

Supplementary Materials

MODEL ESTIMATES FOR TOP10% AND TOP25% PUBLICATIONS AND CITATIONS

TOP10% PUBLICATION

Table S1. SUR estimates: reduced Translog function

	F05 - Science			F06 – Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.431	0.245	0.079	0.748	0.740	0.313	-0.806	0.499	0.106	-0.274	0.337	0.416	0.062	0.241	0.797
X ₁ ^{^2}	0.075	0.049	0.127	-0.099	0.192	0.606	-0.186	0.082	0.023	0.019	0.050	0.695	-0.029	0.020	0.148
X ₂ : Students in the area	0.892	0.222	0.000	1.090	0.472	0.021	2.304	0.551	0.000	-0.070	0.435	0.872	0.656	0.450	0.145
X ₂ ^{^2}	0.092	0.048	0.053	-0.008	0.123	0.950	-0.333	0.142	0.019	0.121	0.067	0.072	0.037	0.078	0.636
X ₁ * X ₂	-0.223	0.124	0.071	-0.110	0.250	0.658	0.433	0.218	0.047	0.061	0.098	0.536	0.011	0.077	0.891
Constant	-2.285	1.203	0.058	-2.719	1.676	0.105	-3.582	1.135	0.002	2.817	1.687	0.095	-0.084	1.394	0.952
OUTPUT Eq. 2: PUB10															
X ₁ : Academic staff in the area	-0.439	0.582	0.451	-1.739	1.733	0.316	-1.407	1.436	0.327	-0.646	0.620	0.298	1.412	0.729	0.053
X ₁ ^{^2}	0.498	0.117	0.000	0.420	0.450	0.350	0.259	0.235	0.270	-0.140	0.091	0.126	0.235	0.060	0.000
X ₂ : Students in the area	0.050	0.528	0.924	2.049	1.104	0.063	0.270	1.586	0.865	-1.688	0.801	0.035	-2.784	1.363	0.041
X ₂ ^{^2}	0.083	0.113	0.465	-0.385	0.288	0.181	-0.168	0.409	0.681	0.226	0.124	0.068	0.529	0.235	0.025
X ₁ * X ₂	-0.248	0.294	0.399	0.208	0.584	0.721	0.226	0.626	0.718	0.383	0.181	0.034	-0.465	0.234	0.046
Constant	2.552	2.858	0.372	-1.127	3.923	0.774	7.398	3.266	0.024	9.912	3.107	0.001	9.875	4.222	0.019
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.268	14.005	0.000	0.4186	25.229		0.2706	10.175	0.001	0.0473	0.069	0.792	0.1319	3.064	0.080

