

Labour Quality and Skill Biased Technological Change in France

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ICT and wage inequalities

- Increase in wage inequalities and demand for skilled labour in the US over the 70s and 80s.
- Several explanations:
 - international trade
 - outsourcing
 - Diffusion of new technology.

SBTC in France over the 1982-01 period

Part I. Descriptive Statistics

1. Labour quality index
2. Supply and demand shifts favouring the college educated workers
3. Shift-share

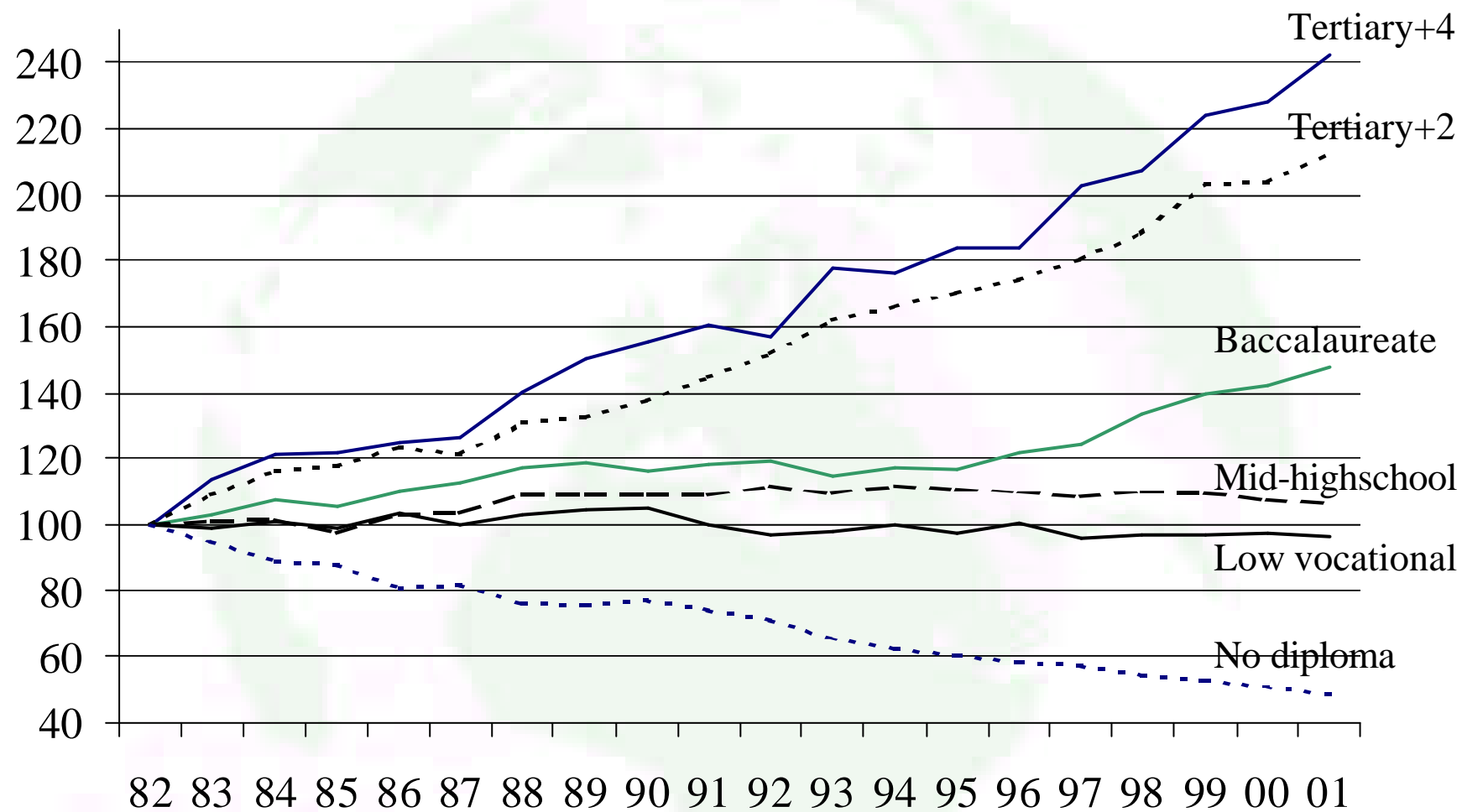
Contributions to labour quality, average annual changes

	Quality	Age	Gender	Education
1982-2001				
United States	0.46	0.24	-0.08	0.33
France	0.87	0.18	-0.02	0.71
1982-1990				
United States	0.49	0.26	-0.12	0.40
France	1.13	0.44	0.00	0.70
1990-1995				
United States	0.55	0.25	-0.01	0.27
France	0.84	0.26	-0.06	0.70
1995-2001				
United States	0.36	0.21	-0.08	0.29
France	0.54	-0.22	-0.02	0.72

$$\dot{Q} = \sum_i \dot{H} * 0.5 * \left[\frac{(wL)_{i,t-1}}{(wL)_{.,t-1}} + \frac{(wL)_{i,t}}{(wL)_{.,t}} \right]$$

Source: US: Harvard, France: INSEE, D.A.D.S., LFS; CEPII, authors' calculations.

