

Appendix A

Table A1. Export activity in the Spanish regions.

	Share of exporting firms (%)			Share of volume of exports (%)			Exports over GDP (%)		
	2005	2010	2015	2005	2010	2015	2005	2010	2014
Andalusia	10	11	10	9	10	10	11	13	19
Aragon	2	3	2	5	5	4	25	25	29
Asturias	1	1	1	2	2	1	12	15	18
Balearic Isl.	1	1	1	1	0	0	5	3	4
Canary Isl.	2	5	4	1	1	1	2	5	6
Cantabria	1	1	1	1	1	1	16	18	21
Castile Leon	2	0.3	3	6	6	6	18	19	24
Castile La Mancha	2	3	3	2	2	2	8	9	15
Catalonia	26	31	25	27	26	26	24	24	31
Valencia	12	13	12	11	10	11	19	18	26
Extremadura	1	1	1	1	1	1	7	7	10
Galicia	3	4	3	8	8	8	25	26	33
Madrid	17	16	22	11	11	11	10	11	14
Murcia	2	3	3	3	3	4	17	18	39
Navarra	1	2	1	3	4	3	31	41	46
Basque Country	5	6	8	9	10	9	25	27	35
La Rioja	1	1	1	1	1	1	14	16	21
No regionalised	11		0	2		1			
Spain	100	100	100	100	100	100	17	17	23

Notes: The first two groups of columns refer to the contribution of the region in the total figure for Spain of the number of exporting firms and the volume of exports respectively. The last group of columns is the ratio of exports over the GDP of each region and Spain as a whole. Elaborated from the trade data collected by the customs office of the Spanish Tax Agency and elaborated by ICEX. Ministry of Economics, Industry and Competitiveness of Spain.

Table A2. Innovation activity in the Spanish regions.

	GERD/GDP (%)			Patent Applications (EPO)		
	2005	2010	2013	2005	2010	2012
Andalusia	0.81	1.18	1.06	8.2	10.3	10.0
Aragon	0.77	1.09	0.91	40.8	56.8	54.0
Asturias	0.69	1.04	0.89	16.7	13.8	9.2
Balearic Isl.	0.27	0.42	0.34	6.5	11.6	9.2
Canary Isl.	0.58	0.62	0.51	6.2	3.3	5.0
Cantabria	0.46	1.23	0.94	15.0	26.5	16.9
Castile Leon	0.89	1.09	1.02	20.4	10.2	12.3
Castile La Mancha	0.39	0.65	0.55	14.1	9.5	8.1
Catalonia	1.32	1.59	1.52	73.5	64.2	57.0
Valencia	0.96	1.06	1.04	25.2	23.0	21.4
Extremadura	0.68	0.84	0.77	5.1	3.9	1.4
Galicia	0.84	0.93	0.87	11.6	13.3	10.8
Madrid	1.75	1.95	1.77	41.7	49.3	38.3
Murcia	0.71	0.92	0.84	9.4	19.5	20.1
Navarra	1.65	2.00	1.82	104.6	117.5	60.8
Basque Country	1.47	1.99	2.12	64.0	80.4	64.4
La Rioja	0.64	1.06	0.81	17.6	28.7	13.0
Spain	1.10	1.35	1.26	31.4	32.4	27.4

Note: GERD denotes total intramural R&D expenditures and GDP the gross domestic product. Patents refers to the number of patents applications to the European Patent Office per million inhabitants. All data from the Eurostat Database.

Table A3. Sector distribution of firms in the sample in each Spanish region. (%)

	Sect_1	Sect_2	Sect_3	Sect_4	Sect_5	Sect_6	Sect_7	Sect_8	Sect_9	Sect_10	Sect_11	Sect_12	Total
Andalusia	2.82	21.96	7.71	9.61	4.56	3.56	10.77	12.34	6.79	4.81	4.97	10.11	100
Aragon	2.02	14.40	5.79	6.46	4.98	5.92	6.46	15.48	13.86	9.83	7.81	7.00	100
Asturias	3.70	13.86	3.00	12.47	2.77	2.77	9.01	27.71	8.31	6.93	4.39	5.08	100
Balearic Isl.	1.69	19.41	16.88	17.30	1.69	3.38	10.13	7.59	3.38	2.53	5.91	10.13	100
Canary Isl.	4.74	25.43	3.02	15.52	4.31	3.88	15.52	16.81	0.86	1.72	4.74	3.45	100
Cantabria	1.45	15.07	2.03	8.70	3.77	4.35	11.30	31.30	9.86	4.93	3.77	3.48	100
Castile Leon	4.07	22.30	7.01	11.50	3.37	4.49	10.10	15.85	8.27	2.95	4.77	5.33	100
Castile La Mancha	1.34	15.19	17.53	9.85	4.17	3.34	12.85	13.52	4.67	3.34	4.51	9.68	100
Catalonia	0.85	8.96	12.10	10.02	13.04	6.48	3.87	12.47	12.16	9.98	4.96	5.11	100
Valencia	1.42	8.76	14.47	10.38	7.24	7.03	13.69	10.33	7.24	5.24	2.20	12.01	100
Extremadura	5.86	33.20	3.91	10.55	2.34	1.95	13.67	15.23	2.73	3.52	0.78	6.25	100
Galicia	4.01	15.57	12.26	11.67	2.83	3.30	11.32	13.44	7.67	3.42	8.73	5.78	100
Madrid	1.94	8.93	4.90	15.48	11.30	4.10	5.98	12.17	8.86	15.55	4.54	6.26	100
Murcia	2.03	20.78	5.91	8.11	7.77	5.41	10.14	12.67	8.45	2.53	2.70	13.51	100
Navarra	1.24	18.82	3.42	8.55	3.11	5.29	7.78	21.15	13.06	6.07	6.84	4.67	100
Basque Country	0.91	5.82	1.68	8.20	4.27	6.10	3.29	31.67	16.82	9.95	5.82	5.47	100
La Rioja	0.82	22.53	17.03	7.69	3.30	5.77	8.52	13.74	5.77	2.20	2.20	10.44	100
Total	1.90	13.46	8.92	10.39	7.05	5.22	8.24	15.66	9.72	7.33	4.80	7.30	100