Table S2. SUR estimates: extended Translog function with control factors

	F05 - Science			F06 – Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.415	0.247	0.093	1.462	0.700	0.037	-0.240	0.459	0.600	-0.297	0.365	0.417	0.460	0.323	0.154
X ₁ ^{^2}	-0.051	0.048	0.285	-0.223	0.183	0.224	-0.238	0.077	0.002	0.034	0.049	0.484	-0.018	0.021	0.393
X ₂ : Students in the area	0.523	0.228	0.022	1.106	0.510	0.030	1.761	0.518	0.001	-0.039	0.489	0.937	-1.219	0.748	0.103
X ₂ ^{^2}	0.108	0.045	0.017	0.024	0.124	0.848	-0.200	0.133	0.133	0.111	0.076	0.145	0.350	0.127	0.006
X ₁ * X ₂	-0.104	0.119	0.378	-0.212	0.234	0.367	0.303	0.201	0.131	0.054	0.110	0.622	-0.120	0.102	0.239
International Collaboration	0.018	0.004	0.000	0.000	0.006	0.988	0.004	0.007	0.549	-0.002	0.015	0.920	0.016	0.005	0.001
Specialization Index	-1.160	0.362	0.001	-0.314	0.485	0.517	0.137	0.446	0.758	-1.734	1.478	0.240	-0.805	0.356	0.024
Base foundation year	0.000	0.000	0.966	0.000	0.000	0.036	0.000	0.000	0.366	0.000	0.000	0.775	0.000	0.000	0.018
Legal status (ref. Public university)															
Private university	-0.244	0.356	0.494	0.355	0.465	0.445				0.485	0.457	0.288	0.271	0.255	0.288
University size (# students enrolled)	-0.003	0.002	0.174	0.003	0.003	0.403	-0.002	0.002	0.295	-0.012	0.007	0.080	-0.012	0.003	0.000
Total publications in the area	0.004	0.002	0.013	0.056	0.013	0.000	0.017	0.004	0.000	0.029	0.025	0.234	0.002	0.001	0.123
Constant	-0.351	1.333	0.792	-4.804	1.911	0.012	-3.673	1.078	0.001	4.324	2.332	0.064	4.930	2.358	0.037
OUTPUT Eq. 2: PUB10															
X ₁ : Academic staff in the area	-0.841	0.556	0.130	1.741	1.103	0.115	0.588	0.918	0.522	0.514	0.364	0.158	1.718	0.778	0.027
X ₁ ^{^2}	0.170	0.107	0.113	-0.184	0.288	0.524	0.170	0.155	0.272	-0.087	0.049	0.074	0.083	0.051	0.105
X ₂ : Students in the area	-0.897	0.512	0.080	1.077	0.804	0.180	-1.407	1.037	0.175	0.554	0.487	0.256	-1.958	1.804	0.278
X ₂ ^{^2}	0.059	0.101	0.563	-0.060	0.196	0.758	0.300	0.267	0.260	-0.061	0.076	0.417	0.467	0.308	0.129
X ₁ * X ₂	0.175	0.266	0.511	-0.274	0.369	0.459	-0.326	0.402	0.417	-0.065	0.110	0.552	-0.486	0.245	0.048
International Collaboration	0.038	0.010	0.000	-0.010	0.010	0.328	0.025	0.013	0.059	0.001	0.015	0.954	0.048	0.011	0.000
Specialization Index	-5.387	0.813	0.000	-2.582	0.765	0.001	-4.532	0.892	0.000	2.388	1.473	0.105	-2.350	0.860	0.006
Base foundation year	0.000	0.000	0.314	0.001	0.000	0.000	0.000	0.000	0.622	0.000	0.000	0.817	0.000	0.000	0.920
Legal status (ref. Public university)															
Private university	-0.732	0.800	0.360	0.532	0.733	0.468				-0.822	0.456	0.071	1.619	0.614	0.008
University size (students enrolled)	-0.005	0.005	0.241	0.005	0.005	0.324	-0.006	0.004	0.116	0.017	0.007	0.016	-0.009	0.007	0.229
Total publications in the area	0.007	0.003	0.047	0.261	0.021	0.000	0.046	0.007	0.000	0.161	0.025	0.000	0.029	0.003	0.000
Constant	10.100	2.994	0.001	-5.531	3.012	0.066	10.059	2.157	0.000	-0.609	2.324	0.793	5.750	5.689	0.312
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.071	0.977	0.323	0.197	5.576	0.018	-0.103	1.470	0.225	-0.065	0.130	0.718	-0.143	3.540	0.060