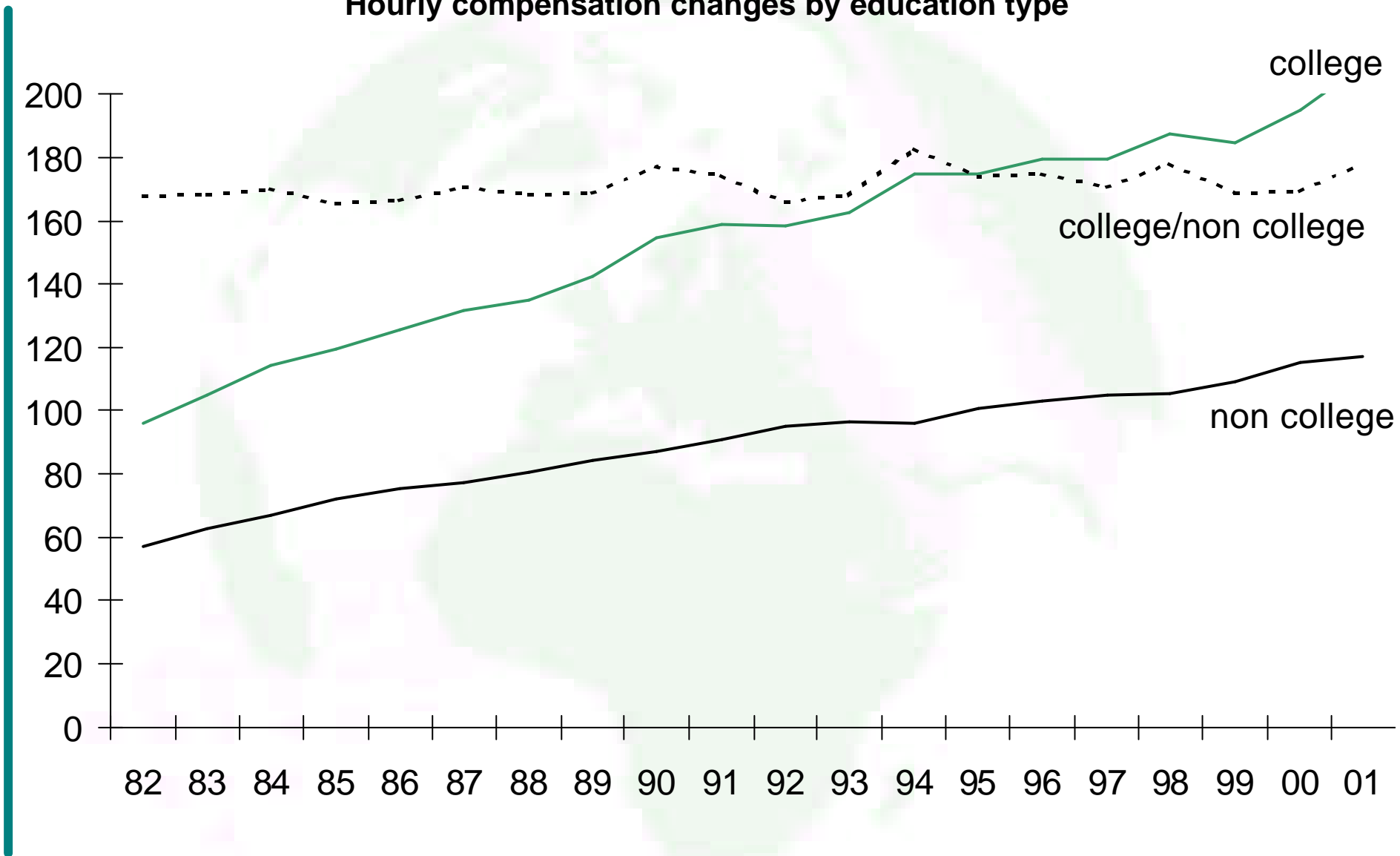
Total hours worked



Source: DADS, LFS and NA; CEPII.



