



```

name: <unnamed>
log: C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconomy
> etrics\fdimatching_clean\03_log\04a_Robustness.smcl
log type: smcl
opened on: 30 Mar 2020, 15:19:55

```

```

1 .
2 .           do $scripts\04a_Robustness

3 . /*****
>                               ROBUSTNESS CHECKS DO-FILE
> *****/
>
>           Applied Microeconometrics
>
>           Empirical Project
>
>           Do-File 04a
>
> PURPOSE:           Perform robustness checks
>
> OUTLINE:           PART 1: Treatment effects for different TECH-levels (TFP)
>                   PART 2: Treatment effects for different TECH-levels
> (wages)
>
>
> *****/
>           PART 1: Treatment effects for different TECH-levels (TFP)
> *****/
4 . /*
>       - All models use probit and nneighbor (3) and no interactions
>       - with nn5 and caliper .05 would need to drop too many variables
>       --> in general not useful to divide into TECH subsamples
>
>       */
5 .
6 . *-----*
7 . *       PART 1.1: Probit w/o TECH, using 3NN
8 . *-----*
9 .
10. ** TECH==1 (low)
11. *-----*
12.       cap drop osal
13.
14.       cap drop p1*
14.       teffects psmatch (TFP2017) ///
>                                     (FDI2016 i.OWN /*i.TECH*/ PORT ///
>                                     logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit)if TECH==1, ///
>                                     nneighbor(3) osample(osal) generate(p1)

Treatment-effects estimation           Number of obs       =       4,194
Estimator       : propensity-score matching           Matches: requested =       3
Outcome model   : matching                           min =       3
Treatment model: probit                               max =       3

```

	TFP2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>							
FDI2016 (1 vs 0)		.1382817	.2687846	0.51	0.607	-.3885264	.6650898

```

15.
16.         teffects overlap, plevel(1) saving($results\04_Robustness\TFP_3NN_TECH1.gph
> , replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconomie
> trics\fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH1.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH1.gph saved)

17.         graph export $results\04_Robustness\TFP_3NN_TECH1.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH1.pdf written in PDF format)

18.         // bad overlap
19.
20.         tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>4,194</b>	<b>8,388</b>
Treated obs =	<b>2,325</b>	<b>4,194</b>
Control obs =	<b>1,869</b>	<b>4,194</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	.0299781	-.1459848	1.036398	.8303704
Independent	.0057604	.0429751	1.001373	.9957807
State	-.0250578	.0944441	.9786308	1.12783
PORT				
logwages2015	.0611895	-.0226083	.9611867	1.002617
TFP2015	-.0219915	-.0878341	1.012966	1.352237
logemp2015	.0072539	-.0904062	.9676072	1.231927
DEBTS2015	.1323588	-.4324184	.8437902	.9971546
EXP2015	-.0474876	.199643	1.031416	1.028165
RD2015	1.557713	.2879349	1.954182	2.432269
	.0165825	-.4523663	1.041031	.466799

```

21.          // SD very bad
22.
23. ** TECH==2 (medium-low)
24. *-----
25.         cap drop osal
26.
27.         cap drop p1*
28.
29.         cap teffects psmatch (TFP2017) ///
30.         > (FDI2016 i.OWN /*i.TECH*/ PORT ///
31.         > logwages2015 TFP2015 logemp2015 DEBTS2015
32.         > EXP2015 RD2015, probit)if TECH==2, ///
33.         > nneighbor(3) osample(osal) generate(p1)
34.
35.         teffects psmatch (TFP2017) ///
36.         > (FDI2016 i.OWN /*i.TECH*/ PORT ///
37.         > logwages2015 TFP2015 logemp2015 DEBTS2015
38.         > EXP2015 RD2015, probit)if TECH==2 & osal==0, ///
39.         > nneighbor(3) generate(p1)

```

```

Treatment-effects estimation      Number of obs      =      1,679
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                      min =      3
Treatment model: probit                        max =      3

```

TFP2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	<b>.8852078</b>	<b>.4098126</b>	<b>2.16</b>	<b>0.031</b>	<b>.0819899</b>	<b>1.688426</b>

