

Associations of employment sector and occupational exposures with full and part-time sickness absence: random and fixed effects analyses on panel data¹

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1. Supplementary material
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Supplementary table S1. Annual proportions of onset of full sickness absence by sociodemographic and work-related factors

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Gender													
	Men	11.0	11.4	11.3	11.0	10.0	10.2	10.2	9.7	9.5	9.3	8.8	8.8
	Women	16.0	16.3	15.8	15.6	14.8	15.0	15.0	14.0	14.0	13.8	13.4	13.4
Age group (years)													
	30–34	10.3	10.1	9.8	9.7	9.4	9.3	9.3	8.8	8.6	8.5	8.1	8.3
	35–39	11.4	11.2	10.9	10.7	9.9	10.2	10.2	9.6	9.4	9.3	9.0	8.8
	40–44	12.8	12.5	12.1	11.9	11.2	11.4	11.4	10.8	10.7	10.5	9.9	9.9
	45–49	14.3	14.3	14.0	13.7	12.6	12.8	12.9	12.1	12.0	11.5	11.1	11.1
	50–54	16.0	16.3	15.9	15.5	14.6	14.7	15.8	13.9	13.5	13.2	12.6	12.4
	55–59	16.3	17.8	17.5	17.3	16.1	16.0	16.1	15.1	15.1	14.9	14.3	14.3
	60–62	14.8	16.8	16.6	16.6	15.7	16.0	15.9	14.7	15.3	15.0	14.8	14.9
Living arrangements													
	Alone	13.6	14.1	14.1	13.9	12.8	13.1	13.1	12.3	12.2	12.0	11.5	11.7
	With partner only	14.9	15.3	15.3	14.9	14.1	14.3	14.3	13.5	13.4	13.3	12.5	12.8
	With partner and at least one child	12.6	12.2	12.2	12.0	11.2	11.3	11.3	10.6	10.5	10.3	9.9	9.8
	Lone parent with at least one child	17.4	16.8	16.8	16.8	16.1	16.3	16.2	15.4	15.4	15.1	14.8	14.7
	Other	12.0	12.1	12.1	12.2	11.0	11.4	11.6	11.0	11.0	11.0	10.5	10.5
Income (€/year)													
	<=20 000	13.7	13.4	12.9	12.6	11.6	11.4	11.1	10.6	10.0	9.5	9.1	9.1

	<=40 000	15.1	15.6	15.4	15.3	14.5	14.7	14.9	14.2	14.2	13.9	13.5	13.8
	<=60 000	9.7	10.0	10.2	10.4	10.1	10.2	10.5	10.0	10.1	10.2	9.8	9.8
	>60 000	6.0	6.3	6.3	6.7	6.3	6.4	6.7	6.5	6.6	6.5	6.4	6.3
Education													
	Primary	17.0	17.9	17.6	17.1	16.0	16.5	16.4	15.5	15.2	15.2	14.3	14.4
	Secondary	15.8	16.1	15.8	15.6	14.6	14.9	15.0	14.2	14.1	13.8	13.4	13.5
	Tertiary	10.1	10.1	9.9	9.9	9.5	9.5	9.5	9.0	9.0	8.9	8.6	8.7
Region													
	Uusimaa (capital region)	11.6	11.8	11.4	11.2	10.7	10.8	10.7	10.0	9.9	9.7	9.3	9.2
	Southern	14.4	14.4	14.6	14.6	13.4	13.6	14.1	13.4	13.2	12.9	12.6	12.5
	Western	14.3	14.7	14.3	14.1	13.1	13.2	13.3	12.4	12.3	12.0	11.6	11.8
	Eastern	15.5	15.8	15.6	15.0	14.2	14.3	14.3	13.6	13.5	13.2	12.5	12.9
	Northern	14.5	15.2	14.9	14.6	13.6	14.0	14.0	13.2	13.1	13.1	12.6	12.6
Employment sector													
	Private	11.9	12.3	12.0	11.8	10.9	11.1	11.1	10.5	10.3	10.1	9.6	9.6
	Public	16.6	16.9	16.6	16.5	15.8	15.8	15.9	14.8	14.8	14.6	14.3	14.4
Physically heavy work													
	<40% exposed	11.6	11.8	11.5	11.4	10.9	10.9	11.2	10.6	10.6	10.4	10.1	10.1
	>=40% exposed	17.7	18.2	17.9	17.4	16.1	16.5	16.4	15.6	15.3	15.1	14.4	14.6
Job control score													
	>median (high)	11.0	11.1	10.9	10.8	10.4	10.4	10.3	9.80	9.8	9.7	9.4	9.4
	<=median (low)	15.2	15.6	15.3	15.0	13.9	14.2	14.5	13.6	13.5	13.2	12.7	12.8
	Total	13.6	13.9	13.6	13.4	12.5	12.7	12.7	11.9	11.8	11.6	11.2	11.2
	Number of events	123 401	133 471	131 186	130 718	122 774	121 431	120 990	114 077	112 566	109 189	103 976	100 077
	N	910 002	962 384	967 024	979 410	981 750	959 125	953 607	955 653	950 693	941 252	930 683	891 969

