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Projects Financed by the European Union's 6th and 7th Framework Programmes for Research and Technological Development in the Andalusian Agrifood Sector. A Gender Perspective Analysis

Rosario Gómez-Figueroa*, Amelia Sanchís-Vidal, Luis Palma-Martos*****

Abstract

Framework Programmes for Research and Technological Development are the European Union's key tool for financing research projects and initiatives. The objective of this study is to analyse the impact of research projects in the Andalusian agrifood sector that were financed by the 6th and 7th Framework Programmes from a gender perspective. Our methodology is based on the analysis of survey responses of the researchers who have participated in these projects. Using the data from their responses, we conduct a descriptive analysis from a cross-cutting gender perspective and also analyse the outcomes and results of each project. Our conclusions could serve as guidelines to improve the implementation of the Horizon 2020 Programme with regard to the equality of opportunities between men and women.

Keywords: Framework Programmes for Technological Research and Development; European Union, Gender; Andalusia; Agrifood Sector.

JEL classification: H62.

1. INTRODUCTION

In recent decades, the literature on efficiency and productivity of public research has steadily grown, with many of these studies focusing on use of European funds in Andalusian research and development and innovation (R+D+I) projects. Some of these have analysed "*the impact of European Funds on the Andalusian economy throughout several periods of the Union's regional policy, using Social Accounting Matrices (SAM) and applied general equilibrium models (AGEM)*" (Delgado, 2013, p. 1). Furthermore, some analyses allow for "the measurement of innovation's impact on Andalusian businesses, with the goal of

* Faculty of Law and Business and Economic Sciences, University of Córdoba, Spain; e-mail: *rogofi83@hotmail.com* (corresponding author).
** Faculty of Law and Business and Economic Sciences, University of Córdoba, Spain; e-mail: *dh1savia@uco.es*.
*** Faculty of Economics and Business Science, University of Seville, Spain; e-mail: *lpalma@us.es*.

ascertaining whether innovation provides firms with competitive advantages" (Romero, 2012). However, among these studies there are few that take a gender perspectives approach to analysing Andalusian research centres and universities and the impact of EU financing on their organizations' R+D+I projects.

According to the Ministry of Science and Innovation (2011), a common factor of the historical development of the various and wide fields of knowledge is that variables relating to gender have either been ignored or taken into account insufficiently. This continues to be the case because stereotypes and gender biases persist in research and technological development activities.

These stereotypes take the particular realities, experiences or expectations of a group of people as universal norms. In the specific case of R+D+I, this group of is usually made up of a significant portion of white men with a high socioeconomic status and, in practice, any reality or experience that does not fit the parameters of their universal rules is determined to be deviant.

As highlighted by the Ministry of Science and Innovation's document, the fields of science that integrate human knowledge are subject to the socio-cultural determinants of a given time and place, just as any other human activity. Among these determinants are gender stereotypes that negatively affect women by denying them access to benefits that are otherwise justified or imposing unfair burdens upon them (Cook and Cusack, 2010).

The traditional roles attributed to men and women persist and are reflected in how the genders' labour attributes are valued, resulting in differences in access to opportunities and pay. This outcome is the result of women not being treated objectively, of giving their feminine characteristics greater weight than their professional qualifications. Additionally, there are several negative traits associated with women regarding their perceived limitations in certain work situations (night shifts, travel, etc.) (Todaro *et al.*, 2001; Todaro *et al.*, 2002).

The reality that we have pointed out in the preceding paragraphs has established these female stereotypes, which are jointly known as the "Glass Ceiling", and negatively impacted female professionals' careers, causing them to be invisible as candidates for positions of authority (Burin, 2010).

As reported by the *44th Bulletin on Business Equality*[1], one of the main causes of the gender gap in workers' salaries is the existence of traditional gender roles and gender stereotypes. The existence of these points of view regarding women (their work, their dedication to household duties, etc.) determines their employment possibilities, limiting their opportunities to enter certain sectors of the economy. The lack of visibility of women in these sectors, in turn, causes women to not consider applying for positions and further perpetuates the masculinization of the field.

Another cause is salary discrimination. According to *Unión Sindical Obrera*'s "*Salaries and Inequality*" report, women account for a 67.7% share of jobs with salaries below the Spanish minimum wage and men outnumber women three-to-one in the highest pay brackets (eight times the Spanish minimum wage). A significant gender gap can be observed between both sexes' salaries, with women earning 77.65% of a man's salary, which is equivalent to female employees working 82 days a year in exchange for nothing.

This fact cannot be justified by women being less qualified than their male colleagues: the number of female graduates with tertiary education is greater than that of men. Despite this, the Spanish Institute for Statistics' data shows that women continue to be the primary

providers of care for children, are disproportionately employed in part-time jobs (74%) and account for a majority of employees with reduced hours (95%) (2016).

A third cause is segregation in the labour market caused by the feminization of the sectors traditionally associated with household duties, which are undervalued by society and, therefore, receive worse compensation.

The goal of our paper is to study the impact of public and private research projects financed by the 6th and 7th Framework Programmes for Research and Technological Development (FP6 and FP7) in the Andalusian agrifood sector from a gender perspective and, afterwards, to analyse their outcomes, as defined by a selection of variables.

Methodologically, we assess the impact of these research projects by using surveys, which in effect divides our study into two distinct parts:

1. Qualitative and quantitative analysis from a cross-cutting gender approach.

We analyse men and women's participation in the selected research projects to determine what factors may influence their decision to participate. The gender analysis' is based on a sample of 42 survey responses.

2. Results-based analysis.

We survey project leaders and lead researchers to gather information on the projects' outcomes, which we approximate through a selection of variables. The analysis of outcomes is based on a sample of 30 survey responses.