TOP25% PUBLICATION

Table S3. SUR estimates: reduced Translog function

	F05 - Science			F06 - Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.426	0.244	0.081	0.748	0.740	0.313	-0.806	0.499	0.106	-0.274	0.337	0.416	0.062	0.241	0.797
X ₁ ^{^2}	0.075	0.049	0.127	-0.099	0.192	0.606	-0.186	0.082	0.023	0.019	0.050	0.695	-0.029	0.020	0.148
X ₂ : Students in the area	0.891	0.222	0.000	1.090	0.472	0.021	2.304	0.551	0.000	-0.070	0.435	0.872	0.656	0.450	0.145
X ₂ ^{^2}	0.092	0.048	0.054	-0.008	0.123	0.950	-0.333	0.142	0.019	0.121	0.067	0.072	0.037	0.078	0.636
X ₁ * X ₂	-0.221	0.123	0.073	-0.110	0.250	0.658	0.433	0.218	0.047	0.061	0.098	0.536	0.011	0.077	0.891
Constant	-2.266	1.198	0.059	-2.719	1.676	0.105	-3.582	1.135	0.002	2.817	1.687	0.095	-0.084	1.394	0.952
OUTPUT Eq. 2: PUB25															
X ₁ : Academic staff in the area	-0.624	0.583	0.285	-1.632	1.448	0.260	-1.271	1.356	0.348	-0.644	0.609	0.291	0.736	0.698	0.292
X ₁ ^{^2}	0.452	0.117	0.000	0.380	0.376	0.312	0.245	0.222	0.269	-0.142	0.090	0.113	0.205	0.058	0.000
X ₂ : Students in the area	-0.088	0.531	0.869	1.807	0.922	0.050	0.208	1.497	0.889	-1.713	0.787	0.030	-3.229	1.305	0.013
X ₂ ^{^2}	0.044	0.114	0.700	-0.366	0.241	0.128	-0.161	0.386	0.676	0.224	0.122	0.065	0.512	0.225	0.023
X ₁ * X ₂	-0.121	0.295	0.681	0.240	0.488	0.623	0.221	0.591	0.709	0.392	0.178	0.027	-0.251	0.224	0.262
Constant	4.366	2.867	0.128	0.443	3.278	0.892	7.845	3.084	0.011	10.601	3.052	0.001	13.870	4.041	0.001
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.2189	9.39	0.002	0.4426	28.21	0.000	0.264	9.685	0.002	0.0573	0.102	0.750	0.0963	1.634	0.201

Table S4. SUR estimates: extended Translog function with control factors

	F05 - Science			F06 - Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.424	0.245	0.093	1.462	0.700	0.037	-0.240	0.459	0.600	-0.297	0.365	0.417	0.460	0.323	0.154
X ₁ ^{^2}	-0.050	0.048	0.285	-0.223	0.183	0.224	-0.238	0.077	0.002	0.034	0.049	0.484	-0.018	0.021	0.393
X ₂ : Students in the area	0.525	0.227	0.022	1.106	0.510	0.030	1.761	0.518	0.001	-0.039	0.489	0.937	-1.219	0.748	0.103
X ₂ ^{^2}	0.109	0.045	0.017	0.024	0.124	0.848	-0.200	0.133	0.133	0.111	0.076	0.145	0.350	0.127	0.006
X ₁ * X ₂	-0.109	0.118	0.378	-0.212	0.234	0.367	0.303	0.201	0.131	0.054	0.110	0.622	-0.120	0.102	0.239
International Collaboration	0.018	0.004	0.000	0.000	0.006	0.988	0.004	0.007	0.549	-0.002	0.015	0.920	0.016	0.005	0.001
Specialization Index	-1.138	0.354	0.001	-0.314	0.485	0.517	0.137	0.446	0.758	-1.734	1.478	0.240	-0.805	0.356	0.024
Base foundation year	0.000	0.000	0.966	0.000	0.000	0.036	0.000	0.000	0.366	0.000	0.000	0.775	0.000	0.000	0.018
Legal status (ref. Public university)															
Private university	-0.240	0.355	0.494	0.355	0.465	0.445				0.485	0.457	0.288	0.271	0.255	0.288
University size (# students enrolled)	-0.003	0.002	0.174	0.003	0.003	0.403	-0.002	0.002	0.295	-0.012	0.007	0.080	-0.012	0.003	0.000
Total publications in the area	0.004	0.002	0.013	0.056	0.013	0.000	0.017	0.004	0.000	0.029	0.025	0.234	0.002	0.001	0.123
Constant	-0.405	1.319	0.792	-4.804	1.911	0.012	-3.673	1.078	0.001	4.324	2.332	0.064	4.930	2.358	0.037
OUTPUT Eq. 2: PUB25															
X ₁ : Academic staff in the area	-1.106	0.556	0.130	1.458	0.853	0.087	0.452	0.869	0.603	0.587	0.327	0.073	1.268	0.766	0.098
X ₁ ^{^2}	0.151	0.108	0.113	-0.165	0.223	0.458	0.146	0.147	0.321	-0.086	0.044	0.048	0.069	0.050	0.171
X ₂ : Students in the area	-1.030	0.515	0.080	0.810	0.621	0.192	-1.149	0.982	0.242	0.534	0.437	0.222	-2.803	1.774	0.114
X ₂ ^{^2}	0.018	0.101	0.563	-0.066	0.151	0.662	0.224	0.252	0.376	-0.053	0.068	0.433	0.517	0.302	0.088
X ₁ * X ₂	0.300	0.267	0.511	-0.170	0.285	0.552	-0.232	0.381	0.541	-0.081	0.098	0.413	-0.341	0.241	0.158
International Collaboration	0.030	0.010	0.000	-0.011	0.008	0.166	0.018	0.012	0.142	0.010	0.014	0.445	0.038	0.011	0.001
Specialization Index	-5.909	0.804	0.000	-2.355	0.591	0.000	-4.237	0.845	0.000	1.197	1.322	0.365	-2.127	0.846	0.012
Base foundation year	0.000	0.000	0.314	0.001	0.000	0.000	0.000	0.000	0.300	0.000	0.000	0.542	0.000	0.000	0.607
Legal status (ref. Public university)															
Private university	-0.657	0.806	0.360	-0.266	0.567	0.638				-0.338	0.409	0.408	1.491	0.604	0.014
University size (students enrolled)	-0.006	0.005	0.241	0.005	0.004	0.228	-0.005	0.004	0.168	0.014	0.006	0.029	-0.008	0.007	0.275
Total publications in the area	0.004	0.003	0.047	0.228	0.016	0.000	0.043	0.007	0.000	0.160	0.022	0.000	0.028	0.003	0.000
Constant	13.185	2.992	0.001	-2.496	2.327	0.284	10.525	2.043	0.000	0.055	2.086	0.979	11.301	5.596	0.043
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.026	0.149	0.700	0.248	8.867	0.003	-0.103	1.470	0.225	-0.117	0.426	0.514	-0.169	4.929	0.026