Supplementary table S2. Annual proportions of onset of part-time sickness absence by sociodemographic and work-related factors

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Uusimaa (capital region)	0.07	0.09	0.09	0.24	0.36	0.42	0.51	0.65	0.71	0.77
Southern	0.10	0.09	0.11	0.26	0.32	0.50	0.55	0.62	0.71	0.86
Western	0.11	0.11	0.12	0.32	0.40	0.50	0.62	0.75	0.85	0.97
Eastern	0.08	0.10	0.12	0.27	0.39	0.49	0.59	0.76	0.83	1.00
Northern	0.11	0.12	0.15	0.35	0.39	0.52	0.58	0.79	0.91	1.03
Employment sector										
Private	0.08	0.08	0.08	0.24	0.32	0.41	0.50	0.60	0.67	0.74
Public	0.12	0.14	0.17	0.37	0.47	0.60	0.71	0.92	1.04	1.22
Physically heavy work										
<40% exposed	0.09	0.09	0.10	0.27	0.35	0.45	0.52	0.65	0.72	0.83
>=40% exposed	0.10	0.12	0.13	0.32	0.43	0.56	0.71	0.86	1.01	1.12
Job control score										
>median (high)	0.08	0.09	0.10	0.24	0.30	0.37	0.44	0.53	0.61	0.70
<=median (low)	0.10	0.11	0.12	0.31	0.43	0.56	0.67	0.85	0.94	1.08
Total	0.09	0.10	0.11	0.29	0.37	0.48	0.57	0.71	0.79	0.90
Number of events	876	1009	1113	2768	3601	4618	5481	6717	7454	8108
N	940 671	989 089	992 757	970 759	965 926	968 103	961 203	952 178	940 496	900 629

Supplementary table S3. Results of random (RE) and fixed effects (FE) regression analyses on the associations of work-related factors with full sickness absence (fSA) among men and women, minimally adjusted models, percentage point differences

		fSA			
		RE ^a		FE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	2.912	2.808–3.017	-0.173	-0.456–0.109
	Physically heavy work (20 percentage point increase in the % exposed)	1.393	1.364–1.421	0.105	0.054–0.157
	Job control (one unit decrease in the score)	3.620	3.530–3.709	0.464	0.346–0.582
Women					
	Public sector (vs. private)	3.808	3.719–3.900	0.747	0.512–0.983
	Physically heavy work (20 percentage point increase in the % exposed)	2.424	2.383–2.465	0.251	0.181–0.321
	Job control (one unit decrease in the score)	2.458	2.353–2.563	0.244	0.087–0.401
All					
	Public sector (vs. private)	3.630	3.563–3.700	0.433	0.250–0.616
	Physically heavy work (20 percentage point increase in the % exposed)	1.834	1.813–1.858	0.166	0.124–0.208
	Job control (one unit decrease in the score)	3.058	2.990–3.126	0.359	0.264–0.455

^a Models controlled for age and gender (in the model for all)

Supplementary table S4. Results of random (RE) and fixed effects (FE) regression analyses on the associations of work-related factors with part-time sickness absence (pSA) among men and women, minimally adjusted models, percentage point differences

		pSA			
		RE ^a		FE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	0.018	0.005–0.031	-0.109	-0.159– -0.060
	Physically heavy work (20 percentage point increase in the % exposed)	0.005	0.002–0.009	-0.006	-0.015–0.003
	Job control (one unit decrease in the score)	0.134	0.121–0.148	0.018	-0.003–0.039
Women					
	Public sector (vs. private)	0.102	0.085–0.118	-0.112	-0.167– -0.056
	Physically heavy work (20 percentage point increase in the % exposed)	0.092	0.084–0.101	-0.079	-0.098– -0.060
	Job control (one unit decrease in the score)	0.177	0.155–0.198	0.129	0.088–0.170
All					
	Public sector (vs. private)	0.085	0.074–0.096	-0.086	-0.127– -0.046
	Physically heavy work (20 percentage point increase in the % exposed)	0.041	0.037–0.045	-0.032	-0.042– -0.023
	Job control (one unit decrease in the score)	0.168	0.156–0.181	0.086	0.065–0.107

