

Business Internationalization Through the Gender Glasses

Joaquín María Núñez Varo
ICEX Spain Trade and Investment

María del Mar Gómez González
ICEX Spain Trade and Investment

This paper aims to offer a diagnosis of exporting companies with an interest in the international market from a gender perspective. To this end, we show descriptive evidence using data from Spain gathered by ICEX. The application of advanced data analysis techniques allows us to explore the characteristics of companies with an interest in internationalization from a gender perspective, whether there are differences both in the use of ICEX support services and in the target markets for this support in the case of woman-led or female-owned companies, and whether there are differences in export pathways from the year 2000 onwards.

Keywords: public support to business internationalization, gender equality, women and internationalization, women's businesses, evaluation of public policies, business internationalization, quantitative methods

INTRODUCTION

Internationalization is one of the essential cornerstones for the growth of economies, for improving employment and for increasing competitiveness. In this sense, it represents a strategic and priority lever for socioeconomic development.

The significant transformations and challenges that the COVID-19 pandemic crisis has triggered are being addressed through far-reaching recovery plans, aimed at turning challenges into opportunities to move towards stronger, more sustainable, cohesive and resilient economic and social growth models.

The recovery requires, among other things, the optimization of resources and the maximum use of available capacities. The promotion of the active participation of women in international trade, still a minority, represents a great opportunity in the economic sphere, with a clear positive social impact.

One of the major objectives that is now present on the agenda of all international bodies and organizations is gender equality and the need to develop lines of action and programs aimed at promoting greater participation and a more active role for women in the economy, given their limited presence in international activity, as only one in five global exporting companies are led by women - ITC, International Trade Centre (2015) - , a figure that rises to 22% in the European Union.

The World Trade Organization's Declaration on Trade and Women's Economic Empowerment, signed in Buenos Aires in 2017 and subscribed to or supported by more than 120 countries, including Spain, represents a milestone in this regard, recognizing that women's access to and participation in the national

and international economy has a positive impact on economic growth and contributes to sustainable economic development.

The United Nations 2030 Agenda, with a global scope, also has its own chapter dedicated to gender equality through Sustainable Development Goal (SDG) 5, which has strong synergies and a multiplier effect by indirectly contributing to the achievement of other SDGs.

The European Union's Strategy for Gender Equality, for its part, constitutes a more direct reference framework for its member countries in the promotion of policy objectives and actions aimed at achieving this goal (European Commission, 2020).

In line with this global trend, the Strategy for the Internationalization of the Spanish Economy - MINCOTUR, Ministry of Industry, Trade and Tourism (2019, 2020, 2021) - which is based on an in-depth analysis of the structural situation to define the roadmap and the axes that should serve as a framework for action to maximize the contribution of the foreign sector to the economy during the period 2017-2027, already includes measures specifically aimed at promoting the criterion of equality, promoting women's entrepreneurship and encouraging greater participation of women in the international field.

In turn, *the III Biennial Action Plan for the Internationalization of the Spanish Economy* (MINCOTUR, 2021), consistent with this Strategy, updates the current diagnosis, considering the new scenario and the structural changes that are taking place in the world after the COVID-19 pandemic and integrates the lines and axes defined in the Recovery, Transformation and Resilience Plan, financed with *Next Generation EU* funds. The growth of the export base is consolidated as one of the areas to be strengthened in our foreign sector, including a greater international presence of women's companies and greater geographic diversification.

The *ICEX Strategic Plan for the period 2021-2022* (ICEX Spain Trade and Investment, 2021a), in turn, already explicitly includes among its objectives the expansion of the export base with special attention to new entrepreneurial business models and the deficit of companies led by women in the international market.

The creation of the Working Group on the role of women in the internationalization of the Spanish economy, promoted by the State Secretariat for Trade and the State Secretariat for Equality and against Gender Violence, through the Institute for Women and Equal Opportunities, has made it possible to create a forum for reflection, dialogue, collaboration and joint work in this field. At the beginning of 2020, a series of discussion sessions were held within the group, with the broad participation of public bodies, the private sector, academia, associations and interested entities, organized around four thematic areas:

- Data analysis and statistics
- Visibility, training, financing and supporting instruments
- Public procurement
- Private procurement

One of the main conclusions of the first roundtable was the lack of reliable and homogeneous data on women's businesses at the international level, as well as the need to promote and advance in the analysis and diagnosis of the current situation. This knowledge is essential to better identify the current situation and possible needs, as well as to design instruments or adopt initiatives that will be effective in this regard.

ICEX is undertaking a thorough empirical study based on the universe of companies which we have supported in any way since 2003, more than 190,000 in number, incorporating our own data and also data from other external sources of information, such as statistics on foreign trade in goods from the Spanish Tax Agency (AEAT) or economic data on companies in the Commercial Registry, through Informa D&B. We would refer the reader interested in a complete and detailed analysis to Núñez Varo (2021).

This article contains the main results of this study: we show descriptive evidence that allows us to answer four relevant questions in order to offer a diagnosis about the exporting company with an interest in the international market from a gender perspective.

1. Characterization of companies interested in internationalization from a gender perspective. We address this question under section 2.
2. Differences in the use of ICEX support based on the gender of the leader and the actual owner of the company. We address this question under section 3.

3. Differences in the target markets for ICEX support based on the gender of the leader and the actual owner of the company. We address this question under section 4.
4. Differences in goods export itineraries according to the gender of the leader and the actual owner of the company. We address this question under section 5.

CHARACTERIZATION OF COMPANIES FROM A GENDER PERSPECTIVE

In order to apply the gender perspective to the internationalization of companies, we have characterized them according to the gender of their leader and the gender of their ultimate owner. This characterization will allow us to analyze those possible profile differences that may directly or indirectly affect the internationalization behaviors we wish to study. For this purpose, we have used Informa D&B data corresponding to the complete database of companies that had any relationship with ICEX since 2003.

Specifically, using Informa's available ownership data for 2019 and leadership and board positions during 2014-2018, we have classified each company for which data is available into the following categories, separated based on leadership or ownership:

- Women: majority of women in strategic decision-making positions or majority of the company's ownership occupied by women, respectively¹.
- Men: majority of men in strategic decision-making positions or majority of the company's ownership in the hands of men, respectively.
- Multiple: there is no clear majority of people of one gender or other in each of the years, in strategic decision-making or ownership positions, respectively.
- Other: it was not possible to infer the gender of persons in strategic decision-making positions or ownership, respectively.

The information needed to determine the gender of strategic management could be collected from a total of 121,554 companies, while for ownership this number is reduced to a total of 81,058 companies. The breakdown can be found in Table 1. We have also found that there is some relationship between the gender of the actual owner and the gender of the company leader, although it is far from univocal.

TABLE 1
DISTRIBUTION OF COMPANIES BY GENDER OF THE LEADER SINCE 2014 AND OF THE ACTUAL OWNER

	Gender	Number of companies	Percentage
Leader since 2014	Woman	14,639	12.04 %
	Multiple	28,863	23.75 %
	Other	1,482	1.22 %
	Man	76,570	62.99 %
	Total	121,554	100 %
Actual owner	Woman	7,168	8.84 %
	Multiple	41,753	51.51 %
	Other	63	0.08 %
	Man	32,074	39.57 %
	Total	81,058	100 %

SOURCE: Prepared by the author based on data from ICEX and Informa D&B.

In order to analyze the differences in characteristics of companies based on the gender of their leader or majority owner, we extracted the data corresponding to those companies that were alive in 2018 for which it was possible to calculate the gender of the leader uninterruptedly since 2014 or the gender of the actual owner and that had filed accounts with the Commercial Registry in 2018. This gives a total of 55,974 companies, in terms of strategic direction, and 43,844 companies, in terms of ownership. Of the first group

of companies, we find that 5,941 are led by women and 33,490 by men. In the second group, 3,139 companies are female-owned and 15,314 are male-owned.

