

SUPPLEMENTARY DATA

Supplementary Table 1. Previous spine surgeries identified using ICD-10 and NOMESCO surgical procedure code (NCSP)

Diagnosis	Surgical procedure	Main diagnosis code (ICD-10)	NCSP code
Disc herniation	Discectomy	M511/M511K	ABC16/ABC26
Spinal stenosis decompression	Decompression	M480/M480K/M480J/M511/M511K/M672	ABC36/ABC56/ABC66/NAM39
Spinal stenosis fusion + decompression	Fusion + decompression	M480/M480K/M480J/M672	NAG*
		M960/M960K/M960J	NAG*
Segmental dysfunction	Fusion/Disc prosthesis	M990	NAG*/NAB*
		M960/M960K	NAG*/NAB*
Spondylolisthesis	Fusion + decompression	M430/M431/Q762	NAG*
		M960/M960K	NAG*
Myelopathy	Fusion + decompression, Disc prosthesis	M500/M471	NAG*/NAB90/NAC90
		M960/M960A	NAG*/NAB90/NAC90
Rhizopathy	Fusion + decompression, Disc prosthesis	M501/M472	NAG*/NAB90/NAC90
		M960A	NAG*/NAB90/NAC90
Degenerative deformity	Fusion, arthroplasty	M403/M415/M418/M419/M438/M439	NAG*/NAT*
		M960/M960K/M960J	NAG*/NAT*

Supplementary Table 2. Sensitivity analysis: Including only sick leave

Variable	Coefficient (standard error)	Interaction effect of potential predictors & treatment effect (predictor* τ_{DID})
SCS group effect, β_2	73.8 (4.9)***	
Period effect, β_1 (1 if after index date, 0 if before index date)	0.7 (0.7)	
Treatment effect, τ_{DID}	-39.0 (4.4)***	
Calendar year	0.4 (0.2)**	
Predictors		
Age	-0.3 (0.1)***	0.2 (0.5)
Male	-2.7 (1.3)**	-11.1 (8.8)
Comorbidities	2.2 (1.1) **	5.7 (3.4)
Any opioid use 3 months before index date	25.2 (13.4)*	5.5 (11.5)
Use of strong opioid 3 months before index date	-6.0 (11.3)	-27.5 (25.3)
Use of weak opioid 3 months before index date	-16.3 (12.5)	16.8 (12.0)
Any non-opioid pain medicine use 3 months before index date	17.3 (3.8)***	10.7 (10.4)
Any anti-depression medicine use 3 months before index date	18.6 (3.3)***	12.5 (10.0)
Previous spine surgery	37.8 (7.7)***	17.8 (86.6)
Country of birth: Europe, not Sweden (ref: Sweden)	0.2 (2.4)	0.4 (2.8)

Country of birth: Other (ref: Sweden)	-4.4 (2.1)**	-1.9 (2.2)
Education level: Secondary school (ref: primary school)	1.0 (2.2)	-11.7 (11.8)
Education level: Post-secondary/post-graduate (ref: primary school)	-2.8 (2.2)	4.0 (2.3)*
Yearly income (€)	-0.4 (1.2)	6.4 (18.6)
Unemployed	-1.8 (1.7)	20.8 (8.8)**

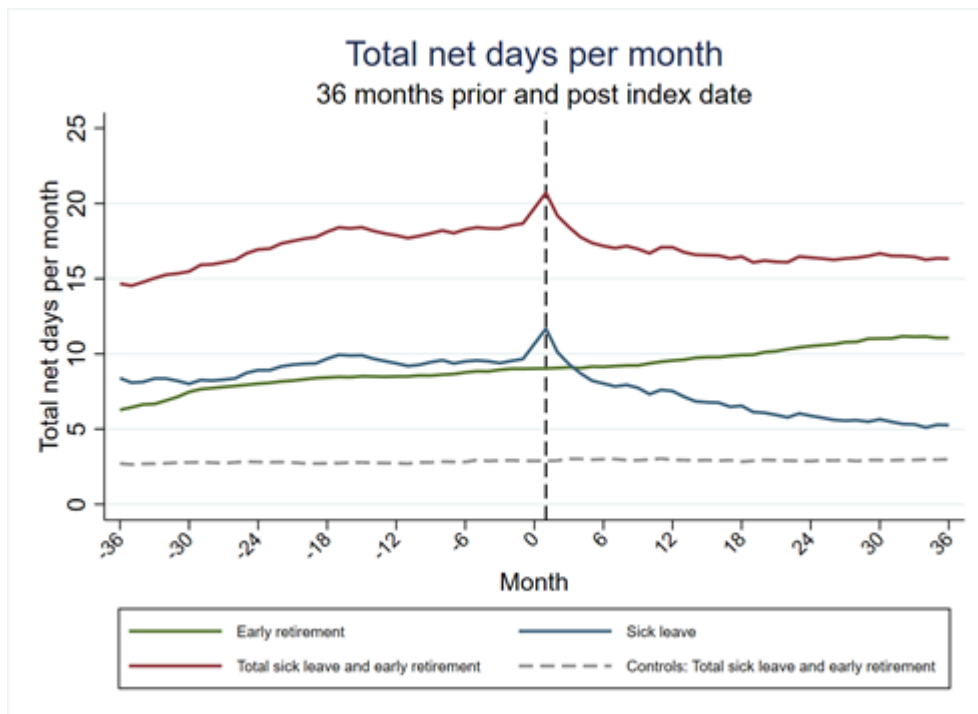
Supplementary Table 3. Sensitivity analysis: Including only disability pension

