

### **Contents**

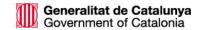
1. Motivation and Objectives	03
2. Methodology	05
3. Analysis and Results	80
4. Challenges and Recommendations	24
5. Appendix	30

# 1. Motivation and Objectives



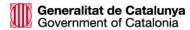
### **Motivation and Objectives**

- Catalan exports and the number of Catalan regular exporting companies have achieved record-breaking figures in recent years, thereby strengthening Catalonia's dominant position within Spain in terms of exports and highlighting the Catalan economy's competitiveness and international reach.
  - However, it remains to be seen whether, despite this export drive, Catalonia is taking sufficient advantage of the new dynamics presented by present and future international markets. Addressing this question is key to ensuring that the growing export rate it has experienced in recent years does not slow down in the future.
- In this regard, an analysis of the evolution of Catalonia's export intensity index makes it possible to:
  - Verify the hypothesis found in the economic literature concerning the relevance of the gravity model of international trade: that geographical and cultural distance is a key factor in the trade relations of countries.
  - Compare Catalonia with benchmark European countries with respect to their degree of trade intensity to determine whether it is taking sufficient advantage of the dynamics of the regions and countries that drive global demand.
  - Recommend markets where Catalonia shows room for improvement or needs a greater export presence to drive its international expansion.



# 2. Methodology





## Methodology (I)

The export intensity index (T) is used to determine the share of a country or region's exports to a given destination with respect to the world exports to that same destination.

It is defined as the proportion of exports from a country to a destination, divided by the proportion of world exports to that same destination. It is calculated based on the proportion of total exports in order to minimize the effect of size and thus make it possible to compare different countries and regions to each other. It is calculated as follows:

$$T_{ij} = (x_{ij}/X_{it}) / (x_{wj}/X_{wt})$$

Xii are the exports from i to j

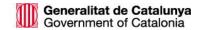
Xit are the total exports of i

Xwj are the world exports to i

(alternatively, the total imports of j can be used)

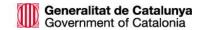
Xwt are the total world exports

The index uses values between 0 and ∞. An index of one indicates that a country's exports to a destination are in line with the world average. An index greater (or less) than one indicates that a country's exports to a destination are higher (or lower) than the world exports to that same destination. In short, the index determines whether a country's exports to a destination are of high intensity (greater than one) or low intensity (less than one).



## Methodology (II)

- The export intensity index was calculated for nine world regions (European Union, Rest of Europe, North Africa, Sub-Saharan Africa, the Middle East, Latin America and North America, Asia and Oceania) and for 120 countries that exceeded an import volume of \$5 billion and together accounted for 96.9% of global demand in 2016.
- Catalonia's export intensity index was compared to those of five major European countries (Germany, the United Kingdom, France, Italy and Spain), and to those of three European countries of a similar size (Austria, Denmark and Finland).
- To determine markets where Catalonia has scope for improvement or requires a greater export presence, countries with the high est GDP growth forecast (and therefore the highest global demand forecast) over the next five years were identified.
- Sources used: DataComex-Secretary of State for Trade (data on Catalan exports), TradeMap-ITC (data on the world trade of regions and countries) and FMI-WEO October 2017 (economic growth prospects of countries).



# 3. Analysis and Results

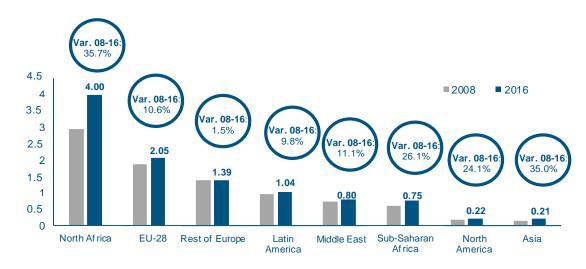


### **Export intensity index by region**

A high export intensity in North Africa and the European Union and a low export intensity in Asia and North America

- Catalonia's export intensity with all world regions has grown since the start of the crisis. The highest growth between 2008 and 2016 occurred with North Africa (+35.7%), the region with which Catalonia's export intensity index was greatest (4.0).
- Catalonia's export intensity with the European Union, the region that represents Catalonia's main market, was very high (2.05). Its export intensity index was also greater than one in the Rest of Europe (1.39). although this is the region where its export intensity has grown least since 2008 (1.5%).
- Also worth noting is its export intensity with America, which, despite Latin geographical distance, was slightly greater than one (1.04). This was the result of Catalonia's cultural affinity with the region.

