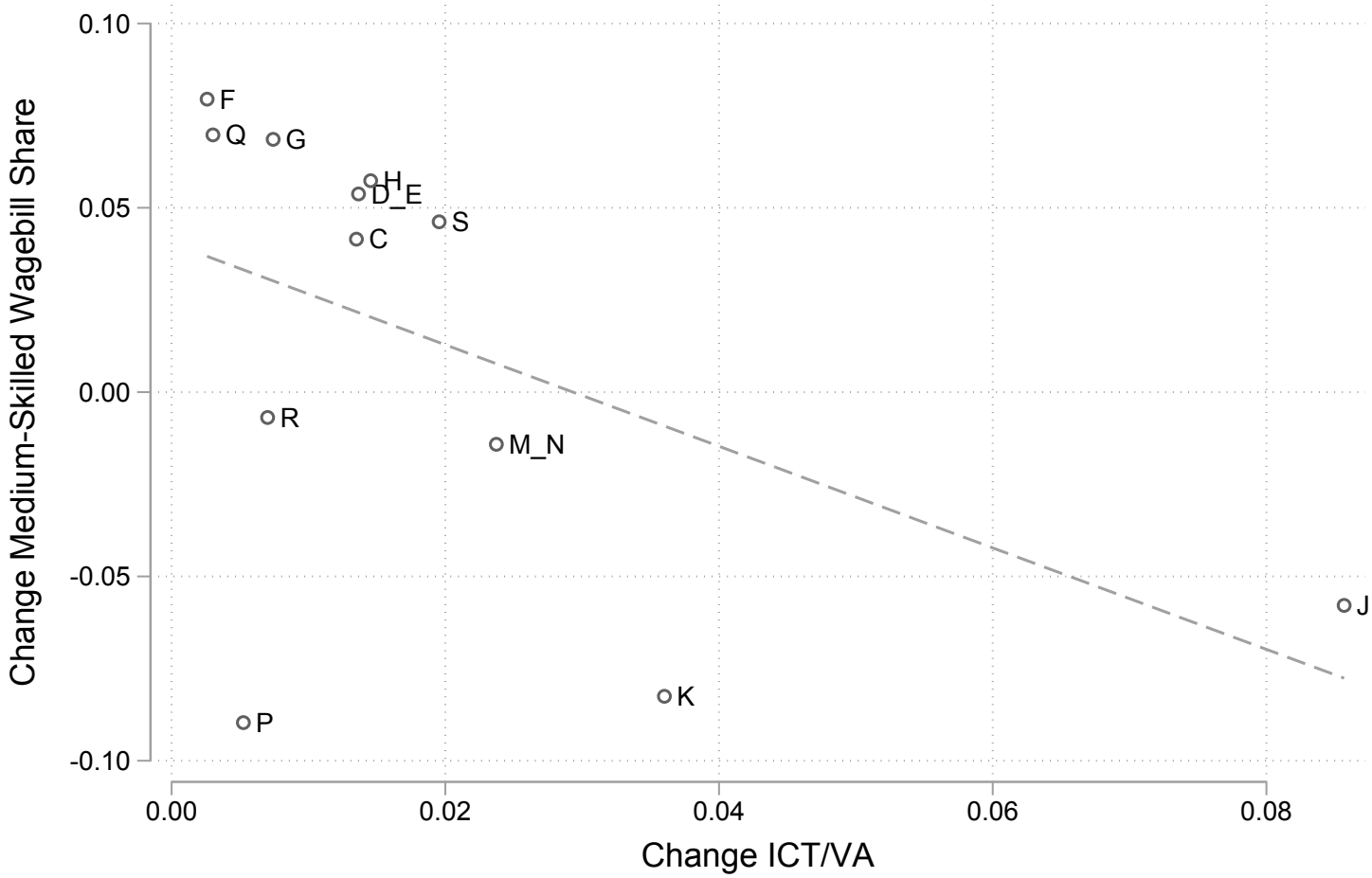
Figure 19: Cross-industry variation in growth of high-skill labour cost share and ICT intensity in France, 1995-2015.



Source: DADS-EDP data 1990-2015. EUKlems data 1990-2015.

Direct evidence that SBTC causes polarization

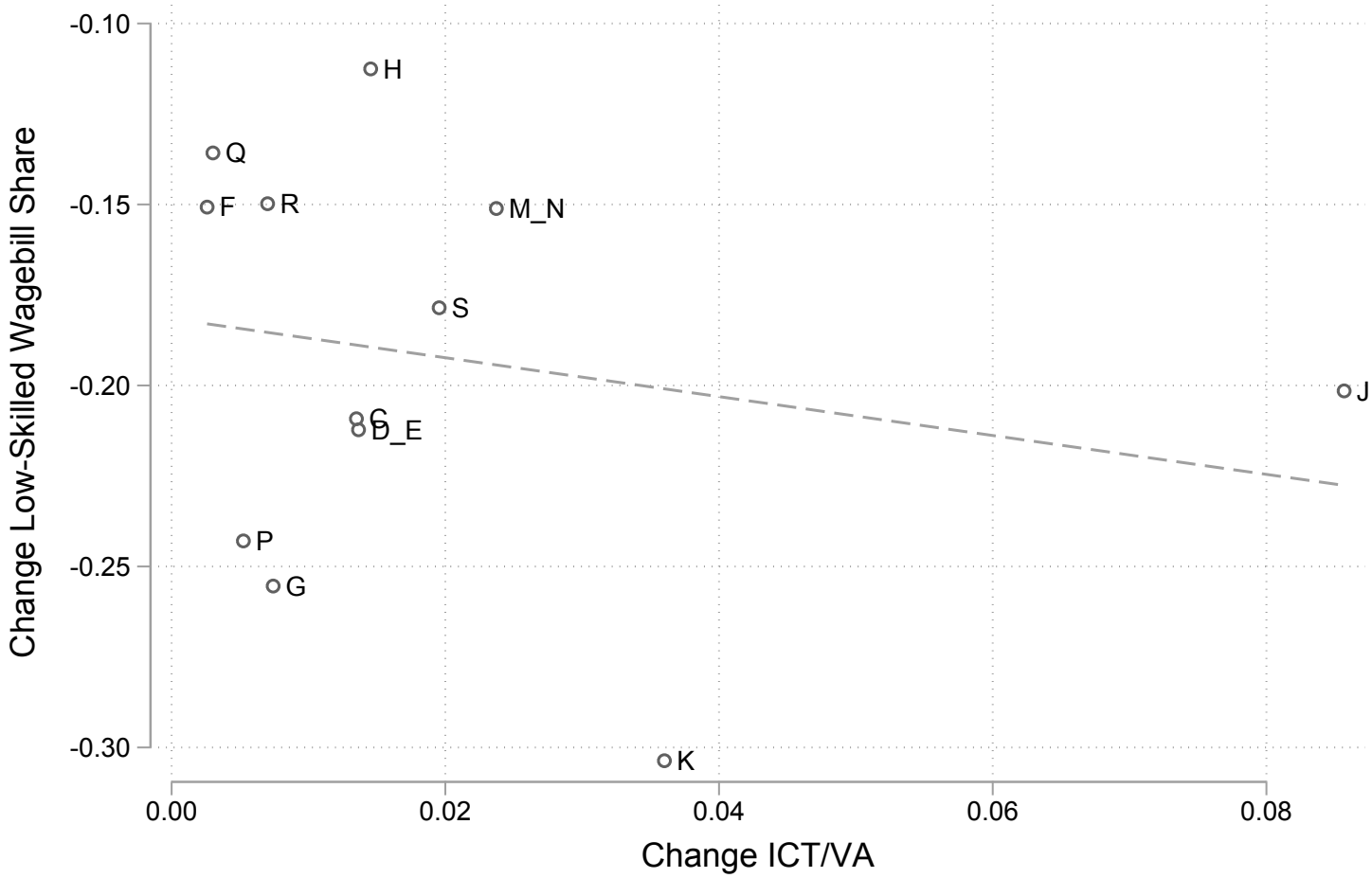
Figure 20: Cross-industry variation in growth of medium-skill labour cost share and ICT intensity in France, 1995-2015.