```

29.
30.
31.      teffects overlap, plevel(1) saving($results\04_Robustness\TFP_3NN_TECH2.gph
> , replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconome
> trics\fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH2.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH2.gph saved)

32.      graph export $results\04_Robustness\TFP_3NN_TECH2.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH2.pdf written in PDF format)

33.      // bad overlap
34.
35.      tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>1,679</b>	<b>3,358</b>
Treated obs =	<b>778</b>	<b>1,679</b>
Control obs =	<b>901</b>	<b>1,679</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	<b>-.0793954</b>	<b>-.2257361</b>	<b>.9050206</b>	<b>.7147904</b>
Independent	<b>.0335636</b>	<b>.5374598</b>	<b>1.014469</b>	<b>1.136939</b>
State	<b>.0928413</b>	<b>-.3390481</b>	<b>1.080196</b>	<b>.7563372</b>
PORT	<b>.1821758</b>	<b>-.3342938</b>	<b>1.433746</b>	<b>.584444</b>
logwages2015	<b>-.0292601</b>	<b>.0725108</b>	<b>.9177524</b>	<b>2.013748</b>
TFP2015	<b>-.1473483</b>	<b>.3176451</b>	<b>.9349423</b>	<b>.7690033</b>
logemp2015	<b>.5931748</b>	<b>-.3958534</b>	<b>.7079079</b>	<b>.4281975</b>
DEBTS2015	<b>-.0381321</b>	<b>-.0708779</b>	<b>.9517235</b>	<b>.7109844</b>
EXP2015	<b>1.70664</b>	<b>.1010007</b>	<b>1.63636</b>	<b>1.068403</b>
RD2015	<b>.0199144</b>	<b>.2775455</b>	<b>1.045988</b>	<b>1.822982</b>

```

36.      // SD very bad
37.
38.
39.  ** TECH==3 (medium-high)

```

```

40. *-----
41.         cap drop osal
42.         cap drop pl*
43.         cap teffects psmatch (TFP2017) ///
>                                     (FDI2016 i.OWN /*i.TECH*/ PORT ///
>                                     logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit)if TECH==3, ///
>                                     nneighbor(3) osample(osal) generate(pl)

44.         teffects psmatch (TFP2017) ///
>                                     (FDI2016 i.OWN /*i.TECH*/ PORT ///
>                                     logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit)if TECH==3 & osal==0, ///
>                                     nneighbor(3) generate(pl)

```

```

Treatment-effects estimation      Number of obs      =      3,205
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                      min =      3
Treatment model: probit                        max =      3

```

TFP2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	<b>1.711486</b>	<b>.3041076</b>	<b>5.63</b>	<b>0.000</b>	<b>1.115446</b>	<b>2.307526</b>

```

45.
46.         teffects overlap, ptlevel(1) saving($results\04_Robustness\TFP_3NN_TECH3.gph
> , replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconome
> trics\fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH3.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH3.gph saved)

47.         graph export $results\04_Robustness\TFP_3NN_TECH3.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH3.pdf written in PDF format)

48.         // bad overlap
49.
50.         tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>3,205</b>	<b>6,410</b>
Treated obs =	<b>1,093</b>	<b>3,205</b>
Control obs =	<b>2,112</b>	<b>3,205</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	<b>-.1234736</b>	<b>.1209775</b>	<b>.8498094</b>	<b>1.17212</b>
Independent	<b>.0029747</b>	<b>-.2869497</b>	<b>1.001282</b>	<b>.8317982</b>
State	<b>.1397257</b>	<b>.1863583</b>	<b>1.132847</b>	<b>1.091034</b>
PORT	<b>.26598</b>	<b>.2930677</b>	<b>1.508242</b>	<b>1.264622</b>
logwages2015	<b>.0173021</b>	<b>-.1495607</b>	<b>.9932722</b>	<b>.9224528</b>
TFP2015	<b>-.190123</b>	<b>.5556515</b>	<b>.9260253</b>	<b>2.005478</b>
logemp2015	<b>.7811806</b>	<b>-.3235282</b>	<b>.6931161</b>	<b>.3796084</b>
DEBTS2015	<b>-.0437663</b>	<b>.3089159</b>	<b>1.057607</b>	<b>1.47068</b>
EXP2015	<b>1.701486</b>	<b>.6923078</b>	<b>1.304434</b>	<b>.7575751</b>
RD2015	<b>.0664698</b>	<b>-.2207988</b>	<b>1.152626</b>	<b>.6186661</b>