#### Catalonia's export intensity index. 2008-2016



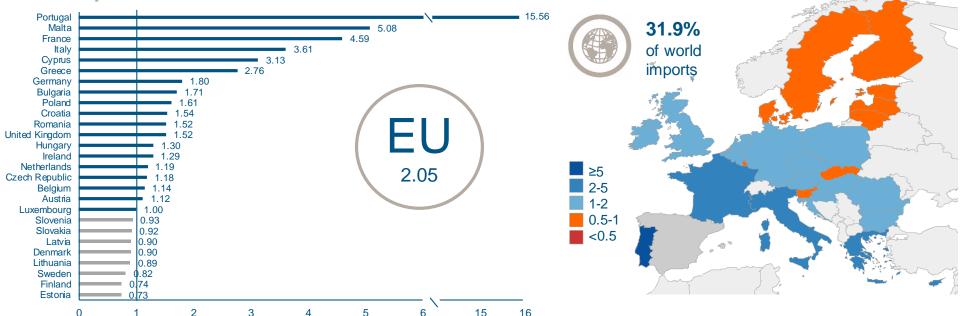
By contrast, Catalonia's indices with the Middle East and Sub-Saharan Africa were slightly less than one (0.80 and 0.75, respectively). However, despite strong growth between 2008 and 2016, a low export intensity was observed with the most distant regions of North America (0.22) and Asia (0.21). These latter two regions concentrated almost half (48%) of world imports in 2016.



### **Export intensity index with the European Union**

High export intensity with the whole European Union, except for Nordic and Baltic countries

Catalonia's export intensity index, 2016. **European Union countries** 



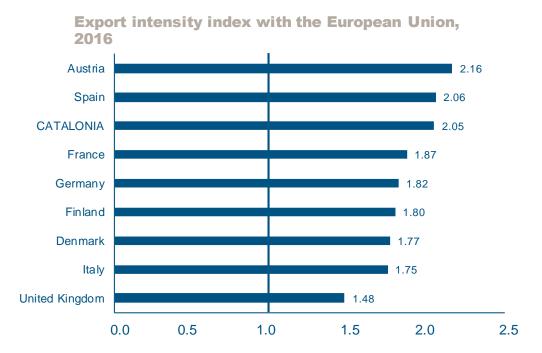
- Catalonia's export intensity was especially high with Portugal (15.56). The index was also greater than one in major EU countries such as France (4.59), Italy (3.61), Germany (1.80) and the United Kingdom (1.52).
- This was also the case with Eastern European countries, including Bulgaria (1.71), Poland (1.61), Romania (1.52), Hungary (1.30) and the Czech Republic (1.18), but not with Slovenia (0.93) and Slovakia (0.92). By contrast, Catalonia's export intensity was low (i.e. less than one) in the Nordic and Baltic countries.

Source: EIC (ACCIÓ), based on data from DataComex and TradeMap.

# **Comparison of export intensity by region: European Union**

High export intensity with the European Union compared to the main European countries

Trade intensity between the EU countries was high, especially in Austria (2.16). Catalonia's intensity index was very similar to that of Spain as a whole (2.06), and surpassed those of Finland, Denmark and the major EU countries.

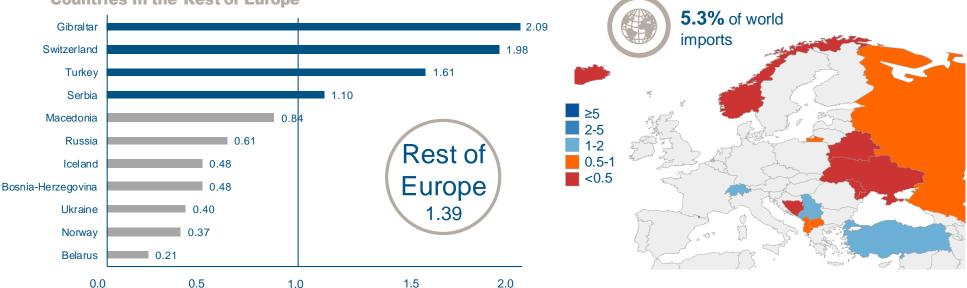




# **Export intensity index with the Rest of Europe**

High export intensity with Switzerland and Turkey and low export intensity with Russia and Norway





In the Rest of Europe, Catalonia presented a particularly high export intensity with Switzerland (1.98) and Turkey (1.61). By contrast, its index was less than one with Russia (0.61) and neighbouring countries such as Ukraine (0.40) and Belarus (0.21). Its export intensity was also very low with Norway (0.37).

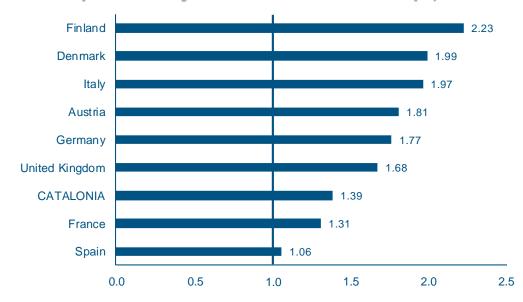


# **Comparison of export intensity by region: Rest of Europe**

The export intensity with the Rest of Europe was lower than most benchmark European countries

Catalonia's export intensity was higher than that of Spain (1.06) and slightly above that of France (1.31), but lower than those of other benchmark countries. especially Finland (2.23), Denmark (1.99) and Italy (1.97). This low export intensity was due primarily to its low presence in Russia, Ukraine, Belarus and Norway.