Note: See the corresponding labels of the sectors in Table A9.

Table A4. Regional distribution of firms in the sample in each sector. (%)

	Sect_1	Sect_2	Sect_3	Sect_4	Sect_5	Sect_6	Sect_7	Sect_8	Sect_9	Sect_10	Sect_11	Sect_12	Total
Andalusia	11.76	12.91	6.84	7.32	5.12	5.41	10.35	6.24	5.53	5.19	8.20	10.97	7.92
Aragon	5.19	5.21	3.16	3.03	3.44	5.53	3.82	4.82	6.95	6.54	7.92	4.68	4.88
Asturias	5.54	2.92	0.96	3.41	1.12	1.51	3.11	5.03	2.43	2.69	2.60	1.98	2.84
Balearic Isl.	1.38	2.24	2.94	2.59	0.37	1.01	1.91	0.75	0.54	0.54	1.91	2.16	1.56
Canary Isl.	3.81	2.88	0.52	2.27	0.93	1.13	2.87	1.63	0.13	0.36	1.50	0.72	1.52
Cantabria	1.73	2.53	0.52	1.89	1.21	1.89	3.11	4.52	2.29	1.52	1.78	1.08	2.26
Castile Leon	10.03	7.75	3.68	5.18	2.23	4.03	5.73	4.73	3.98	1.88	4.64	3.42	4.68
Castile La Mancha	2.77	4.43	7.73	3.72	2.33	2.52	6.13	3.39	1.89	1.79	3.69	5.22	3.93
Catalonia	9.69	14.42	29.43	20.90	40.09	26.92	10.19	17.26	27.13	29.54	22.40	15.20	21.69
Valencia	9.34	8.14	20.31	12.50	12.84	16.86	20.78	8.25	9.31	8.95	5.74	20.59	12.51
Extremadura	5.19	4.14	0.74	1.70	0.56	0.63	2.79	1.63	0.47	0.81	0.27	1.44	1.68
Galicia	11.76	6.43	7.65	6.25	2.23	3.52	7.64	4.78	4.39	2.60	10.11	4.41	5.56
Madrid	9.34	6.04	5.00	13.57	14.60	7.17	6.61	7.08	8.30	19.34	8.61	7.82	9.11
Murcia	4.15	5.99	2.58	3.03	4.28	4.03	4.78	3.14	3.37	1.34	2.19	7.19	3.88
Navarra	2.77	5.90	1.62	3.47	1.86	4.28	3.98	5.70	5.67	3.49	6.01	2.70	4.22
Basque Country	4.50	4.04	1.77	7.39	5.67	10.94	3.74	18.94	16.19	12.71	11.34	7.01	9.36
La Rioja	1.04	4.00	4.56	1.77	1.12	2.64	2.47	2.09	1.42	0.72	1.09	3.42	2.39
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Note: See the corresponding labels of the sectors in Table A9.

Table A5. Sample share of exporting firms in each region and sector. (%)