^a Models controlled for age and gender (in the model for all)

Supplementary table S5. Results of random (RE) and fixed effects (FE) regression analyses on the associations of work-related factors with full sickness absence (fSA) among men and women without mutual adjustment of work-related factors, percentage point differences

		fSA			
		RE ^a		FE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	2.769	2.666–2.873	-0.232	-0.515–0.050
	Physically heavy work (20 percentage point increase in the % exposed)	0.877	0.846–0.908	0.157	0.106–0.208
	Job control (one unit decrease in the score)	2.714	2.626–2.802	0.534	0.417–0.651
Women					
	Public sector (vs. private)	4.013	3.927–4.099	0.705	0.469–0.941
	Physically heavy work (20 percentage point increase in the % exposed)	2.074	2.032–2.116	0.310	0.242–0.378
	Job control (one unit decrease in the score)	1.284	1.184–1.385	0.450	0.300–0.604
All					
	Public sector (vs. private)	3.540	3.474–3.607	0.359	0.176–0.543
	Physically heavy work (20 percentage point increase in the % exposed)	1.381	1.356–1.406	0.215	0.173–0.256
	Job control (one unit decrease in the score)	1.945	1.878–2.011	0.449	0.355–0.542

^a Models controlled for age, gender (in the model for all), educational level, income, living arrangements, year and region

Supplementary table S6. Results of random (RE) and fixed effects (FE) regression analyses on the associations of work-related factors with part-time sickness absence (pSA) among men and women without mutual adjustment of work-related factors, percentage point differences

		pSA			
		RE ^a		FE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	0.013	0.000–0.026	-0.128	-0.178– -0.078
	Physically heavy work (20 percentage point increase in the % exposed)	0.011	0.007–0.015	0.005	-0.004–0.014
	Job control (one unit decrease in the score)	0.123	0.109–0.137	0.038	0.017–0.059
Women					
	Public sector (vs. private)	0.084	0.068–0.100	-0.188	-0.243– -0.132
	Physically heavy work (20 percentage point increase in the % exposed)	0.100	0.091–0.108	-0.050	-0.068– -0.032
	Job control (one unit decrease in the score)	0.153	0.133–0.173	0.088	0.048–0.127
All					
	Public sector (vs. private)	0.067	0.056–0.078	-0.133	-0.174– -0.093
	Physically heavy work (20 percentage point increase in the % exposed)	0.049	0.044–0.053	-0.010	-0.020– -0.001
	Job control (one unit decrease in the score)	0.150	0.138–0.163	0.093	0.072–0.114

^a Models controlled for age, gender (in the model for all), educational level, income, living arrangements, year and region

Supplementary table S7. Results of random (RE) regression analyses on the associations of work-related factors with full (fSA) and part-time sickness absence (pSA) among study subjects whose work-related factors changed over the study period, percentage point differences

		fSA		pSA	
		RE ^a		RE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	0.602	0.338–0.866	-0.076	-0.121– -0.030
	Physically heavy work (20 percentage point increase in the % exposed)	0.603	0.569–0.637	-0.004	-0.009–0.000
	Job control (one unit decrease in the score)	2.035	1.938–2.132	0.076	0.061–0.092
Women					
	Public sector (vs. private)	1.524	1.297–1.751	-0.096	-0.152– -0.040
	Physically heavy work (20 percentage point increase in the % exposed)	1.416	1.365–1.466	0.042	0.031–0.053
	Job control (one unit decrease in the score)	0.898	0.777–1.019	0.126	0.100–0.152
All					
	Public sector (vs. private)	1.241	1.068–1.415	-0.077	-0.117– -0.037
	Physically heavy work (20 percentage point increase in the % exposed)	0.916	0.887–0.944	0.011	0.006–0.016
	Job control (one unit decrease in the score)	1.452	1.376–1.153	0.118	0.103–0.133

^a Models controlled for age, gender, educational level, income, living arrangements, year, region and mutually for the work-related factors