#### **Export intensity index with the Rest of Europe, 2016.**

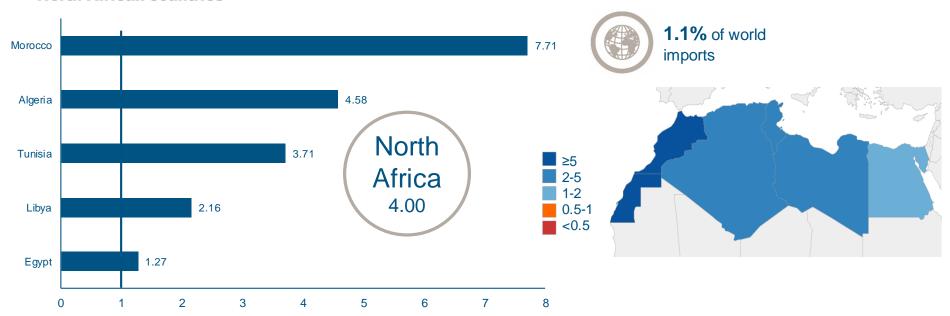




## **Export intensity index with North Africa**

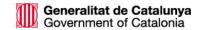
High export intensity with Morocco, Algeria and Tunisia

Catalonia's export intensity index, 2016. **North African countries** 



Catalonia's export intensity was especially high with Morocco (7.71), Algeria (4.58) and Tunisia (3.71). Its export intensity index was lower with Libya (2.16) and Egypt (1.27), although it was greater than one, which indicates a higher export level than the global average.



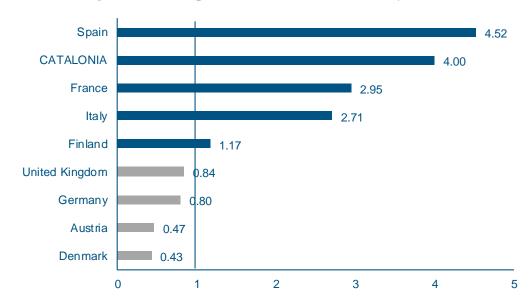


### **Comparison of export intensity by region: North Africa**

**Export intensity with North Africa much higher than that of most European countries** 

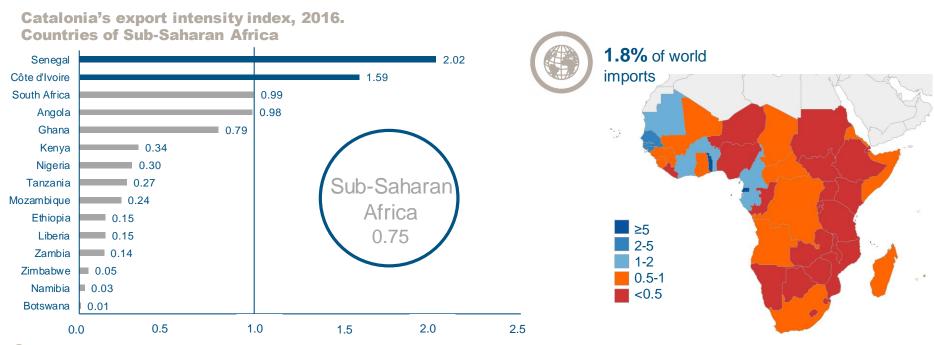
European countries The Mediterranean Basin presented a hiah export intensity index with North Africa, much higher than with the countries of Northern Europe. This suggests that geographical proximity and historical links play a key role in trade relations. Catalonia's export intensity index (4.0) was higher than those of France and Italy, but lower than that of Spain as a whole (4.52).

#### **Export intensity index with North Africa, 2016.**



### **Export intensity index with Sub-Saharan Africa**

Low export intensity with most countries of Sub-Saharan Africa



Catalonia's export intensity with the main countries of Sub-Saharan Africa was low, with the exception of Senegal (2.02) and Côte d'Ivoire (1.59), especially in East African countries such as Ethiopia, Kenya and Tanzania. It was also low in the main importing countries of West Africa, including Nigeria and Ghana. With respect to the southern part of the continent, Catalonia's indices were low, although they were close to one in South Africa (0.99) and Angola (0.98).



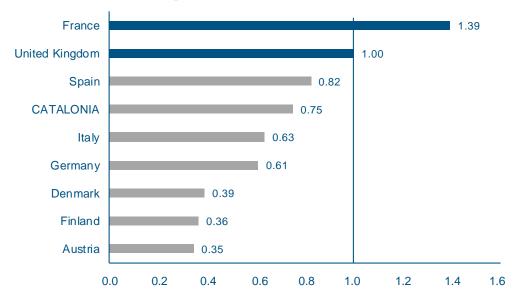


### Comparison of export intensity by region: **Sub-Saharan Africa**

Only France has a high export intensity with Sub-Saharan Africa

Most European countries presented a low export intensity in Sub-Saharan Africa: only France (1.39) and the United Kingdom (1.0) had an index greater than or equal to one. Catalonia's export intensity was 0.75, lower than that of Spain (0.82) but higher than those of Italy (0.63), Germany (0.61) and other similar-sized countries.