TOP 10% CITATIONS

Table S5. SUR estimates: reduced Translog function

	F05 - Science			F06 - Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.377	0.238	0.113	0.748	0.740	0.313	-0.806	0.499	0.106	-0.274	0.337	0.416	0.062	0.241	0.797
X ₁ ^{^2}	0.069	0.048	0.150	-0.099	0.192	0.606	-0.186	0.082	0.023	0.019	0.050	0.695	-0.029	0.020	0.148
X ₂ : Students in the area	0.891	0.216	0.000	1.090	0.472	0.021	2.304	0.551	0.000	-0.070	0.435	0.872	0.656	0.450	0.145
X ₂ ^{^2}	0.085	0.046	0.066	-0.008	0.123	0.950	-0.333	0.142	0.019	0.121	0.067	0.072	0.037	0.078	0.636
X ₁ * X ₂	-0.203	0.120	0.091	-0.110	0.250	0.658	0.433	0.218	0.047	0.061	0.098	0.536	0.011	0.077	0.891
Constant	-2.084	1.168	0.075	-2.719	1.676	0.105	-3.582	1.135	0.002	2.817	1.687	0.095	-0.084	1.394	0.952
OUTPUT Eq. 2: CIT10															
X ₁ : Academic staff in the area	-0.282	0.670	0.674	-2.553	1.461	0.080	-1.357	1.805	0.452	-1.000	0.618	0.106	1.561	0.846	0.065
X ₁ ^{^2}	0.629	0.135	0.000	0.453	0.379	0.232	0.447	0.295	0.130	-0.159	0.091	0.080	0.277	0.070	0.000
X ₂ : Students in the area	0.215	0.608	0.723	2.145	0.931	0.021	0.166	1.993	0.934	-1.796	0.799	0.025	-3.658	1.582	0.021
X ₂ ^{^2}	0.150	0.131	0.251	-0.496	0.243	0.041	-0.105	0.514	0.838	0.197	0.123	0.111	0.654	0.273	0.017
X ₁ * X ₂	-0.464	0.338	0.170	0.406	0.492	0.409	0.006	0.787	0.994	0.538	0.180	0.003	-0.533	0.271	0.049
Constant	2.468	3.290	0.453	2.340	3.307	0.479	8.646	4.105	0.035	11.743	3.099	0.000	13.997	4.900	0.004
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.2749	14.737	0.000	0.3926	22.199	0.000	0.2114	6.212	0.013	0.0264	0.022	0.883	0.1056	1.963	0.161