According to the gender of the leader and according to the gender of the actual owner of the company, there is a relationship between the female gender and smaller companies (micro-companies or entities for which size cannot be calculated as they are not obliged to present accounts), as well as between this gender and the sectors of services to society², which is more marked in the case of the gender of the company leader. In terms of the autonomous community where the company has its headquarters, there is a higher proportion of companies headed by women in the Autonomous Communities of Madrid, the Balearic Islands and, to a certain extent, Cantabria. If we consider the gender of the actual owner, the relationship is clearer and the autonomous community of Catalonia must be added to the above.

For quantitative variables, as Table 2 shows, women-led companies tend to be smaller in size than those led by men. They typically have 60% less revenue, half the number of employees (in particular they tend to hire more women), one less registered trademark and are less likely to be involved in an investee company than those led by men. Finally, they tend to be younger. Meanwhile, women-owned businesses tend to be smaller in size than those owned by men: they tend to have 40% less revenue and 10% less value added. In addition, they tend to be younger but, in contrast, they tend to have one more investee company.

TABLE 2
DIFFERENCES IN QUANTITATIVE VARIABLES OF COMPANY CHARACTERIZATION
ACCORDING TO GENDER OF LEADER OR OWNER

	Variable	Gender		W-M difference	
		Woman	Man	Absolute	Relative
Leader since 2014	Age	20,18	22,16	-1,98	-8,94 %
	No. of investees	2,69	3,60	-0,91	-25,21 %
	No. of brands	4,42	5,57	-1,16	-20,73 %
	Net revenues	4.978.683 €	14.668.353 €	-9.689.669 €	-66,06 %
	Operating revenues	5.118.360 €	14.842.453 €	-9.724.093 €	-65,52 %
	Profit or loss from ordinary activities	315.138 €	1.024.782 €	-709.644 €	-69,25 %
	Profit or loss for the fiscal year	315.114 €	1.033.235 €	-718.122 €	-69,50 %
	Operating income	360.415 €	1.105.349 €	-744.934 €	-67,39 %
	Ordinary profit or loss before taxes	373.413 €	1.161.585 €	-788.172 €	-67,85 %
	No. of permanent employees	22,94	44,13	-21,18	-48,00 %
	No. of permanent employees (men)	12,36	25,71	-13,35	-51,92 %

	Variable	Gender		W-M difference	
		Woman	Man	Absolute	Relative
Owner	Age	17,67	19,35	-1,69	-8,71 %
	No. of investees	3,83	2,88	0,95	32,90 %
	Net revenues	3.512.358 €	6.229.670 €	-2.717.312 €	-43,62 %
	Operating revenues	3.566.108 €	6.276.956 €	-2.710.848 €	-43,19 %
	Profit or loss from ordinary activities	174.437 €	325.675 €	-151.238 €	-46,44 %
	Profit or loss for the fiscal year	173.733 €	324.940 €	-151.207 €	-46,53 %
	Operating income	146.747 €	307.959 €	-161.212 €	-52,35 %
	Ordinary profit or loss before taxes	202.628 €	383.813 €	-181.185 €	-47,21 %
	Added value	-779.715 €	-867.549 €	87.833 €	-10,12 %

NOTE: Only differences that are significant and representative are shown.

SOURCE: Prepared by the author based on data from ICEX and Informa D&B.

DIFFERENCES IN THE USE OF ICEX SUPPORT

ICEX has a broad portfolio of services and programs to support the internationalization of Spanish companies. Depending on the product offered to the company in accordance with the intervention logics reconstructed by the Evaluation Department of all ICEX activity, this support is grouped into the following categories or types of activity:

- Attraction of investment: activities and information that promote and enhance the identification of investment opportunities and facilitate or support foreign investment in Spanish territory.
- Bids: support and/or advice for the submission of international bids.
- Commercial promotion: participation in activities and services that promote awareness of Spanish products and their brands.
- Contact: meetings that provide the company with contacts that result in contracts abroad and *on-site* information on potential partners, competitors and international customers.
- Customized services: one-off support tailored to the needs of the company in its prospecting, promotional and commercial actions in a destination country.
- Exhibition: integral logistics service for the participation in promotional activities where the Spanish offer is made known to the demand of a specific market.
- Individual support: support and/or advice tailor-made for the company in order to overcome certain objective barriers to internationalization and adapt its business plan to the planned target market.
- Information: specialized and updated information by sector and company size to facilitate more effective and faster decision making in the international environment.
- Initiation: strategic consulting support to initiate or consolidate a company's internationalization strategy.
- Intermediation: services that identify the best Spanish offer for a specific international demand detected.
- Investment: support and/or advice tailored to the Spanish company's needs in order to successfully undertake investments or business cooperation agreements in an identified target market.
- Training: training actions aimed at improving the skills and qualifications of professionals for internationalization.

From a gender perspective, the possible differences in the use of ICEX support could be due to two possible causes:

- Differences in approach to business management based on gender.
- Differences in objective barriers to company growth as a function of gender.

We have cross-checked the table constructed in the Evaluation Department from all internal ICEX sources containing the list of types of support requested by tax identification code (CIF) between 2003 and 2020 with the list of companies for which we have been able to calculate the gender variables. As we have delimited the calculation of the gender of the company's leader on an uninterrupted basis between 2014 and 2018 we thought it appropriate to delimit the table to the activities carried out in the same period, since if a person is no longer a leader or owner in 2019 their strategy or differential vision, if any, may no longer be present. After this, if we look at the leader's gender, we obtain information corresponding to 43.980 companies. In terms of actual owners, the table is reduced to 30.468 companies. Restricting this table to companies whose leaders are either men or women, the number of companies remains at 29.774. In the case of owners, this number is 14.451.

Differences in the Use of ICEX Support Between 2014 and 2018

Table 3 shows the proportion of companies that have used the different categories of ICEX support, by year and by gender of their leader and actual owner. The ratio has been calculated as the number of companies by gender that have used each category in the year divided by the total number of companies of the same gender that have applied for any ICEX support during that year. In order to compare whether there are differences in the use of support based on the gender of the leader since 2014 or its actual owner, we also calculated both the number of years (length of service) and the number of supports in each category requested by each company in order to compare whether there are differences in use by category based on the gender of its leader since 2014 or its actual owner.

TABLE 3
NUMBER OF COMPANIES THAT HAVE RECEIVED ICEX SUPPORT BETWEEN 2014 AND 2018 BROKEN DOWN BY THE GENDER OF THE LEADER SINCE 2014 AND BY GENDER OF THE ACTUAL OWNER

		Gender				Total Number
		Woman		Man		
	Year	Number	Percentage	Number	Percentage	
Leader since 2014	2014	1.545	14,47 %	9.135	85,53 %	10.680
	2015	1.145	14,22 %	6.905	85,78 %	8.050
	2016	1.216	14,31 %	7.281	85,69 %	8.497
	2017	2.977	15,74 %	15.939	84,26 %	18.916
	2018	1.227	14,32 %	7.342	85,68 %	8.569
	2014-2018 period	4.696	15,77 %	25.078	84,23 %	29.774
Owner	2014	796	17,38 %	3.783	82,62 %	4.579
	2015	640	18,41 %	2.836	81,59 %	3.476
	2016	695	18,24 %	3.115	81,76 %	3.810
	2017	1.680	18,91 %	7.206	81,09 %	8.886
	2018	783	18,60 %	3.427	81,40 %	4.210
	2014-2018 period	2.691	18,62 %	11.760	81,38 %	14.451

NOTE: The high number of companies in 2017 is due to the implementation of the CRM, which introduced as clients of ICEX Information services numerous companies that were previously listed as anonymous requester in the integrated information channel for internationalization of the Spanish State Secretariat for Trade queries. These numbers distort the historical series. Only companies with a man or woman leader or owner are included.