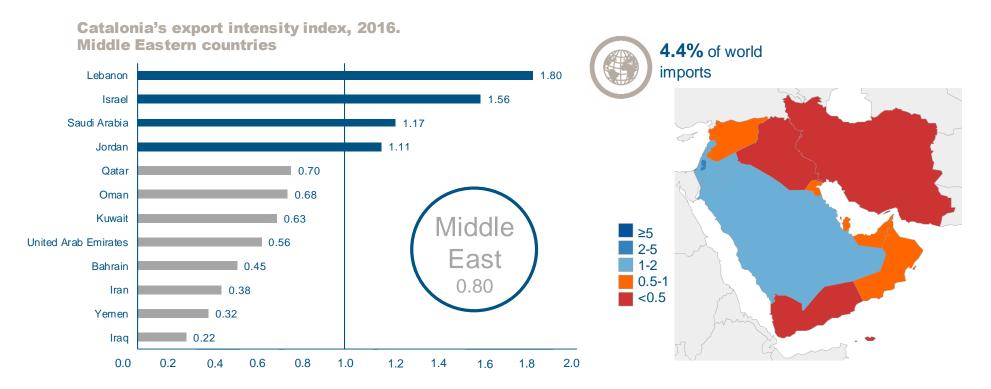
#### **Export intensity index with Sub-Saharan Africa, 2016.**





# **Export intensity index in the Middle East**

Low export intensity with the Middle East, except for Lebanon, Israel and Saudi Arabia



Catalonia's export intensity was high in Lebanon (1.80) and Israel (1.56) and, to a lesser extent, in Saudi Arabia (1.17) and Jordan (1.11). By contrast, its export intensity indices were less than one with countries such as Qatar (0.70), Kuwait (0.63) and the United Arab Emirates (0.56), and even lower with Iran (0.38) and Iraq (0.22).

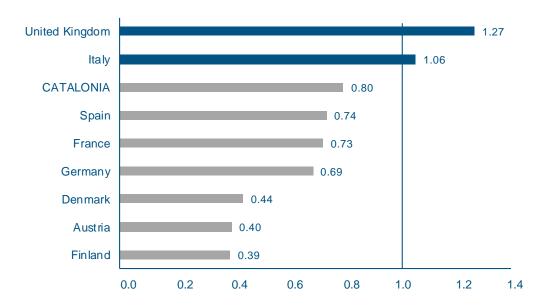


### **Comparison of export intensity by region: The Middle East**

Low export intensity with the Middle East, although only the United Kingdom and Italy are ahead

Only the United Kingdom (1.27) and Italy (1.06) presented export intensity indices with the Middle East that were greater than one. However, despite the fact that Catalonia's export intensity was well below one (0.80), it was ahead of Spain as a whole (0.74) and the other EU countries included in the study.

#### **Export intensity index with the Middle East, 2016**



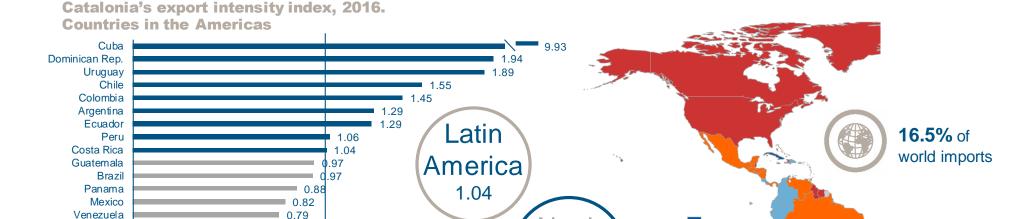


**5.7%** of

world imports

### **Export intensity index with the Americas**

High export intensity with Chile and Colombia, lower with Brazil and Mexico, and very low with North America



merica

With respect to Latin America, Catalonia's export intensity was especially high with Cuba (9.93) and, to a lesser but still significant extent (greater than one), with countries such as Uruguay (1.89), Chile (1.55), Colombia (1.45), Argentina (1.29), Ecuador (1.29) and Peru (1.06). By contrast, its index with the two largest Latin American countries was less than one: Brazil (0.97) and Mexico (0.82). Furthermore, the data reveal Catalonia's underdeveloped export potential with North America, where its index was very low: United States (0.24) and Canada (0.15).

