More and Better Jobs, But Not for Everyone: Effects of Innovation in French Firms

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Supplemental Online Appendix

Figure A.1. **Matching Share by Propensity Score (Radius Method, Caliper 0.00001, Product Innovation)**
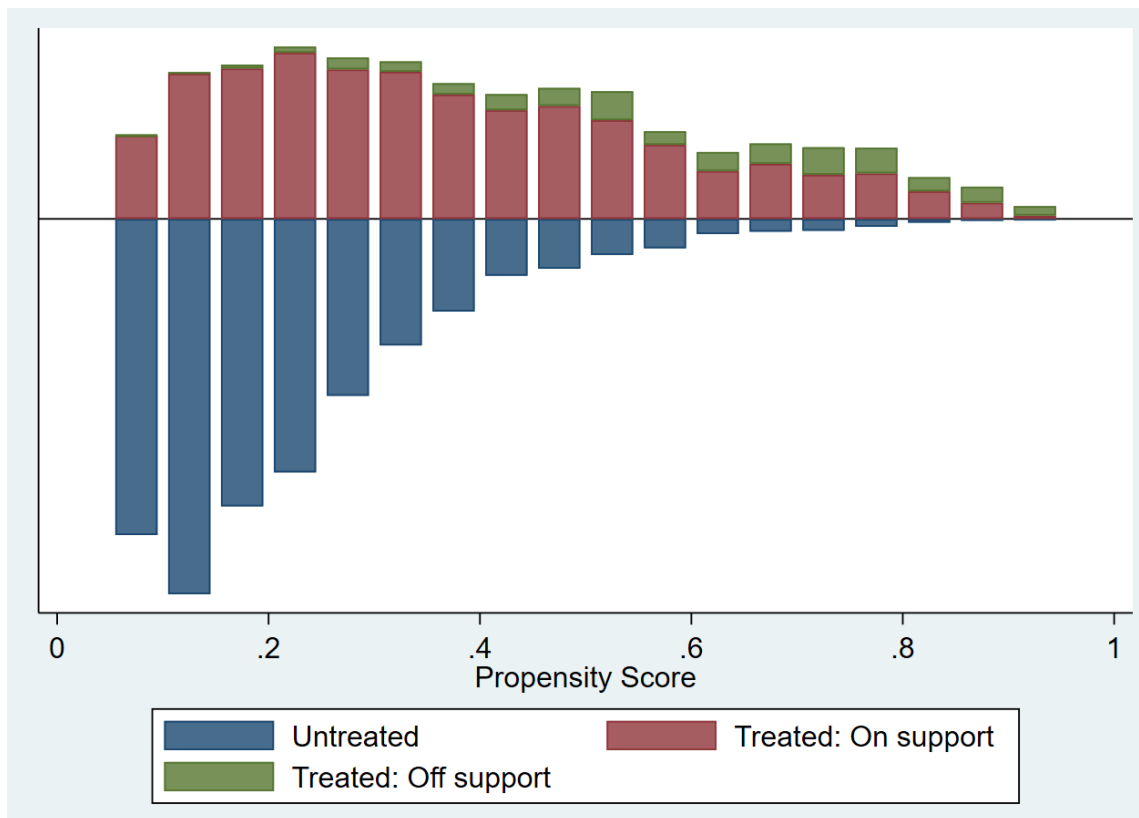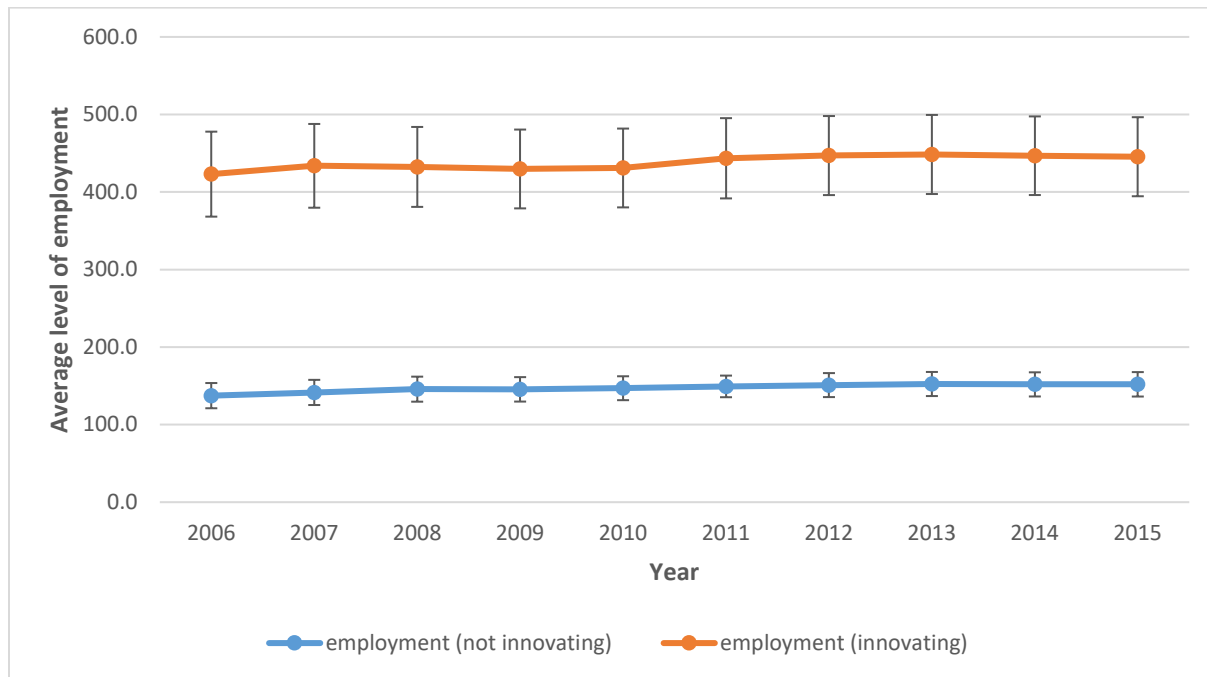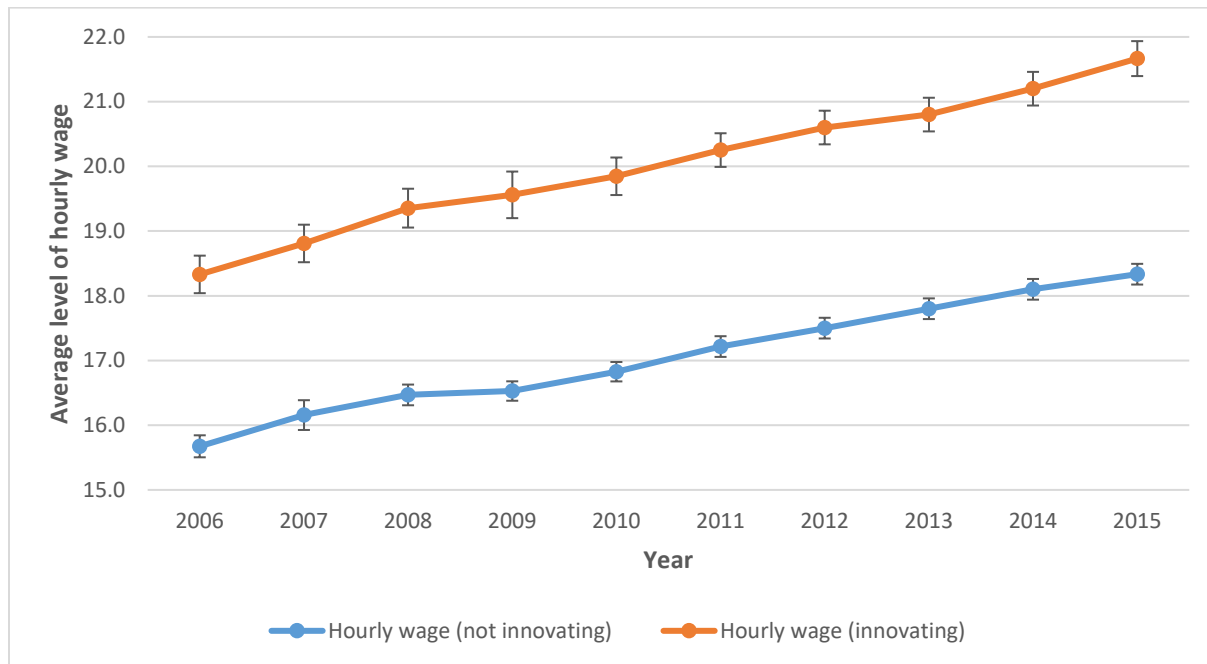
***Figure A.2a.* Evolution of Employment before and during Treatment in Innovating and Non-innovating Firms (Product Innovation)**

Sources: CIS 2014; DADS 2006–2015. Matched data based on authors' calculations for 14,491 firms.