	Sect_1	Sect_2	Sect_3	Sect_4	Sect_5	Sect_6	Sect_7	Sect_8	Sect_9	Sect_10	Sect_11	Sect_12	Total
Andalusia	13.33	40.51	33.71	25.00	50.94	65.00	20.18	22.96	48.00	44.44	38.60	23.21	33.73
Aragon	46.67	29.47	39.02	32.61	69.70	64.10	17.78	37.38	61.70	58.21	66.04	48.00	46.42
Asturias	0.00	33.90	38.46	16.98	66.67	62.50	31.43	32.14	34.38	39.29	70.59	22.73	32.76
Balearic Isl.	25.00	19.05	43.24	2.63	33.33	12.50	8.70	5.88	33.33	16.67	33.33	34.78	21.00
Canary Isl.	0.00	16.07	14.29	2.78	12.50	12.50	5.88	2.86	0.00	50.00	27.27	0.00	9.22
Cantabria	40.00	34.69	50.00	17.24	63.64	46.67	18.92	33.01	40.00	28.57	58.33	33.33	33.75
Castile Leon	28.00	50.69	43.48	26.25	72.22	60.71	16.67	43.81	53.85	52.38	55.17	36.36	42.50
Castile La Mancha	28.57	54.22	34.04	33.93	52.17	60.00	14.49	21.92	50.00	58.82	40.00	26.42	35.49
Catalonia	32.00	60.51	62.69	57.86	84.03	81.77	50.85	59.34	77.30	76.55	70.27	63.41	68.41
Valencia	7.69	48.12	57.36	37.43	72.18	75.21	57.85	39.04	64.12	64.52	64.10	63.21	55.90
Extremadura	33.33	45.07	20.00	47.83	83.33	60.00	19.35	22.58	50.00	50.00	50.00	28.57	37.44
Galicia	35.71	46.34	31.37	43.96	77.27	73.08	40.66	40.74	55.74	53.57	61.76	38.30	45.91
Madrid	13.04	41.07	43.75	42.13	70.75	72.55	39.19	38.27	62.39	62.38	70.91	36.14	51.21
Murcia	16.67	58.56	56.67	19.57	67.50	65.52	35.19	19.44	51.06	50.00	30.77	50.00	44.98
Navarra	14.29	62.26	38.10	41.18	66.67	64.71	25.58	36.15	58.75	60.61	66.67	42.86	49.75
Basque Country	15.38	47.89	65.22	54.21	76.47	73.24	37.78	59.85	76.89	59.85	67.57	56.06	62.07
La Rioja	0.00	77.92	72.22	39.13	50.00	66.67	18.52	40.43	70.59	33.33	57.14	39.47	55.52
Total	21.15	48.08	51.09	39.19	74.22	71.23	34.67	42.63	65.26	62.90	61.14	46.58	51.24

Note: See the corresponding labels of the sectors in Table A9.

Table A6. Sample share of firms that innovated in product in each region and sector. (%)

	Sect_1	Sect_2	Sect_3	Sect_4	Sect_5	Sect_6	Sect_7	Sect_8	Sect_9	Sect_10	Sect_11	Sect_12	Total
Andalusia	6.67	21.94	10.11	21.15	52.83	35.00	23.68	17.04	40.00	31.48	36.84	18.75	24.18
Aragon	33.33	22.11	14.63	30.43	48.48	35.90	17.78	21.50	36.17	49.25	32.08	16.00	29.05
Asturias	13.33	16.95	30.77	26.42	50.00	25.00	22.86	25.00	21.88	39.29	41.18	22.73	25.62
Balearic Isl.	0.00	16.67	13.51	10.53	0.00	12.50	4.35	0.00	16.67	16.67	16.67	13.04	11.42
Canary Isl.	20.00	19.64	42.86	13.89	50.00	50.00	14.71	20.00	0.00	50.00	9.09	12.50	20.28
Cantabria	40.00	14.29	66.67	20.69	36.36	33.33	16.22	25.24	33.33	28.57	25.00	50.00	25.70
Castile Leon	12.00	34.72	17.39	18.75	50.00	35.71	18.18	28.57	46.15	33.33	27.59	24.24	28.44
Castile La Mancha	14.29	30.12	13.83	10.71	39.13	60.00	23.19	13.70	26.92	58.82	48.00	15.09	23.29
Catalonia	16.00	40.22	37.05	25.79	63.14	38.42	33.90	31.82	55.14	57.98	37.84	34.15	42.82
Valencia	11.54	35.00	26.79	20.86	51.13	33.88	23.97	29.95	51.15	53.76	30.77	34.43	33.07
Extremadura	0.00	14.08	10.00	4.35	50.00	80.00	16.13	12.90	16.67	25.00	0.00	14.29	15.07
Galicia	28.57	34.96	12.75	23.08	68.18	34.62	20.88	25.00	44.26	50.00	36.76	21.28	29.06
Madrid	4.35	32.14	23.44	28.43	55.10	33.33	37.84	20.99	43.12	51.49	43.64	18.07	35.81
Murcia	16.67	32.43	10.00	15.22	45.00	13.79	14.81	25.00	42.55	50.00	7.69	26.39	26.39
Navarra	28.57	36.79	23.81	17.65	44.44	29.41	39.53	27.69	45.00	42.42	42.86	42.86	34.74
Basque Country	0.00	22.54	26.09	18.69	54.90	42.25	31.11	28.57	48.11	52.55	36.49	33.33	35.50
La Rioja	0.00	27.27	31.48	0.00	41.67	40.00	11.11	23.40	47.06	16.67	42.86	23.68	25.77
Total	14.23	29.43	25.31	21.62	56.07	36.03	23.95	25.83	46.30	50.72	35.69	26.81	32.44

Note: See the corresponding labels of the sectors in Table A9.