Hourly compensation changes by education type



Relative demand favouring college graduates and supply shifts (college graduates/non college)

- A. Total Economy

	Relative wage bill	Wage premium*0.4	Supply	Demand
1982-01	5.02	0.14	4.70	5.16
1982-90	4.55	0.11	3.85	4.66
1990-95	5.60	0.15	5.99	5.74
1995-01	5.16	0.17	4.76	5.33

$$\Delta \ln D_t = \underbrace{\Delta \ln([w_h * N_h] / [w_u * N_u])}_a + \underbrace{(s - 1) * \Delta \ln(w_h / w_u)}_b.$$

w: hourly compensation; N: employment; s: elasticity of substitution; ln: growth rate.

College graduates : tertiary education ; non skilled : baccalaureate, vocational upper secondary education, lower secondary education and below.



• B. ICT producer sector

	Relative wage bill	Wage premium*0.4	Supply	Demand
1982-01	8.56	0.09	9.00	8.65
1982-90	6.72	-0.04	7.29	6.68
1990-95	4.02	-0.79	7.79	3.23
1995-01	15.08	1.01	12.37	16.09

• C. ICT user sector

	Relative wage bill	Wage premium*0.4	Supply	Demand
1982-01	5.73	-0.11	6.07	5.62
1982-90	6.01	-0.50	6.92	5.51
1990-95	6.13	0.35	6.02	6.47
1995-01	5.01	0.05	4.99	5.06

• D. Other industries:

	Relative wage bill	Wage premium*0.4	Supply	Demand
1982-01	4.19	0.38	3.79	4.35
1982-90	3.57	0.59	2.45	3.82
1990-95	5.46	0.44	5.83	5.65
1995-01	3.95	0.05	3.90	4.00

$$\Delta S_{DIP} = \underbrace{\sum_{p=1}^P \Delta \frac{H_p}{H} * (\bar{S}_{DIP,p}) + \sum_{u,u \neq p} \Delta \frac{H_u}{H} * (\bar{S}_{DIP,u}) + \sum_{k,k \neq j \neq p} \Delta \frac{H_k}{H} * (\bar{S}_{DIP,k})}_{\text{between}}$$

$$+ \underbrace{\sum_{p=1}^P \Delta S_{DIP,p} * \frac{\bar{H}_p}{H} + \sum_{u,u \neq p} \Delta S_{DIP,u} * \frac{\bar{H}_u}{H} + \sum_{k,k \neq j \neq p} \Delta S_{DIP,k} * \frac{\bar{H}_k}{H}}_{\text{within}}$$

S_{DIP} = proportion of hours worked (compensation) by college educated workers in total hours (compensation),

$S_{DIP,i}$ = proportion of sector hours worked (compensation) by college educated workers in total sector hours (compensation),

H = total hours worked,

H_i = hours worked in industry i ,

p the ICT producer sector, u the ICT user sector,

k the other industries.

Changes in the share of hours worked by college educated (shift share)

% points	1982-01	1982-90	1990-95	1995-01
(1) Between:	0.34	0.06	0.05	0.23
ICT producer sector	0.13	-0.01	-0.01	0.15
ICT user sector	1.09	0.35	0.19	0.55
Other industries	-0.88	-0.27	-0.13	-0.48
(2) Within:	13.39	3.88	4.56	4.95
ICT producer sector	1.17	0.31	0.26	0.60
ICT user sector	4.73	1.81	1.33	1.60
Other industries	7.48	1.76	2.97	2.75
(3) = (1) + (2) Total effect (%)	13.73	3.95	4.61	5.17

Source: LFS and National Accounts, CEPII, authors' calculations.

Absolute changes in the college educated hours share by sector

In % points	1982-01	1982-90	1990-95	1995-01
Total economy:	13.7	3.9	4.6	5.2
ICT producer sector	33.7	9.2	7.7	16.8
ICT user sector	19.3	7.8	5.4	6.2
Other industries	10.43	2.4	4.1	3.9

Source: LFS and National Accounts, CEPII, authors' calculations.