Notes: Confidence interval at 95% level.

Figure A.2b. **Evolution of Wages before and during Treatment in Innovating and Non-innovating Firms (Product Innovation)**

Sources: CIS 2014; DADS 2006–2015. Matched data based on authors' calculations for 14,491 firms.

Notes: Confidence interval at 95% level.

Figure A.2c. **Evolution of Working Hours before and during Treatment in Innovating and Non-innovating Firms (Product Innovation)**

Sources: CIS 2014; DADS 2006–2015. Matched data based on authors' calculations for 14,491 firms.
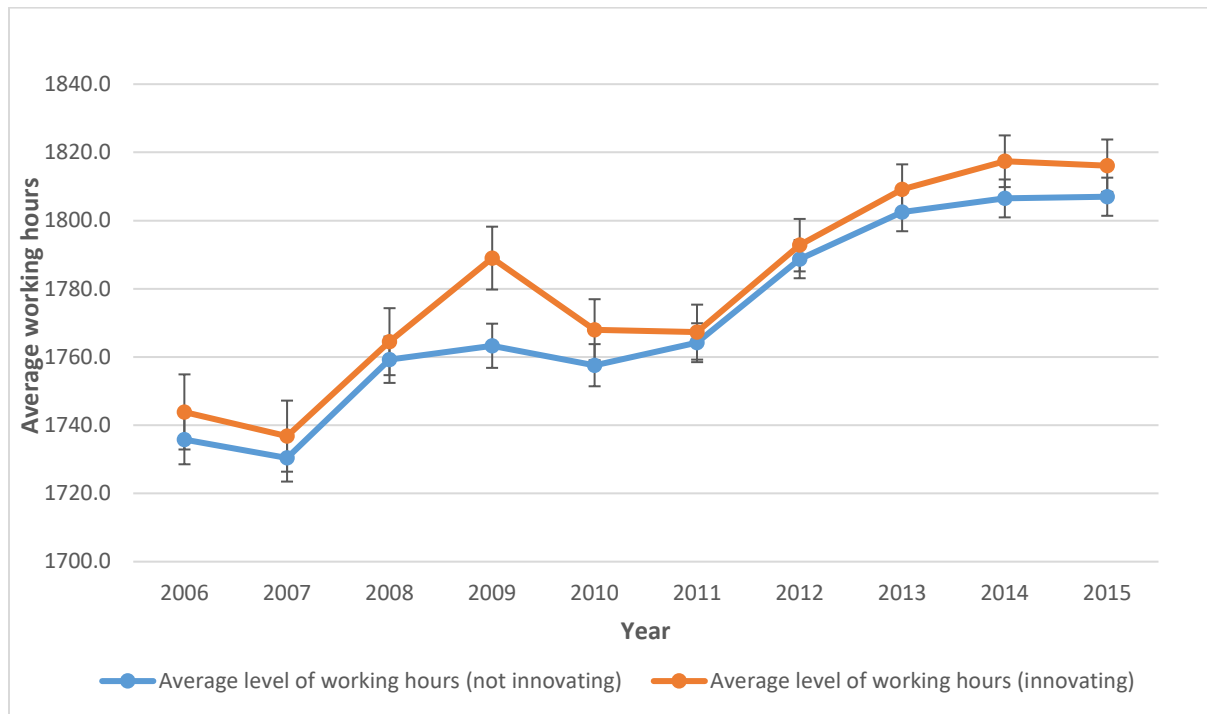
Notes: Confidence interval at 95% level.

Figure A.3a. **Evolution of Employment before and during Treatment in Innovating and Non-innovating Firms (Process Innovation)**

Sources: CIS 2014; DADS 2006–2015. Matched data based on authors' calculations for 14,491 firms.

Notes: Confidence interval at 95% level.

Figure A.3b. **Evolution of Wages before and during Treatment in Innovating and Non-innovating Firms (Process Innovation)**

Sources: CIS 2014; DADS 2006–2015. Matched data based on authors' calculations for 14,491 firms.

