

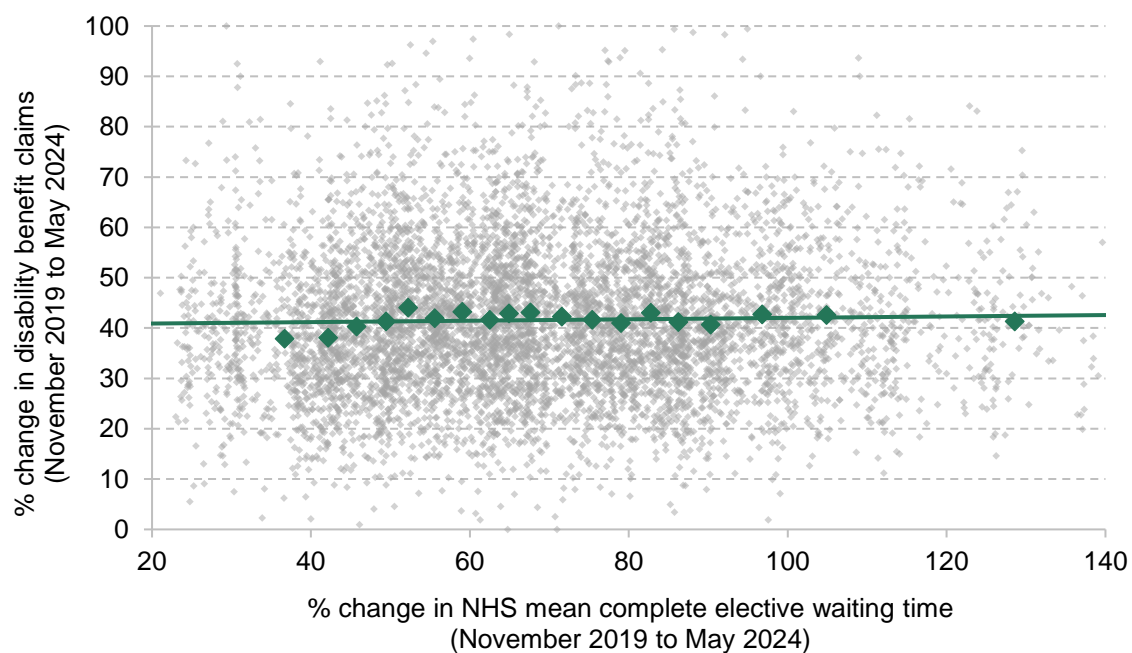
The relationship between NHS waiting lists and health-related benefit claims

Appendix A. Additional results

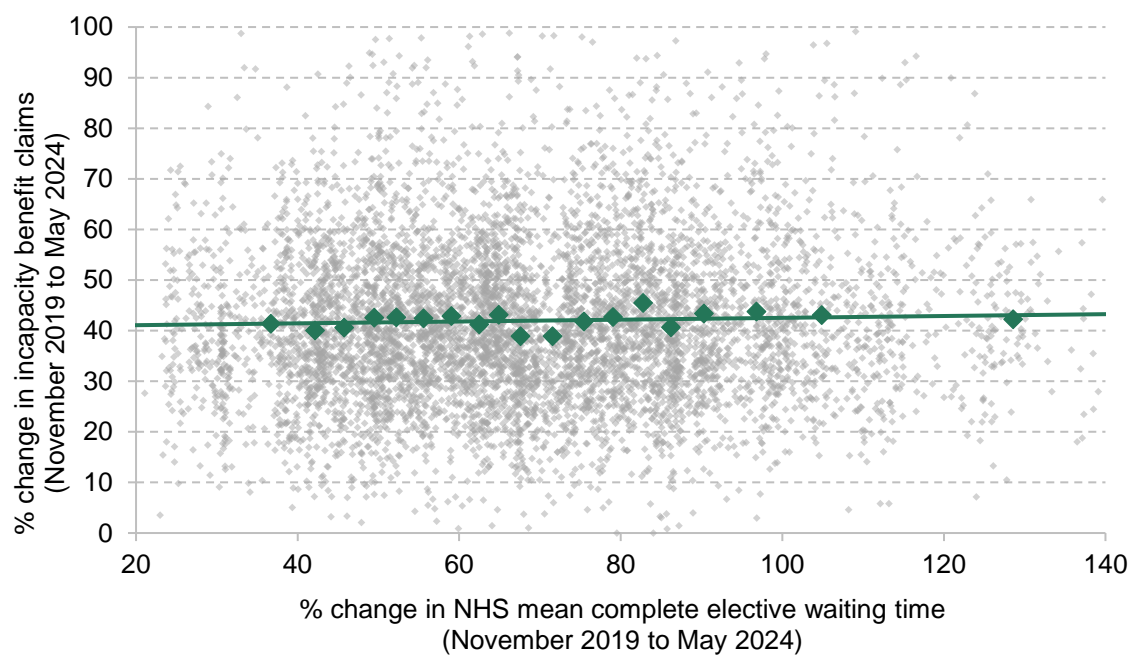
Elective complete waiting times results

Figure A1. Relationship between changes in NHS waiting times and changes in health-related benefit claims at the MSOA level