SOURCE: Prepared by the author based on data from ICEX and Informa D&B.

Among the most notable differences in terms of the time support has been used (support time-length), it is worth highlighting the non-existence of women-owned or led companies in the case of investment attraction; in the case of information support, they have a slightly lower recurrence; in bidding processes, women-led companies have a slightly higher recurrence, while women-owned companies resort more to intermediation-type support. Similar differences are also observed in the number of services requested.

These descriptive results, shown in Table 4, however, could be hiding indirect effects that in reality could be attributable to other characteristics of the companies and not to gender. Particularly, we must take into consideration the higher concentration of smaller companies among those led by women or owned by women, as well as the existence of a certain association between women's companies and some activity sectors that we have called services to society, as we have been able to verify in their characterization.

Our objective is to identify possible direct effects due only to gender and for this purpose we have estimated a nested model that looks for differences in the number of services requested or years in which they have requested them according to gender, after having discarded differences due to size and activity sector, a specification guided mainly by the result of a clustering of the gender, company size and activity sector variables in the sample as a whole.

TABLE 4
COMPARATIVE USE OF ICEX SERVICES BY SUPPORT CATEGORY AND GENDER OF COMPANY LEADER SINCE 2014 AND BY GENDER OF ACTUAL OWNER

		Length of service (years)		Number of services	
		Woman	Man	Woman	Man
Leader since 2014	Category				
	Individual support	1,20	1,18	1,20	1,21
	Investment attraction	0,00	1,00	0,00	1,00
	Training	1,34	1,38	1,46	1,51
	Contact	1,51	1,53	1,70	1,78
	Exhibit	2,22	2,30	2,53	2,63
	Information	1,51	1,59	1,95	2,10
	Intermediation	1,21	1,21	1,21	1,23
	Investment	1,00	1,03	1,00	1,03
	Bids	1,33	1,05	1,33	1,05
	Commercial promotion	1,66	1,70	1,90	1,87
Customized services	1,48	1,54	1,71	1,75	

	Category	Length of service (years)		Number of services	
		Woman	Man	Woman	Man
Actual owner	Individual support	1,20	1,21	1,20	1,25
	Investment attraction	0,00	1,00	0,00	1,00
	Training	1,26	1,29	1,37	1,39
	Contact	1,53	1,44	1,68	1,60
	Exhibit	2,23	2,15	2,56	2,41
	Information	1,48	1,52	1,93	1,97
	Intermediation	1,29	1,14	1,31	1,16
	Investment	1,00	1,00	1,00	1,00
	Bids	1,00	1,12	1,00	1,12
	Commercial promotion	1,65	1,61	1,83	1,79
	Customized services	1,43	1,45	1,62	1,61

SOURCE: Prepared by the author based on data from ICEX and Informa D&B.

TABLE 5
NUMBER OF INFORMATION SERVICES ESTIMATED BY THE MODEL CORRESPONDING TO THE LEADER'S GENDER AND TO THE GENDER OF THE ACTUAL OWNER WITHIN EACH ACTIVITY SECTOR

	Term	Estimate	Standard error	IC 95 %
Leader since 2014	Model constant	2,241	0,08	[2,090 - 2,391]
	[Public administration and defense; Mandatory social security] Women	1,272	0,43	[0,423 - 2,122]
	[Public administration and defense; Mandatory social security] Men	3,209	0,41	[2,404 - 4,013]
	[Manufacturing industry] Women	2,350	0,08	[2,186 - 2,513]
	[Manufacturing industry] Men	2,132	0,08	[1,969 - 2,294]
Actual owner	Model constant	2,091	0,30	[1,510 - 2,672]
	[Manufacturing industry] Women	2,210	0,30	[1,624 - 2,797]
	[Manufacturing industry] Men	1,972	0,30	[1,386 - 2,558]
	[Transport and storage] Women	1,852	0,32	[1,224 - 2,480]
	[Transport and storage] Men	2,330	0,34	[1,669 - 2,991]

NOTE: Only those terms where gender differences are significant are shown.

SOURCE: Prepared by the author based on data from ICEX and Informa D&B.

The results, as seen in Table 5, show that there are only differences according to the leader's gender for the number of information services requested in some activity groups according to the CNAE classification. The only clear difference corresponds to the companies belonging to the Public Administration and Defense sector, which is mainly made up of government agencies, either state or local. Those agencies led by women have used, at most, two information services, while those led by men have used more than two, a figure that can reach four. There are no representative differences in terms of the actual owner's gender.

Differences in ICEX Support Utilization Strategy Between 2014 and 2018

We address this question by analyzing the succession of support services that companies have requested from ICEX between 2014 and 2018, in order to find out whether there is a differentiated joint use, based on sequences of use for each company.

A sequence is an ordered series of elements of the form:

$$\langle A_1, A_2, \dots, A_n \rangle$$

where each element A_i is, in turn, a set of items a_{ij} of the form:

$$A_i = \{a_{i1}, a_{i2}, \dots, a_{in}\}$$

In our case, a sequence represents the temporal series of ICEX support categories in which a given CIF has participated. Our items will be support categories, and our elements, identified by calendar year, will be the groupings of ICEX support categories where a particular CIF has participated in that specific year.

To perform the analysis, we have taken into account the proportion of companies that have used the different sequences of ICEX support categories, separated by gender of their leader and their actual owner. The proportion has been calculated as the number of companies that have used the sequence of categories in the period 2014-2018 for the given gender, divided by the total number of companies of that gender that have used any category in any year of the period.

There are no significant differences in the use of instrument categories according to the gender of the actual owner of the company, but there are differences according to the gender of the leader. Thus, women-led businesses are less likely to use information services if it is not associated with specific additional support. The question then arises as to whether this is due to greater loyalty and trust in companies led by women or to the smaller size of this type of company, which could lead its leader to carry out more interactions because it lacks the structure and resources of a larger company.

We have answered this question provisionally by calculating, separately for leaders and owners, the probability of requesting at least one support service in each year of the 2014-2018 period, according to company size and gender.

The results reveal that the differences noted in this probability are not due to gender but to the activity sector, once company size has been controlled for.

DIFFERENCES IN TARGET MARKETS FOR ICEX SUPPORT

We have contemplated the support that companies have received in the period 2014-2018 for which it makes sense to define a support destination, considering for this purpose the geographic area to which the particular country belongs, as these areas represent geographic markets and offer a more robust analysis. Cross-referencing this table with the gender variables calculated above, we obtain information for 12.698 entities. Restricting this table to companies led by men or women reduces the number of companies to 8.339, and to 3.547 in the case of owners.

No major differences are noted in the markets where any ICEX support has been requested in the period 2014-2018, although this first view may be misleading as it mixes support of different kinds. Among all the differences in proportion significant at least at a 90 % confidence level, we have retained as


representative those whose confidence intervals are clearly above 2 %. Table 6 summarizes this information. In it, we have highlighted in red when the percentage of women’s companies that have applied for support from a category is higher than the percentage of men’s companies (meeting the criteria of significance and representativeness), and we have highlighted in yellow when the situation is the opposite. For the non-colored cells, there is no evidence of a higher or lower proportion depending on gender.


Overall, it cannot be said that women-led companies prefer or avoid certain destination zones when applying for ICEX support. The only result worth noting is that women-led enterprises use less contact-type support in South America, and use more trade promotion support in North America, the Far East and EFTA (European Free Trade Association). Nor can it be said in general that women-owned companies prefer or avoid certain destination areas when applying for ICEX support. Only in Eastern Europe is there evidence that women-owned companies use less contact-type support. In South America, however, they use more investment and bidding services.