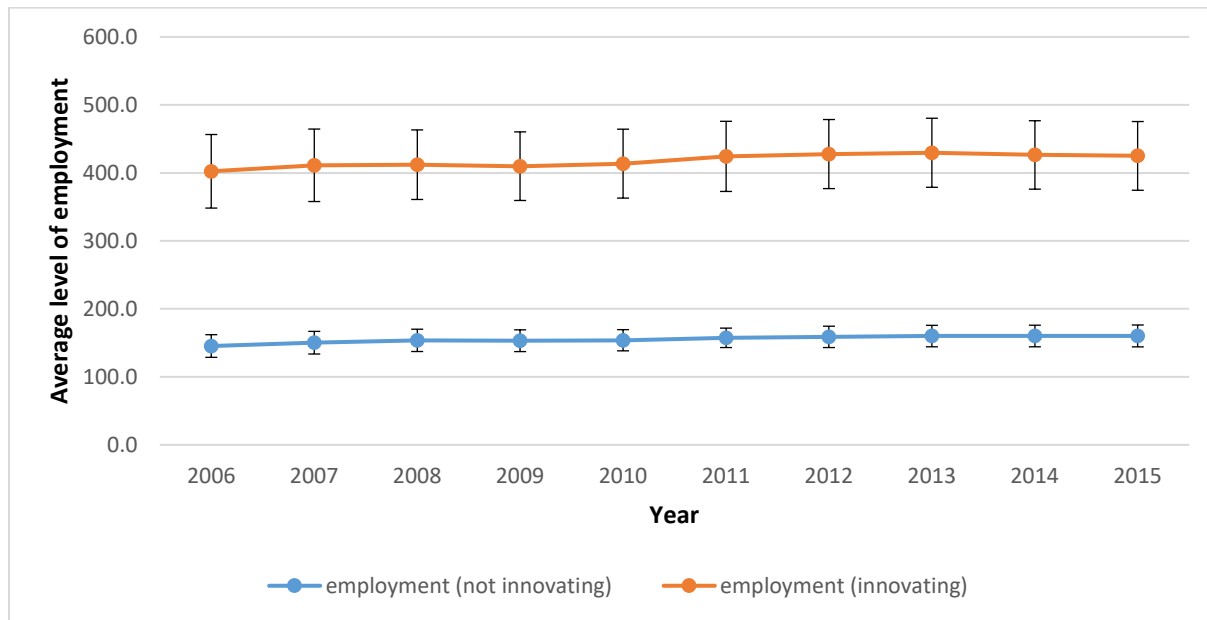*Notes:* Confidence interval at 95% level.

Figure A.3c. **Evolution of Working Hours before and during Treatment in Innovating and Non-innovating Firms (Process Innovation)**