This study reveals relevant information regarding European Union (EU)-financed R+D+I projects by reviewing their achieved results. Additionally, by using a gender cross-cutting approach, our research will provide vital data on the situation of men and women who receive European Framework Programme (FP) financing.

To achieve our goal we will study the survey responses of project members and coordinators that are in charge of Andalusian R+D+I projects in the agrifood sector. The projects we focus on were selected from the European Commission's (EC) Community Research and Development Information Service (CORDIS) database (2018).

Our analysis is descriptive in nature and its results take the form of detailed graphs. We provide a qualitative and quantitative analysis of these results from a gender perspective and, afterwards, an outcome-based approach. Our study will finish with the presentation of its main conclusions.

2. THE GENDER PERSPECTIVE OF RESEARCH. LITERATURE REVIEW AND CONTEXTUAL ANALYSIS

At University, we can still find a number of negative stereotypes that keep women from pursuing degrees in experimental sciences, engineering, mathematics or computer sciences. Overcoming these stereotypes requires public policies that promote scientific careers to young women by providing better information on the degree programs and the successes of female professionals. Fighting the cliché that presents the sciences as masculine and unrelated to the interests of talented young women is a necessity (Blasco, 2012).

If we review history, the fact that women do not appear among the lists of great scientists is not a result of a biological deficiency, but the marginalization that they have suffered and the obstacles that have kept them from pursuing higher education. In Spain, for example, women were not allowed to enroll in official university courses until 1910. Although there are several examples of exceptional women who were able to study at

universities before the end of the nineteenth century, their academic achievement did not lead to a professional or academic career because their opportunities were limited to a small set of jobs that were deemed adequate for women (Sanchez, 2016).

According to the Spanish Center for Higher Scientific Research's[2] (2017) *Report on Female Researches: Women and Science*, current data confirms that women are underrepresented in leadership roles in research projects: only 18,6% of project directors are female. If we take into account the distribution of women throughout scientific areas, there are fewer women than men in 7 out of 8 of the main fields. This is especially true in the fields of Science and Physical Technology (where there are 296 men and 83 women) and Natural Resources (where there are 293 men and 93 women). If we focus on the distribution among types of researchers, such as research-professor or research-scientist, the number of men is greater than that of women in both scales.

Returning to female participation as coordinators or lead researchers in European projects, in 2016 men outnumbered women in every programme (FPs, Advanced, Consolidator, Starting Grants, etc.) with the exception of Sinergy Grants, in which there was one female coordinator and zero men. In the case of EU's FPs, there were 275 male project leaders compared to 113 female leaders.

With regard to awards and acknowledgements, between 2015 and 2016 the percentage of female recipients fell from 30.43% to 29.16%, further enlarging men's share of the recognition for their work.

In some branches of science, there have been significant advances in eliminating this disparity. For example, the social sciences and humanities have undergone profound reformulations of their foundations to address the gender issue.

The importance of equal opportunities between men and women is reflected in Articles 2 and 3 of the Treaty of the European Unión (2010), which state that "*[t]he Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.*" and, additionally, *"The European Union […] shall combat social exclusion and discrimination, and shall promote social justice and protection, equality between women and men, solidarity between generations and protection of the rights of the child.*"

To further gender equality, the EC revised FP6 to include gender variables among the key aspects to be taken into account when assessing research projects. In some advanced countries, such as the United States, Austria, Sweden, Norway and Denmark, this variable is already evaluated when assessing potential research projects. The United Nations (UN), in its 2011 Resolution on Science and Technology for Development, also mentions the importance of including gender analysis into research activities.

For the first time, FP6 includes a component called "*Science and Society*" that is made up of development lines such as: a) *Stimulating the policy debate at national regional levels and mobilization of women scientist*; b) *Developing a better understanding of the gender issue in scientific research*; c) *promoting the enhancement of the Gender Watch System*.

Following the UN and EU's lead, in 2011 the Spanish parliament passed the Science and Technology Act[3]. This law advances the same values and principles as the EC's FP6. In addition, the Spanish government also approved the Spanish Science and Technology Strategy[4] and the Spanish Plan for Scientific and Technical Research[5], which will also

promote introducing a cross-sectional gender perspective in the analysis and assessment of all research and technological projects.

These new initiatives will influence the definition of research projects' guidelines and priorities, the detection and analysis of gender problems, the methods used to gather and interpret data, how conclusions are reached, the resulting applications technological developments and, ultimately, future proposals for research projects.

On the other hand, the Ministry of Science and Innovation (2011) noted that although gender equality has been one of the EU's fundamental policies since its foundation through the Treaty of Rome, a variety of studies evaluating the fifth and sixth FP have shown that women are still underrepresented on research teams. These studies also revealed that gender issues are not addressed systematically, but instead receive sporadic and unstructured attention by institutions. It is quite clear from these reports that the efforts to promote gender equality are not achieving their goal.

The detrimental effects of this situation are highlighted if we consider that gender equality between men and women is associated with improvements in the quality of their work and attracting more qualified researchers. Therefore, investing in equal opportunities for men and women, in addition to promoting a more sensible attitude towards gender issues in research topics, will lead to research projects producing higher quality and more generalized results.

FP7 marked a change in the character of the EC's actions towards women in science, turning the spotlight away from female scientists to the institutions that employ them. This new approach, called a structural change, will affect how gender issues are managed and actively work towards increasing female representation in all fields and levels of the scientific career.