a) Disability benefits



b) Incapacity benefits



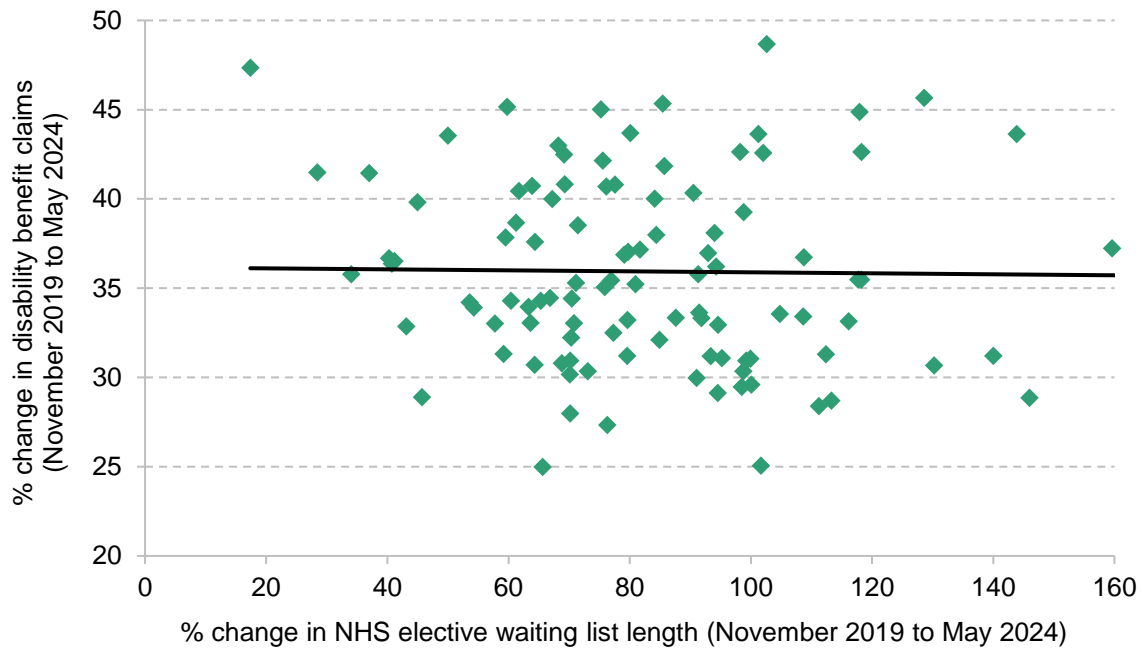
Note: The R^2 is 0.000550 in Panel a and 0.000739 in Panel b. For clarity of the graphs, changes in the waiting time of less than 20% or greater than 140% are excluded from the graphs, as are changes in benefit claims of less than 0% or greater than 100%. This affects less than 4% of MSOAs. Green markers show average change in benefit claims for each vigintile of waiting time change. Analysis omits one large provider (and all MSOAs for which that is the primary provider) that only reported data for a subset of our sample period.

Source: Authors' calculations using DWP Stat-Xplore (various), NHS England's Consultant-led RTT Waiting Times data (various) and Hospital Episode Statistics.

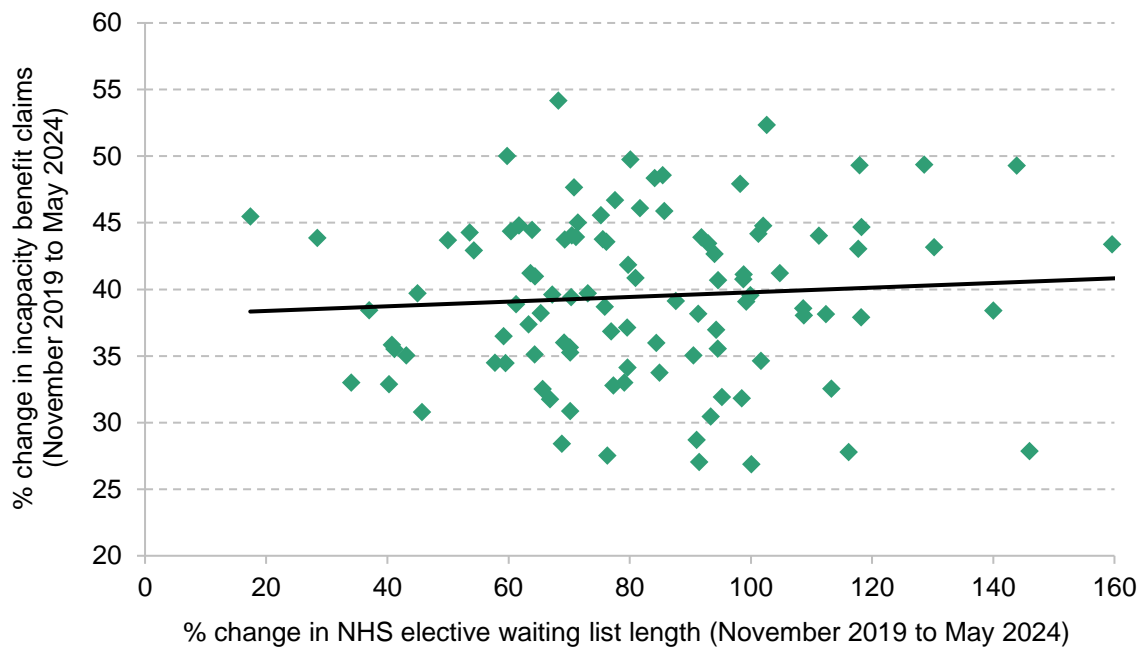
Elective Sub ICB Location results

Figure A2. Relationship between changes in the NHS waiting list and changes in health-related benefit claims at the Sub ICB Location level