Source: DADS-EDP data 1990-2015. EUKlems data 1990-2015.

Direct evidence that SBTC causes polarization

Figure 21: Cross-industry variation in growth of low-skill labour cost share and ICT intensity in France, 1990-2015.



SOURCE: DADS-EDP data 1990-2015. EUKlems data 1990-2015.

Can taxation reduce inequalities ?

- **Depends on incidence of SSCs**
  - SSCs reforms may have reduced net wage inequalities if long-run incidence falls on employees
  - What are counterfactual wage inequalities in the absence of SSC changes?

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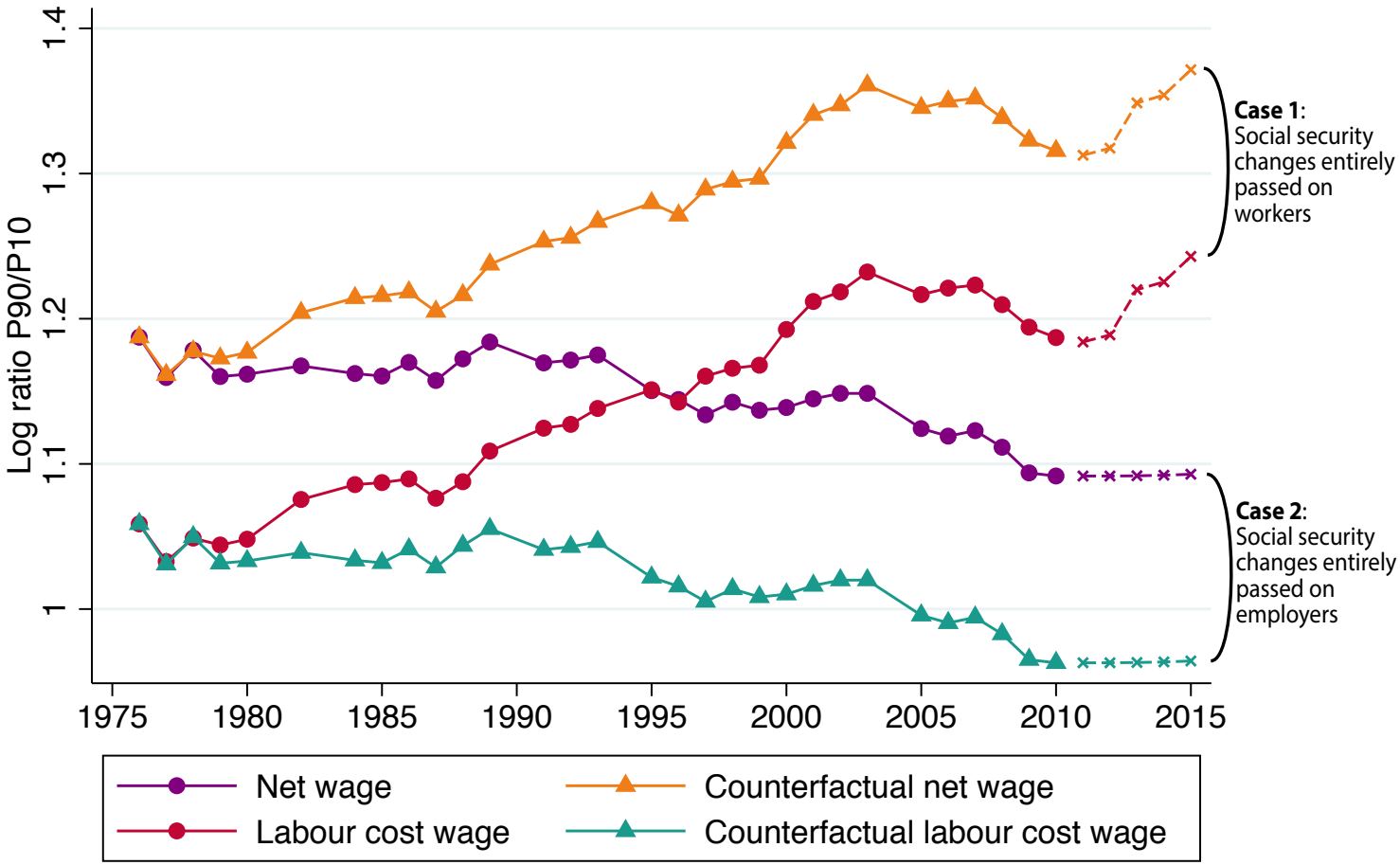
  - What are counterfactual wage inequalities in the absence of SSC changes?
- **Two polar cases**
  - Assume no behavioural responses
  - Assume either full incidence on employees, or full incidence on employers

Can taxation reduce inequalities ?

Figure 22: Wage inequalities in the absence of tax changes: two polar cases



SOURCE: DADS data 1976-2010. The figure offers two scenarios of incidence, on workers or on employers, absent any behavioral responses, for male workers of the private sector working full-time full-year.

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  - Demand shifts may be of similar magnitude in developed countries (similar exposure to SBTC and globalization)

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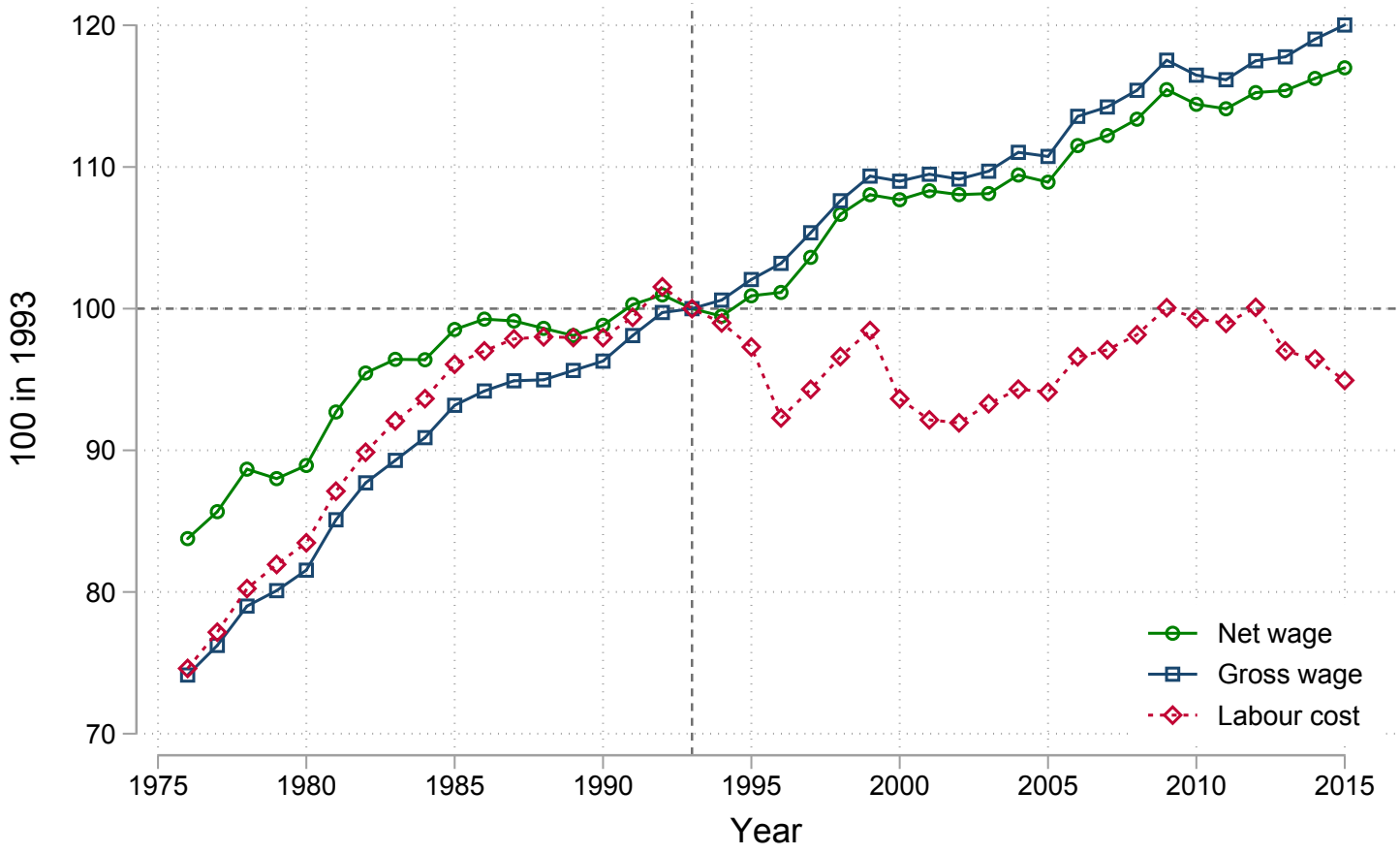
  - This suggests that SSCs have been incident on employees in the long-run
- **Unless the supply of skills has increased more in France**
  - The increase in the supply of skills exerts a downward pressure on wage inequalities
  - But this increase has not been higher in France than in the US or the UK. Graph