```

51.          // SD very bad
52.
53.
54. ** TECH==4 (high)
55. *-----
56.          cap drop osa1
57.
58.          cap teffects psmatch (TFP2017) ///
>
>          (FDI2016 i.OWN /*i.TECH*/ PORT ///
>          logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit)if TECH==4, ///
>
>          nneighbor(3) osample(osa1) generate(p1)
59.          teffects psmatch (TFP2017) ///
>
>          (FDI2016 i.OWN /*i.TECH*/ PORT ///
>          logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit)if TECH==4 & osa1==0, ///
>
>          nneighbor(3) generate(p1)
note: variance correction results in a negative variance estimate; ignoring the
      correction term

```

```

Treatment-effects estimation      Number of obs      =      1,264
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                      min =      3
Treatment model: probit                        max =      3

```

	TFP2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]
<b>ATE</b>						
FDI2016 (1 vs 0)		<b>-.3133928</b>	<b>.2715818</b>	<b>-1.15</b>	<b>0.249</b>	<b>-.8456834 .2188977</b>

```

60.
61.          teffects overlap, ptlevel(1) saving($results\04_Robustness\TFP_3NN_TECH4.gph
> , replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconomie
> trics\fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH4.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH4.gph saved)
62.          graph export $results\04_Robustness\TFP_3NN_TECH4.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN_TECH4.pdf written in PDF format)
63.          // bad overlap
64.
65.          tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>1,264</b>	<b>2,528</b>
Treated obs =	<b>239</b>	<b>1,264</b>
Control obs =	<b>1,025</b>	<b>1,264</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	<b>-.0731132</b>	<b>-.0147977</b>	<b>.8911079</b>	<b>.982208</b>
Independent	<b>.0073223</b>	<b>-.2914239</b>	<b>1.008746</b>	<b>.6873099</b>
State	<b>.1506956</b>	<b>.296785</b>	<b>1.211799</b>	<b>1.428616</b>
PORT	<b>.4822657</b>	<b>-.2451265</b>	<b>1.632999</b>	<b>.683005</b>
logwages2015	<b>-.0799494</b>	<b>.174733</b>	<b>1.058831</b>	<b>.6261957</b>
TFP2015	<b>-.1241814</b>	<b>-.3158725</b>	<b>.9731298</b>	<b>.4734144</b>

logemp2015	1.01428	.2347556	.7598335	.4642713
DEBTS2015	-.1438462	.3183089	1.115811	1.022106
EXP2015	1.604725	.1756002	1.557947	.814425
RD2015	.0901895	-.1500458	1.228973	.6359217

```

66.          // SD very bad
67.
68.
69. *-----*
70. *          PART 1.2: Probit w/o TECH including interactions, using 3NN
71. *-----*
72.
73. ** TECH==1
74. *-----*
75.          cap drop osal
76.          cap drop p1*
77.          global D "OWN PORT" /*TECH*/
78.          global C "logwages2015 TFP2015 logemp2015 DEBTS2015 EXP2015 RD2015"
79.          cap teffects psmatch (TFP2017) ///
>                                     (FDI2016 i.($D)##c.($C), probit) if TECH==1
> ,          ///
>                                     nneighbor(3) osample(osal) generate(p1)
80.          teffects psmatch (TFP2017) ///
>                                     (FDI2016 i.($D)##c.($C), probit) if TECH==1
> & osal==0, ///
>                                     nneighbor(3) generate(p1)

Treatment-effects estimation          Number of obs      =      4,169
Estimator       : propensity-score matching      Matches: requested =      3
Outcome model   : matching                      min =      3
Treatment model : probit                          max =      3