Table A7. Sample share of firms that innovated in process in each region and sector. (%)

	Sect_1	Sect_2	Sect_3	Sect_4	Sect_5	Sect_6	Sect_7	Sect_8	Sect_9	Sect_10	Sect_11	Sect_12	Total
Andalusia	20.00	34.18	17.98	38.46	52.83	45.00	35.96	29.63	40.00	46.30	35.09	26.79	34.09
Aragon	40.00	30.53	24.39	39.13	60.61	53.85	22.22	28.97	38.30	35.82	39.62	38.00	35.77
Asturias	26.67	33.90	30.77	26.42	41.67	50.00	34.29	30.36	21.88	35.71	41.18	31.82	31.53
Balearic Isl.	0.00	11.90	18.92	23.68	33.33	25.00	21.74	29.41	16.67	50.00	16.67	30.43	21.46
Canary Isl.	20.00	32.14	57.14	22.22	75.00	25.00	17.65	28.57	0.00	0.00	27.27	37.50	28.57
Cantabria	40.00	24.49	66.67	34.48	45.45	33.33	40.54	30.10	40.00	28.57	16.67	8.33	31.89
Castile Leon	20.00	43.06	23.91	36.25	55.56	46.43	21.21	38.10	21.15	52.38	37.93	24.24	34.78
Castile La Mancha	42.86	39.76	17.02	35.71	34.78	33.33	28.99	21.92	42.31	41.18	48.00	22.64	30.13
Catalonia	20.00	44.20	39.38	45.28	59.21	49.26	46.61	41.41	47.30	51.47	49.32	43.90	46.86
Valencia	23.08	46.88	35.85	36.90	53.38	35.54	31.82	38.50	41.98	37.63	38.46	37.26	38.53
Extremadura	0.00	30.99	10.00	17.39	50.00	80.00	29.03	22.58	33.33	37.50	0.00	21.43	26.48
Galicia	32.14	39.84	13.73	30.77	59.09	38.46	27.47	34.26	44.26	50.00	27.94	31.91	32.70
Madrid	21.74	36.61	25.00	36.04	51.02	39.22	33.78	38.27	35.78	41.09	47.27	18.07	37.37
Murcia	16.67	39.64	13.33	26.09	42.50	41.38	33.33	23.61	27.66	41.67	15.38	27.78	30.86
Navarra	28.57	42.45	28.57	29.41	55.56	44.12	48.84	36.15	46.25	42.42	47.62	39.29	40.98
Basque Country	23.08	33.80	34.78	34.58	54.90	59.15	35.56	44.09	41.04	38.69	45.95	51.52	42.71
La Rioja	33.33	41.56	20.37	34.78	33.33	46.67	25.93	40.43	41.18	50.00	57.14	34.21	35.58
Spain	23.46	38.14	29.43	36.09	54.66	45.11	32.75	36.43	40.74	43.67	40.81	33.65	38.12

Note: See the corresponding labels of the sectors in Table A9.

Table A8. Sample share of firms that innovated in product and/or process in each region and sector. (%)

	Sect_1	Sect_2	Sect_3	Sect_4	Sect_5	Sect_6	Sect_7	Sect_8	Sect_9	Sect_10	Sect_11	Sect_12	Total
Andalusia	23.33	41.35	20.22	41.35	64.15	55.00	42.11	35.56	56.00	55.56	45.61	32.14	41.09
Aragon	53.33	36.84	31.71	50.00	63.64	53.85	26.67	36.45	52.13	53.73	52.83	48.00	45.11
Asturias	33.33	38.98	38.46	39.62	50.00	50.00	40.00	38.39	31.25	50.00	52.94	36.36	39.90
Balearic Isl.	0.00	19.05	21.62	26.32	33.33	25.00	21.74	29.41	16.67	50.00	33.33	34.78	25.11
Canary Isl.	20.00	35.71	57.14	27.78	75.00	50.00	20.59	34.29	0.00	50.00	36.36	37.50	33.64
Cantabria	40.00	28.57	66.67	34.48	54.55	53.33	45.95	36.89	40.00	35.71	33.33	50.00	39.01
Castile Leon	28.00	53.47	26.09	40.00	66.67	60.71	30.30	43.81	50.00	57.14	44.83	30.30	43.89
Castile La Mancha	42.86	46.99	21.28	37.50	52.17	66.67	37.68	26.03	42.31	58.82	64.00	26.42	37.15
Catalonia	24.00	52.54	52.59	48.43	77.40	58.62	53.39	50.51	66.76	69.71	58.11	53.05	58.98
Valencia	30.77	53.12	43.02	41.71	69.17	49.59	40.08	44.92	58.78	65.59	48.72	50.47	49.11
Extremadura	0.00	32.39	10.00	17.39	66.67	80.00	32.26	25.81	33.33	50.00	0.00	28.57	29.22
Galicia	42.86	45.53	22.55	40.66	77.27	50.00	35.16	39.81	62.30	60.71	42.65	36.17	42.01
Madrid	21.74	45.54	35.94	45.69	70.07	49.02	48.65	44.44	48.62	63.37	63.64	26.51	50.27
Murcia	25.00	48.65	13.33	34.78	55.00	41.38	38.89	37.50	53.19	58.33	15.38	37.50	40.89
Navarra	42.86	50.94	42.86	39.22	61.11	52.94	53.49	44.62	58.75	48.48	59.52	60.71	50.76
Basque Country	23.08	40.85	43.48	41.12	72.55	66.20	48.89	50.99	59.91	62.04	54.05	62.12	54.23
La Rioja	33.33	48.05	40.74	34.78	58.33	60.00	25.93	48.94	58.82	50.00	71.43	44.74	45.71
Spain	28.85	45.30	38.28	41.82	70.81	55.17	40.07	43.67	57.56	62.42	51.96	43.20	48.20