This FP attempts to foster gender equality by actively promoting the role of women in science (it establishes an objective participation rate of 40% for female researchers) ensuring that both men and women's situations and realities receive equal treatment. Together, these two lines of action will guarantee that research projects' results are of the highest quality. There are several actions that promote gender equality, as reflected in FP7, which can be applied throughout the phases of a research project:

- Beginning in the proposal phase, research teams must promote equality and integrate gender perspectives.
- Gender aspects could be treated within specific activities or as a broader line of tasks.
- Carrying out the principles listed in the Code of Conduct for the Recruitment of Researchers as practices (European Commission, 2005).
- The FP7 "*Negotiation Guidance Notes*".
- At the end of a project, each research team should produce a report based on statistics from its team members' gender composition. Project leaders should be obligated to present any results that may create awareness or prove relevant to broader social issues, including those related to gender.
- At the end of the FP7 document, the EC develops the concept of "Responsible Research and Innovation", which is composed of six development pillars:
    - Public engagement (also referred to as social co-responsibility).
    - Gender equality, to ensure the full use of talent.
    - Scientific education.
    - Ethics.
    - Open access to scientific results.
    - Governance.

We could say that, in the past, FP6 and FP7 have concentrated on R+D+I activities, generating new knowledge and the transfer of said knowledge. However, the EU's new Programme for Research and Innovation for 2014-2020, *Horizon 2020*, the Union's concern has shifted to how the knowledge produced by FPs is used and whether it will successfully reach the market. At present, the priorities are determining how to use projects' results and defend the innovations they produce (2018).

The RIS3 ANDALUCIA[6] is a Research and Innovation Strategy for Smart Specialisation in Andalusia (2018) designed in participation with Andalusian businesses, public administrations, universities and the entire Andalusian system for innovation and science. This strategy, which was launched as part of a broader EC policy directed at European regions, pursues the objective of fostering the development of a new economic model based on innovation, science, technology, internationalization and education.

The priorities of the regional RIS3 strategies are consistent with the objectives of the *Spanish Strategy for Science, Technology and Innovation 2013-2020* , which includes the recognition, promotion and employment of talent in R+D+I, the promotion of scientific and technical research excellence, and the promotion of R+D+I projects aimed at solving global challenges.

Spanish researchers are well positioned to collaborate with other European institutions, especially considering that the objectives of regional strategies are aligned with the EU's FPs, as set out in *Horizon 2020*, which contributes to incentivizing the active participation in European projects of agents belonging to the Spanish System for Science, Technology and Innovation. This programme will help implement the policy strategy known as "Europe 2020" and its flagship initiative, the "Innovation Union".

To apply the Andalusian Innovation Strategy effectively, eight "*Priorities for Smart Specialisation*" were defined as vectors of innovation. The eighth priority is "*Information and Communication Technology (ICT) and the Digital Economy*" and focuses on the knowledge and information society. Regarding this priority, the Strategy gathers four lines of action: L81. New ICT developments; L82. ICT for business development; L83. Developing new instruments for e-Government and L84. Innovation in digital content. None of these lines focuses on, or takes into account, gender equality.

The indicators used in the assessment and evaluation of the Strategy's projects are in line with those included in European, national and regional plans for science, technology, innovation and the information society, as well as with the Structural Funds Operating Programme for Andalusia and other regional programmes. The selection of these indicators is based on official documents that reference these strategic plans' objectives and challenges.

To fulfil the previous requirements, RIS3 presents a limited, but sufficient, number of indicators (contextual, outcomes and implementation) that capture and reflect Andalusia's particular reality. An additional benefit of these indicators is that they are the same as those used in European and national strategies, which allows for comparisons with other regions.

The RIS3 ANDALUCIA states "*independently of their type, and in all cases which it was possible, the indicators have included a gender perspective to assess the impact of the Strategy on the equality of opportunities between men and women*." Despite the apparent importance of gender variables, this strategy does not introduce any indicators that would allow the measurement of the differences between the experiences of men and women in the knowledge and information society.

3. QUALITATIVE AND QUANTITATIVE ANALYSIS: A GENDER PERSPECTIVE AND RESULTS-BASED APPROACH

3.1 Data and Methodology

Throughout this study, we use qualitative and quantitative techniques, beginning with a review of the academic literature, secondary sources and official reports related to our topic of interest.

Our primary data was obtained by conducting a series of surveys. To use these surveys as a tool for evaluating projects, we follow a methodology based on gender impact assessment and adapt its characteristics to our particular case. Specifically, we will apply our gender impact assessment to FP6 and FP7 research projects in the Andalusian agrifood sector.

Regarding this methodology, Baker (2000, pp. 8-9) remarks that: "*Although there is plenty of literature comparing quantitative and qualitative methods used in impact assessments, there is growing consensus that it is necessary to combine both approaches. Evaluations based on quantitative data taken from statistically representative samples are better suited to assess causality using econometric methods or to reach general conclusions. However, qualitative methods allow for a more precise analysis of topics or cases and can provide decisive information regarding the point of view of beneficiaries, the dynamic of a given policy or an explanation of results observed in a quantitative analysis.*"

We have divided the analysis into two subsections. In the first, we study the research projects from a cross-cutting gender approach and, in the second, we analyse the results of these projected based on their impact on society.

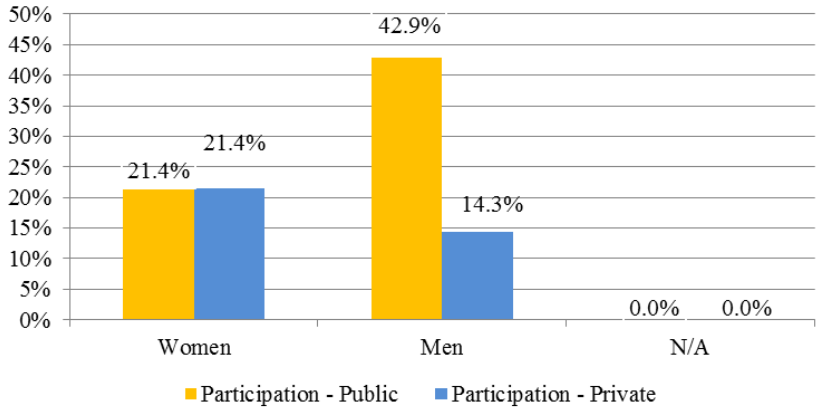
Regarding the gender analysis, our results were obtained from 42 surveys that were mostly answered by the projects' coordinators or lead researchers. To participate in the survey, a researcher must have participated in an Andalusian agrifood research project that was financed by FP6 and FP7.