```

TFP2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	<b>-.2873912</b>	<b>.3512517</b>	<b>-0.82</b>	<b>0.413</b>	<b>-.9758319</b>	<b>.4010495</b>

```

81.
82.
83.          teffects overlap, ptleve(1) saving($results\04_Robustness\TFP_3NN#dc_TECH1.
> gph, replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconomie
> trics\fdimatching_clean\04_results\04_Robustness\TFP_3NN#dc_TECH1.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN#dc_TECH1.gph saved)

84.          graph export $results\04_Robustness\TFP_3NN#dc_TECH1.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\TFP_3NN#dc_TECH1.pdf written in PDF forma
> t)

```

85. // bad overlap  
 86.  
 87. tebalance summarize

## Covariate balance summary

	Raw	Matched
Number of obs =	4,169	8,338
Treated obs =	2,316	4,169
Control obs =	1,853	4,169

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	.0274143	.0981279	1.032951	1.167319
Independent	.0016176	.2322468	1.000289	1.023869
State	-.0282953	-.3353479	.9761842	.776527
PORT				
Ports within~m	.060241	-.2243623	.9619448	1.067787
logwages2015	-.0187879	.0180795	1.014544	1.738795
TFP2015	.0065551	-.3034647	.9665043	.7903574
logemp2015	.1253704	-.0341239	.8518181	.9342653
DEBTS2015	-.0448262	-.2078112	1.028607	1.289815
EXP2015	1.55224	.1608447	1.924586	1.932237
RD2015	.0149436	-.4830068	1.036717	.4260918
OWN#				
logwages2015				
Subsidiaries	.0090678	.0883235	.9917854	1.246037
Independent	.0004239	.2628619	.9994187	1.578229
State	-.0375481	-.3966641	.950555	.6183771
OWN#				
TFP2015				
Subsidiaries	.0155642	.0520744	.992061	1.074582
Independent	-.0239632	.1973065	.9714814	1.236298
State	.0177105	-.5093586	1.018915	.3423355
OWN#				
logemp2015				
Subsidiaries	.0575978	.0882121	1.076401	1.159406
Independent	.0773797	-.1007968	1.058402	.8814914
State	-.0071547	-.0096074	.9752406	.9244812
OWN#				
DEBTS2015				
Subsidiaries	-.0266279	.0461008	.8990742	1.049029
Independent	-.02299	.0912236	.9480144	1.273759
State	-.0088845	-.2713117	1.018366	.901762
OWN#				
EXP2015				
Subsidiaries	.3536599	.2330154	3.516162	2.273069
Independent	.4944911	.2541485	3.50139	2.098064
State	.344032	-.255141	3.147261	.9049133
OWN#				
RD2015				
Subsidiaries	.0360806	.0278612	1.225676	1.195674
Independent	.0005448	-.3427434	1.002291	.3115793
State	-.0055253	-.3520467	.9740626	.2815906
PORT#				
logwages2015				
Ports within~m	.0303154	-.2719386	.9850168	.9262533
PORT#				

TFP2015				
Ports within~m	.0571856	-.4057072	1.00119	.6039034
PORT#				
logemp2015				
Ports within~m	.0732937	.0692814	1.000195	1.007943
PORT#				
DEBTS2015				
Ports within~m	.0246213	-.2866555	1.014688	.9158055
PORT#				
EXP2015				
Ports within~m	.8048592	.0566622	2.741504	1.494336
PORT#				
RD2015				
Ports within~m	.009008	-.3038563	1.029227	.4292447

```

88. // SD very bad
89.
90. // no point in running interaction model with other subsamples
91.
92.
93.
94. *****
95. * PART 2: Treatment effects for different TECH-levels (wages)
96. *****/
97.
98. *-----*
99. * PART 2.1: Probit w/o TECH, using 3NN
100 *-----*
101
102 ** TECH==1
103 *-----*
104 cap drop osal
105
106 cap drop p1*
107
108 teffects psmatch (logwages2017) ///
109 > (FDI2016 i.OWN /*i.TECH*/ PORT ///
110 > logwages2015 TFP2015 logemp2015 DEBTS2015
111 > EXP2015 RD2015, probit) if TECH==1, ///
112 > nneighbor(3) osample(osal) generate(p1)