Table S6. SUR estimates: extended Translog function with control factors

	F05 - Science			F06 - Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.436	0.239	0.068	1.462	0.700	0.037	-0.240	0.459	0.600	-0.297	0.365	0.417	0.460	0.323	0.154
X ₁ ^{^2}	-0.053	0.046	0.256	-0.223	0.183	0.224	-0.238	0.077	0.002	0.034	0.049	0.484	-0.018	0.021	0.393
X ₂ : Students in the area	0.554	0.221	0.012	1.106	0.510	0.030	1.761	0.518	0.001	-0.039	0.489	0.937	-1.219	0.748	0.103
X ₂ ^{^2}	0.108	0.044	0.013	0.024	0.124	0.848	-0.200	0.133	0.133	0.111	0.076	0.145	0.350	0.127	0.006
X ₁ * X ₂	-0.113	0.114	0.324	-0.212	0.234	0.367	0.303	0.201	0.131	0.054	0.110	0.622	-0.120	0.102	0.239
International Collaboration	0.017	0.004	0.000	0.000	0.006	0.988	0.004	0.007	0.549	-0.002	0.015	0.920	0.016	0.005	0.001
Specialization Index	-0.929	0.350	0.008	-0.314	0.485	0.517	0.137	0.446	0.758	-1.734	1.478	0.240	-0.805	0.356	0.024
Base foundation year	0.000	0.000	0.971	0.000	0.000	0.036	0.000	0.000	0.366	0.000	0.000	0.775	0.000	0.000	0.018
Legal status (ref. Public university)															
Private university	-0.225	0.346	0.515	0.355	0.465	0.445				0.485	0.457	0.288	0.271	0.255	0.288
University size (# students enrolled)	-0.003	0.002	0.157	0.000	0.000	0.403	0.000	0.000	0.295	0.000	0.000	0.080	0.000	0.000	0.000
Total publications in the area	0.004	0.002	0.003	0.056	0.013	0.000	0.017	0.004	0.000	0.029	0.025	0.234	0.002	0.001	0.123
Constant	-0.621	1.286	0.629	-4.804	1.911	0.012	-3.673	1.078	0.001	4.324	2.332	0.064	4.930	2.358	0.037
OUTPUT Eq. 2: CIT10															
X ₁ : Academic staff in the area	-0.820	0.624	0.189	0.272	0.913	0.766	0.996	1.199	0.406	0.091	0.412	0.825	1.997	0.930	0.032
X ₁ ^{^2}	0.238	0.121	0.050	-0.252	0.238	0.291	0.361	0.202	0.074	-0.091	0.055	0.099	0.112	0.061	0.066
X ₂ : Students in the area	-1.208	0.578	0.037	1.034	0.665	0.120	-1.808	1.353	0.182	0.286	0.551	0.604	-3.268	2.154	0.129
X ₂ ^{^2}	0.168	0.114	0.140	-0.262	0.162	0.106	0.452	0.348	0.194	-0.065	0.086	0.445	0.670	0.367	0.068
X ₁ * X ₂	0.061	0.299	0.839	0.289	0.306	0.344	-0.661	0.525	0.208	0.101	0.124	0.414	-0.587	0.293	0.045
International Collaboration	0.048	0.011	0.000	0.012	0.008	0.137	0.038	0.017	0.026	0.017	0.017	0.325	0.058	0.013	0.000
Specialization Index	-6.337	0.916	0.000	-1.924	0.632	0.002	-6.090	1.165	0.000	0.502	1.666	0.763	-2.661	1.027	0.010
Base foundation year	0.000	0.000	0.661	0.000	0.000	0.985	0.000	0.001	0.504	0.000	0.000	0.703	0.000	0.000	0.388
Legal status (ref. Public university)															
Private university	-0.480	0.904	0.596	-0.947	0.607	0.118				0.535	0.515	0.299	2.073	0.733	0.005
University size (students enrolled)	-0.012	0.005	0.017	0.004	0.004	0.273	-0.006	0.005	0.214	0.009	0.008	0.241	-0.014	0.009	0.124
Total publications in the area	0.006	0.004	0.125	0.211	0.017	0.000	0.049	0.009	0.000	0.150	0.028	0.000	0.031	0.004	0.000
Constant	12.704	3.361	0.000	0.594	2.492	0.812	11.985	2.816	0.000	2.299	2.630	0.382	11.421	6.794	0.093
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.072	1.004	0.316	0.216	6.741	0.009	-0.172	4.100	0.043	-0.197	1.203	0.273	-0.179	5.521	0.019