Incidence at the minimum wage

Figure 23: Evolution of the minimum wage in terms of net wage, gross wage or labour cost

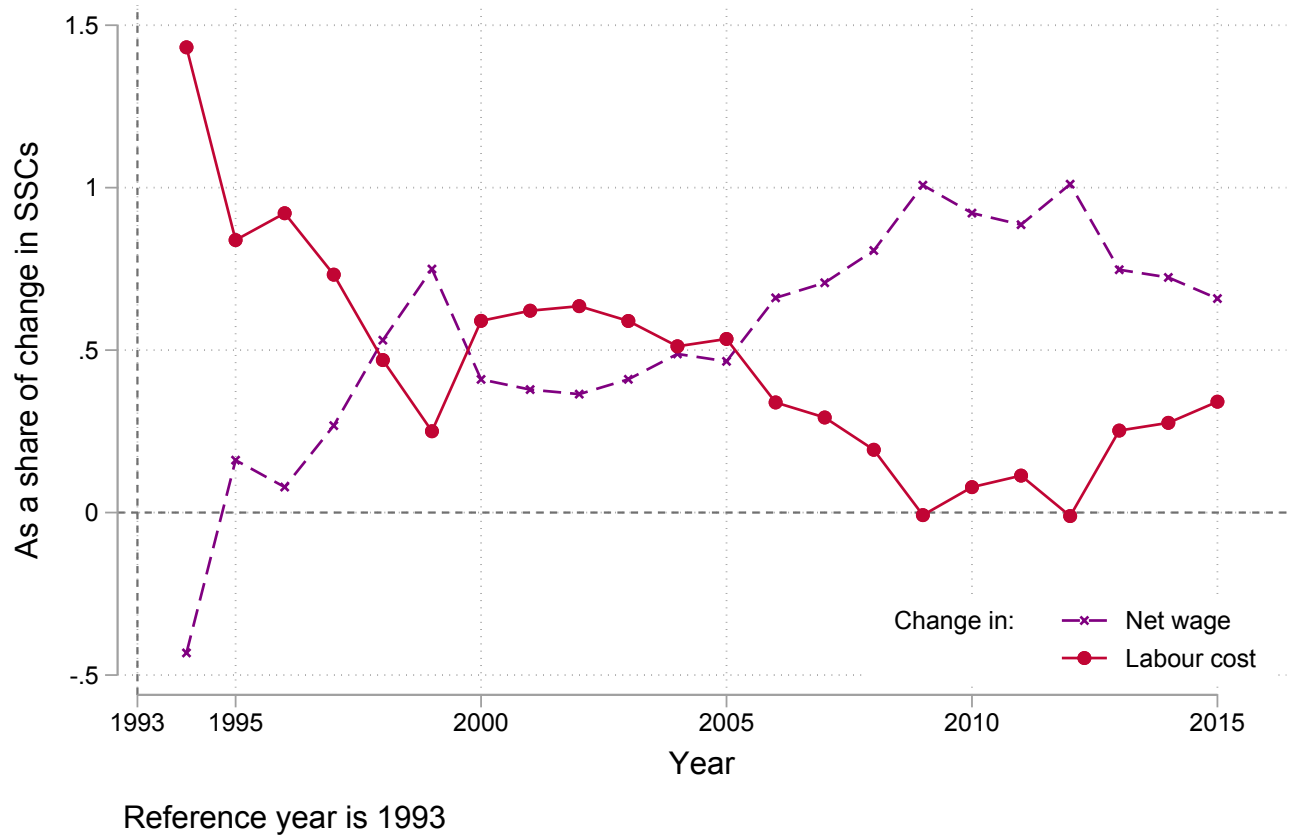


FTFY non-executive employee paid at the minimum wage in the private secor

Source: DADS data 1976-2015.

Incidence at the minimum wage

Figure 24: Cumulated share of the SSCs reductions at the minimum wage mechanically shifted to employers and employees



Source: DADS data 1976-2015.
Note: The figure shows the cumulated changes in minimum labor cost and (opposite of) minimum net wage as a share of the cumulated changes in SSCs at the minimum wage

Incidence in the upper tail

Figure 25: P90-P50

Sample: men and women, FTFY
Earnings are annual earnings

Figure 26: P99.99-P50

Sample: men and women, FTFY
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Behavioral responses

- Taxes could generate inefficiencies...
  1. lower incentive to accumulate skills (if incidence on workers)
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- ... which are hard to detect in the data
  1. no breaks in the accumulation of skills that could be linked to tax changes
  2. increase rather than decrease in the demand for skilled workers
     - but hard to distinguish SBTC demand shifts from tax-driven demand shifts

Conclusions

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- **Incidence of SSCs**
  - Demand shift provides macro-level evidence for long-run incidence of SSCs on employees
- **Political economy aspect: unnoticed redistribution**
  - Strong policy focus on the income tax (the "normal" redistributive tool)
  - Employer SSCs reductions described by unions as "gift to employers"
  - Even if it was used as the main redistributive tool

Perspectives

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  - Similar patterns ?

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- Other countries ?
  - Similar patterns ?
  - Compare supply of skills, net wages and labor costs across countries.
  - Compare French policies (high MW/SSCs reductions) with tax credit policies and lower MW countries (e.g. EITC in the U.S., WFTC in the U.K.)

Primary inequality and redistribution through employer Social Security contributions: France 1976-2015

