Appendix A

Does Inventor Centrality Foster Regional Innovation?

The Case of the Swiss Medical Device Sector

Table A1 shows six alternative estimations of the econometric models reported in Table 3. We estimate a fixed effect Poisson model (Table A1, columns 1 and 4), a fixed effect Poisson model with cluster-robust standard errors (Table A1, columns 2 and 5), and a fixed effect negative binomial model (Table A1, columns 3 and 6). In the main text, we report the fixed effect Poisson estimations with cluster-robust standard errors (Table A1, columns 2 and 5). We do not include the fixed effect negative binomial estimation (Table A1, columns 3 and 6) in the light of the critics to this estimation method raised by Allison and Waterman (2002) (see also Cameron and Trivedi (2009) and Guimarães (2008)). The results are rather robust in terms of sign and significance of the estimated coefficients across the three estimation methods.

We run an additional robustness check by applying ZIP (Zero-Inflated Poisson) and ZINB (Zero-Inflated Negative Binomial) estimations. Not surprisingly, the results are robust to these alternative estimations given the limited presence of observations, i.e. region-year pair, where the dependent variable equals zero (results available upon request). Table A2 reports the distribution of the dependent variable *Count MedTech*.

Table A1: Alternative estimations of the econometric model reported in Table 3 in the main text. The columns 2 and 5 correspond to the estimations reported in the main text.

