

TABLE A-5

Results for simultaneous equations model with 1990 lags—rural commuting zones

(Estimated regression coefficients on patents and population subset)

Variable	Population subset											
	Inventive class (IC)			Science, engineering, and technical (SET) employment			Creative class (CC)			At least 4-year college degree (BA)		
	Coefficient estimate		p-value	Coefficient estimate		p-value	Coefficient estimate		p-value	Coefficient estimate		p-value
Patents dependent variable												
IC	0.032	***	1.07E-03									
SET				0.054	***	9.22E-03						
CC							0.011	***	1.40E-03			
BA										0.009	***	1.38E-03
1975–80 patent stock (PatStock)	0.134	***	4.08E-05	0.115	***	0.001	0.135	***	8.07E-06	0.114	***	0.001
Population density (PopDens)	0.219		0.218	0.230		0.153	0.168		0.421	0.144		0.493
Wage-rental ratio (WageRentR)	1.682		0.580	1.700		0.583	3.431		0.312	4.428		0.229
Natural amenity rank (NatAmen)	2.352		0.347	1.782		0.482	-0.110		0.968	-2.056		0.503
University research expenditures (UniResExp)	1.288	***	0.001	1.167	**	0.013	1.271	***	0.003	1.057	**	0.044
Location quotient for patent-intensive industries (LQPatInd)	2.605		0.496	6.420	**	0.044	8.896	***	0.002	11.997	***	5.04E-05
Root mean square error (RMSE)	30.977			31.405			33.283			35.218		
Chi-squared	687.393			672.053			617.968			571.639		
p-value	<0.0001			<0.0001			<0.0001			<0.0001		
Mean variance inflation factor (VIF)	3.487			3.478			3.452			3.470		
Population subset equation												
Patents	13.821	***	<1.00E-08	9.380	***	<1.00E-08	42.166	***	<1.00E-08	60.767	***	<1.00E-08
Unemployment rate (UR)	-6.210		0.588	-5.598		0.385	-45.076		0.298	-76.618		0.208
WageRentR	-188.839	***	0.002	-103.327	***	0.008	-820.848	***	0.001	-1,078.9	***	0.002
NatAmen	-49.557		0.315	-16.068		0.606	56.901		0.764	279.710		0.313
Crime	-6.666	***	0.006	-3.603	**	0.019	-20.033	**	0.031	-20.394		0.124
Proximity to urban center (ProxUrbCen)	-0.512	*	0.086	-0.165		0.307	-1.818	*	0.096	-1.631		0.222
LQPatInd	131.159	**	0.017	-7.672		0.826	-180.183		0.397	-684.519	**	0.028
RMSE	584.026			371.313			2,257.052			3,321.879		
Chi-squared	990.563			908.698			791.282			746.591		
p-value	<0.0001			<0.0001			<0.0001			<0.0001		
Mean VIF	3.305			3.305			3.305			3.305		

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.**Note(s):**

PopDens, WageRentR, UniResExp, UR, Crime, and ProxUrbCen are lagged to 1990. Structural equation estimates are based on 370 observations. Controls for Census region and Rural-Urban Continuum Code are included in each regression.

Source(s):

Authors' estimation using U.S. Patent and Trademark Office; Census Bureau, Special Tabulation (2000), 2000 Census of Population and Housing, Summary File 1 and Summary File 4, and Shapefile; Integrated Postsecondary Data System, 2000; Department of Agriculture, Economic Research Service, 1999, 2000; Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 1998.