a) Disability benefits



b) Incapacity benefits

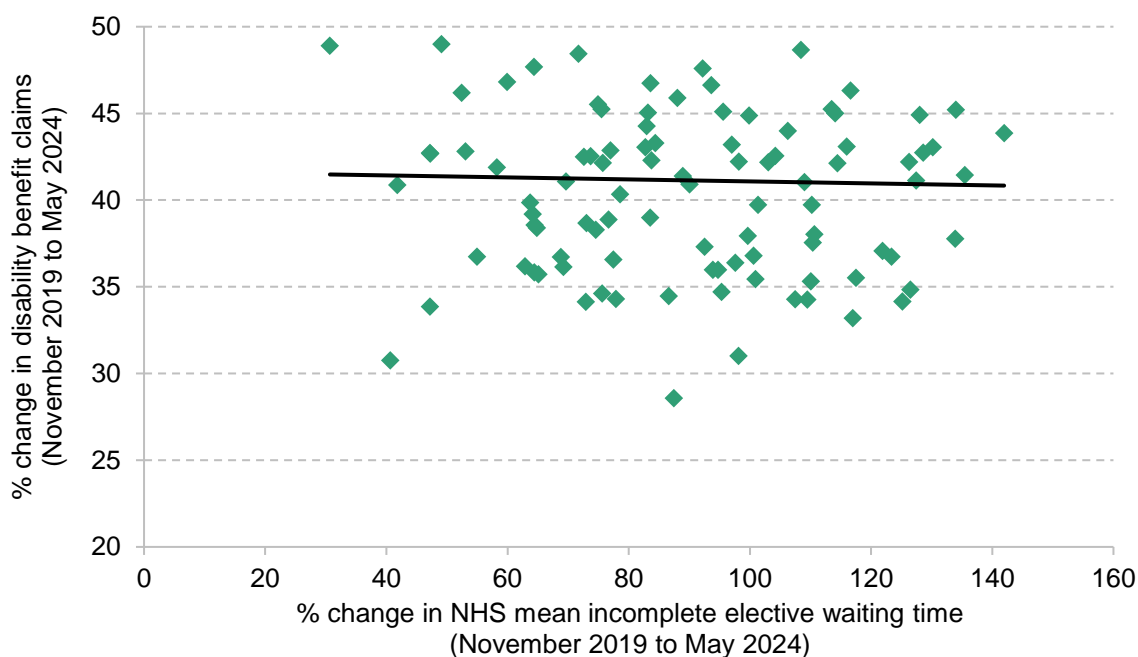


Note: The R^2 is 0.00429 in Panel a and 0.00939 in Panel b. Excludes one Sub ICB Location with a very large increase in the waiting list.

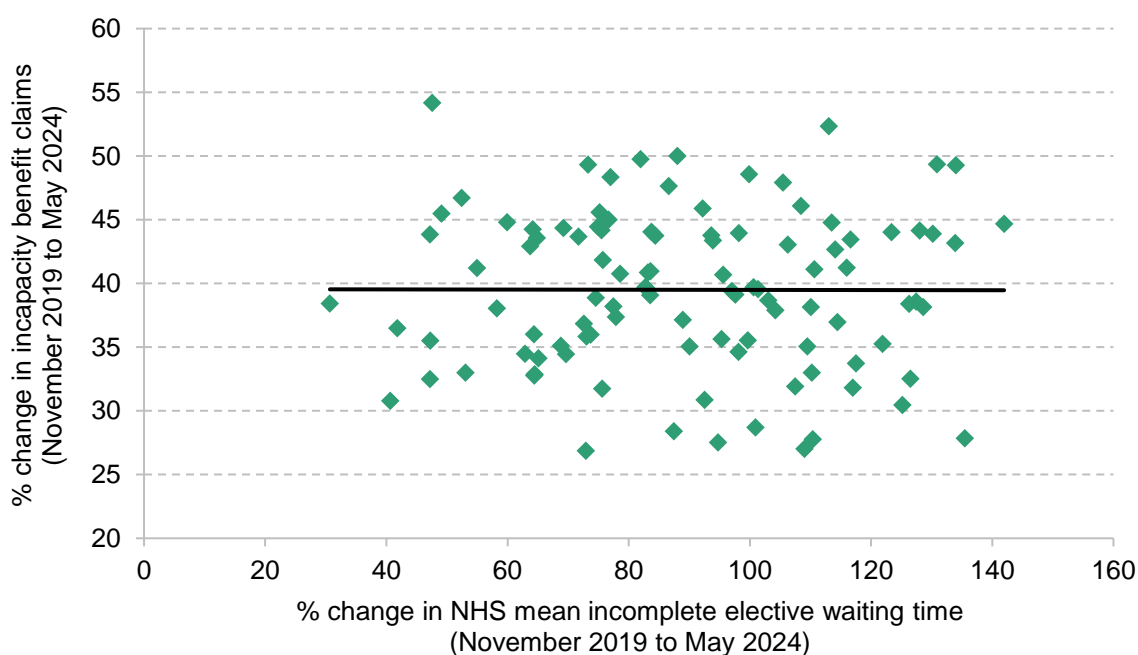
Source: Authors' calculations using DWP Stat-Xplore (various) and NHS England's Consultant-led RTT Waiting Times data (various).

Figure A3. Relationship between changes in NHS waiting times and changes in health-related benefit claims at the Sub ICB Location level

a) Disability benefits



b) Incapacity benefits



Note: The R^2 is 0.000745 in Panel a and 0.00000711 in Panel b.

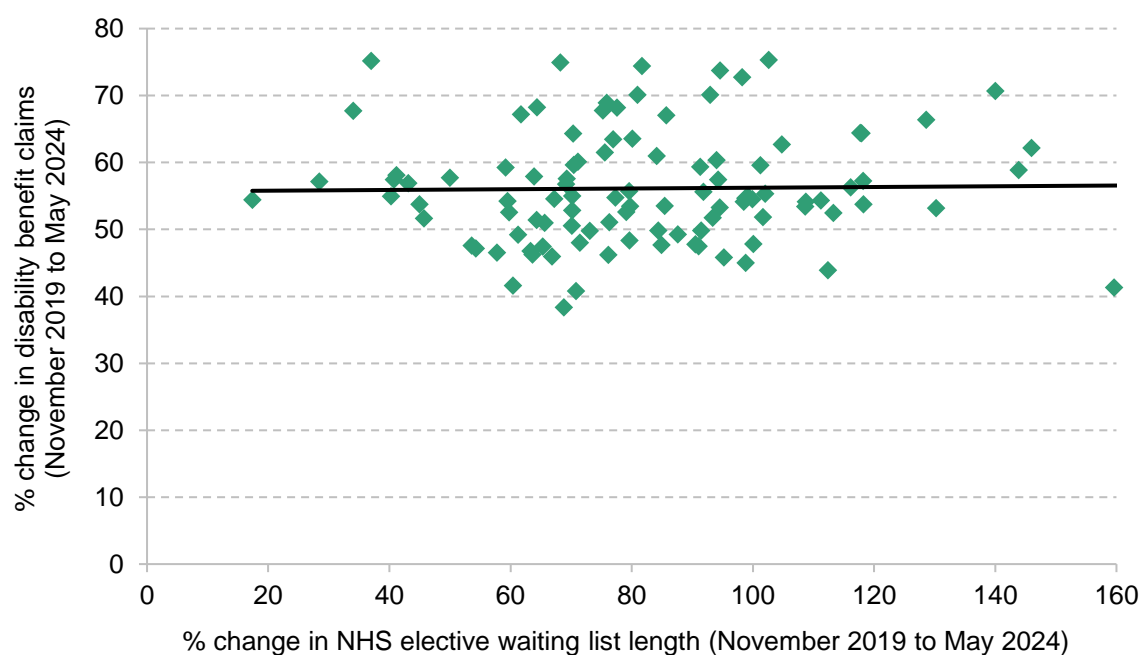
Source: Authors' calculations using DWP Stat-Xplore (various) and NHS England's Consultant-led RTT Waiting Times data (various).