TOP 25% CITATIONS

Table S7. SUR estimates: reduced Translog function

	F05 - Science			F06 - Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.377	0.238	0.113	0.748	0.740	0.313	-0.806	0.499	0.106	-0.274	0.337	0.416	0.062	0.241	0.797
X ₁ ^{^2}	0.069	0.048	0.150	-0.099	0.192	0.606	-0.186	0.082	0.023	0.019	0.050	0.695	-0.029	0.020	0.148
X ₂ : Students in the area	0.891	0.216	0.000	1.090	0.472	0.021	2.304	0.551	0.000	-0.070	0.435	0.872	0.656	0.450	0.145
X ₂ ^{^2}	0.085	0.046	0.066	-0.008	0.123	0.950	-0.333	0.142	0.019	0.121	0.067	0.072	0.037	0.078	0.636
X ₁ * X ₂	-0.203	0.120	0.091	-0.110	0.250	0.658	0.433	0.218	0.047	0.061	0.098	0.536	0.011	0.077	0.891
Constant	-2.084	1.168	0.075	-2.719	1.676	0.105	-3.582	1.135	0.002	2.817	1.687	0.095	-0.084	1.394	0.952
OUTPUT Eq. 2: CIT25															
X ₁ : Academic staff in the area	-0.372	0.656	0.570	-2.461	1.397	0.078	-1.541	1.756	0.380	-1.038	0.605	0.087	1.480	0.828	0.074
X ₁ ^{^2}	0.587	0.132	0.000	0.466	0.363	0.199	0.398	0.287	0.165	-0.158	0.089	0.077	0.271	0.069	0.000
X ₂ : Students in the area	0.117	0.596	0.844	2.263	0.890	0.011	0.324	1.939	0.867	-1.977	0.782	0.012	-3.696	1.549	0.017
X ₂ ^{^2}	0.124	0.128	0.333	-0.497	0.232	0.033	-0.169	0.500	0.735	0.224	0.121	0.063	0.652	0.267	0.015
X ₁ * X ₂	-0.375	0.331	0.258	0.359	0.471	0.446	0.123	0.766	0.873	0.547	0.176	0.002	-0.505	0.265	0.057
Constant	3.684	3.223	0.253	2.229	3.163	0.481	9.115	3.993	0.022	12.845	3.033	0.000	14.783	4.798	0.002
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.248	11.991	0.001	0.3995	22.978	0.000	0.227	6.892	0.009	-0.0088	0.002	0.961	0.0802	1.132	0.287