Sources: CIS 2014; DADS 2006–2015. Matched data based on authors' calculations for 14,491 firms.
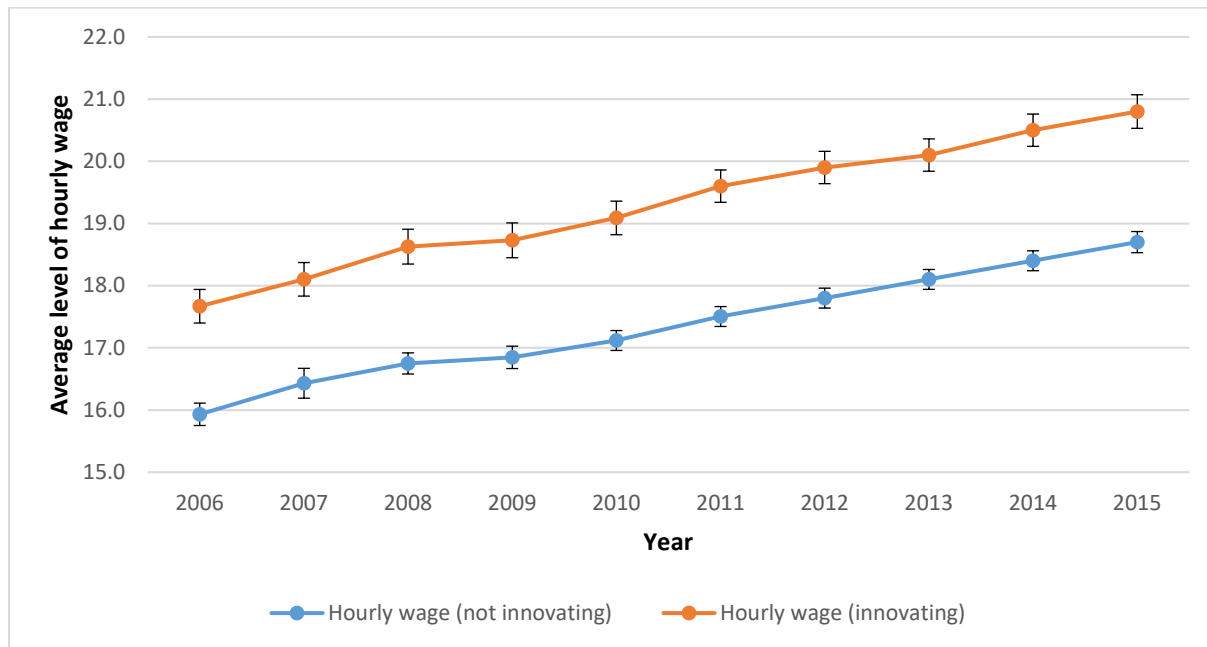
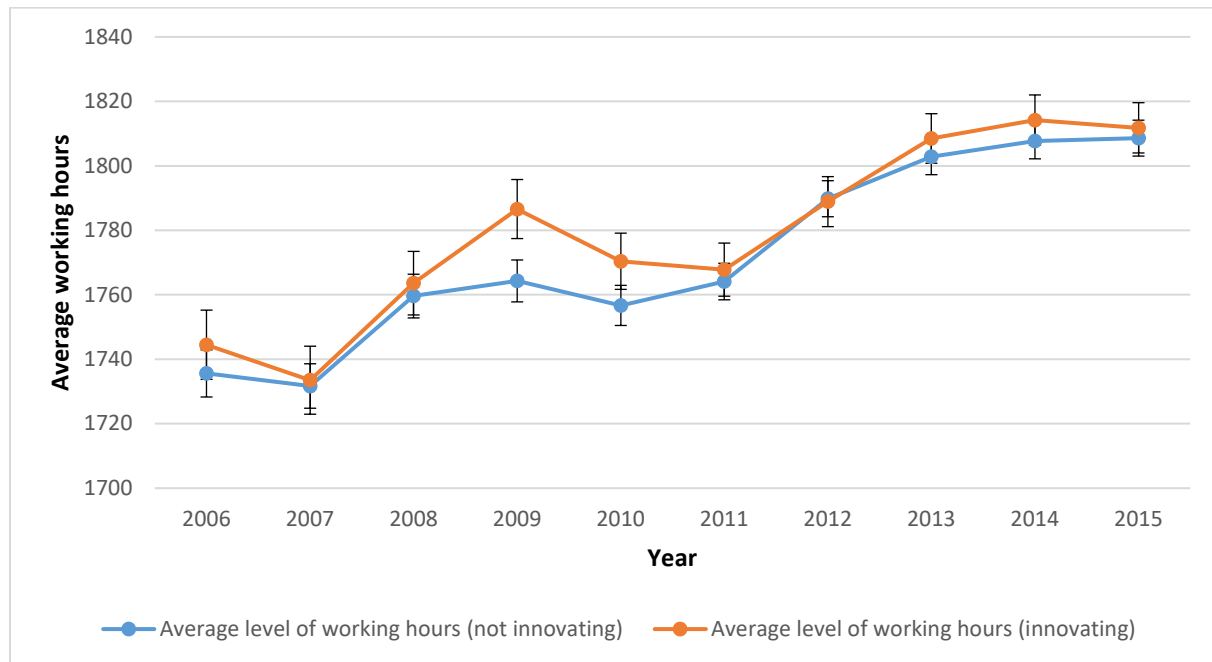*Notes:* Confidence interval at 95% level.

Table A.1. **Balancing Test after Matching (Radius Method, Caliper 0.00001, Product Innovation)**