TABLE 6
DIFFERENCES IN PERCENTAGE OF COMPANIES THAT HAVE REQUESTED SUPPORT
ACCORDING TO THE GENDER OF THE COMPANY LEADER AND THE ACTUAL OWNER
IN A GIVEN DESTINATION BETWEEN 2014 AND 2018 BY
SUPPORT CATEGORY

		Leader since 2014										Actual owner										
		Support category										Support category										
Continent	Area	Individual Support	Contact	Exhibit	Information	Intermediation	Investment	Bids	Commercial promotion	SSPP	All	Individual Support	Contact	Exhibit	Information	Intermediation	Investment	Bids	Commercial promotion	SSPP	All	
Africa	Southern Africa						X															
Asia	Southeast Asia										X											
	Far East								X													
America	North America								X													
	South America		X								X						X	X				
Europe	Eastern Europe											X										
	EFTA								X													
Oceania	Oceania	X																				
Other	Other								X													

NOTE: Only significant and representative differences have been marked.

 The percentage of women-led or women-owned companies that have applied for support is higher than the percentage of men-led or men-owned companies.

 The percentage of women-led or women-owned companies that have applied for support is lower than the percentage of men-led or men-owned companies.

DIFFERENCES IN GOODS EXPORT ITINERARIES

In order to clarify this issue, we have worked with the entire anonymized base of goods exports from 2000 to 2019, thanks to the collaboration of the General Directorate of Customs, which has been essential to carry out this study. This download contains disaggregated data corresponding to 1.015.352 entities.

On this basis we have calculated, first, the type of company by export flow extracted from the clustering carried out at ICEX, which can be seen in Núñez Varo (2023). A description of these types is given below.

- Type 1. Companies that export for an estimated time of around five years and whose annual export volume is less than 10.000 euros.
- Type 2. Companies that export for an estimated time exceeding seven years and whose annual export volume is around 4 million euros.
- Type 3. Companies that export for an estimated time exceeding nine years and whose annual export volume is around 2 million euros.
- Type 4. Companies that export for an estimated period of two years and whose annual export volume is around 100.000 euros.
- Type 5. Companies that export for an estimated period of two years and whose annual export volume is around 1.000 euros.
- Type 6. Companies that export for an estimated period of nine years and whose annual export volume is around one million euros.
- Type 7. Companies that export for an estimated period of four years and whose annual export volume is around 1.000 euros.

Secondly, we asked the General Directorate of Customs to include in this download the gender variables calculated for all the companies that had any relationship with ICEX since 2003, so that the confidentiality of the information would be guaranteed.

We have been interested in seeing the sequence of geographic areas where each company operates, for which we have considered only the year of entry into each of the areas and we have included in that year all the exports corresponding to the specific area. The final file will be shaped as transaction data in such a way that the items will be the explored zones, and our elements, identified by year of entry, will be the groupings of zones explored by a company, registered by fictitious tax number, in order of entry into the market.

We now focus on comparing the evolution, according to gender, of the following magnitudes:

- New companies exporting goods.
- Average annual export volume of goods.
- Regular exporters of goods, defined as those companies that have exported goods in the current year and also in the previous three years, regardless of volume or whether they have continued exporting in successive years.
- Viable regular exporters of goods, defined as those companies that have exported goods in the current year and in the previous three years with a volume of more than 40.000 euros in all years, regardless of whether they have continued exporting in subsequent years.
- Probability of becoming a regular exporter of goods.
- Probability of becoming a viable regular exporter of goods.
- Estimation of the number of good candidates to become viable regular exporters.
- Percentage of exports of goods destined for the European Union by year of export start-up.

In this analysis, we should take into consideration that there is a certain relationship between women's companies (either by leadership or ownership) and those that have a lower probability of becoming regular (types 1, 4, 5 and 7).

We would like to mention the results that in our opinion are more relevant and refer the interested reader to the complete study for further information.

The results show that there is a difference in most of the magnitudes, and that this difference persists over time. We have been interested in checking which of these differences are caused by gender in reality,

and for this purpose we have adjusted a model that rules out possible indirect effects due to the fact that women’s companies are more associated with a smaller type of company or that they tend to have a smaller international trajectory.

This model shows that there are gender differences among the number of companies that start exporting and, therefore, in the number of regulars and regular viables. However, there is no difference in the probability that an export start-up will become regular or regular viable based on the gender of either the owner or the leader of the company.

We comment exclusively on the significant differences in relative terms. We can expect to see 50 % fewer women-led companies starting to export compared to the number of men-led companies, and with an average annual export volume that is 20 % lower. On the other hand, 30 % fewer women-owned companies are expected to start exporting compared to the number of men-owned companies, although in this case there is no difference in the average annual export volume.

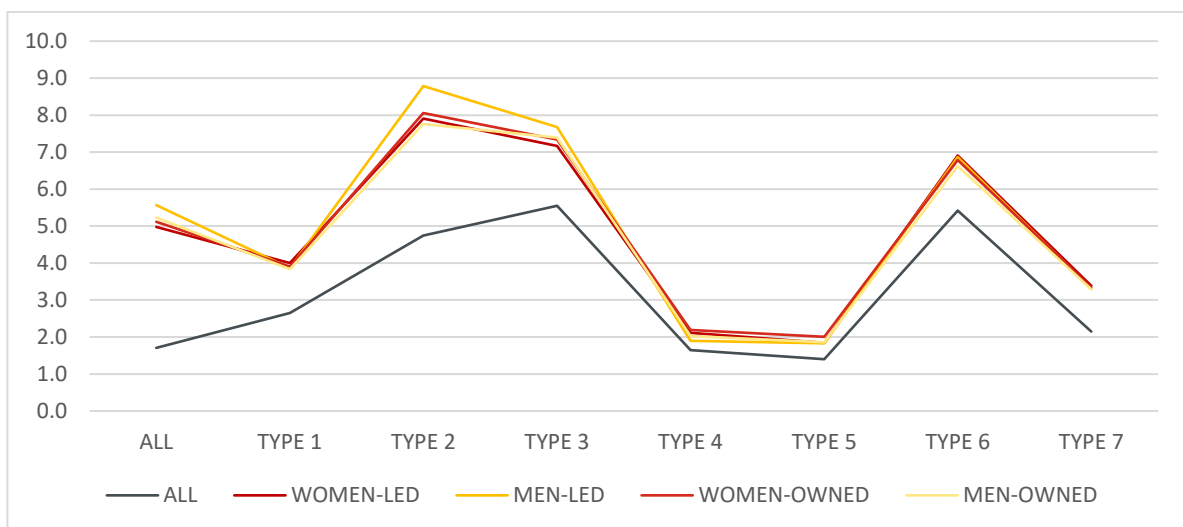
Considering the individual importance of the European Union market, although there were differences in some types of companies that started exporting between 2004 and 2008, as of 2010 the weight of the EU is the same regardless of the leader’s gender. However, for companies with a long international track record and a significant export volume (type 2), as of 2012 the EU market gains importance for women-led companies compared to similar men-led companies. According to owners, we obtain a similar result since, again, for type 2 companies, from 2012 onwards the EU market gains importance among those whose actual owner is a woman, although this importance decreases for companies that have been starting up in subsequent years.

All these results allow us to state that the possible differences we see in the international trajectories of a company depend more on the type of company and not so much on gender, since the lower concentration of women’s companies among those with a greater probability of becoming regular exporters means that the direct effects due to the type of company may be erroneously associated with differences due to gender.