Table S8. SUR estimates: extended Translog function with control factors

	F05 - Science			F06 - Computer Science			F07 - Engineering			F08 - Agriculture			F09 - Medicine		
	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.	Coeff	SE	Sign.
OUTPUT Eq. 1: GRADUATES															
X ₁ : Academic staff in the area	0.436	0.239	0.068	1.462	0.700	0.037	-0.240	0.459	0.600	-0.297	0.365	0.417	0.460	0.323	0.154
X ₁ ^{^2}	-0.053	0.046	0.256	-0.223	0.183	0.224	-0.238	0.077	0.002	0.034	0.049	0.484	-0.018	0.021	0.393
X ₂ : Students in the area	0.554	0.221	0.012	1.106	0.510	0.030	1.761	0.518	0.001	-0.039	0.489	0.937	-1.219	0.748	0.103
X ₂ ^{^2}	0.108	0.044	0.013	0.024	0.124	0.848	-0.200	0.133	0.133	0.111	0.076	0.145	0.350	0.127	0.006
X ₁ * X ₂	-0.113	0.114	0.324	-0.212	0.234	0.367	0.303	0.201	0.131	0.054	0.110	0.622	-0.120	0.102	0.239
International Collaboration	0.017	0.004	0.000	0.000	0.006	0.988	0.004	0.007	0.549	-0.002	0.015	0.920	0.016	0.005	0.001
Specialization Index	-0.929	0.350	0.008	-0.314	0.485	0.517	0.137	0.446	0.758	-1.734	1.478	0.240	-0.805	0.356	0.024
Base foundation year	0.000	0.000	0.971	0.000	0.000	0.036	0.000	0.000	0.366	0.000	0.000	0.775	0.000	0.000	0.018
Legal status (ref. Public university)															
Private university	-0.225	0.346	0.515	0.355	0.465	0.445				0.485	0.457	0.288	0.271	0.255	0.288
University size (# students enrolled)	-0.003	0.002	0.157	0.003	0.003	0.403	-0.002	0.002	0.295	-0.012	0.007	0.080	-0.012	0.003	0.000
Total publications in the area	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.234	0.000	0.000	0.123
Constant	-0.621	1.286	0.629	-4.804	1.911	0.012	-3.673	1.078	0.001	4.324	2.332	0.064	4.930	2.358	0.037
OUTPUT Eq. 2: CIT25															
X ₁ : Academic staff in the area	-0.922	0.614	0.134	0.141	0.855	0.869	0.697	1.157	0.547	0.066	0.392	0.866	1.906	0.910	0.036
X ₁ ^{^2}	0.215	0.119	0.071	-0.232	0.223	0.299	0.303	0.195	0.121	-0.091	0.052	0.082	0.107	0.060	0.073
X ₂ : Students in the area	-1.268	0.570	0.026	1.248	0.623	0.045	-1.524	1.306	0.243	0.089	0.524	0.865	-3.128	2.108	0.138
X ₂ ^{^2}	0.140	0.112	0.212	-0.298	0.152	0.050	0.353	0.336	0.294	-0.032	0.081	0.691	0.640	0.360	0.075
X ₁ * X ₂	0.137	0.295	0.641	0.310	0.286	0.278	-0.496	0.506	0.327	0.108	0.118	0.359	-0.555	0.287	0.053
International Collaboration	0.042	0.011	0.000	0.019	0.008	0.014	0.037	0.017	0.027	0.018	0.016	0.266	0.055	0.013	0.000
Specialization Index	-6.380	0.902	0.000	-1.984	0.592	0.001	-5.889	1.124	0.000	0.308	1.585	0.846	-2.586	1.005	0.010
Base foundation year	0.000	0.000	0.776	0.000	0.000	0.816	0.000	0.000	0.356	0.000	0.000	0.609	0.000	0.000	0.292
Legal status (ref. Public university)															
Private university	-0.571	0.890	0.521	-1.013	0.568	0.074				0.587	0.490	0.231	2.048	0.718	0.004
University size (students enrolled)	-0.013	0.005	0.011	0.005	0.004	0.220	-0.006	0.005	0.215	0.010	0.008	0.207	-0.012	0.009	0.167
Total publications in the area	0.005	0.004	0.171	0.195	0.016	0.000	0.048	0.009	0.000	0.147	0.026	0.000	0.030	0.004	0.000
Constant	14.139	3.309	0.000	0.450	2.333	0.847	12.455	2.718	0.000	3.380	2.501	0.177	11.822	6.651	0.075
	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign	Correlation	Chi2(1)	Sign
BP test	0.046	0.420	0.517	0.241	8.379	0.004	-0.153	3.250	0.071	-0.273	2.317	0.128	-0.208	7.516	0.006