Note: See the corresponding labels of the sectors in Table A9.

Table A9. Marginal effects and statistics for the propensity to export model.

	Product Inn.	Process Inn.	Prod/Proc Inn.	Product Inn.	Process Inn.	Prod/Proc Inn.
Innovation						
All regions (Spain)	0.351***	0.340***	0.323***			
Andalusia				0.359***	0.315***	0.286***
Aragon				0.432***	0.390***	0.377***
Asturias				0.317***	0.309***	0.292***
Balearic Isl.				0.300***	0.225***	0.226***
Canary Isl.				0.149***	0.186***	0.162***
Cantabria				0.360***	0.363***	0.330***
Castile Leon				0.370***	0.351***	0.332***
Castile La Mancha				0.380***	0.377***	0.342***
Catalonia				0.346***	0.333***	0.318***
Valencia				0.380***	0.371***	0.352***
Extremadura				0.394***	0.350***	0.339***
Galicia				0.379***	0.381***	0.355***
Madrid				0.373***	0.376***	0.351***
Murcia				0.390***	0.402***	0.362***
Navarra				0.372***	0.347***	0.324***
Basque Country				0.362***	0.349***	0.325***
La Rioja				0.410***	0.366***	0.341***
Productivity (log)						
All regions	0.111***	0.105***	0.104***			
Andalusia				0.126***	0.115***	0.123***
Aragon				0.107***	0.117***	0.107***
Asturias				0.149***	0.151***	0.144***
Balearic Isl.				0.119***	0.112***	0.111***
Canary Isl.				0.070***	0.070***	0.070***
Cantabria				0.125***	0.123***	0.130***
Castile Leon				0.104***	0.095***	0.097***
Castile La Mancha				0.121***	0.116***	0.112***
Catalonia				0.108***	0.104***	0.102***
Valencia				0.109***	0.098***	0.097***
Extremadura				0.133***	0.100***	0.108***
Galicia				0.083***	0.077***	0.075***
Madrid				0.086***	0.083***	0.080***

	Product Inn.	Process Inn.	Prod/Proc Inn.	Product Inn.	Process Inn.	Prod/Proc Inn.
Murcia				0.097***	0.066***	0.083***
Navarra				0.121***	0.119***	0.129***
Basque Country				0.107***	0.112***	0.108***
La Rioja				0.144***	0.177***	0.165***
Size Medium	0.136***	0.125***	0.130***	0.133***	0.123***	0.128***
Size Large	0.139***	0.127***	0.141***	0.133***	0.122***	0.139***
Group national	-0.042***	-0.035***	-0.038***	-0.041***	-0.035***	-0.037***
Group international	0.052***	0.056***	0.057***	0.053***	0.056***	0.058***
Food, beverages & tob.	0.129***	0.130***	0.128***	0.123***	0.126***	0.125***
Textile & leather	0.216***	0.229***	0.221***	0.212***	0.227***	0.220***
Wood, cork & paper	0.109***	0.088***	0.091***	0.107***	0.088***	0.091***
Refined petrol. & chem.	0.183***	0.214***	0.193***	0.173***	0.209***	0.189***
Rubber & plastic	0.272***	0.266***	0.262***	0.264***	0.262***	0.260***
Other non-metallic prod.	0.046	0.048	0.044	0.043	0.047	0.043
Basic & fabricated metals	0.114***	0.109***	0.107***	0.111***	0.109***	0.108***
Machinery & equip. n.e.c.	0.210***	0.254***	0.228***	0.202***	0.250***	0.225***
Electrical & optical eq.	0.177***	0.227***	0.193***	0.168***	0.224***	0.191***
Transport equipment	0.196***	0.206***	0.194***	0.188***	0.202***	0.191***
Other manufactures n.e.c	0.182***	0.186***	0.177***	0.177***	0.184***	0.176***
Aragon	0.052***	0.056***	0.054***	0.308	0.032	0.170
Asturias	-0.007	0.009	0.004	-0.310	-0.501	-0.347
Balearic Isl.	-0.020	-0.018	-0.011	-0.062	-0.074	-0.011
Canary Isl.	-0.238***	-0.220***	-0.226***	-0.263	-0.451	-0.409
Cantabria	0.011	0.026	0.025	0.035	-0.125	-0.105
Castile Leon	0.037*	0.050***	0.043**	0.413	0.336	0.366
Castile La Mancha	0.019	0.030	0.028	0.079	-0.054	0.068
Catalonia	0.133***	0.143***	0.138***	0.360*	0.240	0.267
Valencia	0.118***	0.129***	0.123***	0.464*	0.411*	0.456*
Extremadura	0.089***	0.086***	0.097***	0.111	0.236	0.201
Galicia	0.082***	0.101***	0.094***	0.688***	0.556**	0.624***
Madrid	0.020	0.044***	0.030*	0.584**	0.453**	0.525**
Murcia	0.081***	0.098***	0.089***	0.575**	0.700**	0.573**
Navarra	0.047**	0.056***	0.052***	0.243	0.093	0.060
Basque Country	0.131***	0.131***	0.127***	0.469*	0.201	0.287
La Rioja	0.149***	0.145***	0.139***	0.090	-0.437	-0.313