Regarding the analysis of the projects' results and outcomes, our analysis is based on 30 survey responses. In this case, the condition to participate in the survey was to have coordinated or led an agrifood research project that was financed by FP6 or FP7 and in which there were Andalusian research partners.

3.2 Cross-Cutting Gender Analysis

The following analysis is based on the data extracted from 42 responses to the survey questionnaire and will rely on a variety of graphical figures to present what we consider to be the most important factors to understanding the gender perspective in Andalusian agrifood research projects.

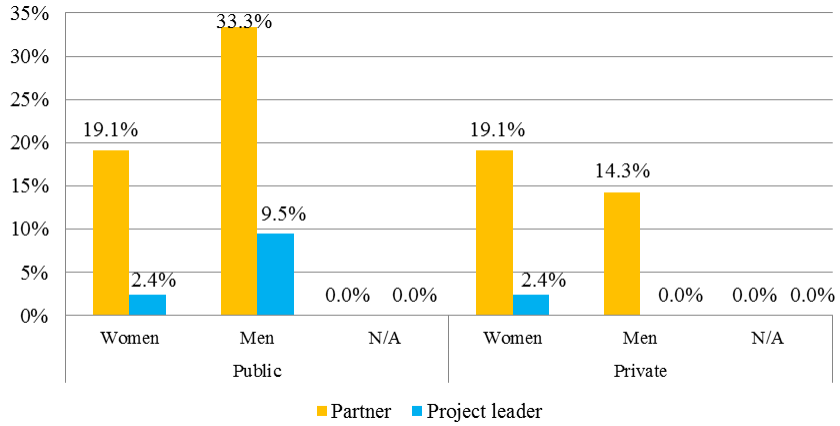
Figure no. 1 shows that participation between men and women is reasonably balanced: 42.8% of respondents were women while 57.2% were men. It is worth noting that in the public sector the number of men is almost double of that of women while, in the private sector, the percentage of women (21.4%) is higher than that of men (14.3%).



Source: Authors' own work

Figure no. 1 – Participation in FP6- and FP7-financed research projects in the Andalusian agrifood sector, by gender.

Before proceeding to Figure no. 2 we would like to clarify a series of concepts. The person who coordinates the research project is the only one to maintain contact between the EC and the research institutions that are involved. This person is in charge of management and coordination activities related to the research project and usually organizes the documents required for the application process. Once the project has been approved, he or she will lead the project until its conclusion. The leader is accountable to the EC for all technical, administrative and financial considerations. The projects' partners, which include the project leader or coordinator, are members of institutions from EU member states that participate in R+D+I activities.



Source: Authors' own work

Figure no. 2 – Participation in FP6- and FP7-financed research projects in the Andalusian agrifood sector as project leaders and/or partners, by gender

As we can observe, women coordinate 4.8% of the projects (2.4% in the public sector and 2.4% in the private sector). As partners, 19.1% are women in both public and private sector projects. However, in public sector men tend to coordinate projects more often than women (9.5% are men versus women's 2.4%). In the private sector, there are no male project leaders and the percentage of male partners is 14.3%, which is lower than the 19.1% that are women. In other words, in private sector projects women play a more significant role whereas in the public sector it is men who seem to be more present. In addition to the 9.5% of men who coordinate projects, we must also include the 33.3% that are partners (versus the 19.1% of female partners).

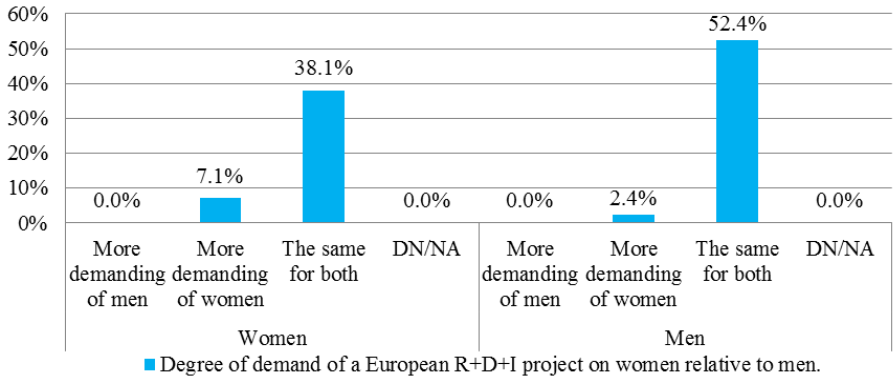


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Figure no. 3 – Degree of project demands of women relative to men, by gender

Figure no. 3 explores the degree to which European research projects' demands vary between men and women. The data shows that both sexes believe that the projects are equally demanding to both men and women; the percentage of men who agree with this (52.4%) is higher than that of women (38.1%). It is worth noting that 7.1% of women believe that the projects are more demanding of women, whereas the percentage of men who believe this is 2.4%.

With regard to researchers' belief that the education and training on equality between men and women that they received at University was sufficient, there is a stark difference between both sexes. As shown in Figure no. 4, 16.7% of men believe that the training they received was sufficient while not a single women responded in the affirmative.