Figure A4. Relationship between changes in the NHS waiting list and changes in disability benefit claims at the Sub ICB Location level

a) Disability benefits for physical health conditions



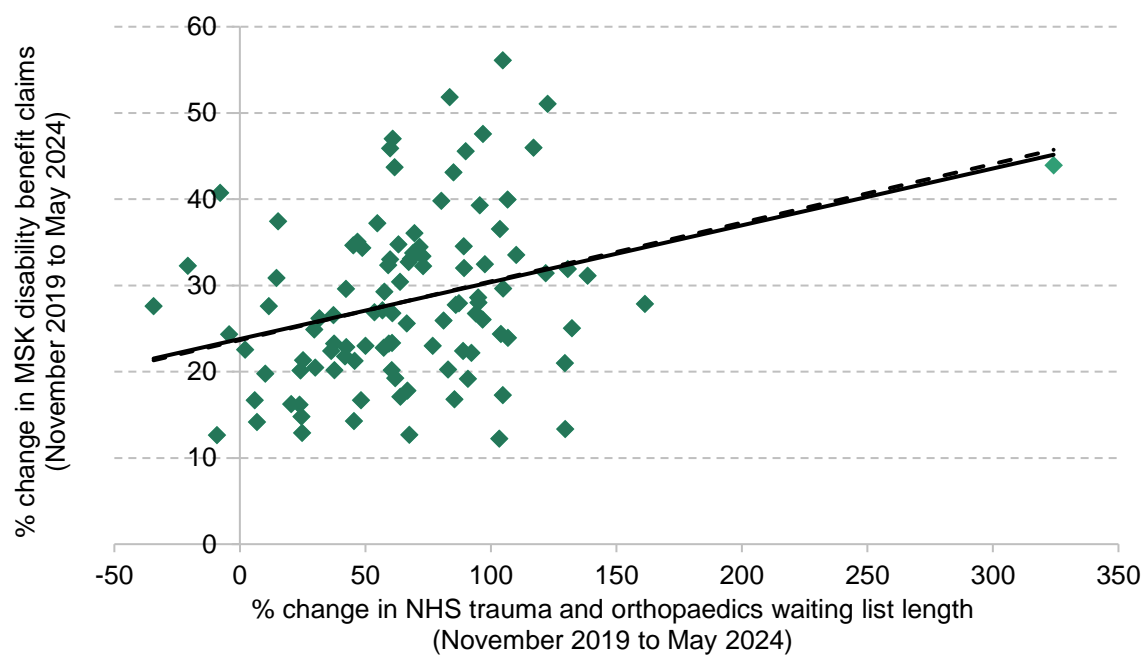
b) Disability benefits for mental health conditions



Note: The R^2 is 0.00366 in Panel a and 0.000503 in Panel b. Excludes one Sub ICB Location with a very large increase in the waiting list.

Source: Authors' calculations using DWP Stat-Xplore (various) and NHS England's Consultant-led RTT Waiting Times data (various).

Figure A5. Relationship between changes in the NHS trauma and orthopaedics waiting list and changes in musculoskeletal disability benefit claims at the Sub ICB Location level



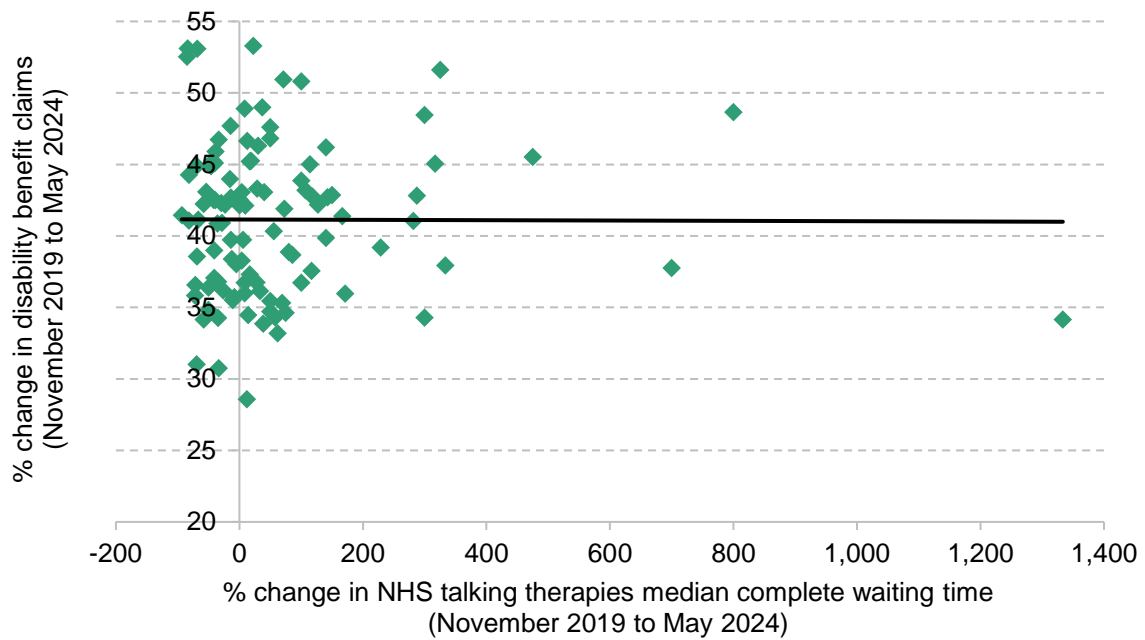
Note: The R^2 is 0.0962. The dashed line shows the trend line excluding the Sub ICB Location with a 324% increase in its waiting list.