	Product Inn.	Process Inn.	Prod/Proc Inn.	Product Inn.	Process Inn.	Prod/Proc Inn.
ρ (ath)	-0.513***	-0.596***	-0.472***	-0.572***	-0.645***	-0.503***
Wald test –joint significance	6548.4***	6422.1***	6725.3***	7246.0***	7154.2***	7344.0***
log pseudo-L	-15243.7	-16089.0	-15977.6	-15147.3	-15985.5	-15876.8
Wald test ($\rho=0$)	78.0***	102.3***	72.4***	72.0***	102.2***	70.4***

Notes: A common effect of innovation and productivity is estimated in the first three columns while an independent effect in each region is estimated in the last three columns. Marginal effects obtained as the average from the ones for each firm in the corresponding sample. The number of observations used in each model is 14078. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, corresponding to robust standard errors. ρ (ath) denotes the estimate of (a transformation of) the correlation coefficient between the errors of the export and innovation equations. Excluded categories are small firms, no belonging to a group, in mining and quarrying, located in Andalusia.

Table A10. Robustness to the inclusion of regional factors, using product innovation.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Innovation						
All regions	0.351***	0.401***	0.388***			
Andalusia				0.359***	0.366***	0.365***
Aragon				0.432***	0.436***	0.432***
Asturias				0.317***	0.339***	0.336***
Balearic Isl.				0.300***	0.311***	0.303***
Canary Isl.				0.149***	0.163***	0.156***
Cantabria				0.360***	0.370***	0.367***
Castile Leon				0.370***	0.370***	0.365***
Castile La Mancha				0.380***	0.388***	0.389***
Catalonia				0.346***	0.348***	0.345***
Valencia				0.380***	0.375***	0.376***
Extremadura				0.394***	0.397***	0.403***
Galicia				0.379***	0.363***	0.363***
Madrid				0.373***	0.370***	0.376***
Murcia				0.390***	0.387***	0.385***
Navarra				0.372***	0.378***	0.372***
Basque Country				0.362***	0.362***	0.360***
La Rioja				0.410***	0.425***	0.418***
Firm controls	YES***	YES***	YES***	YES***	YES***	YES***
Region fixed effects	YES***	NO	NO	YES	NO	NO
GDPpc		0.009***	0.008***		0.018	-0.010
Private Capital		0.083***	0.085***		-0.117	0.003
LPI		0.014***			-0.047	
Sea Transport.			0.003***			-0.005
Motorways			-0.472			1.290
Railways			1.018***			6.636
ρ (ath)	-0.513***	-0.698***	-0.645***	-0.572***	-0.576***	-0.571***

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Wald test –joint significance	6548.4***	7477.5***	7203.1***	7246.0***	7241.9***	7209.1***
log pseudo-L	-15243.7	-15349.9	-15333.6	-15147.3	-15157.8	-15155.5
Wald test ($\rho=0$)	78.0***	139.8***	115.0***	72.0***	72.1***	71.6***

Notes: Columns (i) and (iv) reproduce results for product innovation in Table A9. They are included to facilitate comparisons. Marginal effects obtained as the average from the ones for each firm in the corresponding sample. The number of observations used in each model is 14078. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, corresponding to robust standard errors. GDPpc denotes the value of GDP per capita in the region; Private Capital is the stock of physical private capital over the GDP in the region; LPI is the index of logistic performance in each region from Bensassi, Márquez-Ramos, Martínez-Zarzoso, and Suárez-Burguet (2015); Sea Transport is the percentage of the total sea traffic transportation corresponding to the region; Motorways and Railways refer to the kilometres of the corresponding infrastructure divided by the region's surface in square kilometres. ρ (ath) denotes the estimate of (a transformation of) the correlation coefficient between the errors of the export and innovation equations. All specifications include the full list of firm controls used in the results described in the main text.