Differences in Number of Explored Areas and Export Volumes

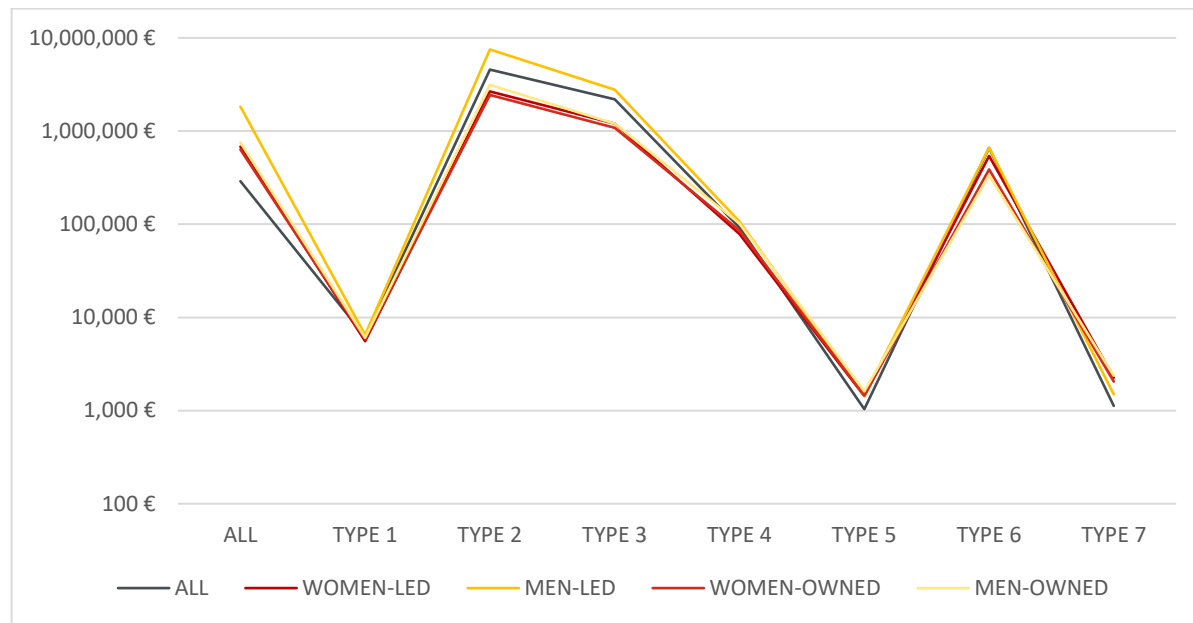
We now take a closer look at the trajectories of companies in the international market. Figures 1 and 2 show the differences in the number of areas explored and in the average annual volume of goods exported by type of company by export flow and by gender.

FIGURE 1
NUMBER OF AREAS EXPLORED BETWEEN 2000 AND 2019 BY TYPE OF COMPANY, GENDER OF COMPANY LEADER SINCE 2014 AND GENDER OF ACTUAL OWNER



SOURCE: Prepared by the author based on data from ICEX, AEAT and Informa D&B.

FIGURE 2
AVERAGE ANNUAL VOLUME OF GOODS EXPORTS BETWEEN 2000 AND 2019 BY TYPE
OF COMPANY, GENDER OF COMPANY LEADER SINCE 2014, AND GENDER OF
ACTUAL OWNER



NOTE: Values in euros, logarithmic scale.

SOURCE: Prepared by the author based on data from ICEX, AEAT and Informa D&B.

We see that there are no major differences according to gender, except for the longest-lived companies with the highest export volumes (types 2 and 3). In these types, women-led companies explore slightly fewer areas and record an export volume that is normally smaller - and at most the same - as their men-led counterparts. However, women-owned companies explore the same number of areas, but record a lower - and at most the same - export volume as their men-owned counterparts.

Differences in Goods Export Itineraries

We have calculated the proportion of companies that have used a given export sequence in the period 2000-2019 separately by gender. There are significant differences in goods export itineraries according to the gender of the company leader, but not according to the owner's gender. The question arises again as to whether these differences are really gender-related or are caused by some other reason, which would be an indirect rather than a direct effect.

The descriptive results reveal that the export itineraries of goods do not depend on the actual owner's gender, which implies that both men and women decide, in practice, to enter any market and, therefore, it could not be said that, in terms of owners, women are more averse to the risk related to accessing a particular export market. However, there are itineraries that women-led companies follow less frequently.

These results, as always, are descriptive, and mix different company itineraries. We have performed an analysis of possible differences in proportion according to different components of the route, controlling for effects that may be due to the type of company and not directly due to gender. The main results are shown below.

Differences in the Complete Route

We have calculated, for each sequence and separately by company type, the difference between the proportion of companies that carry out the same goods export itinerary according to the gender of the leader and the actual owner.

The results we have obtained show that differences can only be mentioned in the case of the company leader's gender (specifically, a lower probability of following the itinerary by a woman-led company) for longer-lived companies with greater experience and volume of exports of goods (types 2 and 3) in sequences that start in Eastern Europe, the European Union or areas of America and then go to areas of Africa or Asia. In terms of actual owners, differences are only detected in the case of gender (specifically, lower probability of doing the itinerary by a woman-owned company) for those companies that are longer-lived and have more experience and volume of exporting goods (type 2) in sequences starting in North Africa, Eastern Europe or the Arabian Peninsula. The large number of sequences included in this analysis, the results of which can be found in the full study, make it impossible to clearly determine these differences at a glance and it may therefore be misleading to draw more detailed conclusions without a more sophisticated analysis.

Differences in the First Explored Area

For the total of 1.015.352 companies that have made any exports of goods between 2000 and 2019, we have calculated the following two sets of variables:

- A set of variables called P_{start_zone} , where $zone$ goes through all the geographic areas. Each variable takes the value 1 if the company has exported in that particular area in its first year of exporting and 0 otherwise.
- A set of variables called P_{pass_zone} , where $zone$ runs through all the geographic areas. Each variable takes the value 1 if the company has exported any goods in that particular area and 0 otherwise.

For each of these variables we executed a logistic regression using a nested design that looks for differences in the probability of a company starting its international trajectory in a given area (or exploring a specific area) due to the company leader's gender since 2014 (respectively, of the gender of the actual company owner), after discarding differences due to the type of company according to its export flow. The models developed allow us to estimate, for each type of company, the magnitude known as the likelihood ratio, which is defined by the expression:

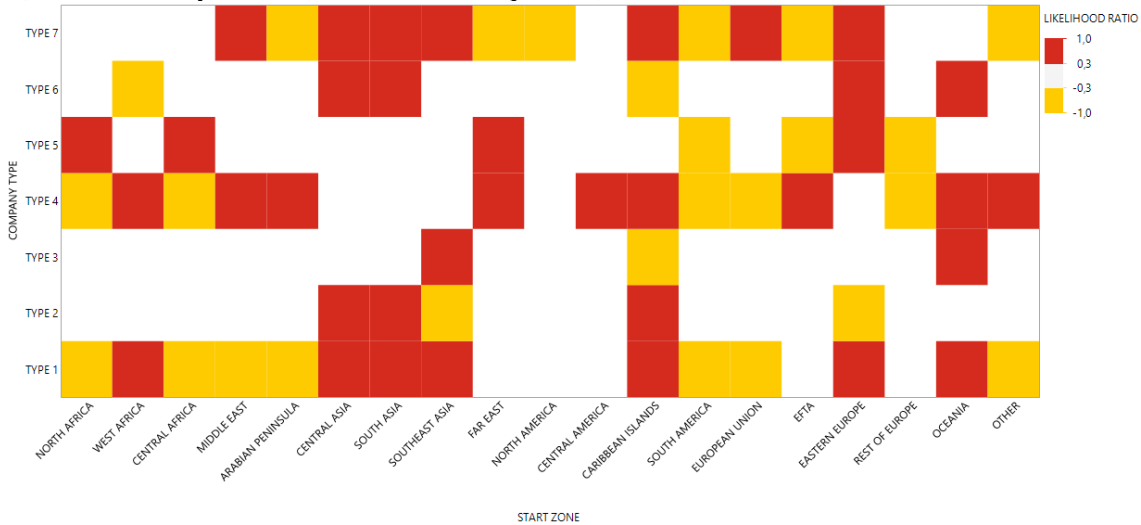
$$Likelihood\ Ratio = \frac{P(Zone=1 | Gender=Female)}{P(Zone=1 | Gender=Male)}$$

The reading of this metric indicates, in those significant cases, the multiplied increment in the probability of having started its itinerary in a given area (respectively, of having explored a given area) in case the leader's gender (respectively, of the actual owner) of the company is a woman versus a similar company in terms of flow of export of goods led by (or owned by) a man. As a significance criterion, we have retained only those cases where the 90 % confidence interval for the likelihood ratio does not contain the value 1. In order to ensure consistency, we have required as a representativeness criterion that this interval be above the value of 1,25 (if there is a difference in favor of the female gender) or below the value of 0,80 (if there is a difference in favor of the male gender). These values imply that for every 4 companies where the gender is a man there are 5 where the gender is a woman and vice versa.