2.0

10.0



El Salvador Paraguay Honduras

Bolivia

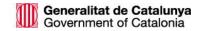
Nicaragua

Canada

0.0

**United States** 

Trinidad and Tobago



1.0

1.5

0.69

0.62

0.58

0.5

0.24

0.21

0.15

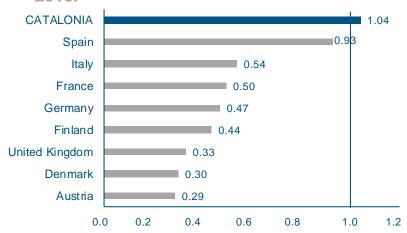
0.5 - 1

< 0.5

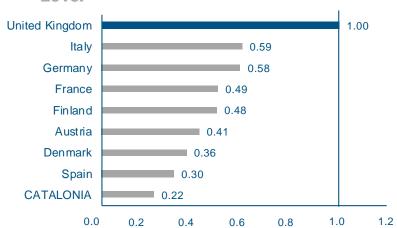
# Comparison of export intensity by region: The Americas

Catalonia presents the greatest export intensity with Latin America but the lowest with North America

### **Export intensity index with Latin America**, 2016.



### **Export intensity index with North America**, 2016.

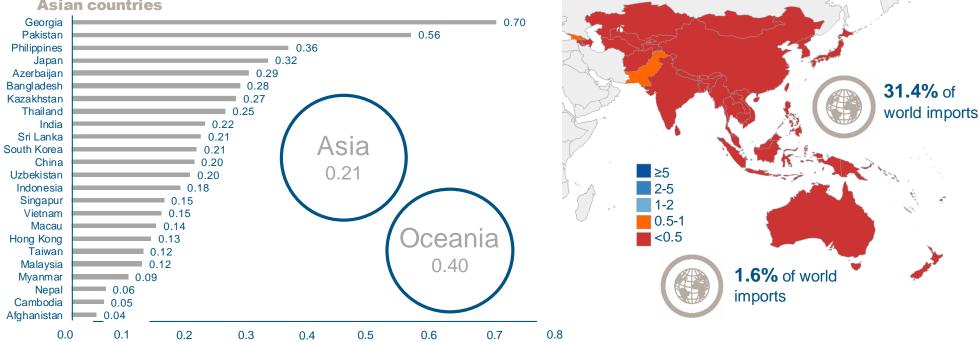


Catalonia had the highest export intensity with Latin America (1.04). Spain (0.93) and other European countries presented an export intensity index of less than one. By contrast, Catalonia had a very low export intensity with North America (0.22) and trailed in last place when compared to the EU countries included in the study. However, only the United Kingdom had an index equal to one, as a result of its culture and linguistic affinity with the region.

### **Export intensity index with Asia and Oceania**

Very low export intensity with Asia and Oceania





Catalonia's export intensity with all the Asian countries included in the study was low. Only its indices with Georgia (0.70) and Pakistan (0.56) were over 0.5. Its export intensity was very low with the largest Asian countries, including Japan (0.32), India (0.22), South Korea (0.21), China (0.20) and Hong Kong (0.13), and with the main ASEAN countries, including the Philippines (0.36), Thailand (0.25), Indonesia (0.18), Singapore (0.15), Vietnam (0.15) and Malaysia (0.12).

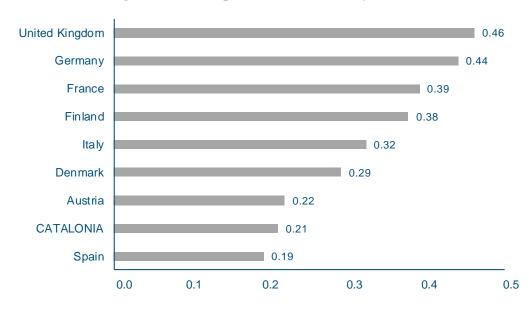


### **Comparison of export intensity by region: Asia**

Low presence of Catalonia in Asian countries compared to European countries

Although no European country analysed had an export intensity index greater than one with Asia, Catalonia had a particularly low index with the region (0.21), only slightly above that of Spain as a whole (0.19). Major European countries such as the United Kingdom, Germany and France presented a comparatively higher export intensity with most Asian countries.

#### **Export intensity index with Asia, 2016**



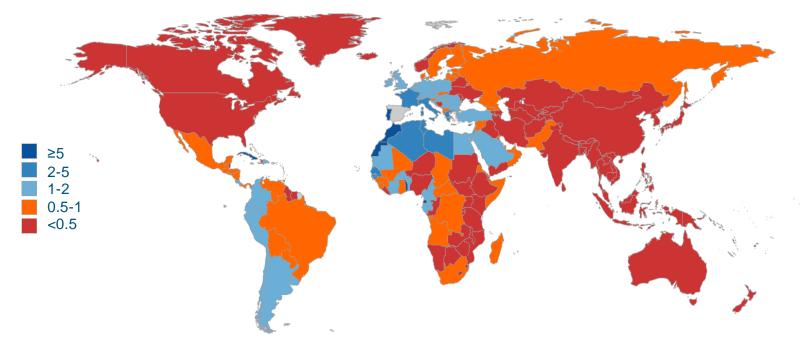


### 4. Challenges and Recommendations

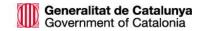


# Export intensity index map by country, 2016

The relevance of geographical and cultural distance in export intensity: Asia and North America, the main challenges for Catalan exports