Variable	Coefficient (standard error)	Interaction effect of potential predictors & treatment effect (predictor* τ_{DID})
SCS group effect, β_2	38.2 (5.7)***	
Period effect, β_1 (1 if after index date, 0 if before index date)	0.5 (0.5)	
Treatment effect, τ_{DID}	17.8 (3.3)***	
Calendar year	-4.8 (0.3)***	
Predictors		
Age	2.1 (0.1)***	0.4 (0.3)
Male	-8.2 (2.1)***	2.7 (6.6)
Comorbidities	12.0 (1.8)***	-0.7 (3.3)
Any opioid use 3 months before index date	19.7 (16.0)	2.5 (8.5)
Use of strong opioid 3 months before index date	-0.8 (13.9)	12.4 (13.4)
Use of weak opioid 3 months before index date	-7.5 (14.8)	-3.9 (9.2)
Any non-opioid pain medicine use 3 months before index date	10.5 (5.6)*	-4.7 (7.6)
Any anti-depression medicine use 3 months before index date	22.2 (4.6)***	9.4 (7.5)
Previous spine surgery	-41.6 (8.1)***	-1.8 (21.5)
Country of birth: Europe, not Sweden (ref: Sweden)	-5.3 (4.2)	-6.2 (13.0)
Country of birth: Other (ref: Sweden)	-32.6 (4.3)***	-19.1 (12.6)
Education level: Secondary school (ref: primary school)	-21.4 (4.1)***	23.5 (9.4)*
Education level: Post-secondary/post-graduate (ref: primary school)	-33.0 (4.0)***	15.5 (10.6)
Yearly income (€)	-2.7 (2.1)	12.1 (22.0)
Unemployed	75.2 (3.2)***	-7.8 (6.6)

Supplementary Table 4. Sensitivity analysis: comparing month 36-25 before index date with month 25-36 after index date

Variable	Coefficient (standard error)	Interaction effect of potential predictors & treatment effect (predictor* τ_{DID})
SCS group effect, β_2	91.9 (5.9)***	
Period effect, β_1 (1 if after index date, 0 if before index date)	0.5 (0.9)	

Treatment effect, τ_{DID}	1.2 (4.6)	
Calendar year	-4.7(0.4)***	
Predictors		
Age	2.1 (0.1)***	-0.4 (0.5)
Male	-11.3 (2.1)***	-1.9 (9.3)
Comorbidities	14.5 (1.8)***	0.4 (4.4)
Any opioid use 3 months before index date	43.0 (15.3)**	-1.8 (13.0)
Use of strong opioid 3 months before index date	-19.9 (13.3)	-13.1 (29.3)
Use of weak opioid 3 months before index date	-20.4 (13.9)	4.0 (13.5)
Any non-opioid pain medicine use 3 months before index date	20.3 (5.6)***	16.4 (11.7)
Any anti-depression medicine use 3 months before index date	38.2 (4.7)***	23.2 (10.8)**
Previous spine surgery	-4.4 (8.4)	61.0 (72.4)
Country of birth: Europe, not Sweden (ref: Sweden)	-4.6 (4.3)	1.3 (3.3)
Country of birth: Other (ref: Sweden)	-37.7 (4.4)***	1.8 (2.9)
Education level: Secondary school (ref: primary school)	-18.7 (4.1)***	29.4 (13.0)**
Education level: Post-secondary/post-graduate (ref: primary school)	-35.8 (4.1)***	42.7 (14.9)***
Yearly income (€)	-3.4 (1.9)	18.9 (16.9)
Unemployed	72.6 (3.2)***	-1.1 (9.4)



Supplementary Figure 1. Sensitivity analysis, total net days of sick leave and early retirement 36 months before and after index date