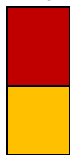
We have performed this analysis using firstly all the microdata and secondly using only the most usual sequences, where usual means that it is shared by at least 2 % of the companies belonging to the particular type and gender. When we use the entire Customs microdata, the same weight is given to all export transactions of goods, including those that, due to their volume, may simply be shipments of commercial samples, which are recorded as goods passing through customs. On the other hand, when we use the most common sequences, we are taking into account a representation of reality with much less information than the original content. Some of the discarded information could be noise, but some of it is relevant information that has been discarded. For this reason, the two analyses are complementary.

FIGURE 3
LIKELIHOOD RATIO FOR THE PROBABILITY THAT A COMPANY WILL START ITS
GOODS EXPORT ITINERARY BETWEEN 2000 AND 2019 IN A GIVEN AREA AS A
FUNCTION OF THE GENDER OF THE COMPANY’S LEADER SINCE 2014

(Calculated only for the most common sequences)



Likelihood ratio



The likelihood of women-led companies starting in the indicated area is higher than the likelihood of those led by men.

The likelihood of women-led companies starting in the indicated area is lower than the likelihood of those led by men.

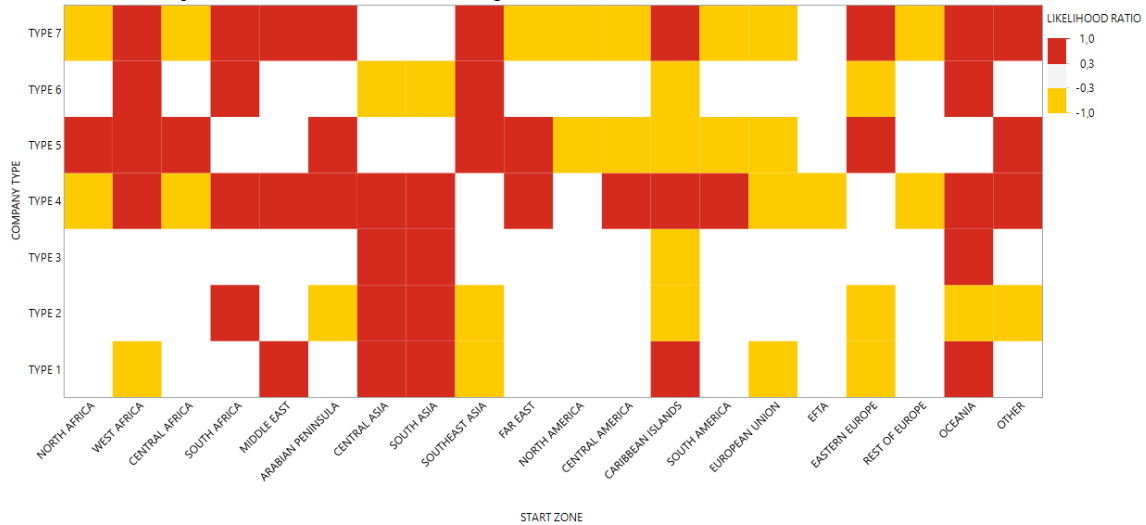
NOTE: The likelihood ratio indicates the multiplied increment in the probability of having started in a given area if the gender of the company leader is a woman compared to a similar company in terms of export flow where the gender is a man.

Only those values that meet the representativeness criterion are colored.

SOURCE: Prepared by the author based on data from ICEX, AEAT and Informa D&B.

FIGURE 4
LIKELIHOOD RATIO FOR THE PROBABILITY THAT A COMPANY WILL START ITS
GOODS EXPORT ITINERARY BETWEEN 2000 AND 2019 IN A GIVEN AREA AS A
FUNCTION OF THE GENDER OF THE COMPANY'S ACTUAL OWNER

(Calculated only for the most common sequences)



Likelihood ratio



The likelihood of women-owned companies starting in the indicated area is higher than the likelihood of men-owned companies.

The likelihood of women-owned companies starting in the indicated area is lower than the likelihood of men-owned companies.

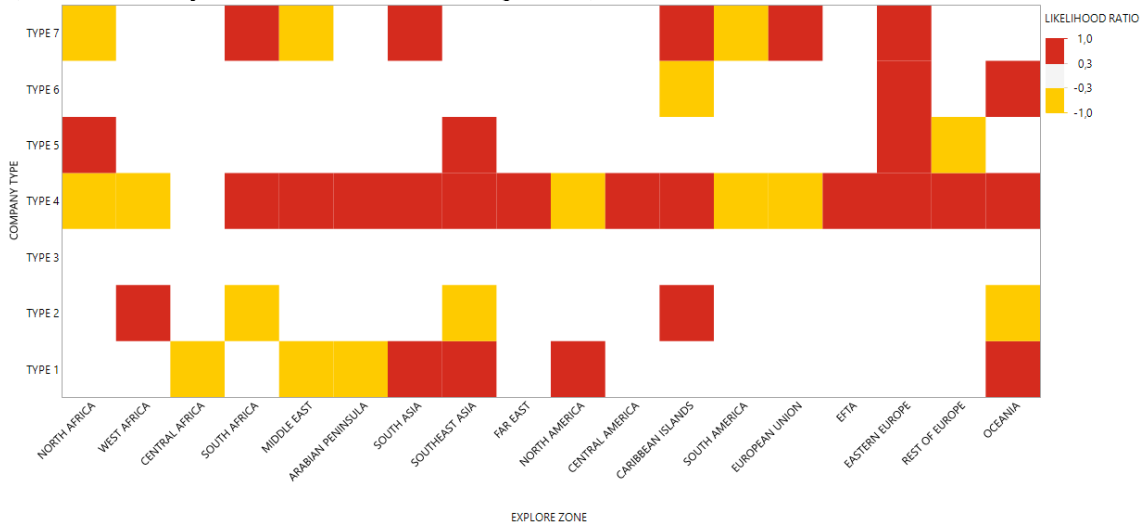
NOTE: The likelihood ratio indicates the multiplied increment in the probability of having started in a given area if the gender of the company actual owner is a woman compared to a similar company in terms of export flow where the gender is a man.

Only those values that meet the representativeness criterion are colored.

SOURCE: Prepared by the author based on data from ICEX, AEAT and Informa D&B.

FIGURE 5
LIKELIHOOD RATIO IN THE PROBABILITY OF A COMPANY EXPLORING A DETERMINED AREA AS A FUNCTION OF THE GENDER OF THE COMPANY LEADER SINCE 2014

(Calculated only for the most common sequences).



Likelihood ratio

- The likelihood of women-led companies exploring the indicated area is higher than the likelihood of those led by men.
- The likelihood of women-led companies exploring the indicated area is lower than the likelihood of those led by men.