Source: Authors' calculations using DWP Stat-Xplore (various) and NHS England's Consultant-led RTT Waiting Times data (various).

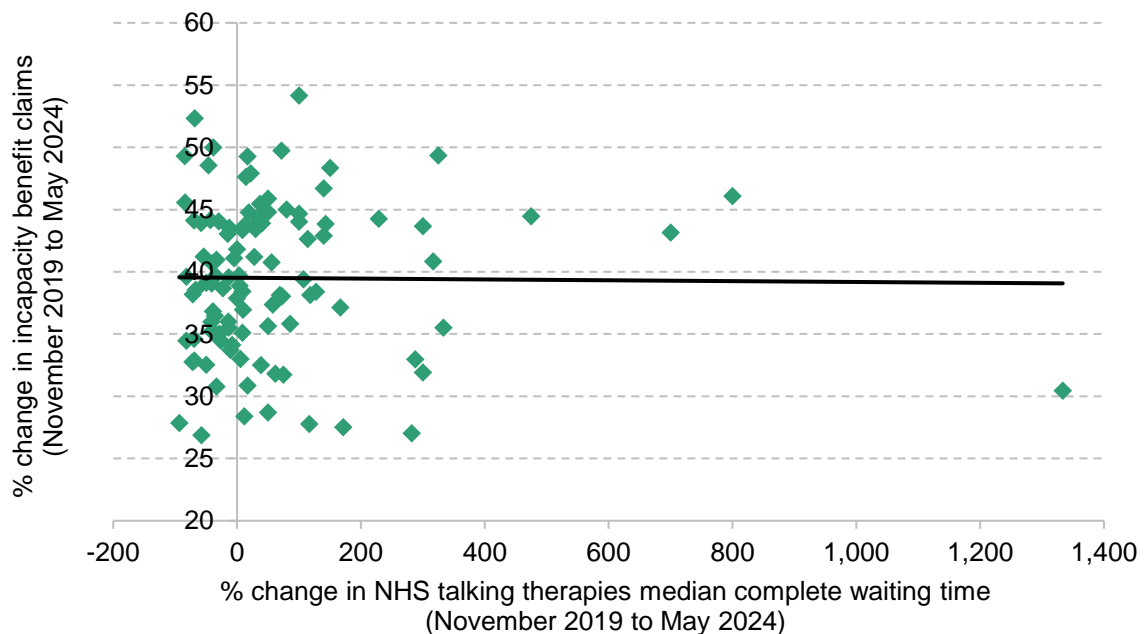
Additional Sub ICB Location mental health results

Figure A6. Relationship between changes in NHS talking therapies waiting times and changes in health-related benefit claims at the Sub ICB Location level (including outliers)

a) Disability benefits



b) Incapacity benefits

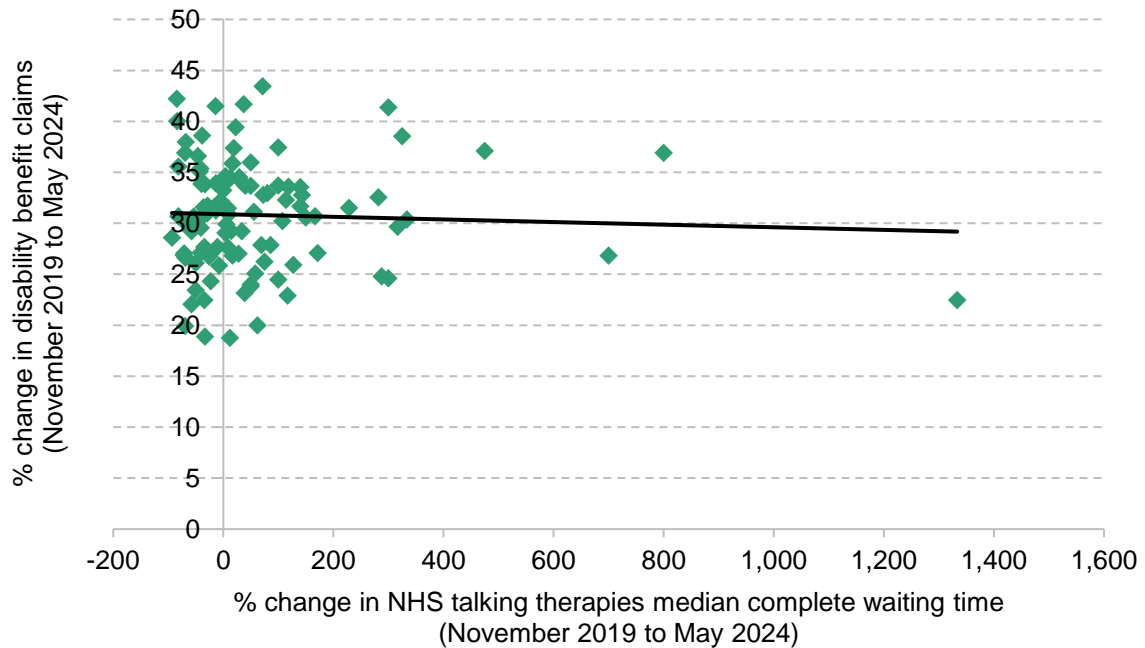


Note: The R^2 is 0.0000178 in Panel a and 0.0001135 in Panel b.