Breakdown of total hours and compensation by sector

	Hours			TOTAL
	producer	user	Other ind.	
1982-01	3.6	24.6	71.8	100
1982-90	3.4	23.3	73.3	100
1990-95	3.4	24.6	72.0	100
1995-01	3.6	25.9	70.5	100
	Compensation			TOTAL
	producer	user	Other ind.	
1982-01	5.2	27.8	66.9	100
1982-90	4.4	27.1	68.6	100
1990-95	4.7	28.6	66.7	100
1995-01	5.6	29.4	65.1	100

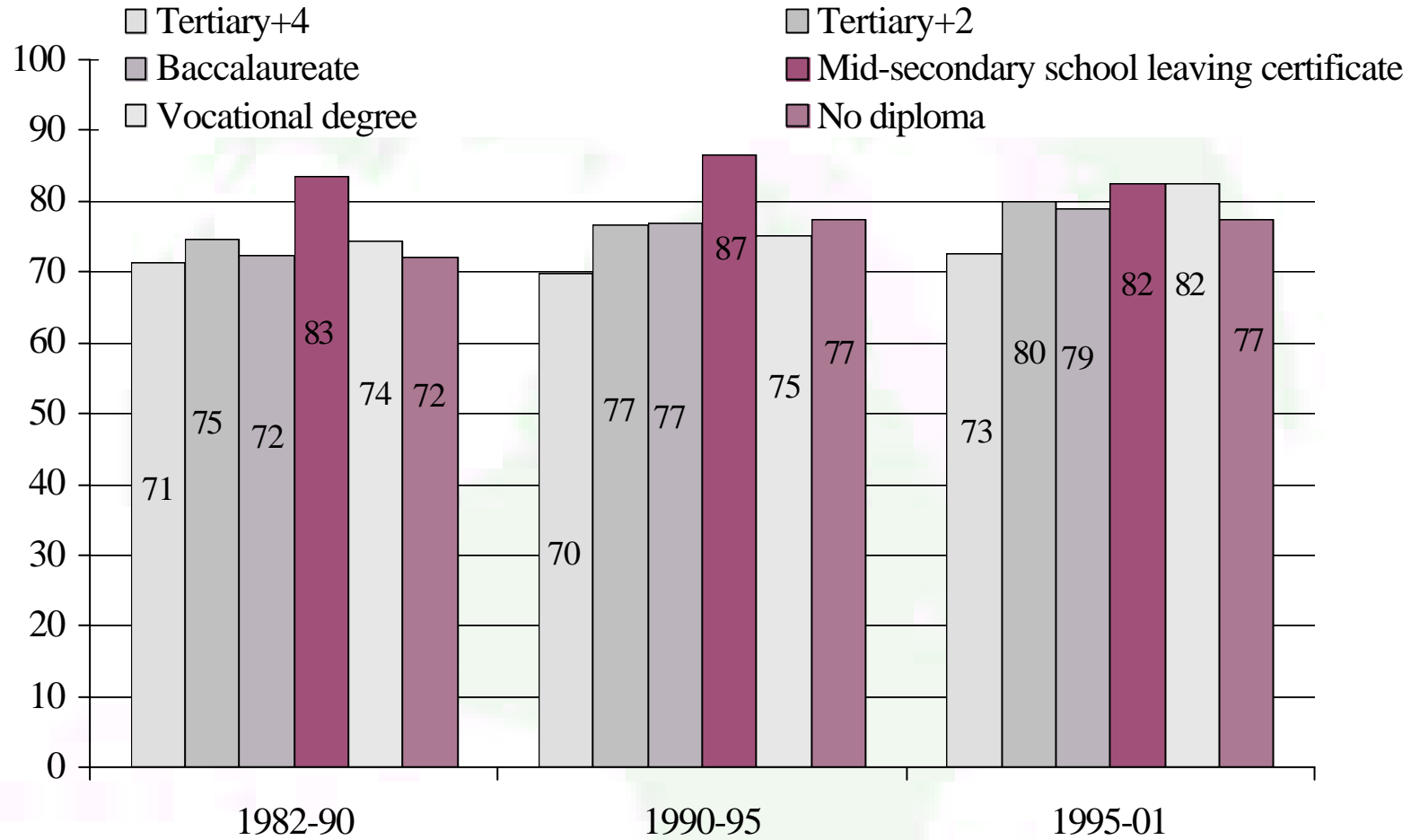
Source: LFS and National Accounts, CEPII, authors' calculations.