Table A11. Robustness to the inclusion of regional factors, using process innovation.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Innovation						
All regions	0.340***	0.387***	0.377***			
Andalusia				0.315***	0.321***	0.321***
Aragon				0.388***	0.392***	0.389***
Asturias				0.309***	0.331***	0.330***
Balearic Isl.				0.225***	0.232***	0.221***
Canary Isl.				0.186***	0.199***	0.192***
Cantabria				0.363***	0.371***	0.368***
Castile Leon				0.351***	0.347***	0.343***
Castile La Mancha				0.377***	0.386***	0.387***
Catalonia				0.333***	0.332***	0.330***
Valencia				0.371***	0.365***	0.367***
Extremadura				0.350***	0.344***	0.356***
Galicia				0.381***	0.367***	0.369***
Madrid				0.376***	0.369***	0.378***
Murcia				0.402***	0.384***	0.382***
Navarra				0.347***	0.349***	0.344***
Basque Country				0.349***	0.349***	0.348***
La Rioja				0.366***	0.375***	0.372***
Firm controls	YES***	YES***	YES***	YES***	YES***	YES***
Region fixed effects	YES***	NO	NO	YES	NO	NO
GDPpc		0.008***	0.007***		0.001	-0.030
Private Capital		0.073***	0.080***		-0.687	0.063
LPI		0.011***			-0.011	
Sea Transport.			0.002***			-0.001
Motorways			-0.505*			1.019
Railways			1.325***			9.786
ρ (ath)	-0.596***	-0.793***	-0.747***	-0.645***	-0.640***	-0.640***

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Wald test –joint significance	6422.1***	7494.9***	7252.1***	7154.2***	7049.8***	7062.0***
log pseudo-L	-16089.0	-16195.2	-16178.3	-15985.5	-16000.9	-15996.7
Wald test ($\rho=0$)	102.3***	169.1***	143.1***	102.2***	96.7***	97.8***

Notes: Columns (i) and (iv) reproduce results for process innovation in Table A9. They are included to facilitate comparisons. Marginal effects obtained as the average from the ones for each firm in the corresponding sample. The number of observations used in each model is 14078. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, corresponding to robust standard errors. GDPpc denotes the value of GDP per capita in the region; Private Capital is the stock of physical private capital over the GDP in the region; LPI is the index of logistic performance in each region from Bensassi et al. (2015); Sea Transport is the percentage of the total sea traffic transportation corresponding to the region; Motorways and Railways refer to the kilometres of the corresponding infrastructure divided by the region's surface in square kilometres. ρ (ath) denotes the estimate of (a transformation of) the correlation coefficient between the errors of the export and innovation equations. All specifications include the full list of firm controls used in the results described in the main text.

Table A12. Robustness to the inclusion of regional factors, using product / process innovation.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Innovation						
All regions	0.323***	0.370***	0.360***			
Andalusia				0.286***	0.293***	0.293***
Aragon				0.377***	0.380***	0.377***
Asturias				0.292***	0.314***	0.313***
Balearic Isl.				0.226***	0.233***	0.223***
Canary Isl.				0.162***	0.174***	0.167***
Cantabria				0.330***	0.338***	0.336***
Castile Leon				0.332***	0.329***	0.326***
Castile La Mancha				0.342***	0.348***	0.350***
Catalonia				0.318***	0.318***	0.317***
Valencia				0.352***	0.346***	0.348***
Extremadura				0.339***	0.336***	0.348***
Galicia				0.355***	0.340***	0.343***
Madrid				0.351***	0.345***	0.354***
Murcia				0.362***	0.355***	0.354***
Navarra				0.324***	0.328***	0.325***
Basque Country				0.325***	0.325***	0.324***
La Rioja				0.341***	0.353***	0.350***
Firm controls	YES***	YES***	YES***	YES***	YES***	YES***
Region fixed effects	YES***	NO	NO	YES	NO	NO
GDPpc		0.008***	0.007***		0.003	-0.029
Private Capital		0.077***	0.082***		-0.079	0.053
LPI		0.012***			-0.018	
Sea Transport.			0.002***			-0.003
Motorways			-0.600*			0.732
Railways			1.240***			10.240*
ρ (ath)	-0.472***	-0.654***	-0.608***	-0.503***	-0.501***	-0.502***

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Wald test –joint significance	6725.3***	7742.0***	7252.1***	7344.0***	7289.0***	7300.3***
log pseudo-L	-15977.6	-16079.9	-16178.3	-15876.8	-15890.0	-15885.6
Wald test ($\rho=0$)	72.4***	123.9***	104.3***	70.4***	67.9***	69.1***

Notes: Columns (i) and (iv) reproduce results for innovation, regardless of type, in Table A9. They are included to facilitate comparisons. Marginal effects obtained as the average from the ones for each firm in the corresponding sample. The number of observations used in each model is 14078. *** p<0.01, ** p<0.05, * p<0.1, corresponding to robust standard errors. ρ (ath) denotes the estimate of (a transformation of) the correlation coefficient between the errors of the export and innovation equations. All specifications include the full list of firm controls used in the results described in the main text.