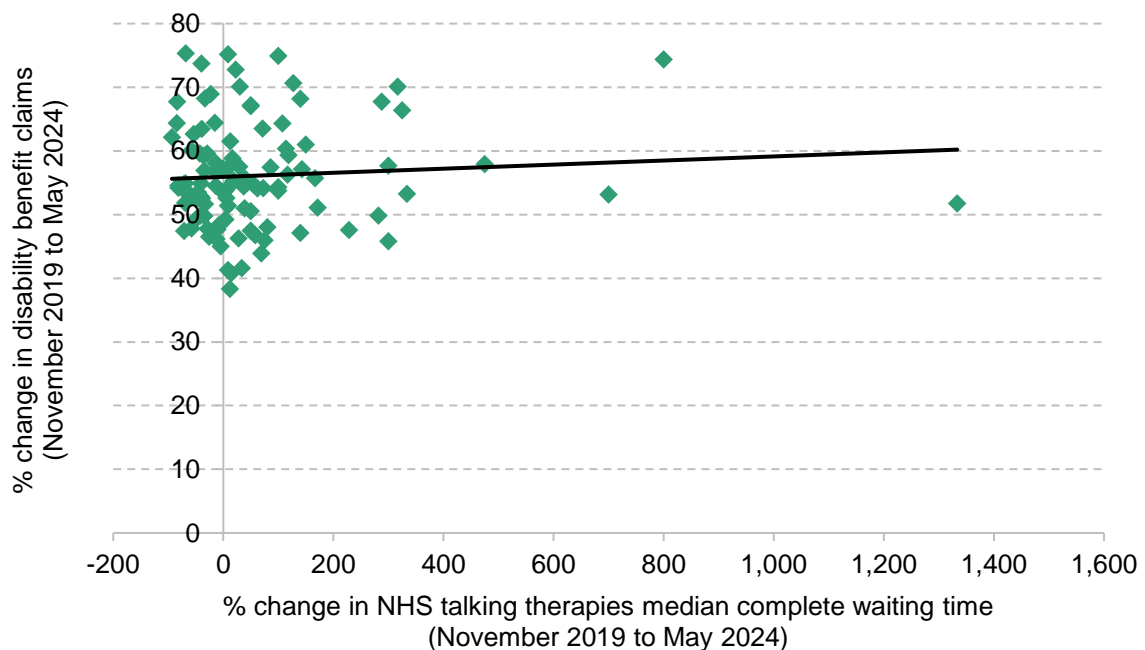
Source: Authors' calculations using DWP Stat-Xplore (various), NHS England's NHS Talking Therapies Monthly Statistics Including Employment Advisors (various) and NHS England's Psychological Therapies, Reports on the use of IAPT services (various).

Figure A7. Relationship between changes in NHS talking therapies waiting times and changes in disability benefit claims at the Sub ICB Location level (including outliers)

a) Disability benefits for physical health conditions



b) Disability benefits for mental health conditions



Note: The R^2 is 0.00209 in Panel a and 0.00543 in Panel b.

Source: Authors' calculations using DWP Stat-Xplore (various), NHS England's NHS Talking Therapies Monthly Statistics Including Employment Advisors (various) and NHS England's Psychological Therapies, Reports on the use of IAPT services (various).

MSOA regression results

Table A1. Regression results for MSOA-level relationship between change in NHS waiting list/times and change in health-related benefit claims (November 2019 to May 2024)

	Disability benefits			Incapacity benefits		
Estimated waiting list	0.0507*** (0.0133)	0.0215* (0.0127)	0.0183 (0.0120)	0.0303* (0.0181)	−0.000424 (0.0173)	−0.00344 (0.0164)
R ²	0.0132	0.150	0.158	0.00380	0.125	0.130
Population controls	No	Working age	All	No	Working age	All
Estimated mean incomplete waiting time	0.0396** (0.0198)	0.0272 (0.0190)	0.0291 (0.0191)	0.0156 (0.0204)	0.00288 (0.0200)	0.00497 (0.0196)
R ²	0.00441	0.150	0.159	0.000550	0.125	0.130
Population controls	No	Working age	All	No	Working age	All
Estimated mean complete waiting time	0.0140 (0.0213)	0.00918 (0.0205)	0.0112 (0.0203)	0.0181 (0.0233)	0.0133 (0.0237)	0.0155 (0.0233)
R ²	0.000550	0.148	0.158	0.000739	0.126	0.131
Population controls	No	Working age	All	No	Working age	All

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors clustered at the largest provider level. Analysis of completed waiting times omits one large provider (and all MSOAs for which that is the primary provider) that only reported data for a subset of our sample period.

Table A2. Regression results for MSOA-level relationship between increase in NHS waiting list/times and disability benefit claims (November 2019 to May 2024)

	Disability benefits: physical health conditions			Disability benefits: mental health conditions		
Estimated waiting list	0.0310** (0.0129)	0.00598 (0.0124)	0.00379 (0.0123)	0.0891*** (0.0225)	0.0530** (0.0221)	0.0466** (0.0211)
R ²	0.00383	0.0816	0.0831	0.0120	0.0757	0.0877
Population controls	No	Working age	All	No	Working age	All
Estimated mean incomplete waiting time	0.0206 (0.0191)	0.0106 (0.0186)	0.0124 (0.0187)	0.0727** (0.0306)	0.0558* (0.0299)	0.0575* (0.0303)
R ²	0.000931	0.0817	0.0834	0.00440	0.0741	0.0873
Population controls	No	Working age	All	No	Working age	All
Estimated mean complete waiting time	0.00217 (0.0223)	−0.00191 (0.0218)	−0.000122 (0.0217)	0.0364 (0.0266)	0.0301 (0.0264)	0.0325 (0.0269)
R ²	0.0000103	0.0812	0.0835	0.00109	0.0724	0.0855
Population controls	No	Working age	All	No	Working age	All

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors clustered at the largest provider level. Analysis of completed waiting times omits one large provider (and all MSOAs for which that is the primary provider) that only reported data for a subset of our sample period.

Table A3. Regression results for MSOA-level relationship between change in NHS waiting times and change in share of working-age population claiming health-related benefits (November 2019 to May 2024)

	Share of working-age population claiming:			
	Disability benefits	Incapacity benefits	Disability benefits: physical health conditions	Disability benefits: mental health conditions
Estimated mean incomplete waiting time	0.0249 (0.0182)	0.00207 (0.0189)	0.00834 (0.0176)	0.0536* (0.0288)
R ²	0.00225	0.0000125	0.000181	0.00287
Population controls	No	No	No	No
Estimated mean complete waiting time	0.00886 (0.0195)	0.0128 (0.0227)	−0.00175 (0.0206)	0.0288 (0.0253)
R ²	0.000284	0.000473	0.00000790	0.000819
Population controls	No	No	No	No

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors clustered at the largest provider level.