In 11.9% of the cases, men believe that the training and education that they received was irrelevant to their participation in European R+D+I projects; 21.4% of women agreed with this statement, mainly because they believe their training and education was insufficient. The percentage of women who believe that they have not received any training at all is higher than that of men (21.4% to 11.9%). In conclusion, it appears that male researchers are more satisfied with their training in this area than their female colleagues are.

Figure no. 5 offers information on several questions related to factors that could restrict female participation in European projects. First, we ask if women may be more reluctant to participate because the time spent on household duties and caregiving is greater than that of men. 47.6% of men believe that is not the case, compared to 35.7% of women. The percentage of respondents who believe that it is an important deterrent of female participation is much lower (9.5% of men and 14.3% of women).

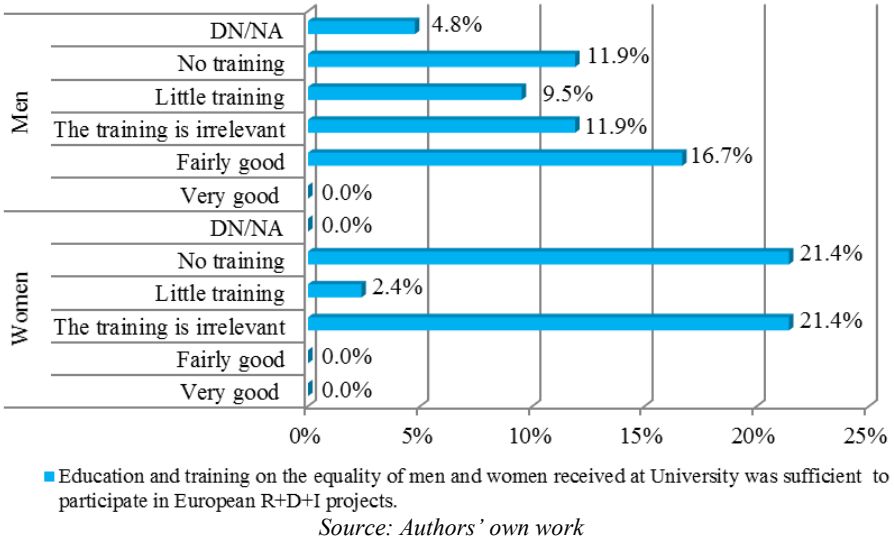

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Figure no. 4 – Training and education on the equality between men and women received at university

Second, we ask if there are significant differences or inequalities between men and women participating in these projects. Once again, the percentage of men who disagree (47.6%) is higher than that of women (28.6%) and the percentage of respondents who agree with this statement is significantly lower (7.15% of men compared to 16.7% of women). In this case, the percentage of women agreeing with the statement is greater than in the first question.

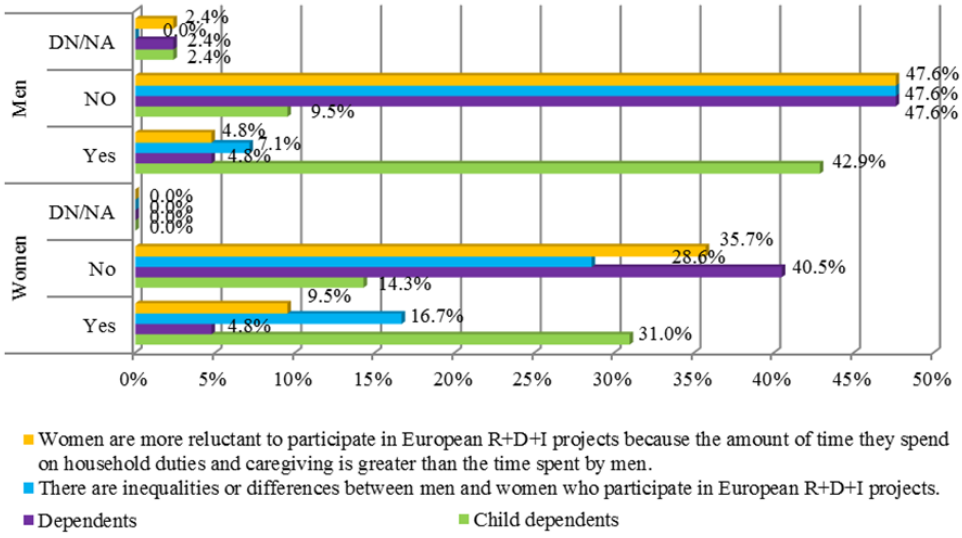

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Figure no. 5 – Gender aspects in European projects

Third, we ask whether having dependent family members may cause lower female participation and find no difference in the answers. In the specific case of children, a greater percentage of men answered in the affirmative (42.9%) compared to women (31%). In either case, these numbers must be interpreted in light of the answers to the first question analysed in Figure no. 5. We must also remember the data from Figure no. 1, which showed that female participants made up 42.8% of researchers.

Regarding female researchers' degree of participation in decision making within projects, both sexes believe that a majority of decisions are reached jointly (this is the case for 35.7% of men and 21.4% of women); as we can see (in Figure no. 6), the percentage of men is fourteen percentage points higher than that of their female counterparts. On top of these, we must add the percentage of men and women who believe in that sometimes men decide while other times women decide (16.7% of men and women agree with this) because these answers imply joint decision-making. However, we note that 7.1% of women believe that men decide more often than women, compared to 0% of men who agree with this statement; additionally, 2.4% of men believe that women decide more often than men, compared to 0% of women who agree with this statement.