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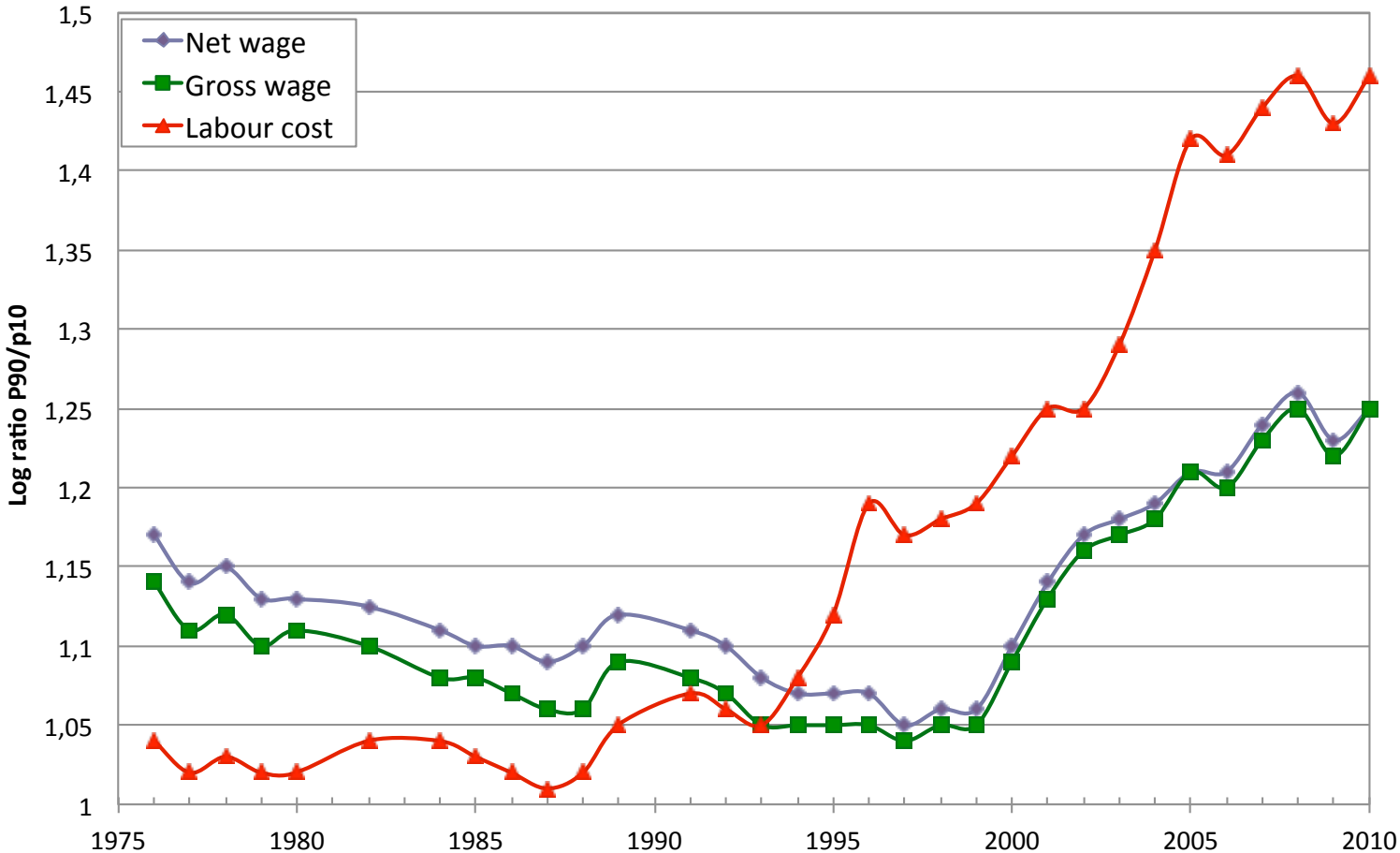
Including unemployed, paid at MW

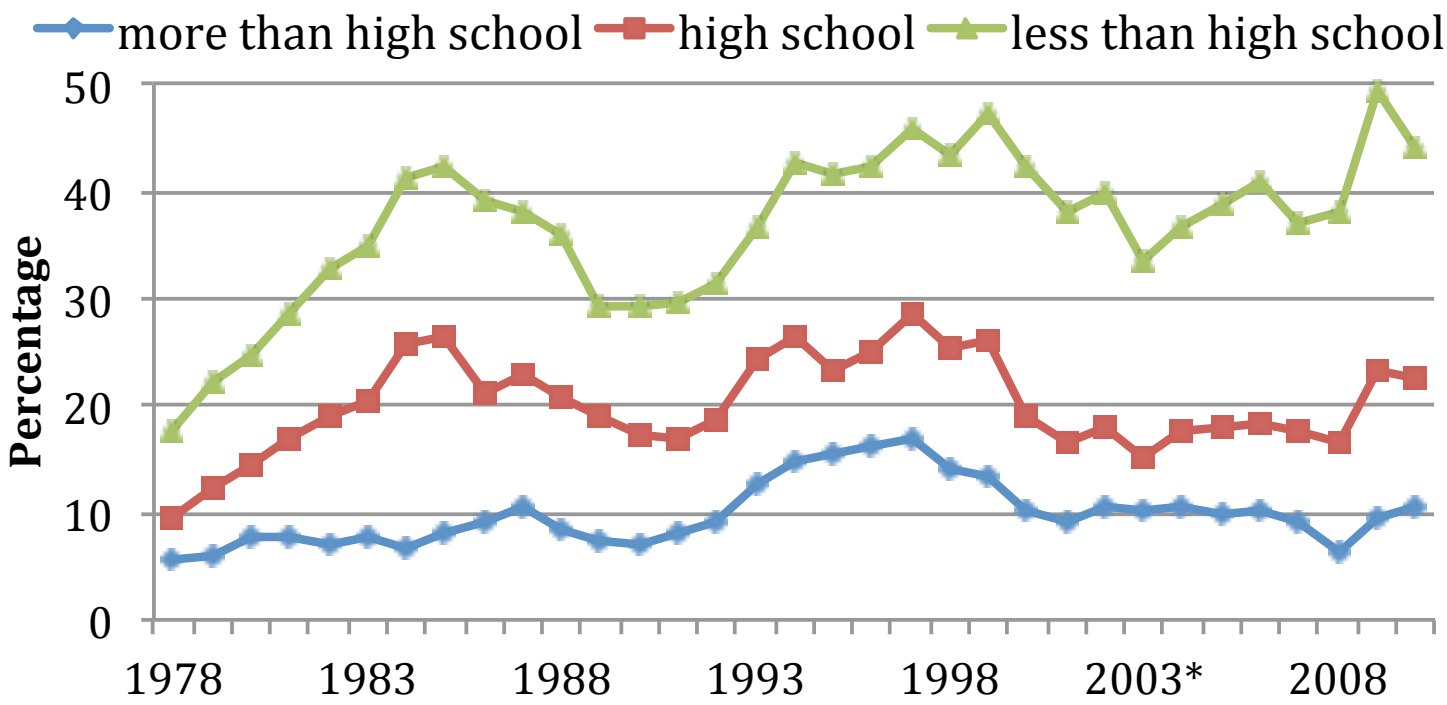
Figure 27: P90-P10 ratio, full-time male workers, 1976-2010



SOURCE: DADS data 1976-2010.

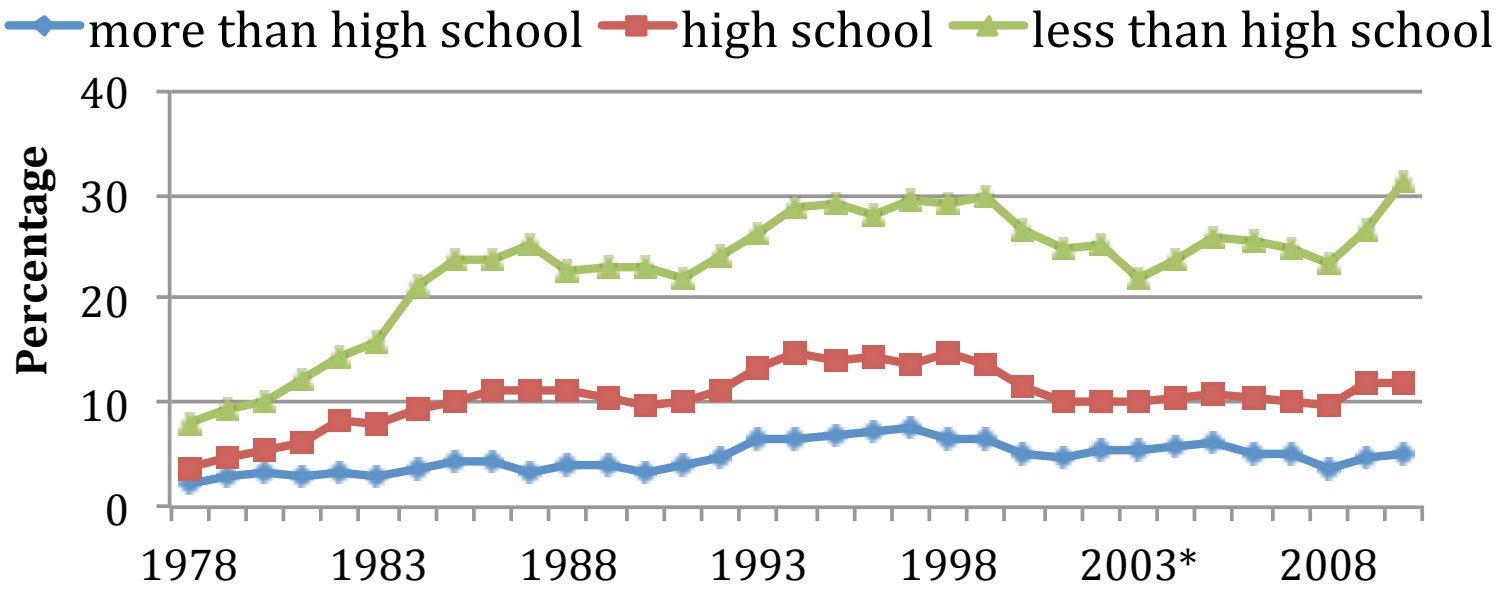
back

Figure 28: Unemployment rate by educational attainment, 1978-2010: Workers with less than five years of experience