Supplementary table S8. Results of random (RE) and fixed effects (FE) regression analyses on the associations of work-related factors with full sickness absence (fSA) among men and women using categorised occupational exposures, percentage point differences

		fSA			
		RE ^a		FE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	3.379	3.275–3.484	-0.145	-0.427–0.138
	Physically heavy work (% exposed; reference= ≤20)				
	>20, ≤40	0.966	0.850–1.063	0.079	-0.062–0.221
	>40, ≤60	2.041	1.936–0.022	0.264	0.118–0.411
	>60	2.612	2.480–2.745	0.790	0.585–0.994
	Job control (score quartiles; reference= highest control)				
	2	1.300	1.217–1.376	0.018	-0.087–0.124
	3	1.367	1.258–1.475	-0.206	-0.352– -0.060
	4	3.171	3.070–3.272	0.699	0.567–0.831
Women					
	Public sector (vs. private)	3.973	3.882–4.063	0.691	0.455–0.923
	Physically heavy work (% exposed; reference= ≤20)				
	>20, ≤40	3.003	2.900–3.105	0.298	0.131–0.465
	>40, ≤60	4.572	4.435–4.709	0.870	0.650–1.090
	>60	5.357	5.180–5.533	0.840	0.578–1.101
	Job control (score quartiles; reference= highest control)				
	2	1.141	1.030–1.251	0.094	-0.070–0.258
	3	0.942	0.830–1.054	-0.037	-0.205–0.132
	4	1.505	1.381–1.629	0.083	-0.104–0.268
All					
	Public sector (vs. private)	3.845	3.778–3.913	0.386	0.202–0.568
	Physically heavy work (% exposed; reference= ≤20)				
	>20, ≤40	2.201	2.127–2.275	0.193	0.084–0.302
	>40, ≤60	3.216	3.132–3.299	0.416	0.295–0.538
	>60	3.872	3.767–3.978	0.749	0.587–0.911
	Job control (score quartiles; reference= highest control)				
	2	1.078	1.013–1.143	0.032	-0.058–0.122
	3	1.062	0.987–1.137	-0.067	-0.173–0.039
	4	2.222	2.145–2.300	0.376	0.268–0.483

^a Models controlled for age, gender, educational level, income, living arrangements, year, region and mutually for the categorised work-related factors

Supplementary table S9. Results of random (RE) and fixed effects (FE) regression analyses on the associations of work-related factors with full sickness absence (pSA) among men and women using categorised occupational exposures, percentage point differences

		pSA			
		RE ^a		FE ^a	
		Estimate	95% CI	Estimate	95% CI
Men					
	Public sector (vs. private)	0.034	0.021–0.047	-0.122	-0.172– -0.073
	Physically heavy work (% exposed; reference= ≤20)				
	>20, ≤40	0.037	0.021–0.054	0.027	0.000–0.054
	>40, ≤60	0.022	0.007–0.038	-0.027	-0.054–0.000
	>60	0.045	0.026–0.064	0.006	-0.030–0.043
	Job control (score quartiles; reference= highest control)				
	2	0.024	0.011–0.036	0.019	-0.002–0.040
	3	0.008	-0.008–0.024	0.041	0.015–0.067
	4	0.117	0.101–0.133	0.074	0.051–0.099
Women					
	Public sector (vs. private)	0.107	0.090–0.123	-0.183	-0.238– -0.127
	Physically heavy work (% exposed; reference= ≤20)				
	>20, ≤40	0.105	0.080–0.130	0.012	-0.032–0.055
	>40, ≤60	0.178	0.150–0.205	-0.028	-0.084–0.028
	>60	0.257	0.220–0.294	-0.241	-0.321– -0.171
	Job control (score quartiles; reference= highest control)				
	2	0.160	0.137–0.183	0.008	-0.035–0.051
	3	0.171	0.148–0.194	0.071	0.028–0.115
	4	0.205	0.180–0.230	0.085	0.036–0.013
All					
	Public sector (vs. private)	0.088	0.077–0.100	-0.130	-0.170– -0.089
	Physically heavy work (% exposed; reference= ≤20)				
	>20, ≤40	0.098	0.083–0.113	0.053	0.029–0.078
	>40, ≤60	0.109	0.094–0.124	0.027	0.001–0.053
	>60	0.127	0.108–0.146	-0.100	-0.137– -0.062
	Job control (score quartiles; reference= highest control)				
	2	0.071	0.058–0.084	0.032	0.011–0.053
	3	0.075	0.061–0.089	0.078	0.054–0.102
	4	0.153	0.139–0.168	0.104	0.080–0.129

^a Models controlled for age, gender, educational level, income, living arrangements, year, region and mutually for the categorised work-related factors