VARIABLES	(1) Poisson FE Count MedTech	(2) Poisson FE robust SE Count MedTech	(3) Negative Binomial FE Count MedTech	(1) Poisson FE Count ALL	(2) Poisson FE robust SE Count ALL	(3) Negative Binomial FE Count ALL
Inventors specialized in MedTech						
Degree centrality $_{MT\ t-1}$	0.34***	0.34*	0.21	0.017	0.017	-0.0058
	(0.090)	(0.21)	(0.14)	(0.028)	(0.057)	(0.044)
Degree centrality $_{MT\ t-1}$>0	0.049	0.049	-0.041	0.034	0.034	0.030
	(0.092)	(0.18)	(0.14)	(0.026)	(0.043)	(0.038)
MT cross-regional linkages $_{t-1}$	-0.018	-0.018	-0.046	-0.045***	-0.045*	-0.045**
	(0.051)	(0.095)	(0.075)	(0.017)	(0.026)	(0.022)
MT cross-regional linkages $_{t-1}$>0	-0.43***	-0.43**	-0.38*	0.096**	0.096	0.084
	(0.16)	(0.18)	(0.23)	(0.045)	(0.080)	(0.061)
Degree centrality $_{MT\ t-1}$ * MT cross-regional linkages $_{t-1}$	0.18***	0.18**	0.17*	0.0092	0.0092	0.030
	(0.058)	(0.085)	(0.092)	(0.021)	(0.041)	(0.031)
At least one MedTech inventors in the principal component $_{t-1}$	0.21***	0.21**	0.17**	0.065***	0.065***	0.052**
	(0.043)	(0.084)	(0.077)	(0.015)	(0.022)	(0.025)
log(n. MT inv. $_{t-1}$)	0.092	0.092	0.27**	-0.032	-0.032	-0.011
	(0.080)	(0.19)	(0.11)	(0.023)	(0.033)	(0.034)
n. MT inv. $_{t-1}$>0	0.61*	0.61*	0.70	0.080	0.080	0.084
	(0.34)	(0.34)	(0.46)	(0.078)	(0.14)	(0.10)
Inventors specialized in MedTech complementary technologies						
Degree centrality $_{MCT\ t-1}$	0.14**	0.14	0.075	-0.028	-0.028	-0.055
	(0.070)	(0.14)	(0.11)	(0.020)	(0.026)	(0.034)
Degree centrality $_{MCT\ t-1}$>0	0.32*	0.32	0.36	-0.068	-0.068	-0.067
	(0.17)	(0.53)	(0.30)	(0.047)	(0.077)	(0.068)
MCT cross-regional linkages $_{t-1}$	-0.13	-0.13	-0.15	-0.066***	-0.066	-0.042
	(0.084)	(0.17)	(0.13)	(0.022)	(0.065)	(0.034)
MCT cross-regional linkages $_{t-1}$>0	-0.35	-0.35	-0.55	0.012	0.012	-0.039
	(0.22)	(0.47)	(0.35)	(0.065)	(0.11)	(0.093)
Degree centrality $_{MT\ t-1}$* MCT cross-regional linkages $_{t-1}$	-0.12	-0.12	-0.053	0.026	0.026	0.032
	(0.081)	(0.13)	(0.13)	(0.023)	(0.047)	(0.036)
log(n. MCT inv. $_{t-1}$)	-0.046	-0.046	0.032	0.082***	0.082***	0.089***
	(0.037)	(0.052)	(0.060)	(0.011)	(0.016)	(0.018)
n. MCT inv. $_{t-1}$>0	0.37**	0.37*	0.22	-0.066	-0.066	-0.065
	(0.18)	(0.22)	(0.26)	(0.054)	(0.075)	(0.074)
Academic inventors						
Degree centrality $_{ACADEMIC\ t-1}$	0.015	0.015	-0.0086	0.023	0.023	0.031
	(0.069)	(0.12)	(0.12)	(0.019)	(0.025)	(0.032)
Degree centrality $_{ACADEMIC\ t-1}$>0	0.0031	0.0031	0.17	0.12***	0.12*	0.14**
	(0.14)	(0.17)	(0.22)	(0.032)	(0.059)	(0.057)
ACADEMIC cross-regional linkages $_{t-1}$	0.22***	0.22	0.15	0.039*	0.039	0.044
	(0.076)	(0.16)	(0.13)	(0.021)	(0.044)	(0.034)
ACADEMIC cross-regional linkages $_{t-1}$ >0	-0.098	-0.098	-0.0089	-0.23***	-0.23***	-0.21***
	(0.15)	(0.23)	(0.23)	(0.034)	(0.053)	(0.062)
Degree centrality $_{MT\ t-1}$* ACADEMIC cross-regional linkages $_{t-1}$	-0.26***	-0.26*	-0.18	-0.0099	-0.0099	-0.0099
	(0.066)	(0.16)	(0.12)	(0.021)	(0.032)	(0.033)
log(n. ACAD inv. $_{t-1}$)	-0.098**	-0.098	0.024	0.067***	0.067**	0.071***
	(0.044)	(0.10)	(0.068)	(0.013)	(0.027)	(0.022)
n. ACAD inv. $_{t-1}$>0	-0.025	-0.025	0.12	0.023	0.023	0.026
	(0.084)	(0.17)	(0.14)	(0.026)	(0.040)	(0.041)
Other controls						
log(n. other inv. $_{t-1}$)	-0.019	-0.019	0.083	0.12***	0.12***	0.13***
	(0.042)	(0.075)	(0.072)	(0.015)	(0.036)	(0.025)
n. other inv. $_{t-1}$>0	-1.42*	-1.42	-1.02	-0.077	-0.077	-0.040
	(0.73)	(0.89)	(0.95)	(0.22)	(0.26)	(0.28)
n. of isolated/(1+n. of nodes) $_{t-1}$	0.61	0.61	-0.11	-0.093	-0.093	-0.21
	(0.41)	(0.68)	(0.63)	(0.13)	(0.24)	(0.20)
n. of inv. in pr. components/(1+n. of nodes) $_{t-1}$	-0.44	-0.44	-1.39*	0.71***	0.71**	0.51**
	(0.53)	(0.80)	(0.82)	(0.13)	(0.33)	(0.22)
H index technology $_{t-1}$	-0.69	-0.69	0.54	-2.25	-2.25	-3.02
	(5.37)	(6.52)	(4.83)	(1.70)	(1.91)	(2.17)
H index $_{t-1}$	0.20	0.20	-0.062	-0.23**	-0.23	-0.17
	(0.46)	(0.51)	(0.64)	(0.10)	(0.14)	(0.17)
Year dummies	yes	yes	yes	yes	yes	yes
Region Fixed Effects	yes	yes	yes	yes	yes	yes
Observations	504	504	504	504	504	504
Number of regions	24	24	24	24	24	24

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A2: Distribution of the values of the variable *Count MedTech*

Count Medtech	Freq.	Percent	Cum.
0	73	14.48	14.48
1	55	10.91	25.4
2	38	7.54	32.94
3	26	5.16	38.1
4	29	5.75	43.85
5	22	4.37	48.21
6	19	3.77	51.98
7	19	3.77	55.75
8	17	3.37	59.13
9	17	3.37	62.5
>=10	189	37.5	100
Total	504	100	

References

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Guimarães, P., 2008. The fixed effects negative binomial model revisited. Economics Letters 99, 63–66. doi:10.1016/j.econlet.2007.05.030