Table A4. Regression results for MSOA-level relationship between increase in NHS trauma and orthopaedics waiting list/times and disability benefit claims for musculoskeletal conditions (November 2019 to May 2024)

	Disability benefits: MSK		
Estimated T&O waiting list	0.0525*** (0.0180)	0.0390** (0.0175)	0.0373** (0.0172)
R ²	0.00793	0.0461	0.0525
Population controls	No	Working age	All
Estimated T&O mean incomplete waiting time	0.0485** (0.0245)	0.0394 (0.0242)	0.0393 (0.0242)
R ²	0.00390	0.0444	0.0511
Population controls	No	Working age	All
Estimated T&O mean complete waiting time	0.0211 (0.0243)	0.0142 (0.0238)	0.0146 (0.0236)
R ²	0.000970	0.0421	0.0492
Population controls	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01. Standard errors clustered at the largest provider level.

Table A5. Regression results for MSOA-level relationship between increase in NHS trauma and orthopaedics waiting times and share of working-age population claiming disability benefits for musculoskeletal conditions (November 2019 to May 2024)

	Share of working-age population claiming disability benefits: MSK
Estimated T&O mean incomplete waiting time	0.0370 (0.0230)
R ²	0.00259
Population controls	No
Estimated T&O mean complete waiting time	0.0131 (0.0225)
R ²	0.000430
Population controls	No

Note: * p < 0.1; ** p < 0.05; *** p < 0.01. Standard errors clustered at the largest provider level.

Table A6. Regression results for MSOA-level relationship between change in NHS working-age waiting list/times and change in health-related benefit claims (November 2021 to May 2024)

	Disability benefits			Incapacity benefits		
Estimated working-age waiting list	−0.00496 (0.0105)	−0.00177 (0.0108)	−0.00275 (0.0110)	−0.0290** (0.0144)	−0.0260* (0.0154)	−0.0270* (0.0154)
R ²	0.000107	0.0429	0.0511	0.00344	0.0509	0.0607
Population controls	No	Working age	All	No	Working age	All
Estimated working-age mean incomplete waiting time	−0.00783 (0.0137)	−0.00219 (0.0138)	−0.00226 (0.0138)	−0.0153 (0.0146)	−0.00981 (0.0155)	−0.00988 (0.0156)
R ²	0.000229	0.0429	0.0511	0.000822	0.0485	0.0581
Population controls	No	Working age	All	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01. Standard errors clustered at the largest provider level.

Table A7. Regression results for MSOA-level relationship between change in NHS working-age waiting list/times and change in disability benefit claims (November 2021 to May 2024)

	Disability benefits: physical health conditions			Disability benefits: mental health conditions		
Estimated working-age waiting list	−0.00189 (0.0128)	0.000948 (0.0133)	0.0000585 (0.0129)	−0.00989 (0.0193)	−0.00693 (0.0191)	−0.00805 (0.0197)
R ²	0.00000903	0.0213	0.0258	0.000141	0.0206	0.0255
Population controls	No	Working age	All	No	Working age	All
Estimated working-age mean incomplete waiting time	−0.00297 (0.0149)	0.00234 (0.0151)	0.00231 (0.0148)	−0.0199 (0.0207)	−0.0137 (0.0208)	−0.0137 (0.0210)
R ²	0.0000192	0.0213	0.0258	0.00049	0.0207	0.0256
Population controls	No	Working age	All	No	Working age	All

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors clustered at the largest provider level.

Table A8. Regression results for MSOA-level relationship between change in working-age NHS waiting list/times and change in share of working-age population claiming health-related benefits (November 2021 to May 2024)

	Share of working-age population claiming:			
	Disability benefits	Incapacity benefits	Disability benefits: physical health conditions	Disability benefits: mental health conditions
Estimated share of working-age population on waiting list	0.00432 (0.0113)	−0.0217 (0.0159)	0.00768 (0.0140)	−0.00256 (0.0187)
R ²	0.0000879	0.00209	0.000158	0.00000990
Population controls	No	No	No	No
Estimated working-age mean incomplete waiting time	−0.000269 (0.0133)	−0.00853 (0.0150)	0.00419 (0.0147)	−0.0120 (0.0199)
R ²	0.000000307	0.000291	0.0000421	0.000197
Population controls	No	No	No	No

Note: * p < 0.1; ** p < 0.05; *** p < 0.01. Standard errors clustered at the largest provider level.

Table A9. Regression results for MSOA-level relationship between change in NHS working-age trauma and orthopaedics waiting list/times and change in disability benefit claims for musculoskeletal conditions (November 2021 to May 2024)

	Disability benefits: MSK		
Estimated working-age T&O waiting list	−0.00899 (0.0121)	−0.00799 (0.0122)	−0.00843 (0.0121)
R ²	0.000272	0.0108	0.0141
Population controls	No	Working age	All
Estimated working-age T&O mean incomplete waiting time	−0.0128 (0.0224)	−0.0104 (0.0227)	−0.0106 (0.0224)
R ²	0.000242	0.0107	0.0140
Population controls	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01. Standard errors clustered at the largest provider level.

Table A10. Regression results for MSOA-level relationship between increase in NHS working-age trauma and orthopaedics waiting list/times and share of working-age population claiming disability benefits for musculoskeletal conditions (November 2021 to May 2024)

	Share of working-age population claiming disability benefits: MSK
Estimated share of working-age population on T&O waiting list	–0.00645 (0.0121)
R ²	0.000144
Population controls	No
Estimated working-age mean incomplete T&O waiting time	–0.00882 (0.0219)
R ²	0.000125
Population controls	No

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors clustered at the largest provider level.