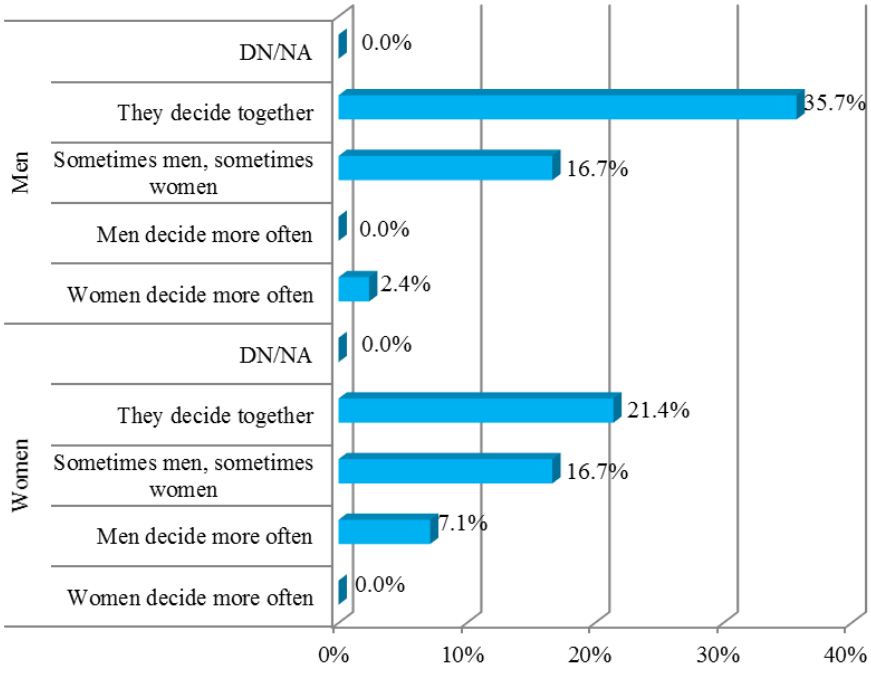

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Figure no. 6 – Degree of participation in decision making within EU projects between men and women, by gender

Figure no. 7 presents information that is very relevant from a gender perspective. First, it explores whether researchers have experienced sexist or discriminatory attitudes against

women. The percentage of men who answered that they had never experienced these attitudes or others typical of patriarchal societies during their participation in European-financed R+D+I projects was 45%. Only 14.3% of women responded that they had never witnessed these attitudes and 22.8% answered in the affirmative. The percentage of men who have experienced these attitudes was 2.4%.

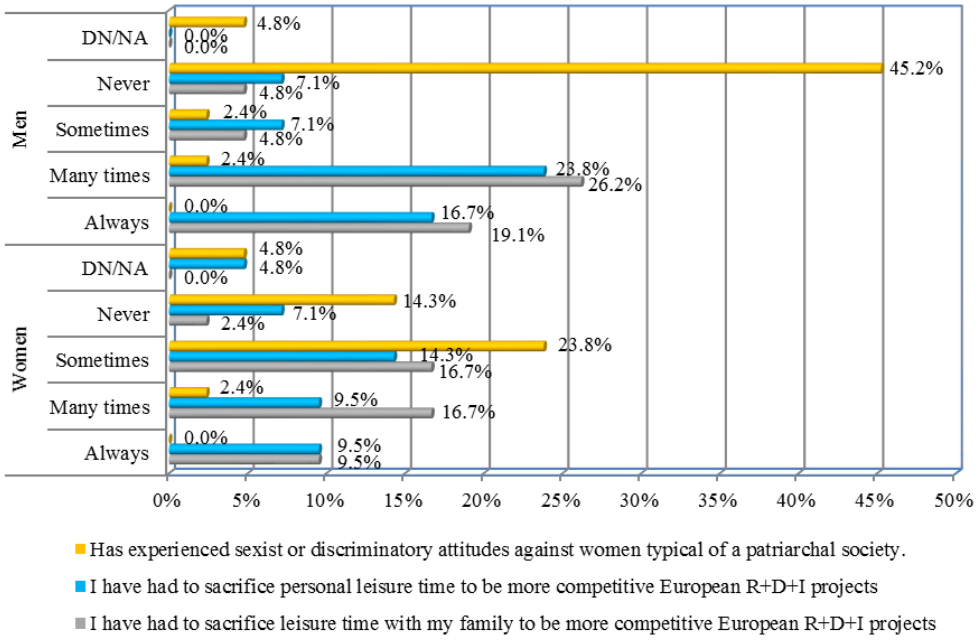

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Figure no. 7 – Experience of sexist or discriminatory attitudes against women in European projects. Sacrifice of personal or family leisure time by participants of European projects to be more competitive

Second, we asked participants about the amount of leisure time (including both personal and family leisure) they sacrificed to be more competitive. With regard to personal leisure, the percentage of men who answered that they always (23.8%) and sometimes (16.7%) sacrifice their time is 40.5%. As for the share of women who agree with this answer, the percentage falls to 19%.

Focusing on family leisure time, we observe rises in percentages for both men and women. Summing the "always" and "sometimes" items, we find that 45.3% and 26.2% of men and women sacrifice their time, respectively. The data shows that men perceive a greater sacrifice.

Regarding differences in opportunities to participate in European projects between men and women, both sexes believe that they are mostly equal: 45% of men and 31% of women agree with this position. However, 7.1% of women believe that they have fewer opportunities and 2.4% of men agree with this statement. The percentages of men and women who believe female researchers have greater opportunities to participate are 4.8% and 2.4%, respectively (see Figure no. 8).

Concerning the differences between men and women's possibility of achieving a balance between work and family life, both sexes believe that women are relatively worse off (28.6% of men and 38.1% of women). A total of 26.2% of men believe that women share the same possibilities as men, compared to only 2.4% of women.