```

```

Treatment-effects estimation      Number of obs      =      4,194
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                      min =      3
Treatment model: probit                      max =      3

```

logwages2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	-1.059256	.1645217	-6.44	0.000	-1.381712	-.736799

107



```

108      teffects overlap, plevel(1) saving($results\04_Robustness\WAGES_3NN_TECH1.g
> ph, replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconome
> trics\fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH1.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH1.gph saved)

109      graph export $results\04_Robustness\WAGES_3NN_TECH1.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH1.pdf written in PDF format
> )

110      // bad overlap
111
112      tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>4,194</b>	<b>8,388</b>
Treated obs =	<b>2,325</b>	<b>4,194</b>
Control obs =	<b>1,869</b>	<b>4,194</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	<b>.0299781</b>	<b>-.1459848</b>	<b>1.036398</b>	<b>.8303704</b>
Independent	<b>.0057604</b>	<b>.0429751</b>	<b>1.001373</b>	<b>.9957807</b>
State	<b>-.0250578</b>	<b>.0944441</b>	<b>.9786308</b>	<b>1.12783</b>
PORT	<b>.0611895</b>	<b>-.0226083</b>	<b>.9611867</b>	<b>1.002617</b>
logwages2015	<b>-.0219915</b>	<b>-.0878341</b>	<b>1.012966</b>	<b>1.352237</b>
TFP2015	<b>.0072539</b>	<b>-.0904062</b>	<b>.9676072</b>	<b>1.231927</b>
logemp2015	<b>.1323588</b>	<b>-.4324184</b>	<b>.8437902</b>	<b>.9971546</b>
DEBTS2015	<b>-.0474876</b>	<b>.199643</b>	<b>1.031416</b>	<b>1.028165</b>
EXP2015	<b>1.557713</b>	<b>.2879349</b>	<b>1.954182</b>	<b>2.432269</b>
RD2015	<b>.0165825</b>	<b>-.4523663</b>	<b>1.041031</b>	<b>.466799</b>

```

113      // SD very bad
114
115      ** TECH==2
116      *-----
117      cap drop osal
118
119      cap drop p1*
120
119      cap teffects psmatch (logwages2017) ///
> (FDI2016 i.OWN /*i.TECH*/ PORT ///
> logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit) if TECH==2, ///
> nneighbor(3) osample(osal) generate(p1)

120      teffects psmatch (logwages2017) ///
> (FDI2016 i.OWN /*i.TECH*/ PORT ///
> logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit) if TECH==2 & osal==0, ///
> nneighbor(3) generate(p1)

```

```

Treatment-effects estimation      Number of obs      =      1,679
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                      min      =      3
Treatment model: probit                        max      =      3

```

logwages2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	<b>-1.024099</b>	<b>.1382784</b>	<b>-7.41</b>	<b>0.000</b>	<b>-1.295119</b>	<b>-.7530782</b>

```

121
122      teffects overlap, plevel(1) saving($results\04_Robustness\WAGES_3NN_TECH2.g
> ph, replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconome
> trics\fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH2.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH2.gph saved)

123      graph export $results\04_Robustness\WAGES_3NN_TECH2.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH2.pdf written in PDF format
> )

