European Research Council Grants: excellence and leadership over time from a gender perspective

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1. Introduction (1/4)

- The ERC was born with the IDEAS Program (VII Framework Program, 2007).

- **10 years of history**, the ERC calls have become the most important way of **financing the scientific activity** in the European Union.

- The **main objectives** of the ERC are:
  - Promote scientific excellence.
  - Recruiting talent.

- The **main change** in comparison with other European calls is:
  - There is no need of a consortium or international network.
  - There is no topic call or any strategic line (bottom up perspective).
  - The scientific excellence is the only criteria: **CV** of PI and research project.

1. Introduction (2/4)

RESEARCH PROJECT

Starting Grant

. 2-7 years since PhD.
. To create a independent research group.

5 years

€ 1.5 million

Consolidator Grant

. 7-12 years after PhD.
. To consolidate a research group.

5 years

€ 2 million

Advanced Grant

. Last 10 years of experience.
. To obtain a major breakthrough.

5 years

€ 2.5 million

APPLIED

Proof of concept

To explore the commercial potential of previous ERC research project.

18 months

€150.000

Synergy grants

Led by two-four researchers.

18 months

€150.000

1. Introduction (3/4)

- There are three research areas:

Life Sciences (LS) 9 subareas

-LS9 Applied Life Sciences & Non-Medical Biotechnology
-LS1 Molecular & Structural Biology & Biochemistry
-LS2 Genetics, Genomics, Bioinformatics & Systems Biology
-LS3 Cellular & Developmental Biology
-LS4 Physiology, Pathophysiology & Endocrinology
-LS5 Neurosciences & Neural disorders
-LS6 Immunity & Infection
-LS7 Diagnostics, Therapies, Applied Medical Technology & Public health
-LS8 Evolutionary, Population & Environmental Biology

Physical Sciences & Engineering (PE) 10 subareas

- PE1 Mathematics
- PE2 Fundamental Constituents of Matter
-PE3 Condensed Matter Physics
-PE4 Physical & Analytical Chemical sciences
-PE5 Synthetic Chemistry & Materials
-PE6 Computer Science & Informatics
-PE7 Systems & Communication Engineering
-PE8 Products & Process Engineering
-PE9 Universe Sciences
-PE10 Earth System Science

Social Sciences and Humanities (SH) 6 subareas

-SH1 Individuals, Markets & Organisations
-SH2 Institutions, Values, Environment & Space
-SH3 The Social World, Diversity, Population
-SH4 The Human Mind and its Complexity
-SH5 Cultures & Cultural Production
-SH6 The Study of the Human Past

1. Introduction (4/4)

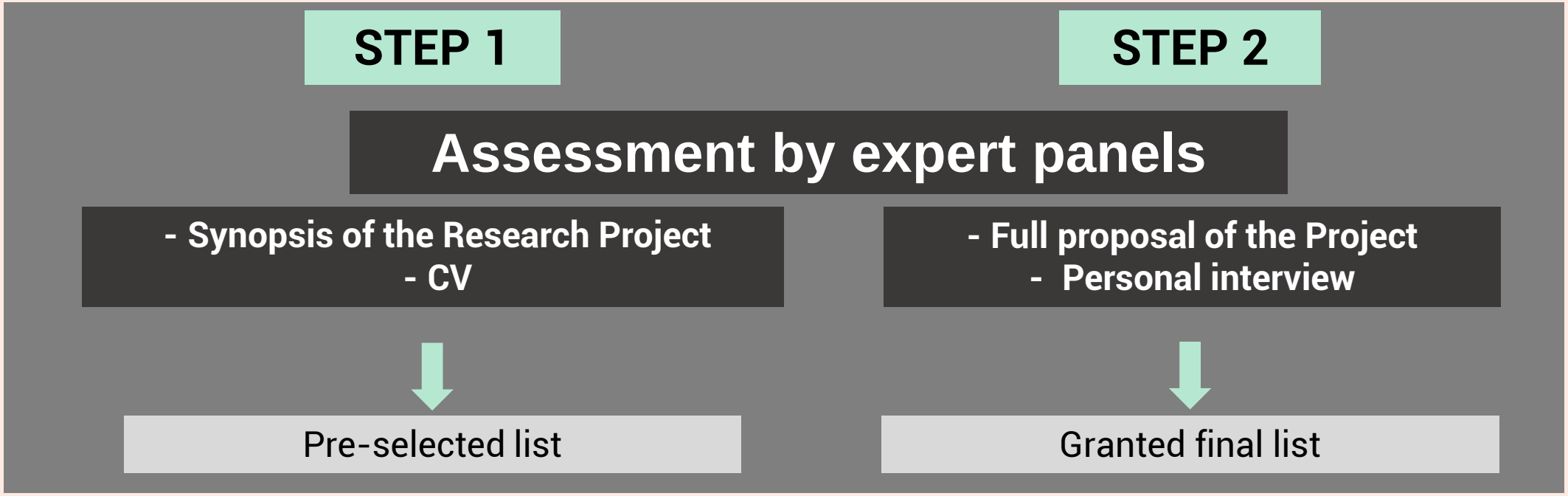
- **Process of assesment:**
  - Evaluation criteria:

    1.- Principal Investigator: CV and publications

    2.- Quality of the project: Impact and potential of the project, methodology, etc.