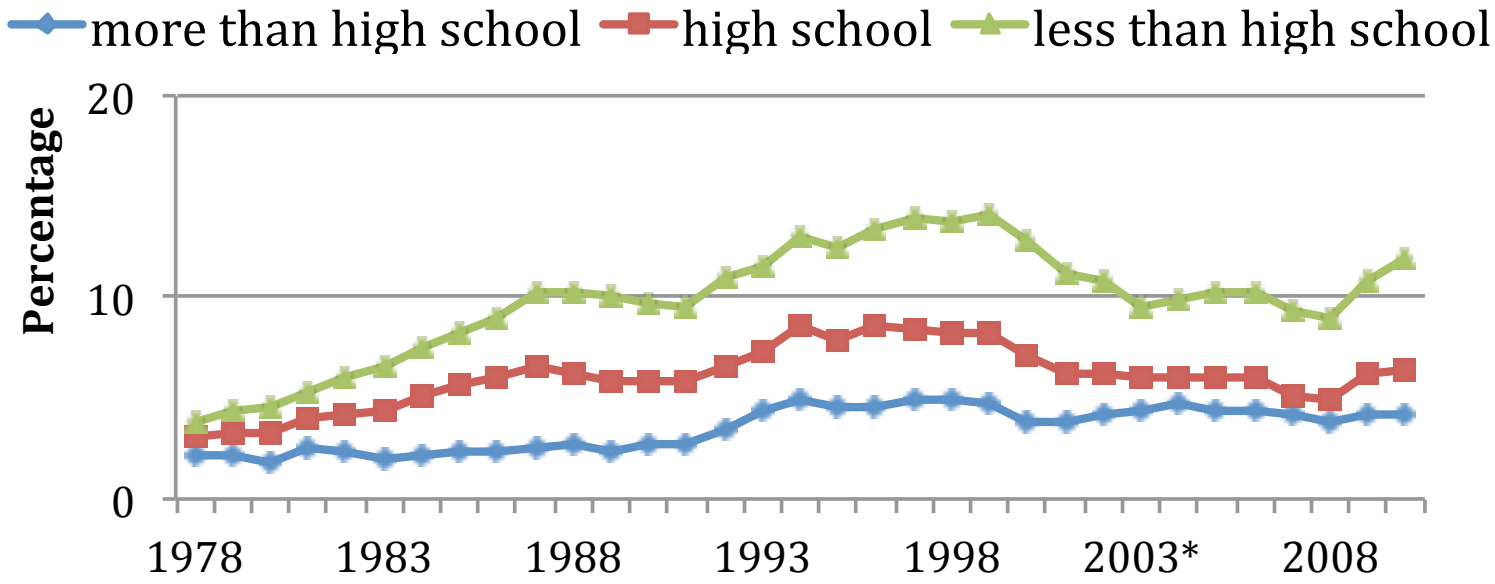
SOURCE: Labor force survey 1978-2010.

Figure 29: Unemployment rate by educational attainment, 1978-2010: Workers with five to ten years of experience



SOURCE: Labor force survey 1978-2010.

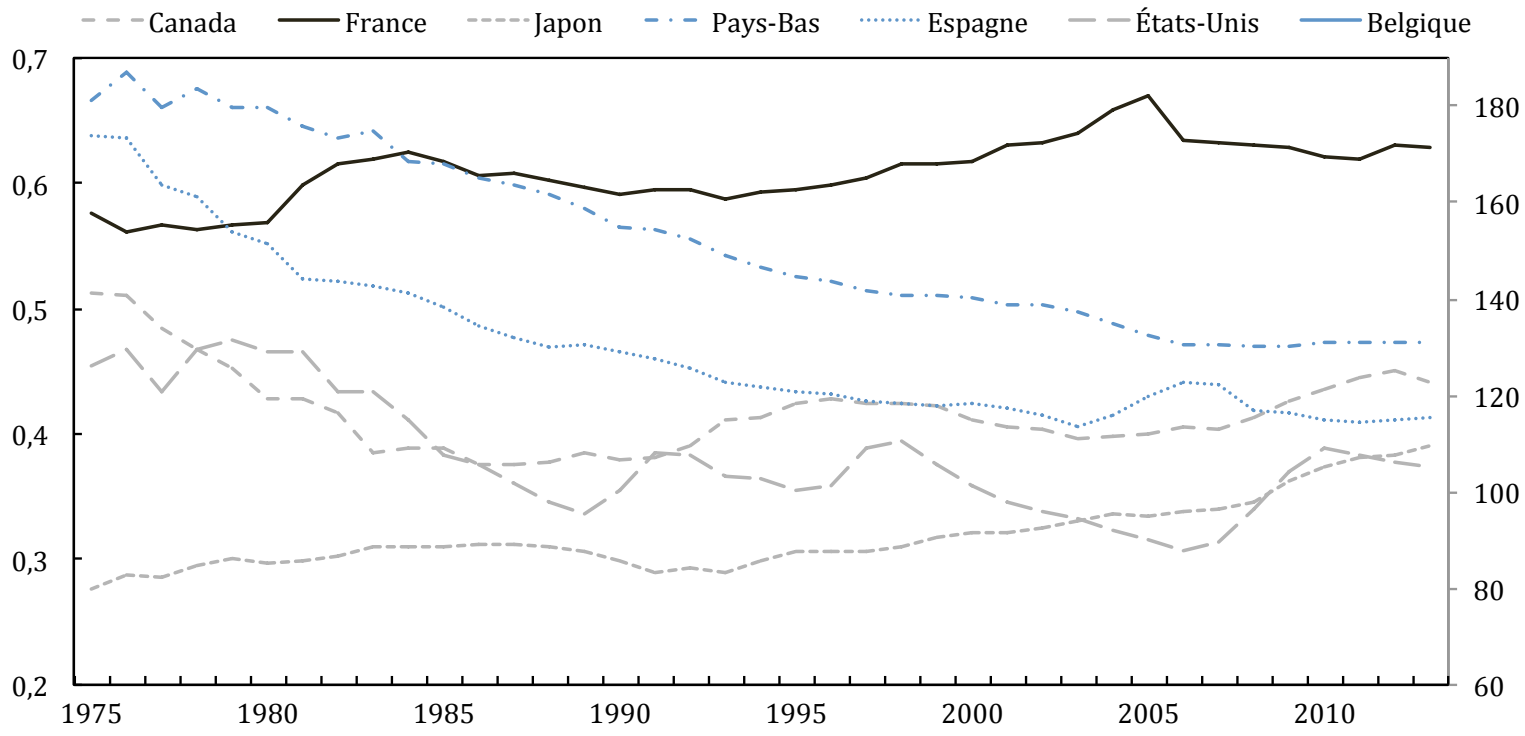
Figure 30: Unemployment rate by educational attainment, 1978-2010: Workers with more than ten years of experience



SOURCE: Labor force survey 1978-2010.

