

Annex C. Impact of innovation, by regional characteristics

Table A C.1. Innovation and outcomes in rural versus more densely populated areas, fixed effects regressions on relatively rural regions (\geq 75th percentile of degree of rurality)

Impact of ratio of patents to labour force on employment, productivity, household income, growth in value-added per worker and the Gini index, 2000-19

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	First-step	Employment (log)	Productivity	Household income (log)	Growth in value-added per work	Gini
Ratio of patents to labour force, per 1 000		2.099***	0.913***	0.859***	0.220**	0.111***
		(0.215)	(0.244)	(0.189)	(0.096)	(0.010)
Productivity growth (1y lag)	0.006 (0.006)					
HH real income (1y lag)	0.000*** (0.000)					
Share of educated workers (1y lag)	0.000 (0.000)					
Elderly dependency ratio (1y lag)	0.002*** (0.000)					
Population density (1y lag)	-0.000 (0.000)					
Population density growth (1y lag)	0.000*** (0.000)					
Gender difference in labour market participation rate (1y lag)	-0.014 (0.011)					
Constant	-0.035*** (0.009)					
Observations	3 768	3 766	3 766	2 929	3 766	3 766
R-squared	0.107	0.440	0.434	0.390	0.204	-0.201
Number of clusters	221	221	221	169	221	221
F-test	60.90	166.4	124.1	86.67	40.48	29.46
Standard errors	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects

Note: Predominantly rural regions refer to regions that are characterised as regions above the 25th percentile of the TL2 rurality index. More densely populated areas are TL2 regions with a degree of rurality that is less than the 25th percentile. Values include linear projections for years with missing values. The first-step estimation model is a fixed effects model on the level of TL2 with lagging independent variables. The second-step estimation includes controls for sectoral employment and value-added per worker. Controls include lags and shares in gross value added and employment in each major NACE sector. Regression is a two-stage least-squared fixed effects model. F-tests are all statistically significant to the 0.001 level. Standard errors are in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Source: OECD Regional Demography (database) (OECD_[5]).

Table A C.2. Innovation and outcomes in rural versus more densely populated areas, fixed effects regression on more densely populated regions (< 25th percentile of degree of rurality)

Impact of ratio of patents to labour force on employment, productivity, household income, growth in value-added per worker and the Gini index, 2000-19

	(7)	(8)	(9)	(10)	(11)	(12)
Variables	First-step	Employment (log)	Productivity	HH income (log)	Growth in VAPW	Gini
Ratio of patents to labour force, per 1 000		0.380***	0.539***	0.296*	0.126**	0.027***
		(0.094)	(0.140)	(0.156)	(0.059)	(0.007)
Productivity growth (1y lag)	0.019 (0.043)					
HH real income (1y lag)	0.000*** (0.000)					
Share of educated workers (1y lag)	0.000 (0.001)					
Elderly dependency ratio (1y lag)	0.002** (0.001)					
Population density (1y lag)	0.000*** (0.000)					
Population density growth (1y lag)	-0.000 (0.000)					
Gender difference in LM participation rate (1y lag)						
Constant	-0.018 (0.029)					
Observations	1 271	1 271	1 271	1 231	1 271	1 271
R-squared	0.099	0.604	0.367	0.446	0.151	0.175
Number of clusters	80	80	80	70	80	80
F-test	21.59	83.41	35.67	41.89	11.18	17.27
Standard errors	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects

Note: Predominantly rural regions refer to regions that are characterised as regions above the 25th percentile of the TL2 rurality index. More densely populated areas are TL2 regions with a degree of rurality that is less than the 25th percentile. Values include linear projections for years with missing values. The first-step estimation model is a fixed effects model on the level of TL2 with lagging independent variables. The second-step estimation includes controls for sectoral employment and value-added per worker. Controls include lags and shares in gross value added and employment in each major NACE sector. Regression is a two-stage least-squared fixed effects model. F-tests are all statistically significant to the 0.001 level. Standard errors are in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Source: OECD Regional Demography (database) (OECD_[5]).



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