Variables	Mean Treated	Mean Control	% bias	t-test T	p > t
Sector by technology (ref. less knowledge-intensive services)					
High-tech manufacturing	0.02	0.02	0.1	0.04	0.97
Medium high-tech manufacturing	0.12	0.12	–0.1	–0.05	0.96
Medium low-tech manufacturing	0.14	0.14	–0.1	–0.02	0.98
Low-tech manufacturing	0.19	0.19	0.0	0.02	0.99
Knowledge-intensive services	0.26	0.26	–0.0	–0.01	0.99
Size (ref. 10 to 19 employees)					
20 to 49	0.22	0.23	–0.2	–0.09	0.93
50 to 499	0.40	0.40	0.4	0.14	0.89
500 to 999	0.08	0.08	–0.3	–0.12	0.90
>1000	0.06	0.06	0.2	0.09	0.93
Age (ref. lowest quartile)					
2nd quartile	0.23	0.23	0.3	0.13	0.90
3rd quartile	0.25	0.25	0.3	0.11	0.91
Top quartile	0.28	0.28	–0.0	–0.01	0.99
Productivity (ref. lowest quartile)					
2nd quartile	0.21	0.20	0.3	0.14	0.89
3rd quartile	0.27	0.27	–0.4	–0.15	0.88
Top quartile	0.36	0.36	0.2	0.07	0.94
Labor cost (ref. lowest quartile)					
2nd quartile	0.20	0.20	0.5	0.24	0.81
3rd quartile	0.28	0.28	–0.3	–0.11	0.90
Top quartile	0.38	0.38	–0.1	–0.03	0.98
Member of a business group (ref. no)					
Yes	0.64	0.64	–0.1	–0.06	0.95

Sources: CIS 2014; FARE 2011–2015; DADS 2011–2015. Matched data based on authors' calculations for 14,491 firms.

Table A.2. **Characteristics of Firms Doing Product Innovation On-Support and Off-Support (PSM Matched Data)**

	Treated on-support	Treated off-support
Characteristics		
High-tech (manufacturing) (%)	2.2	20.0
Medium high-tech (manufacturing) (%)	12.2	30.3
Medium low-tech (manufacturing) (%)	14.1	15.9
Low-tech (manufacturing) (%)	19.0	14.4
Knowledge-intensive services (%)	26.0	11.5
Less-knowledge intensive services (%)	26.6	7.9
10 to 19 employees (%)	23.3	11.1
20 to 49 employees (%)	22.4	13.3
50 to 499 employees (%)	39.9	27.9
500 to 999 employees (%)	8.4	19.0
>1000 employees (%)	6.0	28.7
Age 1st quartile (%)	23.8	23.1
Age 2nd quartile (%)	23.0	24.2
Age 3rd quartile (%)	24.7	26.4
Age Top quartile (%)	28.5	26.2
Productivity 1st quartile (%)	16.8	20.5
Productivity 2nd quartile (%)	20.6	21.4
Productivity 3rd quartile (%)	26.8	30.9
Productivity Top quartile (%)	35.9	27.2
Labor cost 1st quartile (%)	14.6	11.1
Labor cost 2nd quartile (%)	20.1	20.5
Labor cost 3rd quartile (%)	27.7	34.0
Labor cost Top quartile (%)	37.6	34.4
Member of a business group: yes (%)	63.9	73.0
Member of a business group: no (%)	36.1	27.0
N on- and off-support	3,456	541
Total *N* of treated	3,997	

Sources: CIS 2014; FARE 2011–2015; DADS 2011–2015. Matched data based on authors' calculations for 3,997 observations (firms doing product innovation).

Table A.3. **Determinants of Innovation (Process, Product–New-to-the-Market, Product Innovation and Patenting)**