II-Minimum wage and inequalities

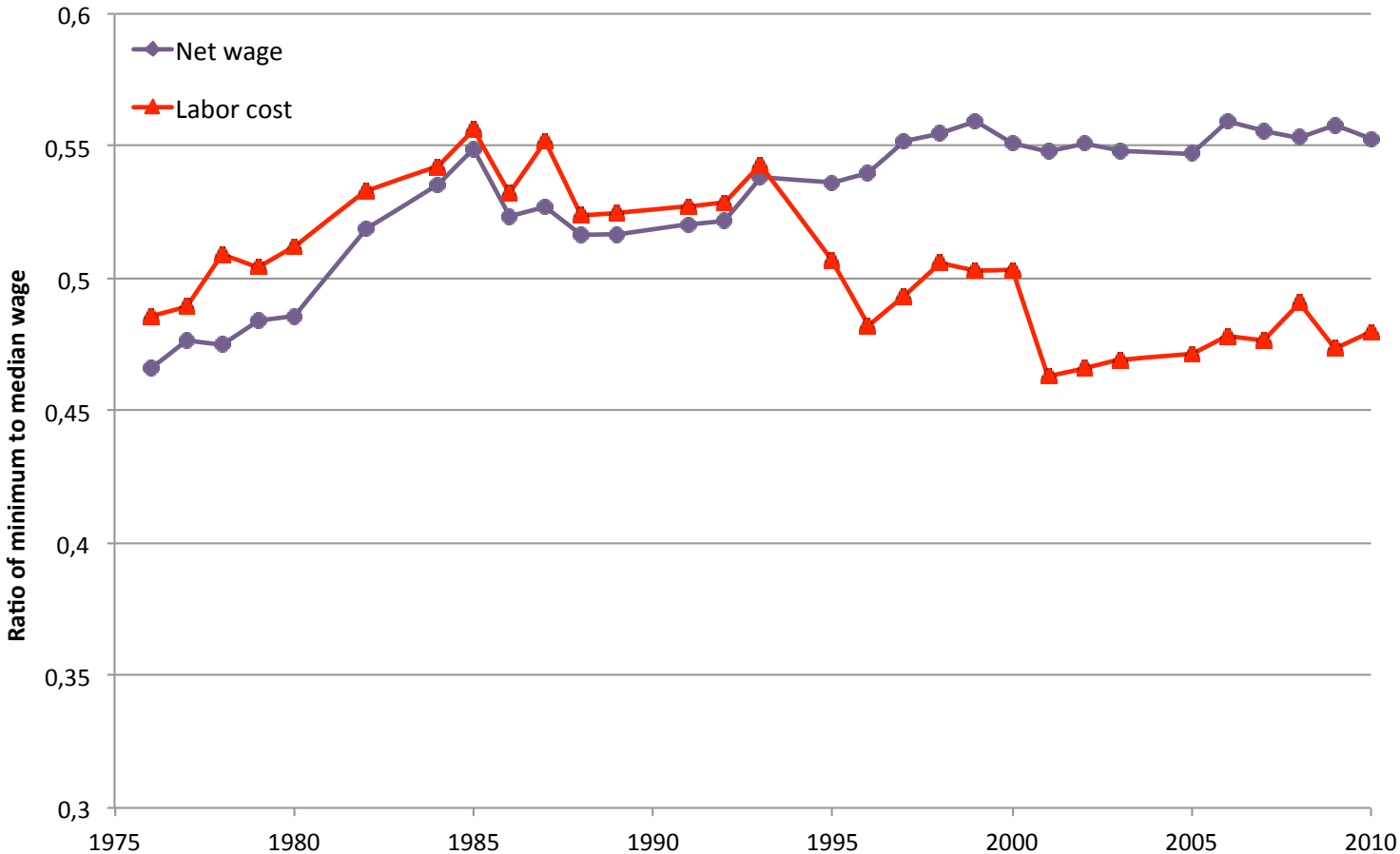
Figure 31: Ratio of minimum to median gross wage, OECD countries, 1975-2013



SOURCE: OECD.

II-Minimum wage and inequalities

Figure 32: Ratio of minimum to median wage, France: net versus labour cost



SOURCE: DADS data 1976-2010.

Figure 33: Evolution of the share of graduates in employed population in France, the UK and the US.