Table 6: Growth rate of hours worked by education type and age bracket

<i>Per year, in %</i>	1982-01	1982-90	1990-95	1995-01
Tertiary+4	4.8	5.7	3.4	4.7
Tertiary+2	4.0	4.0	4.4	3.7
<hr style="border-top: 1px dashed black;"/>				
Baccalaureate	2.1	1.9	0.0	4.0
Mid-high school	0.3	1.1	0.3	-0.6
Low vocational	-0.2	0.6	-1.5	-0.1
No diploma	-3.8	-3.2	-4.7	-3.7
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<25	-2.9	-7.1	-7.5	7.2
25-34	-0.5	-0.1	-1.1	-0.5
35-54	1.3	2.1	1.1	0.4
>54	-1.7	0.6	-3.5	-3.4

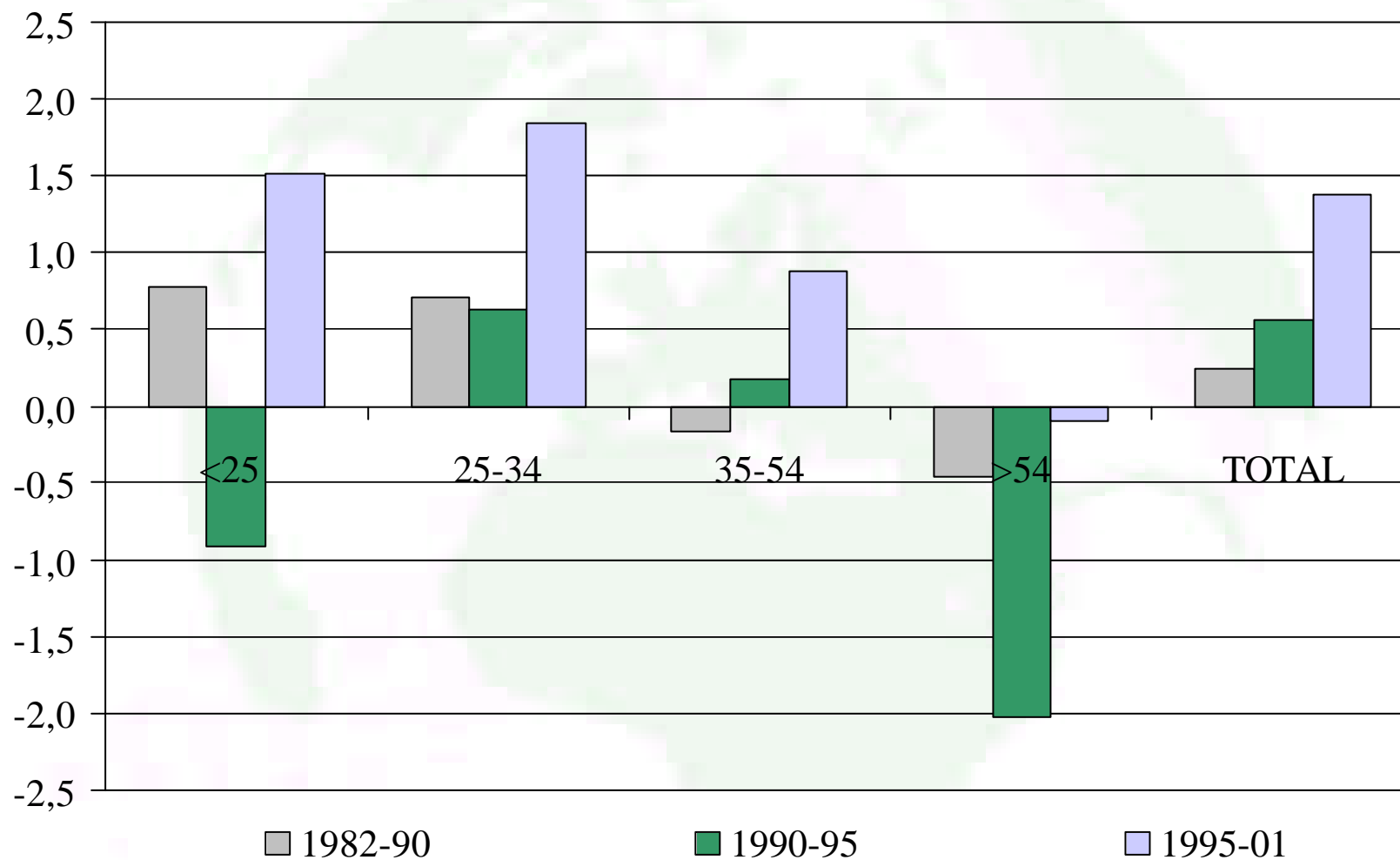
Source: LFS and DADS; National Accounts; CEPII, authors' calculations.

Graph 1: Hourly compensation of females/males according to education type



Source: LFS; CEPII, authors' calculations.

Wage premium by age bracket, average annual changes





CEPII

Hours