	Process	Product–new-to-the-market	Product and patenting firms
Size (ref. 10 to 19 employees)			
20 to 49	0.29 (0.05)***	0.23 (0.07)***	0.72 (0.16)***
50 to 499	0.82 (0.06)***	0.89 (0.07)***	1.82 (0.15)***
500 to 999	1.24 (0.09)***	1.36 (0.10)***	2.34 (0.17)***
>1000	1.77 (0.10)***	1.87 (0.11)***	3.16 (0.18)***
Member of a business group (ref. No)			
Yes	0.16 (0.05)***	0.29 (0.06)***	0.26 (0.10)***
Sector by technology (ref. Less knowledge-intensive Services)			
High-tech Manufacturing	1.46 (0.14)***	2.10 (0.14)***	2.61 (0.18)***
Medium high-tech Manufacturing	1.03 (0.08)***	1.85 (0.09)***	2.66 (0.13)***
Medium low-tech Manufacturing	0.85 (0.06)***	0.92 (0.08)***	1.83 (0.13)***
Low-tech Manufacturing	0.47 (0.06)***	0.68 (0.07)***	0.88 (0.14)***
Knowledge-intensive Services	0.45 (0.06)***	0.93 (0.07)***	0.72 (0.14)***
Age (ref. lowest quartile)			
2nd quartile	–0.00 (0.06)	–0.11 (0.07)	0.03 (0.12)
3rd quartile	–0.06 (0.06)	–0.18 (0.07)***	–0.10 (0.11)
Top quartile	–0.16 (0.06)***	–0.14 (0.07)**	0.10 (0.11)
Productivity (ref. lowest quartile)			
2nd quartile	0.11 (0.06)*	–0.04 (0.08)	–0.33 (0.14)**
3rd quartile	0.17 (0.07)**	0.09 (0.08)	–0.23 (0.14)
Top quartile	0.30 (0.08)***	0.26 (0.09)***	–0.01 (0.14)
Labor cost (ref. lowest quartile)			
2nd quartile	0.07 (0.07)	0.19 (0.09)**	0.77 (0.20)***
3rd quartile	0.12 (0.07)*	0.42 (0.09)***	1.34 (0.20)***
Top quartile	0.20 (0.08)**	0.64 (0.10)***	1.73 (0.21)***
Intercept	–2.15 (0.07)***	–3.21 (0.09)***	–6.33 (0.23)***
Number of observations	14 491	14 491	14 491
LR $\chi^2(18)$	1422.57	2172.31	2326.95
Prob> χ^2	0.00	0.00	0.00
Pseudo R^2	0.08	0.15	0.31
Log likelihood	–7806.67	–5927.27	–2616.24

Sources: CIS 2014; FARE 2011–2015; DADS 2011–2015. Matched data based on authors' calculations for 14,491 firms.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table A.4. **Impact of Innovation on Wages and Annual Working Time by Occupation**

Dependent variables	Product	Process	Product–new-to-the-market	Product-patenting firms
Hourly wage: managers and professionals	–0.10 (0.20)	–0.27 (0.18)	–0.09 (0.2)	–0.00 (0.28)
Hourly wage: intermediate occupations	0.02 (0.38)	0.27 (0.32)	–0.37 (0.37)	–0.53 (0.69)
Hourly wage: manual and clerical workers	–0.17 (0.09)*	–0.07 (0.08)	–0.04 (0.10)	–0.06 (0.17)
Working time: managers and professionals	2.9 (11.7)	–14.6 (10.3)	1.2 (11.9)	10.0 (14.7)
Working time: intermediate occupations	15.5 (13.8)	–0.6 (12.6)	4.6 (14.9)	16.3 (20.1)
Working time: manual and clerical workers	19.6 (10.3)*	2.4 (7.6)	16.3 (11.4)	17.2 (15.9)

Sources: CIS 2014; FARE 2011–2015; DADS 2011–2015. Matched data based on authors' calculations for 14,491 firms.

Notes: These results are from difference-in-differences models, psmatch 2.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table A.5. **Impact of Innovation on Employment and Job Quality in 2014, with a Control for Innovation in 2012**

Dependent variables	Product	Process	Product–new-to-the-market	Product-patenting firms
Total workforce	37.2 (10.0)***	2.3 (9.2)	35.2 (11.7)**	59.8 (18.5)***
Open-ended (permanent) contract employees	39.3 (9.6)***	4.0 (9.2)	37.7 (11.3)**	61.1 (17.7)***
Fixed-term contract employees	1.4 (3.3)	–2.3 (2.2)	1.3 (3.1)	0.8 (4.9)
Average annual hours worked per employee	25.9 (14.1)*	–1.9 (12.76)	14.7 (14.3)	36.7 (14.4)**
Hourly wage (gross)	0.2 (0.2)	0.1 (0.2)	0.3 (0.2)	–0.1 (0.2)
Number of managers and professionals	21.2 (7.7)***	9.4 (7.5)	23.2 (8.8)***	35.3 (13.7)***
Number of intermediate occupations	13.4 (8.3)*	5.4 (3.9)	12.5 (5)***	23.8 (12.3)*
Number of manual and clerical workers	2.2 (14.3)	–12.9 (10.9)	–0.6 (12.1)	0.4 (22.4)

Sources: CIS 2014; FARE 2011–2015; DADS 2011–2015. Matched data based on authors' calculations for 2,977 firms.

Notes: The first three variables represent the variations in the number of employees. The fourth variable shows the difference in hours (per employee) and the last one represents the difference in euros (per employee). These results are from difference-in differences-models, psmatch 2.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.