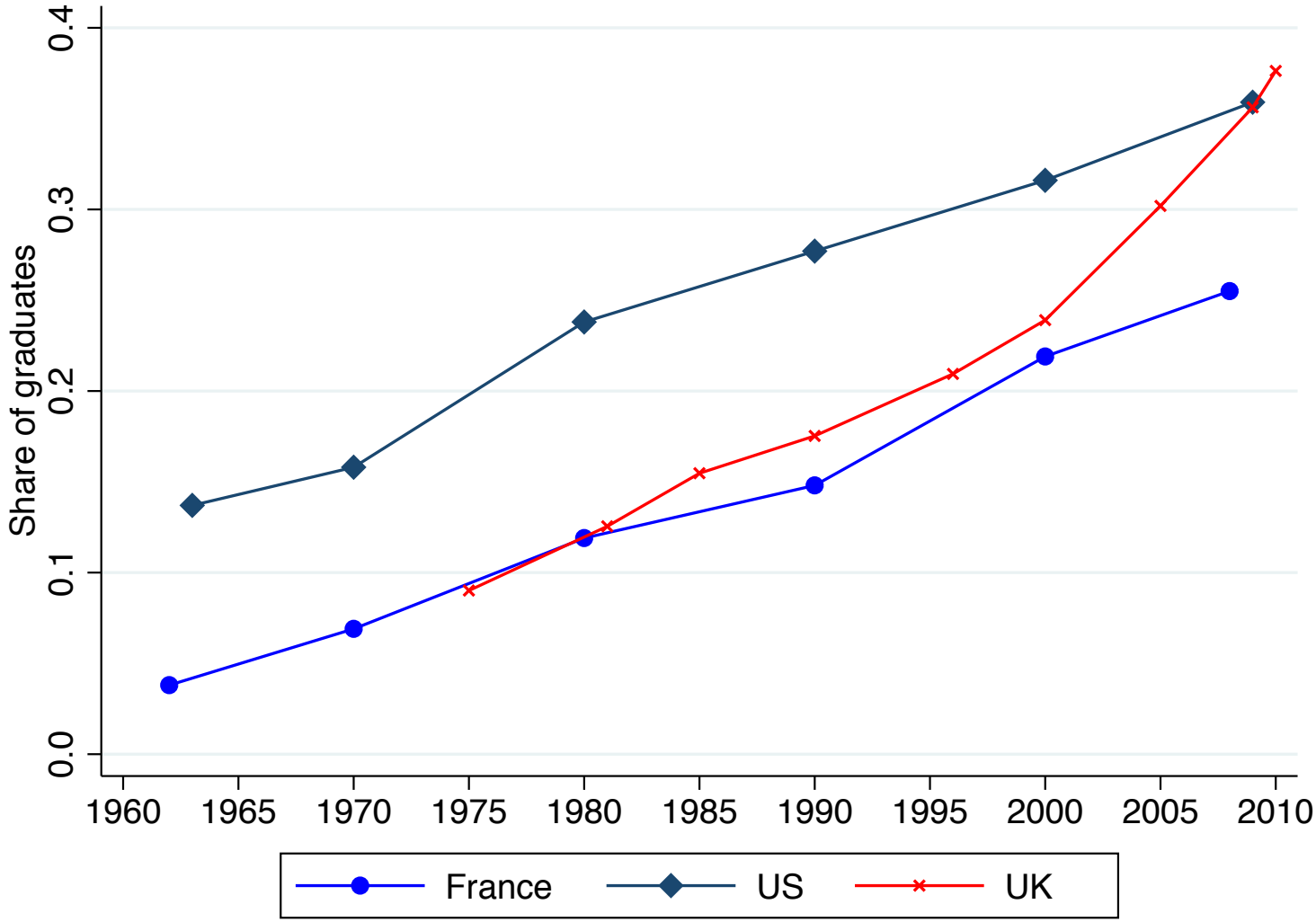


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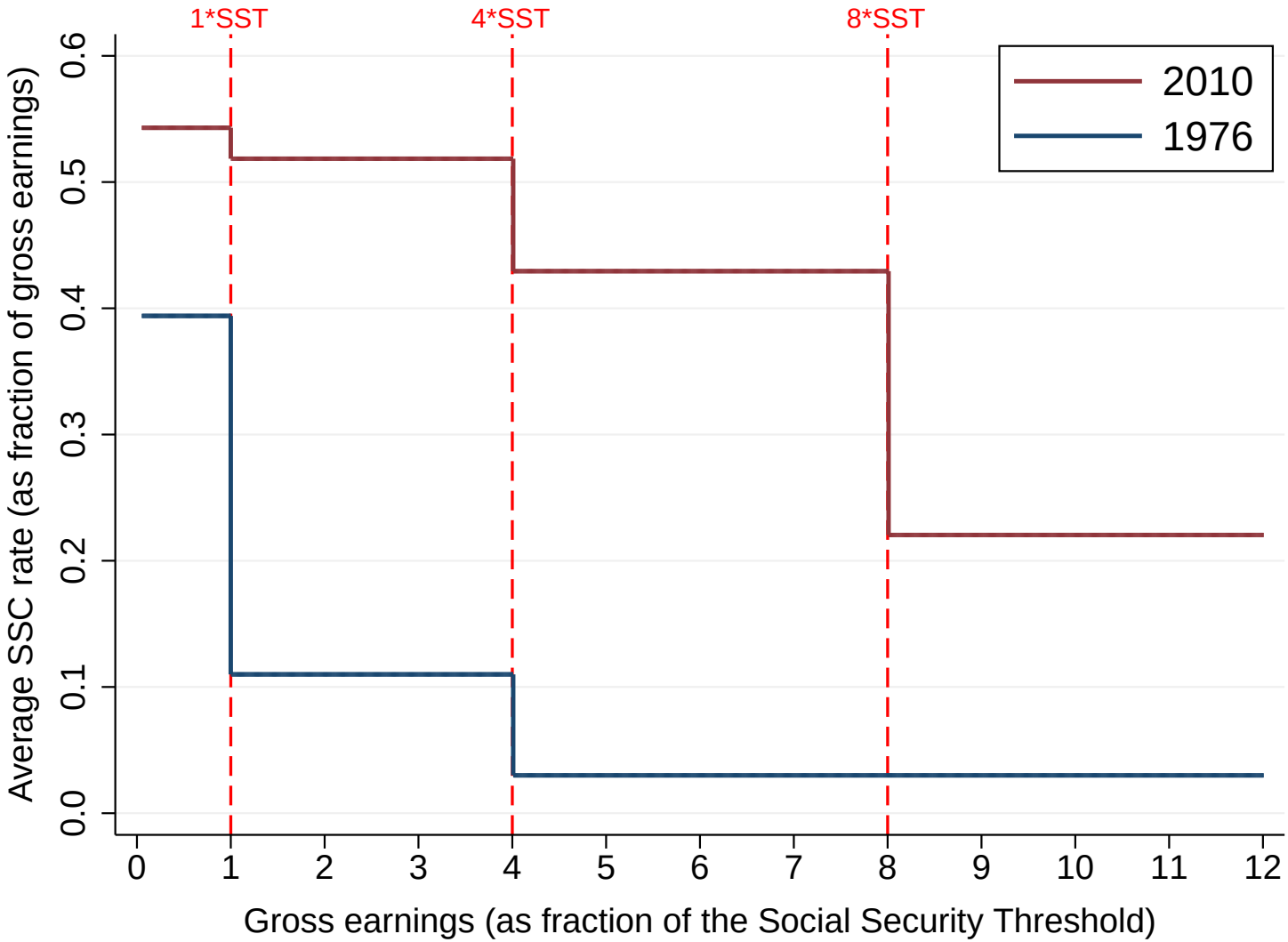
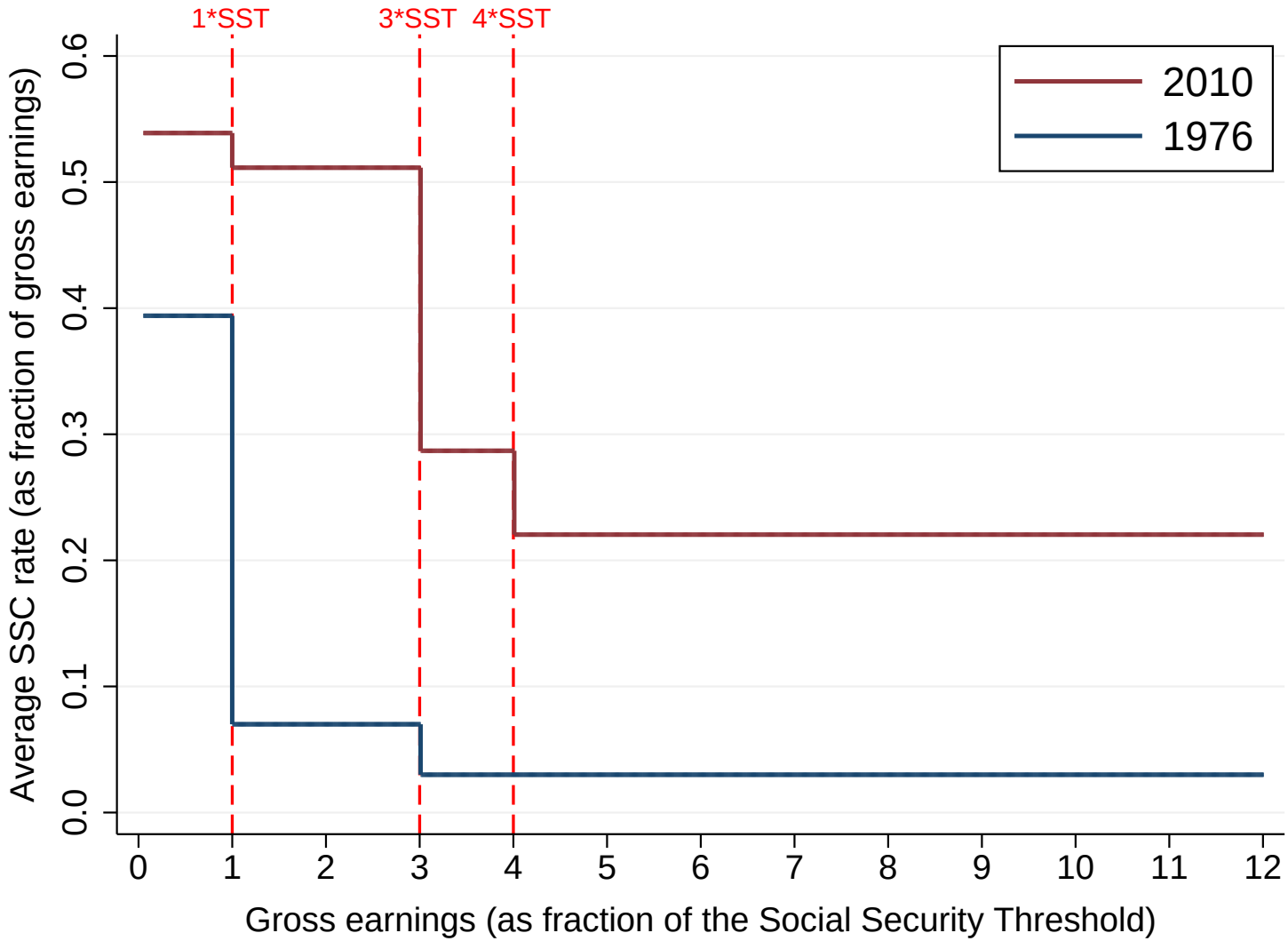
Figure 34: Marginal SSC rates by brackets of earnings for executives in 1976 and 2010.



NOTE: : Employer+Employee rate. SST at ≈ p70, 8SST at ≈ p99.95

Figure 35: Marginal SSC rates by brackets of earnings for non executives in 1976 and 2010.