We highlight that the percentage of men answering in the affirmative and the negative are quite similar, which would seem to indicate a certain polarization. This is caused by one group being educated in gender issues while the other lacks awareness and continues to perpetuate traditional gender roles (see Figure no. 8).

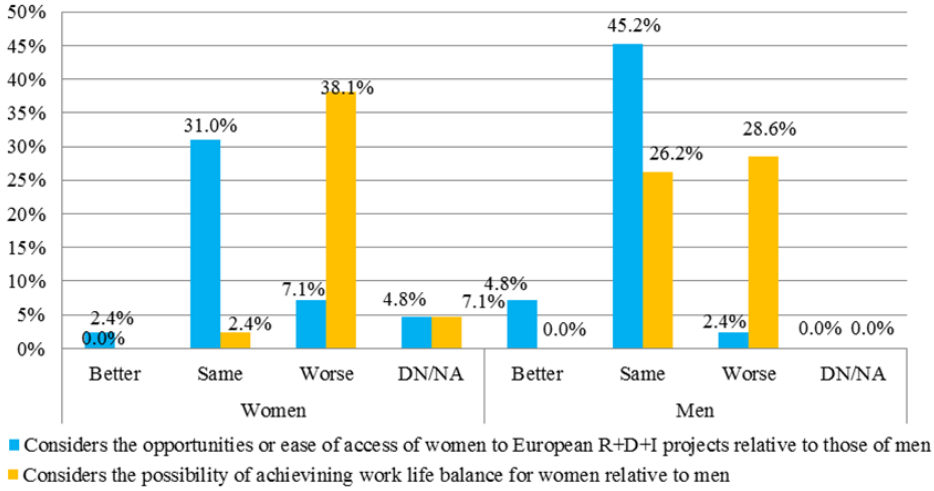

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Figure no. 8 – Differences between women and men's situation in European Projects.

As for the answers given by men that fall into the "Others" category, we have included those stating that women have played an equal role in the project, that the male researcher will work with male or female scientists (without consideration of their gender), that the most important factor is the talent and dedication of the participant, and that the key value of the participant was his or her training and aptitudes. These answers show that there is a significant discrepancy between the views of men and women regarding the hiring of female participants.

Last, we note that 4.8% of women believe that their participation was mandated by the requirements of the Call for Proposals, whereas 2.4% of men believe this.

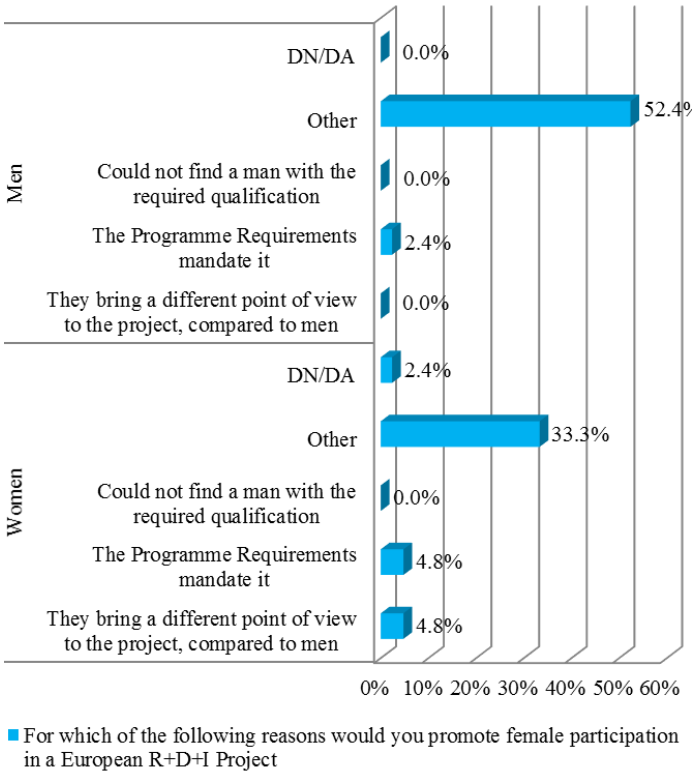

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Figure no. 9 – Motives for the participation of women in European projects

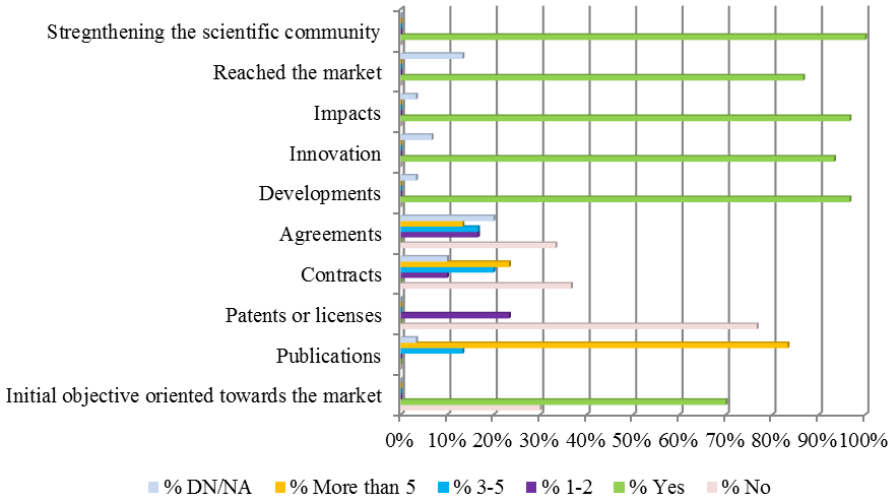
3.3 Results based analysis of FP6 and FP7 projects in the Andalusian agrifood sector

Project leaders' answers to our questionnaire allow us to analyse the projects' results based on their impact on society. We estimate this impact through ten variables: 1) whether the project initial objective market oriented; 2) publication results; 3) patent and licensing result; 4) contracts obtained; 5) new research agreements; 6) other developments derived from the project (results/products that lead to new scientific or technological knowledge, the furthering of existing scientific and technological knowledge, rules, maps or databases, among other possibilities); 7) achieved innovation (R+D activities, technology purchases, product and process innovation); 8) impact on the market (improvement, wealth and profit derived from the project); 9) generic impact (economic results, new goods, services or processes); 10) strengthening the scientific community (human resources developments, training and education activities, among others).