124      // bad overlap
125
126      tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>1,679</b>	<b>3,358</b>
Treated obs =	<b>778</b>	<b>1,679</b>
Control obs =	<b>901</b>	<b>1,679</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	<b>-.0793954</b>	<b>-.2257361</b>	<b>.9050206</b>	<b>.7147904</b>
Independent	<b>.0335636</b>	<b>.5374598</b>	<b>1.014469</b>	<b>1.136939</b>
State	<b>.0928413</b>	<b>-.3390481</b>	<b>1.080196</b>	<b>.7563372</b>
PORT	<b>.1821758</b>	<b>-.3342938</b>	<b>1.433746</b>	<b>.584444</b>
logwages2015	<b>-.0292601</b>	<b>.0725108</b>	<b>.9177524</b>	<b>2.013748</b>
TFP2015	<b>-.1473483</b>	<b>.3176451</b>	<b>.9349423</b>	<b>.7690033</b>
logemp2015	<b>.5931748</b>	<b>-.3958534</b>	<b>.7079079</b>	<b>.4281975</b>
DEBTS2015	<b>-.0381321</b>	<b>-.0708779</b>	<b>.9517235</b>	<b>.7109844</b>
EXP2015	<b>1.70664</b>	<b>.1010007</b>	<b>1.63636</b>	<b>1.068403</b>
RD2015	<b>.0199144</b>	<b>.2775455</b>	<b>1.045988</b>	<b>1.822982</b>

```

127      // SD very bad
128
129      ** TECH==3
130      *-----

```

```

131      cap drop osal
132      cap drop pl*
133      cap teffects psmatch (logwages2017) ///
>                                     (FDI2016 i.OWN /*i.TECH*/ PORT ///
>                                     logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit) if TECH==3, ///
>                                     nneighbor(3) osample(osal) generate(pl)

134      teffects psmatch (logwages2017) ///
>                                     (FDI2016 i.OWN /*i.TECH*/ PORT ///
>                                     logwages2015 TFP2015 logemp2015 DEBTS2015
> EXP2015 RD2015, probit) if TECH==3 & osal==0, ///
>                                     nneighbor(3) generate(pl)

```

```

Treatment-effects estimation      Number of obs      =      3,205
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                        min =      3
Treatment model: probit                          max =      3

```

logwages2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	<b>-.7711815</b>	<b>.3142929</b>	<b>-2.45</b>	<b>0.014</b>	<b>-1.387184</b>	<b>-.1551787</b>

```

135
136
137      teffects overlap, ptlevel(1) saving($results\04_Robustness\WAGES_3NN_TECH3.g
> ph, replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconomie
> trics\fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH3.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH3.gph saved)

138      graph export $results\04_Robustness\WAGES_3NN_TECH3.pdf, as(pdf) replace
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH3.pdf written in PDF format
> )

139      // bad overlap
140
141      tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>3,205</b>	<b>6,410</b>
Treated obs =	<b>1,093</b>	<b>3,205</b>
Control obs =	<b>2,112</b>	<b>3,205</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	<b>-.1234736</b>	<b>.1209775</b>	<b>.8498094</b>	<b>1.17212</b>
Independent	<b>.0029747</b>	<b>-.2869497</b>	<b>1.001282</b>	<b>.8317982</b>
State	<b>.1397257</b>	<b>.1863583</b>	<b>1.132847</b>	<b>1.091034</b>
PORT	<b>.26598</b>	<b>.2930677</b>	<b>1.508242</b>	<b>1.264622</b>
logwages2015	<b>.0173021</b>	<b>-.1495607</b>	<b>.9932722</b>	<b>.9224528</b>
TFP2015	<b>-.190123</b>	<b>.5556515</b>	<b>.9260253</b>	<b>2.005478</b>
logemp2015	<b>.7811806</b>	<b>-.3235282</b>	<b>.6931161</b>	<b>.3796084</b>
DEBTS2015	<b>-.0437663</b>	<b>.3089159</b>	<b>1.057607</b>	<b>1.47068</b>
EXP2015	<b>1.701486</b>	<b>.6923078</b>	<b>1.304434</b>	<b>.7575751</b>
RD2015	<b>.0664698</b>	<b>-.2207988</b>	<b>1.152626</b>	<b>.6186661</b>