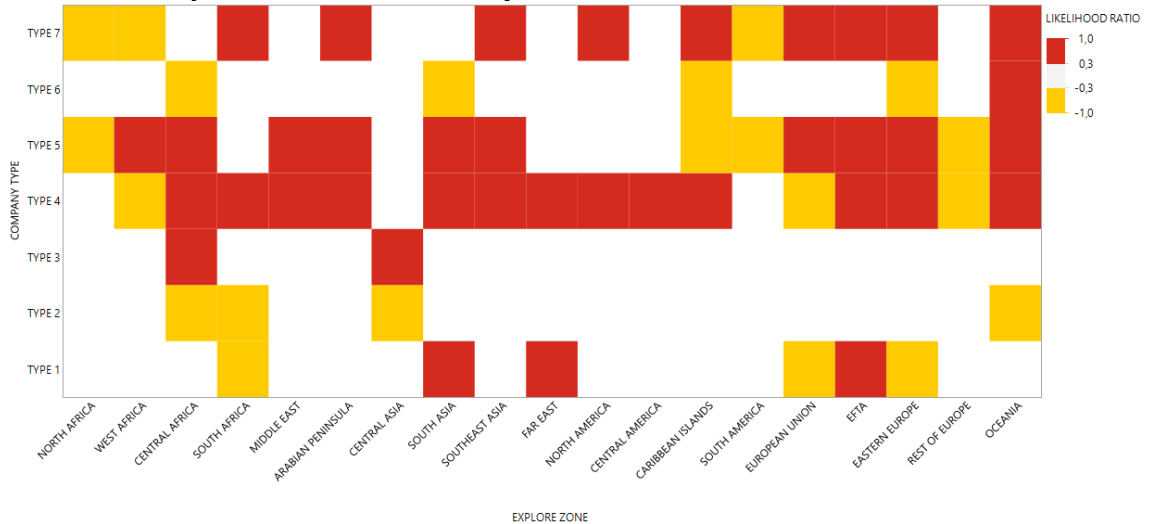
NOTE: The likelihood ratio indicates the multiplied increment in the probability of having explored in a given area if the gender of the company leader is a woman compared to a similar company in terms of export flow where the gender is a man.

Only those values that meet the representativeness criterion are colored.

SOURCE: Prepared by the author based on data from ICEX, AEAT and Informa D&B.

FIGURE 6
LIKELIHOOD RATIO OF THE PROBABILITY OF A COMPANY EXPLORING A GIVEN AREA BASED ON THE GENDER OF THE ACTUAL OWNER OF THE COMPANY

(Calculated only for the most common sequences)



Likelihood ratio

- The likelihood of women-owned companies exploring the indicated area is higher than the likelihood of men-owned companies.
- The likelihood of women-owned companies exploring the indicated area is lower than the likelihood of men-owned companies.

NOTE: The likelihood ratio indicates the multiplied increment in the probability of having explored in a given area if the gender of the company owner is a woman compared to a similar company in terms of export flow where the gender is a man.

Only those values that meet the representativeness criterion are colored.

SOURCE: Prepared by the author based on data from ICEX, AEAT and Informa D&B.

We will focus only on the results of the analysis based on the most common sequences, and in particular we will extract those on which there is agreement among all types of companies. We start with the results for the first export area, which can be seen in Figures 3 and 4.

When the company leader is a man, he is more likely to start his goods export itinerary in North Africa, Central Africa, the Arabian Peninsula, South America, the European Union or the Rest of Europe.

When the company leader is a woman, she is more likely to start her goods export itinerary in West Africa, the Middle East, Central Asia, South Asia, Southeast Asia, the Far East, the Caribbean Islands, Eastern Europe or Oceania.

When the company owner is a man, he is more likely to start his goods export itinerary in North Africa, Central Africa, North America, Central America, South America, European Union, EFTA or Rest of Europe.

When the company owner is a woman, she is more likely to start her goods export itinerary in West Africa, Southern Africa, the Middle East, the Arabian Peninsula, Central Asia, South Asia, the Far East or Oceania.

Differences in Explored Areas

As in the previous case, we will extract from Figures 5 and 6 those results where there is agreement among all types of companies.

When the company leader is a man, he is more likely to have exported to the Middle East or South America.

When the company leader is a woman, she is more likely to have exported to Southern Africa, South Asia, Southeast Asia, the Far East, Central America, the Caribbean Islands, EFTA, Eastern Europe or Oceania.

When the company owner is a man, he is more likely to have exported to North Africa, South America or the Rest of Europe.

When the company owner is a woman, she is more likely to have exported to the Middle East, Arabian Peninsula, Southeast Asia, Far East, North America, Central America, EFTA or Oceania.

CONCLUSIONS AND OPEN WORK LINES

The gender analysis of the companies that had any contact with ICEX since 2003 has allowed us to obtain a preliminary answer to the questions initially posed. The first reflection that emerges, in any case, is the importance of having gender-disaggregated data in order to continue advancing in the research as well as detailed knowledge of this group of companies and their international activity, which means incorporating variables in the databases and statistics that allow us to know their current situation and trace their evolution.

In view of the results achieved, we share below the highlights and most relevant conclusions of the study:

1. Women's companies (leadership or ownership) mostly have some unique characteristics within the world of SMEs. Their main features are a smaller size according to EU criteria (they show a higher concentration in micro-enterprises and entities not obliged to submit accounts) and, therefore, a lower number of employees and revenues, as well as a lower age and a relative concentration among sectors related to services to society.
2. The number of women-led companies uninterruptedly since 2014 amounts to 12,04% and companies with majority of women ownership represent 8,84% of the total for which data could be obtained, both very low percentages and reflecting the low presence of women among the companies that had any contact with ICEX.
3. Most of the associations initially detected between women's companies and the types of ICEX support, the recurrence of their use and their target markets are directly related to the variables of the company's size or its main activity sector and, on rare occasions, to the gender of its leader or owner.

The results of this first study and diagnosis, prepared thanks to the in-depth analysis of ICEX data together with those of the Spanish Tax Agency corresponding to the exports of goods of Spanish companies, point to the existence, among the women's companies analyzed, of a singular group within the SME ecosystem, with a particular profile and characteristics that could limit and condition their capacity for international projection.

In this sense, the design, supply and provision of internationalization support services should take these issues into consideration in order to effectively contribute to strengthening their growth, competitiveness and presence abroad. Customized advice and support are valuable tools that can help them design and implement a solid strategy to start exporting, become regular exporters or consolidate and expand their international positioning. The offer of combined support from ICEX in general and, in specific, to women's businesses could also provide resources and valuable support to face the different stages of internationalization (an aspect that could be the subject of a subsequent more in-depth analysis) thanks to a close, continuous and tailored follow-up during all phases of the process to provide confidence and ensure progress and results. To this end, the practical application of the knowledge we already have about the effectiveness of support according to the types of companies, as a result of the evaluations of instruments and programs already carried out, will be very useful.

Likewise, and in order to strengthen talent among women's companies, it is crucial to facilitate and promote their access to business education and training through flexible and versatile formulas that allow them to increase their knowledge and skills, as well as to improve their strategic business decisions.

Advice and access to lines of financing to provide them with greater strength and economic capacity to enable them to progressively and successfully face foreign operations also represent a very important area in the strategy to support women's companies. Likewise, monitoring the initiatives that multilateral institutions are developing to promote the participation of women's companies in international public procurement opens up interesting opportunities to improve their positioning in this large market and boost their international presence and anchoring through this channel.

The results of the analysis of the goods export patterns of women's companies directly linked to gender seem to challenge the traditional idea linked to a greater aversion to risk on the part of women in their business management, by finding that women-owned companies address the same markets as those owned by men. However, the evidence of a lower presence of companies led by women in some geographical areas opens the hypothesis of study about the strategic decisions of companies when it is a woman who is at the head of this process of foreign expansion, which could point to the existence of *glass ceilings*, an extreme that could be investigated in a later analysis.

The availability of reliable microdata disaggregated by gender to gain detailed knowledge of both companies and their foreign trade flows of goods is essential to deepen the diagnosis, monitor developments and carry out an adequate follow-up and analysis to facilitate soundly based decision making, as well as allowing us to provide very accurate recommendations on the markets in which each company would have a greater probability of success.