As we already mentioned, the results that we show are from a total of 30 questionnaires. Most of these were answered by project leaders or coordinators.

Figure no. 10 synthesizes the results and gives us an overview of the projects' performance in these ten variables. Following the order given in the previous paragraph, we find that:

1) 70% of projects include a market-oriented initial objective;
2) all projects lead to publications and 83.3% lead to five or more;
3) 76.7% of projects did not obtain patents or licenses;
4) only 36.7% of projects obtained additional contracts;
5) a similar percentage, 33.3%, led to further research agreements.



Source: Authors' own work

Figure no. 10 – Impact on society of FP6- and FP7-financed projects in the Andalusian agrifood sector

With regard to additional developments generated by the projects (variables 6 through 9), the project leaders' answers show positive impacts in every area in 85% of the cases. As for the tenth variable, the strengthening of the scientific community, we observe a positive impact on society in only 10% of the cases.

4. CONCLUSIONS

With regard to participation in FP6- and FP7-financed public sector research projects in the Andalusian agrifood sector, the number of male participants is almost double that of female participants.

A greater number of men believe that European projects are equally demanding of men and women.

A greater percentage of men, compared to the percentage of women, believe that there are no differences between male and female participation in European projects.

It is worth noting that the percentage of men who have never witnessed sexist or discriminatory attitudes typical of a patriarchal society is 45.2%, significantly higher than the 14.3% of women who share this view.

The percentage of men who believe that there are no differences between men and women's chance of achieving balanced work and family lives (26.2%) is almost 24% higher than that of women (2.4%).

Although there have been gains in implementing gender equality policies in institutions, the gender gap continues to exist. Data shows that there are still significant differences between men and women which will require specific actions to remove the barriers that keep women from participating in European research projects. The present lack of participation leads to a significant loss of talent that should be not be allowed by the State.

Despite the net positive impact these projects have had in all the variables we have defined, the attention given to relevant gender variables is still insufficient.

Growing awareness in public organizations of these programs, the strong support shown by the EU and improved access to financing are not enough. Increased female participation in European FPs should be an instrument for future research initiatives and result in the alignment of gender policies aimed at raising female participation rates. Gender equality must be promoted within, and among, institutions by ensuring that the role of women in science is visible to guarantee that true equality is achieved.

The European Commission's Calls for Proposals must continue to take a cross-cutting gender approach because, as our results show, women continue to face barriers to entry when considering participating in projects. Although there are significant legal provisions regarding gender issues, they have proven insufficient; on top of this, they have yet to be applied in full. For this reason, it is necessary to continue addressing the gender perspective of FPs for Research and Development.

Given the complexity and time required to prepare an application for a European research project, data shows that women are at a disadvantage accessing these calls because of persisting inequalities between men and women's household and caregiving duties.

The numbers show that there are stereotypes held by men, as well as a certain lack of awareness, regarding the relative position of women. As mentioned earlier, a large percentage of men believe there are no differences or inequalities in the participation of women in European research projects. Additionally, a high percentage of men state that they have never witnessed any sexist or discriminatory attitudes typical of a patriarchal society against women.

This is confirmed by the fact that when men were asked why they would actively look for female participation in a European R+D+I project, most answers fell into the category "Others". The most relevant response given by women to explain their reduced participation refers to the difficulties they face in achieving a work-family balance.

The answers given by men that were categorized within "Others" include that women's' role in the project was equal to that of men, that he would work with a researcher regardless of the person's gender, that the most important factors are a participant's talent and dedication and that the key value of the participant was his or her training and aptitudes. These answers reiterate the differences between the perceived realities of male and female participants in European research projects.

A change in the male attitude towards family responsibility is still necessary, as the data obtained in our questions on work and family life shows that many men continue perpetuating their traditional gender role. It is noteworthy that men asked about the sacrifice of leisure time, men responded that they always or sometimes sacrificed time to be more competitive at work in greater numbers than women. A possible explanation of this is that men consider it to be a greater sacrifice. Once again, the difference between the male and female perspective is underlined.

The preceding analysis justifies increasing female participation rates in the EC's Framework Programmes for Research and Technological Development and promoting the unrestricted introduction of women all fields of knowledge

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Notes

[1] Boletín Igualdad Empresa XLIV, which was directed and coordinated by the Spanish Women Institute's (*Instituto de la Mujer*) General Subdirectorate for Equality in Business and Collective Negotiation and the Spanish Ministry of Health, Social services and Equality (2018).

[2] Centro Superior de Investigaciones Científicas (CSIC).

[3] Ley "14/2011, de 1 de junio, Ciencia, la Tecnología y la Innovación," 2011 (BOE núm. 131, de 2 de junio de 2011).

[4] Estrategia Española de Ciencia y Tecnología.

[5] Plan Estatal de Investigación Científica y Técnica.

[6] Agreement of the 24th of February of 2015 of the Governing Council of Andalusia, by which the Research and Innovation Strategy for Smart Specialization in Andalusia (RIS3 Andalucía, 2018) is approved.

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