```

142          // SD very bad
143
144 ** TECH==4
145 *-----
146          cap drop osa1
147
148          cap drop p1*
149
150          cap teffects psmatch (logwages2017) ///
151          > (FDI2016 i.OWN /*i.TECH*/ PORT ///
152          > logwages2015 TFP2015 logemp2015 DEBTS2015
153          > EXP2015 RD2015, probit) if TECH==4, ///
154          > nneighbor(3) osample(osa1) generate(p1)
155
156          teffects psmatch (logwages2017) ///
157          > (FDI2016 i.OWN /*i.TECH*/ PORT ///
158          > logwages2015 TFP2015 logemp2015 DEBTS2015
159          > EXP2015 RD2015, probit) if TECH==4 & osa1==0, ///
160          > nneighbor(3) generate(p1)
161 note: variance correction results in a negative variance estimate; ignoring the
162       correction term

```

```

Treatment-effects estimation      Number of obs      =      1,264
Estimator      : propensity-score matching      Matches: requested =      3
Outcome model  : matching                      min =      3
Treatment model: probit                      max =      3

```

logwages2017	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>ATE</b>						
FDI2016 (1 vs 0)	<b>1.046985</b>	<b>.91633</b>	<b>1.14</b>	<b>0.253</b>	<b>-.7489886</b>	<b>2.842959</b>

```

150
151
152          teffects overlap, ptlevel(1) saving($results\04_Robustness\WAGES_3NN_TECH4.g
153          > ph, replace)
154          (note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconome
155          > trics\fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH4.gph not found)
156          (file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
157          > fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH4.gph saved)
158
159          graph export $results\04_Robustness\WAGES_3NN_TECH4.pdf, as(pdf) replace
160          (file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
161          > fdimatching_clean\04_results\04_Robustness\WAGES_3NN_TECH4.pdf written in PDF format
162          > )
163
164          // bad overlap
165
166          tebalance summarize

```

Covariate balance summary

	Raw	Matched
Number of obs =	<b>1,264</b>	<b>2,528</b>
Treated obs =	<b>239</b>	<b>1,264</b>
Control obs =	<b>1,025</b>	<b>1,264</b>

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	-.0731132	-.0147977	.8911079	.982208
Independent	.0073223	-.2914239	1.008746	.6873099
State	.1506956	.296785	1.211799	1.428616
PORT	.4822657	-.2451265	1.632999	.683005
logwages2015	-.0799494	.174733	1.058831	.6261957
TFP2015	-.1241814	-.3158725	.9731298	.4734144
logemp2015	1.01428	.2347556	.7598335	.4642713
DEBTS2015	-.1438462	.3183089	1.115811	1.022106
EXP2015	1.604725	.1756002	1.557947	.814425
RD2015	.0901895	-.1500458	1.228973	.6359217

```

157 // SD very bad
158
159
160 *-----*
161 * PART 2.2: Probit w/o TECH including interactions, using 3NN
162 *-----*
163 ** TECH==1
164 *-----*
165 cap drop osal
166 cap drop p1*
167 global D "OWN PORT" /*TECH*/
168 global C "logwages2015 TFP2015 logemp2015 DEBTS2015 EXP2015 RD2015"
169 cap teffects psmatch (logwages2017) ///
> (FDI2016 i.($D)##c.($C), probit) if TECH==1
> , ///
> nneighbor(3) osample(osal) generate(p1)
170 teffects psmatch (logwages2017) ///
> (FDI2016 i.($D)##c.($C), probit) if TECH==1
> & osal==0, ///
> nneighbor(3) generate(p1)
Treatment-effects estimation Number of obs = 4,169
Estimator : propensity-score matching Matches: requested = 3
Outcome model : matching min = 3
Treatment model: probit max = 3

```

logwages2017	AI Robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
<b>ATE</b>						
FDI2016 (1 vs 0)	.1059448	.1448723	0.73	0.465	-.1779996	.3898892