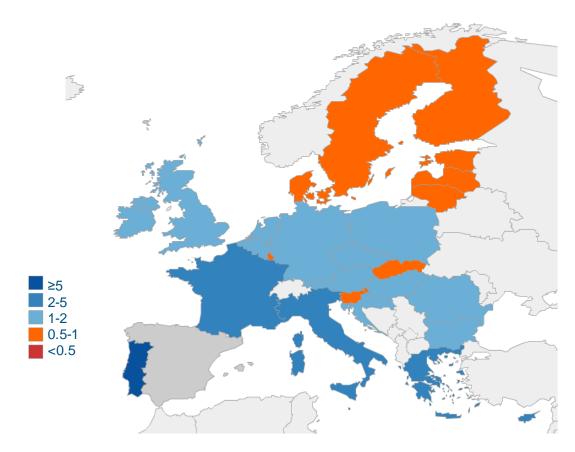


The world map showing Catalonia's export intensity indices confirms one of the principles of world trade: that geographical and cultural distance is a key factor in the trade relations between countries. The main countries with which Catalonia presented the highest export intensity indices were those of the European Union, the Southern Mediterranean Basin (North Africa, Turkey and part of the Middle East) and some Latin American countries (especially the countries of the Pacific and the Caribbean islands). By contrast, the main countries with which it had the lowest export intensity indices were those of Sub-Saharan Africa (especially East Africa), North America, Asia and Oceania.



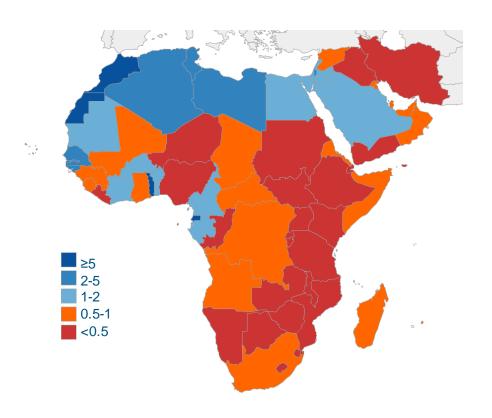
### **Europe**

Scope for improvement in the Nordic and Baltic countries, Russia and neighbouring countries

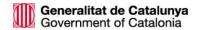




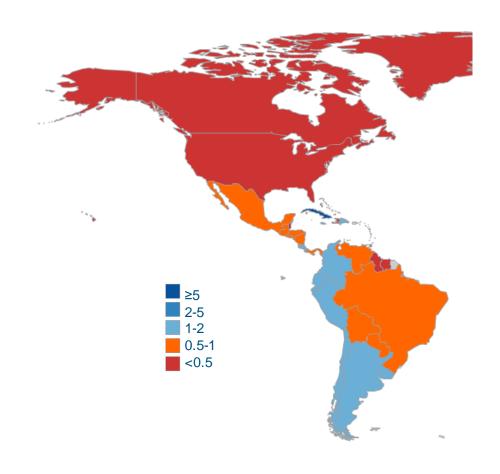
### **Africa and the Middle East**



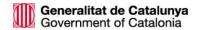
- A greater presence is required in Sub-Saharan Africa, especially in East Africa in countries with the greatest growth prospects such as Ethiopia, Kenya, Tanzania and Mozambique. With respect to West Africa, there is room for improvement in Nigeria and Ghana.
- In terms of the Middle East, the United Arab Emirates shows scope for improvement and a greater presence is required in Iran.



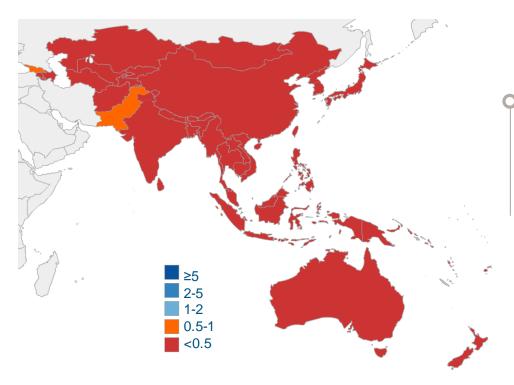
### **The Americas**



- A greater presence is required in North America.
- There is room for improvement in the two largest Latin American countries: Brazil and Mexico.