NOTE: : Employer+Employee rate. SST at ≈ p70, 8SST at ≈ p99.95

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Figure 36: Marginal employer SSC rates for executives, private sector, 1970-2016

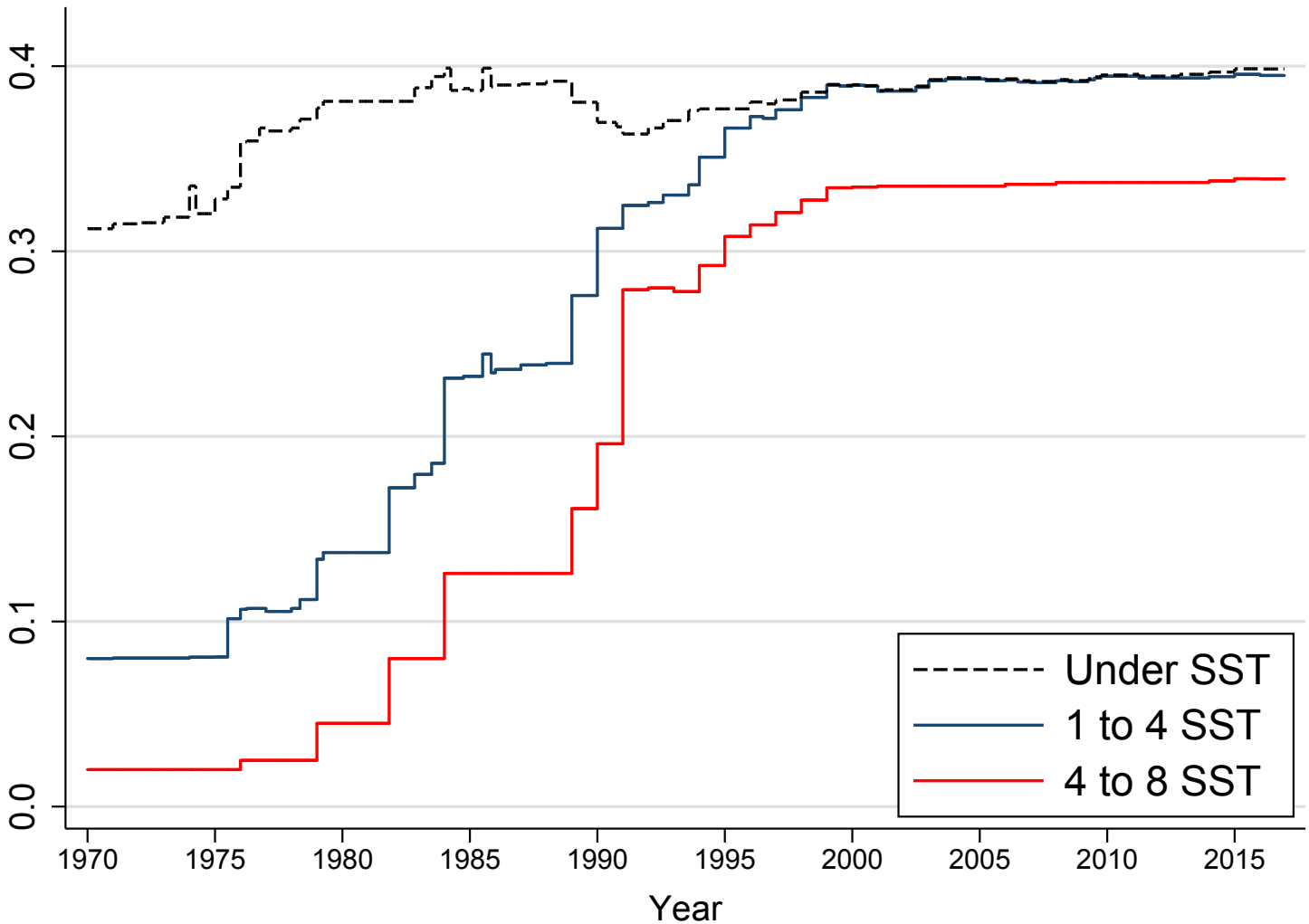

Figure 37: Marginal employer SSC rates for non-executives, private sector, 1970-2016

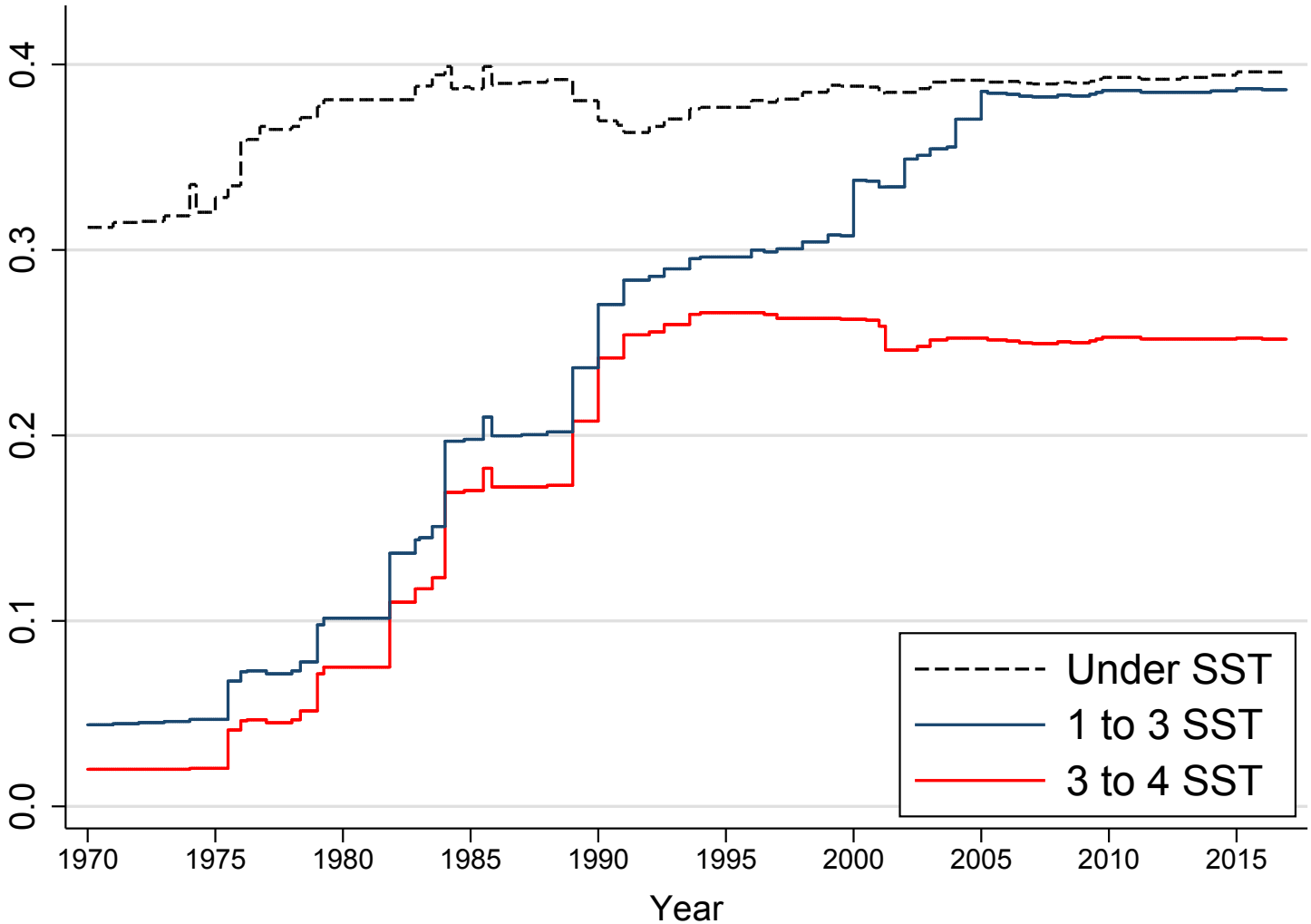

Figure 38: Marginal employee SSC rates for non-executives, private sector, 1970-2016