```

171
172
173 teffects overlap, ptleve(1) saving($results\04_Robustness\WAGES_3NN#dc_TECH
> 1.gph, replace)
(note: file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconome
> trics\fdimatching_clean\04_results\04_Robustness\WAGES_3NN#dc_TECH1.gph not found)
(file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconometrics\
> fdimatching_clean\04_results\04_Robustness\WAGES_3NN#dc_TECH1.gph saved)

```

```

174      graph export $results\04_Robustness\WAGES_3NN#dc_TECH1.pdf, as(pdf) replace
      (file C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2 Appl_Microeconometrics\
      > fdimatching_clean\04_results\04_Robustness\WAGES_3NN#dc_TECH1.pdf"written in PDF for
      > mat)

175      // bad overlap
176
177      tebalance summarize

```

## Covariate balance summary

	Raw	Matched
Number of obs =	4,169	8,338
Treated obs =	2,316	4,169
Control obs =	1,853	4,169

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
OWN				
Subsidiaries	.0274143	.0981279	1.032951	1.167319
Independent	.0016176	.2322468	1.000289	1.023869
State	-.0282953	-.3353479	.9761842	.776527
PORT				
Ports within~m	.060241	-.2243623	.9619448	1.067787
logwages2015	-.0187879	.0180795	1.014544	1.738795
TFP2015	.0065551	-.3034647	.9665043	.7903574
logemp2015	.1253704	-.0341239	.8518181	.9342653
DEBTS2015	-.0448262	-.2078112	1.028607	1.289815
EXP2015	1.55224	.1608447	1.924586	1.932237
RD2015	.0149436	-.4830068	1.036717	.4260918
OWN#				
logwages2015				
Subsidiaries	.0090678	.0883235	.9917854	1.246037
Independent	.0004239	.2628619	.9994187	1.578229
State	-.0375481	-.3966641	.950555	.6183771
OWN#				
TFP2015				
Subsidiaries	.0155642	.0520744	.992061	1.074582
Independent	-.0239632	.1973065	.9714814	1.236298
State	.0177105	-.5093586	1.018915	.3423355
OWN#				
logemp2015				
Subsidiaries	.0575978	.0882121	1.076401	1.159406
Independent	.0773797	-.1007968	1.058402	.8814914
State	-.0071547	-.0096074	.9752406	.9244812
OWN#				
DEBTS2015				
Subsidiaries	-.0266279	.0461008	.8990742	1.049029
Independent	-.02299	.0912236	.9480144	1.273759
State	-.0088845	-.2713117	1.018366	.901762
OWN#				
EXP2015				
Subsidiaries	.3536599	.2330154	3.516162	2.273069
Independent	.4944911	.2541485	3.50139	2.098064
State	.344032	-.255141	3.147261	.9049133
OWN#				
RD2015				
Subsidiaries	.0360806	.0278612	1.225676	1.195674
Independent	.0005448	-.3427434	1.002291	.3115793
State	-.0055253	-.3520467	.9740626	.2815906

PORT#				
logwages2015				
Ports within~m	.0303154	-.2719386	.9850168	.9262533
PORT#				
TFP2015				
Ports within~m	.0571856	-.4057072	1.00119	.6039034
PORT#				
logemp2015				
Ports within~m	.0732937	.0692814	1.000195	1.007943
PORT#				
DEBTS2015				
Ports within~m	.0246213	-.2866555	1.014688	.9158055
PORT#				
EXP2015				
Ports within~m	.8048592	.0566622	2.741504	1.494336
PORT#				
RD2015				
Ports within~m	.009008	-.3038563	1.029227	.4292447

```

178          // SD very bad
179
180          // no point in running interaction model with other subsamples
181
182      end of do-file

183
184      log close
      name: <unnamed>
      log: C:\Users\Emilie\Documents\Emilie\Uni\Master\Nottingham\2_Appl_Microeconom
> etrics\fdimatching_clean\03_log\04a_Robustness.smcl
      log type: smcl
      closed on: 30 Mar 2020, 15:20:58

```