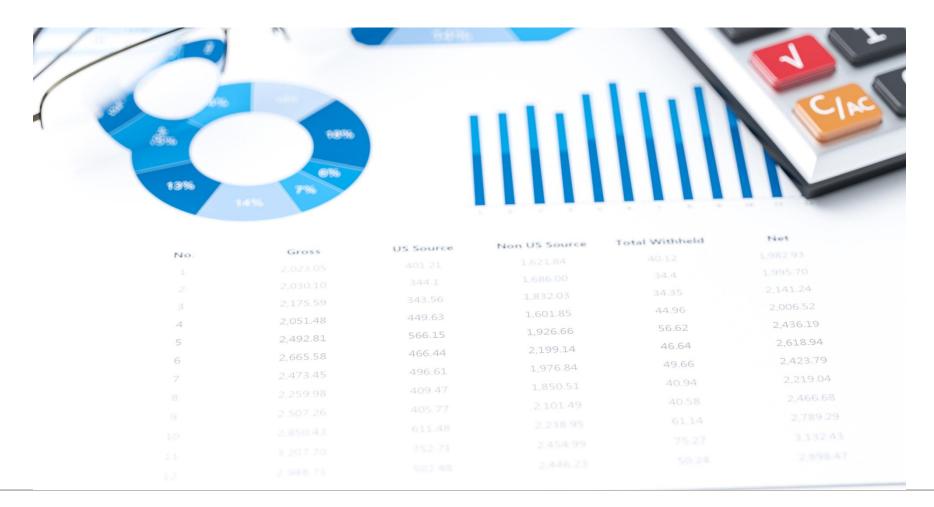
### **Asia and Oceania**



Exports to Asia require intensification, especially with the countries with the greatest growth prospects: India, China, Japan, South Korea, Philippines, Thailand, Indonesia, Vietnam, Malaysia and Bangladesh.



# 5. Appendix



### **Export Intensity Index. Ranking by Country (1-60)**

	Country	2008	2016	Variation
1	Portugal	13.73	15.56	1.83
2	Cuba	6.88	9.93	3.05
3	Morocco	5.09	7.71	2.62
4	Malta	2.12	5.08	2.95
5	France	4.62	4.59	-0.03
6	Algeria	3.68	4.58	0.89
7	Tunisia	3.14	3.71	0.57
8	Italy	2.86	3.61	0.75
9	Cyprus	2.49	3.13	0.64
10	Greece	2.63	2.76	0.12
11	Libya	1.37	2.16	0.79
12	Gibraltar	1.24	2.09	0.85
13	Senegal	1.07	2.02	0.95
14	Switzerland	2.26	1.98	-0.28
15	Dominican Rep.	3.80	1.94	-1.87
16	Uruguay	1.43	1.89	0.45
17	Germany	1.36	1.80	0.44
18	Lebanon	1.72	1.80	0.08
19	Bulgaria	0.93	1.71	0.78
20	Turkey	1.45	1.61	0.16
21	Poland	1.19	1.61	0.42
22	Côte d'Iv oire	0.64	1.59	0.95
23	Israel	0.81	1.56	0.75
24	Chile	0.81	1.55	0.74
25	Croatia	0.65	1.54	0.89
26	Romania	1.04	1.52	0.47
27	United Kingdom	1.41	1.52	0.11
28	Colombia	0.99	1.45	0.46
29	Hungary	1.18	1.30	0.12
30	Argentina	1.40	1.29	-0.11

	Country	2008	2016	Variation
31	Ireland	0.75	1.29	0.54
32	Ecuador	0.74	1.29	0.55
33	Egy pt	0.86	1.27	0.42
34	Netherlands	1.15	1.19	0.05
35	Czech Rep.	1.21	1.18	-0.03
36	Saudi Arabia	0.65	1.17	0.52
37	Belgium	0.91	1.14	0.23
38	Austria	1.05	1.12	0.07
39	Jordan	0.68	1.11	0.43
40	Serbia	0.64	1.10	0.46
41	Peru	0.79	1.06	0.27
42	Costa Rica	0.76	1.04	0.28
43	Luxembourg	0.72	1.00	0.28
44	South Africa	0.87	0.99	0.12
45	Angola	0.72	0.98	0.26
46	Guatemala	0.72	0.97	0.25
47	Brazil	0.81	0.97	0.16
48	Slov enia	0.96	0.93	-0.02
49	Slovakia	0.99	0.92	-0.07
50	Latvia	0.65	0.90	0.25
51	Denmark	1.94	0.90	-1.04
52	Lithuania	0.65	0.89	0.24
53	Panama	1.21	0.88	-0.33
54	Macedonia	0.68	0.84	0.16
55	Mexico	0.84	0.82	-0.02
56	Sweden	0.75	0.82	0.07
57	Ghana	0.49	0.79	0.30
58	Venezuela	1.13	0.79	-0.34
59	Finland	0.47	0.74	0.27
60	El Salv ador	0.52	0.74	0.22