The use of a homogeneous taxonomy to identify women's companies represents a basic element for reliable information in all data sources. The progress made in this area through the IWA 34 initiative, which may represent a common methodological framework shared by all entities, is noteworthy.

This analysis is part of ICEX's strategy to have a more precise diagnosis regarding the profile of women's companies and their international activity, in accordance with the first line of action defined in the Working Group promoted by the Spanish State Secretariat for Trade (SEC) on the role of women in the internationalization of the Spanish economy. In this regard, and aware that it represents a good starting point, its conclusions will be shared in this working forum and may be used to evaluate and adopt specific decisions and initiatives aimed at women's companies.

Many of the results obtained provide the opportunity to advance and deepen in new quantitative and qualitative analyses of the findings obtained. Institutional cooperation and public-private collaboration, in which the academic world can play an important role, are interesting lines of work that we must continue to explore and strengthen.

From ICEX's internal point of view, having already data disaggregated by gender in our CRM (Customer Relationship Management), opens up the opportunity to carry out segmentations based on this variable in order to target communications, present content and design more precise messages, in line with best practices and trends in personalized *marketing* that optimize the offer of tailored services and improve the user experience. Also, the combination of the knowledge gained through this analysis together with the results we are obtaining through the needs and impact evaluation of our instruments and services, in which we are applying the gender perspective, is key to the actions we have already implemented, as well as to execute others that may be considered appropriate according to the conclusions.

The digital platform "Mujer e Internacionalización" as a virtual environment that offers content and a wide range of resources and links to promote the international presence of women (ICEX Spain Trade and Investment, 2021b); the increasing accessibility of training modules on key topics for SMEs and women-owned companies; the interviews that promote visibility and learning from women's international experiences; the new group in social networks aimed at creating a community, promoting interaction, sharing good practices and encouraging the generation of contact networks; or the consideration of the number of women in management positions in companies as a deciding factor for access to ICEX's consulting and customized strategic advice programs are just some of the lines already underway aimed at making an effective contribution to strengthening women's participation and the presence of women's companies in the international context.

The deficit of women's companies in Spanish exports can be considered an opportunity cost that must be reversed through commitment, specific actions, alliances and joint and coordinated efforts, in accordance

with the strategic lines defined in the *III Action Plan for the Internationalization of the Spanish Economy* and with the objectives set out in the *ICEX Strategic Plan for the period 2021-2022*. The challenge posed by the recovery process in which we are immersed, with the changes and the new reality that is taking form in the post COVID-19 pandemic era, requires all possible actors and resources from the public and private spheres. In this regard, strengthening the role and presence of women in the international scene means incorporating an additional variable into the equation to underpin the foreign sector as a lever for solid and sustained growth.

ACKNOWLEDGMENT

Translated & edited by American Publishing Services (<https://americanpublishingservices.com/>). For the Spanish original version, refer to: Núñez Varo, J.M., & Gómez González, M. del M. (2021). La internacionalización empresarial a través de la lente de género. *ICE, Revista De Economía*, (921). <https://doi.org/10.32796/ice.2021.921.7274>

ENDNOTES

1. Criterion in accordance with the definition recently incorporated in the International Agreement IWA 34 (ISO, 2021).
2. We have grouped the following CNAE groups under the name of services to society: administrative and support service activities; arts, entertainment and recreation; activities of households as employers of domestic workers; activities of households as producers of goods and services for their own use; activities of extraterritorial organizations and bodies; health and social work activities; public administration and defense; compulsory social security; education; and accommodation and food service activities.

REFERENCES

- European Commission. (2020). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and The Committee of the Regions. A Union of Equality: Gender Equality Strategy 2020-2025*. Retrieved from https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en
- ICEX Spain Trade and Investment. (2021a). *Plan Estratégico de ICEX 2021-2022*. Retrieved from <https://www.icex.es/es/quienes-somos/quienes-somos/Plan-estrategico-2021-22>
- ICEX Spain Trade and Investment. (2021b). *Plataforma Mujer e Internacionalización de ICEX*. Retrieved from <https://www.icex.es/es/quienes-somos/mujer-e-internacionalizacion/inicio>
- Informa D&B. (2021). *Presencia de las mujeres en la empresa española*. Retrieved from https://cdn.informa.es/sites/5c1a2fd74c7cb3612da076ea/content_entry5c5021510fa1c000c25b51f0/6040c6d29a9e3d1130d45fa8/files/mujeres2021.pdf?1614857938
- ISO, International Organization for Standardization. (2021). *Women's entrepreneurship – Key definitions and general criteria*. International Workshop Agreements (IWA) 34:2021. Retrieved from <https://www.iso.org/obp/ui/#iso:std:iso:iwa:34:ed-1:v1:en>
- ITC, International Trade Centre. (2015). *Unlocking Markets for Women to Trade*. Retrieved from <https://www.intracen.org/publication/Unlocking-markets-for-women-to-trade/>
- ITC, International Trade Centre. (2019). *From Europe to the World: Understanding Challenges for European Businesswomen*. Retrieved from <https://www.intracen.org/publication/Europe-to-world/>
- ITC, International Trade Centre. (2020). *Delivering on the Buenos Aires Declaration on Trade and Women's Economic Empowerment*. Retrieved from https://www.wto.org/english/tratop_e/womenandtrade_e/tig_rpt_dec20_e.pdf

- MINCOTUR, Ministerio de Industria, Comercio y Turismo. Subdirección General de Estrategia de Internacionalización. (2019). El Plan de Acción para la Internacionalización de la Economía Española 2019-2020. *Boletín Económico de ICE*, 3111, 3–17. <https://doi.org/10.32796/bice.2019.3111.6827>
- MINCOTUR, Ministerio de Industria, Comercio y Turismo. Subdirección General de Estrategia de Internacionalización. (2021). *Plan de Acción para la Internacionalización de la Economía Española 2021-22*. Retrieved from https://comercio.gob.es/es-es/estrategia_internacionalizacion/Paginas/plan-accion-2021-2022.aspx
- Núñez Varo, J.M. (2021). *La internacionalización empresarial a través de la lente de género. Un análisis del apoyo del ICEX con perspectiva de género (trabajo enmarcado dentro de las mesas «Mujer e internacionalización»)*. ICEX España Exportación e Inversiones. Retrieved from <https://www.icex.es/content/dam/es/icex/documentos/quienes-somos/transparencia/evaluacion-analisis/analitica-negocio/DAX2021882975.pdf>
- Núñez Varo, J.M. (2023). *Tipos de empresa según flujo de exportación de bienes. Clusterización por K-medias de todas las empresas exportadoras de bienes. Extracto del análisis completo*. ICEX España Exportación e Inversiones. Retrieved from <https://www.icex.es/content/dam/es/icex/documentos/quienes-somos/transparencia/evaluacion-analisis/analitica-negocio/01-icex-evaluacion-flujos-exportacion-2021-vf.pdf>
- OECD, Organisation for Economic Co-operation and Development. (2019). *SIGI 2019 Global Report: Transforming Challenges into Opportunities*. Social Institutions and Gender Index. OECD Publishing. <https://doi.org/10.1787/bc56d212-en>
- UNCTAD, United Nations Conference on Trade and Development. (2019). *Making trade policies gender-responsive: Data requirements, methodological developments and challenges*. Retrieved from https://unctad.org/system/files/official-document/ditc2019d1_en.pdf
- World Bank Group, & World Trade Organization. (2020). *Women and Trade: The Role of Trade in Promoting Gender Equality*. <http://doi.org/10.1596/978-1-4648-1541-6>
- World Bank Group. (2018). *Women, Business and the Law 2018*. Retrieved from <http://hdl.handle.net/10986/29498>
- WTO, World Trade Organization. (2017). *Gender Aware Trade Policy. A Springboard for Women's Economic Empowerment*. Retrieved from https://www.wto.org/english/news_e/news17_e/dgra_21jun17_e.pdf