Table A13. Marginal effects for the extensive margin of exports to EU and non-EU countries.

	Exports to EU			Exports to non-EU		
	Product Innov.	Process Innov.	Innovation (Prod/Proc)	Product Innov.	Process Innov.	Innovation (Prod/Proc)
Spain	0.363***	0.351***	0.324***	0.361***	0.347***	0.326***
Andalusia	0.369***	0.334***	0.304***	0.370***	0.324***	0.293***
Aragon	0.400***	0.367***	0.348***	0.434***	0.382***	0.368***
Asturias	0.340***	0.307***	0.286***	0.333***	0.323***	0.300***
Balearic Isl.	0.299***	0.223***	0.217***	0.308***	0.240***	0.235***
Canary Isl.	0.126***	0.181***	0.165***	0.155***	0.188***	0.163***
Cantabria	0.379***	0.368***	0.321***	0.367***	0.365***	0.332***
Castile Leon	0.365***	0.362***	0.327***	0.375***	0.359***	0.336***
Castile La Mancha	0.383***	0.385***	0.341***	0.400***	0.387***	0.349***
Catalonia	0.351***	0.332***	0.313***	0.352***	0.333***	0.318***
Valencia	0.393***	0.381***	0.358***	0.397***	0.381***	0.358***
Extremadura	0.446***	0.359***	0.340***	0.398***	0.350***	0.337***
Galicia	0.425***	0.431***	0.384***	0.388***	0.391***	0.361***
Madrid	0.376***	0.380***	0.346***	0.382***	0.384***	0.355***
Murcia	0.392***	0.398***	0.351***	0.394***	0.407***	0.362***
Navarra	0.373***	0.354***	0.322***	0.374***	0.343***	0.320***
Basque Country	0.360***	0.348***	0.323***	0.361***	0.347***	0.321***
La Rioja	0.433***	0.395***	0.373***	0.437***	0.373***	0.351

Notes: *** p<0.01, ** p<0.05, * p<0.1, corresponding to robust standard errors. Marginal effects obtained as the average from the ones for each firm in the sample of each region. The specification used to compute the marginal effects includes controls for productivity, size, firm group (national or international), industry (NACE 2 digits) and regions.

Table A14. Changes in the extensive margin of exports to EU and non-EU countries due to counterfactual innovation.

	Exports to EU			Exports to non-EU		
	Product Innov.	Process Innov.	Innovation (Prod/Proc)	Product Innov.	Process Innov.	Innovation (Prod/Proc)
Spain	5.31***	4.26***	5.05***	5.70***	4.64***	5.44***
Andalusia	8.54***	5.68***	6.62***	8.87***	5.74***	6.53***
Aragon	7.96***	6.17**	7.14***	10.16***	7.72***	8.85***
Asturias	6.64***	5.20**	5.68**	7.69***	6.86**	7.31***
Balearic Isl.	11.97***	7.72**	9.40***	12.83***	8.68***	10.57***
Canary Isl.	3.68**	3.52**	3.68**	4.70**	4.24*	4.55**
Cantabria	7.98***	6.80***	7.24***	8.18***	7.31**	8.13***
Castile Leon	6.53***	5.67**	6.19***	7.19***	6.01**	6.65***
Castile La Mancha	9.69***	8.65***	9.56***	11.42***	9.85***	10.91***
Catalonia	--	--	--	--	--	--
Valencia	5.22***	4.12***	5.07***	5.29***	4.15***	5.04***
Extremadura	14.49***	9.13***	12.38***	15.43***	11.29**	14.73***
Galicia	7.70***	8.19***	8.93***	6.87***	7.16***	7.96***
Madrid	4.24**	5.26***	4.85***	4.73**	5.78***	5.30***
Murcia	7.34***	7.54***	7.35***	8.46***	8.84***	8.73***
Navarra	4.53*	3.20	4.03	5.06*	3.72	4.44
Basque Country	4.02**	2.02	2.88	4.49**	2.46	3.25
La Rioja	11.47***	7.29*	8.94**	12.14***	7.27	8.41**

Notes: Change in percentage points with respect to the actual extensive margin in each region. Figures on the share of innovative firms in Catalonia are used as benchmark. *** p<0.01, ** p<0.05, * p<0.1 of a test of equality of the actual and counterfactual margins of exports.

Reference

- Bensassi, S., Márquez-Ramos, L., Martínez-Zarzoso, I., & Suárez-Burguet, C. (2015). Relationship between logistics infrastructure and trade: Evidence from Spanish regional exports. *Transportation Research Part A*, 72, 47–61.