### **Export Intensity Index. Ranking by Country (61-120)**

	Country	2008	2016	Variation
61	Estonia	0.53	0.73	0.21
62	Paraguay	0.58	0.72	0.14
63	Georgia	0.55	0.70	0.16
64	Qatar	0.61	0.70	0.09
65	Honduras	0.57	0.69	0.12
66	Oman	0.26	0.68	0.43
67	Kuwait	1.08	0.63	-0.44
68	Bolivia	0.67	0.62	-0.05
69	Russia	1.14	0.61	-0.54
70	Nicaragua	0.38	0.58	0.20
71	United Arab Emirates	0.79	0.56	-0.22
72	Pakistan	0.25	0.56	0.31
73	Iceland	0.53	0.48	-0.05
74	Bosnia and Herzegovina	0.24	0.48	0.24
75	Bahrain	0.41	0.45	0.04
76	Australia	0.65	0.44	-0.21
77	Sudan	-	0.40	-
78	Ukraine	0.45	0.40	-0.05
79	New Zealand	0.50	0.38	-0.12
80	Iran	0.61	0.38	-0.23
81	Norway	0.35	0.37	0.03
82	Philippines	0.20	0.36	0.16
83	Kenya	0.35	0.34	-0.01
84	Japan	0.17	0.32	0.16
85	Yemen	0.20	0.32	0.13
86	Nigeria	0.71	0.30	-0.41
87	Azerbaijan	0.19	0.29	0.10
88	Bangladesh	0.51	0.28	-0.23
89	Kazakhstan	0.21	0.27	0.06
90	Tanzania	0.20	0.27	0.07

	Country	2008	2016	Variation
91	Thailand	0.19	0.25	0.06
92	United States	0.20	0.24	0.04
93	Mozambique	0.20	0.24	0.04
94	Iraq	0.10	0.22	0.13
95	India	0.18	0.22	0.04
96	Sri Lanka	0.15	0.21	0.06
97	Trinidad and Tobago	0.63	0.21	-0.42
98	Belarus	0.21	0.21	0.00
99	South Korea	0.13	0.21	0.08
100	China	0.14	0.20	0.06
101	Uzbekistan	0.10	0.20	0.10
102	Indonesia	0.14	0.18	0.04
103	Singapore	0.13	0.15	0.03
104	Canada	0.10	0.15	0.05
105	Vietnam	0.12	0.15	0.03
106	Ethiopia	0.14	0.15	0.01
107	Liberia	0.03	0.15	0.12
108	Macau	0.18	0.14	-0.04
109	Zambia	0.04	0.14	0.10
110	Hong Kong	0.19	0.13	-0.06
111	Taiwan	0.10	0.12	0.02
112	Malaysia	0.16	0.12	-0.04
113	My anmar	0.01	0.09	0.08
114	Nepal	0.25	0.06	-0.19
115	Cambodia	0.07	0.05	-0.02
116	Zimbabwe	0.02	0.05	0.03
117	Af ghanistan	0.15	0.04	-0.11
118	Namibia	0.14	0.03	-0.11
119	Botswana	0.05	0.01	-0.04
120	Marshall Islands	0.00	0.00	0.00





### **GDP Growth Forecast (2018-2022 average). Top 60 Countries**

	Country	Average growth 2018-2022
1	Yemen	8.1%
2	India	7.9%
3	Ethiopia	7.9%
4	Mozambique	7.7%
5	Liby a	7.6%
6	My anmar	7.5%
7	Bangladesh	7.0%
8	Senegal	6.9%
9	Côte d'Iv aire	6.9%
10	Philippines	6.8%
11	Tanzania	6.7%
12	Cambodia	6.5%
13	Vietnam	6.2%
14	China	6.2%
15	Keny a	6.1%
16	Ghana	6.1%
17	Uzbekistan	6.0%
18	Pakistan	5.8%
19	Liberia	5.6%
20	Panama	5.6%

	Country	Average growth 2018-2022
21	Egy pt	5.5%
22	Indonesia	5.5%
23	Macau	5.4%
24	Dominican Rep.	5.1%
25	Sri Lanka	5.0%
26	Georgia	4.9%
27	Malaysia	4.9%
28	Zambia	4.5%
29	Nicaragua	4.5%
30	Botswana	4.4%
31	Morocco	4.1%
32	Nepal	4.0%
33	Af ghanistan	4.0%
34	Iran	4.0%
35	Costa Rica	3.9%
36	Paraguay	3.9%
37	Tunisia	3.9%
38	Peru	3.8%
39	Guatemala	3.8%
40	Serbia	3.8%

	Country	Average growth 2018-2022
41	Bolivia	3.8%
42	Honduras	3.8%
43	Ukraine	3.7%
44	Malta	3.6%
45	Romania	3.6%
46	Sudan	3.6%
47	Slovakia	3.6%
48	Kuwait	3.5%
49	Turkey	3.5%
50	Macedonia	3.5%
51	Colombia	3.5%
52	Kazakhstan	3.5%
53	Latvia	3.3%
54	Namibia	3.3%
55	Lithuania	3.3%
56	Luxembourg	3.2%
57	Thailand	3.2%
58	United Arab Emirates	3.2%
59	Estonia	3.1%
60	Israel	3.1%