Sub ICB Location regression results

Table A11. Regression results for Sub-ICB-Location-level relationship between change in NHS waiting list/times and change in health-related benefit claims (November 2019 to May 2024)

	Disability benefits			Incapacity benefits		
Waiting list	0.0103 (0.0156)	0.00389 (0.0154)	0.00276 (0.0153)	0.0175 (0.0178)	0.0125 (0.0179)	0.0116 (0.0178)
R ²	0.00429	0.0578	0.0781	0.00939	0.0339	0.0433
Population controls	No	Working age	All	No	Working age	All
Mean incomplete waiting time	−0.00577 (0.0209)	−0.0187 (0.0209)	−0.0178 (0.0205)	−0.000646 (0.0240)	−0.0110 (0.0244)	−0.0102 (0.0240)
R ²	0.000745	0.0646	0.0847	0.00000711	0.0312	0.0410
Population controls	No	Working age	All	No	Working age	All
Mean complete waiting time	−0.00198 (0.0231)	−0.00930 (0.0227)	−0.00508 (0.0223)	0.00693 (0.0264)	0.00108 (0.0264)	0.00443 (0.0261)
R ²	0.0000726	0.0587	0.0783	0.000675	0.0292	0.0395
Population controls	No	Working age	All	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

Table A12. Regression results for Sub-ICB-Location-level relationship between increase in NHS waiting list/times and disability benefit claims (November 2019 to May 2024)

	Disability benefits: physical health conditions			Disability benefits: mental health conditions		
Waiting list	0.00956 (0.0156)	0.00649 (0.0158)	0.00538 (0.0158)	0.00552 (0.0243)	−0.00371 (0.0243)	−0.00540 (0.0240)
R ²	0.00366	0.0158	0.0261	0.000503	0.0457	0.0637
Population controls	No	Working age	All	No	Working age	All
Mean incomplete waiting time	−0.0182 (0.0209)	−0.0255 (0.0214)	−0.0255 (0.0211)	0.00796 (0.0327)	−0.00911 (0.0330)	−0.00831 (0.0324)
R ²	0.00732	0.0278	0.0389	0.000581	0.0462	0.0639
Population controls	No	Working age	All	No	Working age	All
Mean complete waiting time	−0.00534 (0.0231)	−0.00907 (0.0233)	−0.00711 (0.0230)	−0.000156 (0.0360)	−0.0103 (0.0357)	−0.00451 (0.0351)
R ²	0.000522	0.0156	0.0259	0.000000183	0.0462	0.0634
Population controls	No	Working age	All	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

Table A13. Regression results for Sub-ICB-Location-level relationship between increase in NHS waiting times and share of working-age population claiming health-related benefits (November 2019 to May 2024)

	Share of working-age population claiming:			
	Disability benefits	Incapacity benefits	Disability benefits: physical health conditions	Disability benefits: mental health conditions
Mean incomplete waiting time	−0.0236 (0.0195)	−0.0184 (0.0228)	−0.0338* (0.0201)	−0.0130 (0.0306)
R ²	0.0142	0.00632	0.0269	0.00177
Population controls	No	No	No	No
Mean complete waiting time	−0.0129 (0.0216)	−0.00373 (0.0252)	−0.0151 (0.0224)	−0.0127 (0.0337)
R ²	0.00349	0.000215	0.00444	0.00139
Population controls	No	No	No	No

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

Table A14. Regression results for Sub-ICB-Location-level relationship between increase in NHS trauma and orthopaedics waiting list/times and disability benefit claims for musculoskeletal conditions (November 2019 to May 2024)

	Disability benefits: MSK		
T&O waiting list	0.0659*** (0.0200)	0.0654*** (0.0200)	0.0633*** (0.0199)
R ²	0.0962	0.106	0.119
Population controls	No	Working age	All
T&O mean incomplete waiting time	0.0167 (0.0277)	0.0127 (0.0280)	0.00996 (0.0277)
R ²	0.00356	0.0130	0.0326
Population controls	No	Working age	All
T&O mean complete waiting time	−0.0123 (0.0283)	−0.0149 (0.0284)	−0.0151 (0.0281)
R ²	0.00185	0.0137	0.0341
Population controls	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

Table A15. Regression results for Sub-ICB-Location-level relationship between increase in NHS trauma and orthopaedics waiting times and share of working-age population claiming disability benefits for musculoskeletal conditions (November 2019 to May 2024)

	Share of working-age population claiming disability benefits: MSK
T&O mean incomplete waiting time	0.00866 (0.0263)
R ²	0.00106
Population controls	No
T&O mean complete waiting time	−0.0157 (0.0269)
R ²	0.00331
Population controls	No

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

Table A16. Regression results for Sub-ICB-Location-level relationship between increase in NHS talking therapies waiting times and health-related benefits claims (November 2019 to May 2024) excluding four large outliers

	Disability benefits			Incapacity benefits		
Median talking therapies complete waiting time	0.00317 (0.00536)	0.00338 (0.00522)	0.00331 (0.00516)	0.000787 (0.00616)	0.000955 (0.00610)	0.000896 (0.00608)
R ²	0.00356	0.0651	0.0866	0.000166	0.0299	0.0379
Population controls	No	Working age	All	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

Table A17. Regression results for Sub-ICB-Location-level relationship between increase in NHS talking therapies waiting times and disability benefit claims (November 2019 to May 2024) excluding four large outliers

	Disability benefits: physical health conditions			Disability benefits: mental health conditions		
Median talking therapies complete waiting time	0.00114 (0.00537)	0.00124 (0.00535)	0.00122 (0.00532)	0.00517 (0.00835)	0.00546 (0.00820)	0.00537 (0.00813)
R ²	0.000458	0.0164	0.0282	0.00390	0.0502	0.0663
Population controls	No	Working age	All	No	Working age	All

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.

Table A18. Regression results for Sub-ICB-Location-level relationship between change in NHS talking therapies waiting times and change in share of working-age population claiming health-related benefits (November 2019 to May 2024)

	Share of working-age population claiming:			
	Disability benefits	Incapacity benefits	Disability benefits: physical health conditions	Disability benefits: mental health conditions
Median talking therapies complete waiting time	0.00317 (0.00536)	0.000787 (0.00616)	0.00114 (0.00537)	0.00517 (0.00835)
R ²	0.00356	0.000166	0.000458	0.00390
Population controls	No	No	No	No

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.