    3.- Environment and resources: Characteristics of host institution

  - Evaluation phases:



2. Objectives

- To analyze and forecast **the presence of men and women** in the ERC Grants in three dimensions: Applicants and Granted, Expert Panels and Future prediction.
  - ***Regarding applicants and granted*:**
    - What is the female presence by research areas? (LS, PE and SH)
    - What is the gender distribution of applicants by ERC Grants (StG, CoG and AdG)?
  - ***Regarding expert panels:***
    - How is the gender composition of expert panels? (research areas and ERC Grants)
    - Is equal representation of women as panel chair?
  - ***Regarding future prediction:***
    - Could a state-space model determine a future prediction of ERC Grants?
    - Is there a forecast of distribution 60/40 (granted, panel members and panel chairs)?

3. Methodology

- **Source of data:**
  - **CORDIS:** only information about granted
    - Name of PI
    - Year and duration
    - Title of the project and acronym of the project
    - Budget
    - Host institution
    - Research area and subarea
  - **ERC:** information about granted, applicants and panel member composition.
    - Aggregated data facilitated by ERC information service
    - List of panel members (published on the web)
- **Data processing**: State-space modeling in Matlab.

- **Period of study**: 2007-2017 (10th ERC Anniversary).

- **Geographic coverage**: All European countries were considered.

3. Methodology: indicators obtained

1.- Awarded excellence:

- Number of applicants vs granted.
- Gender Parity Index (GPI): The ratio of female to male values.

2.- Scientific leadership:

- Number of men and women as expert panel members.
- Number of men and women as panel chairs.
- Granted vs panel members vs panel chair

3.- Time series prediction:

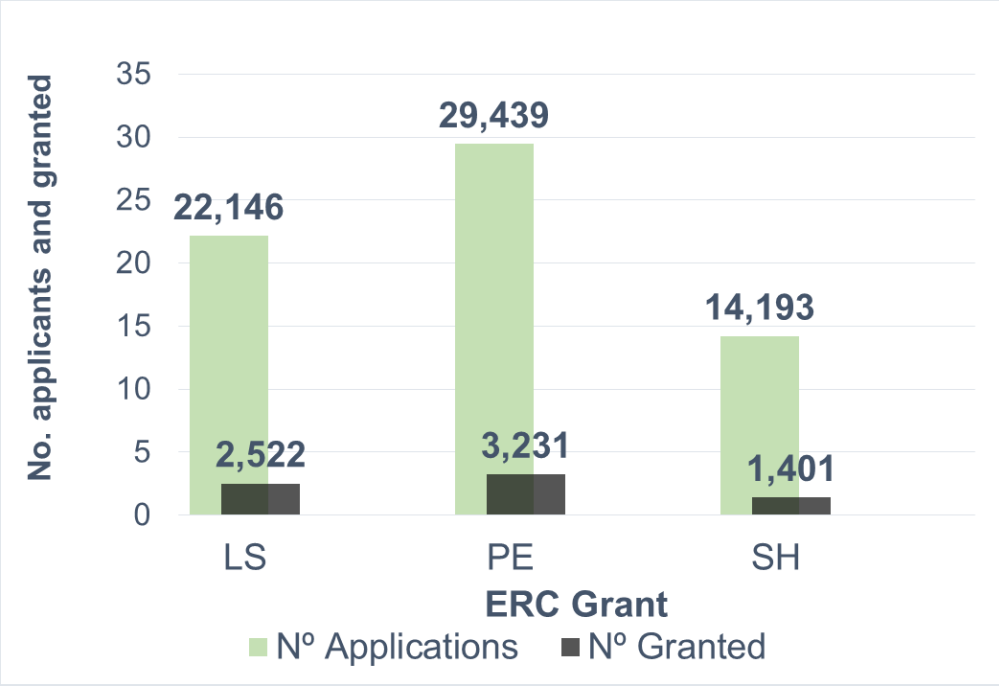
- Time series evolution as granted, panel members and panel chairs and distribution percentage in 2024.

↪ All indicators were calculated by research area, ERC grant and gender.

4. Results: Regarding applicants and granted

1.- Awarded excellence: Number of applicants vs number of granted

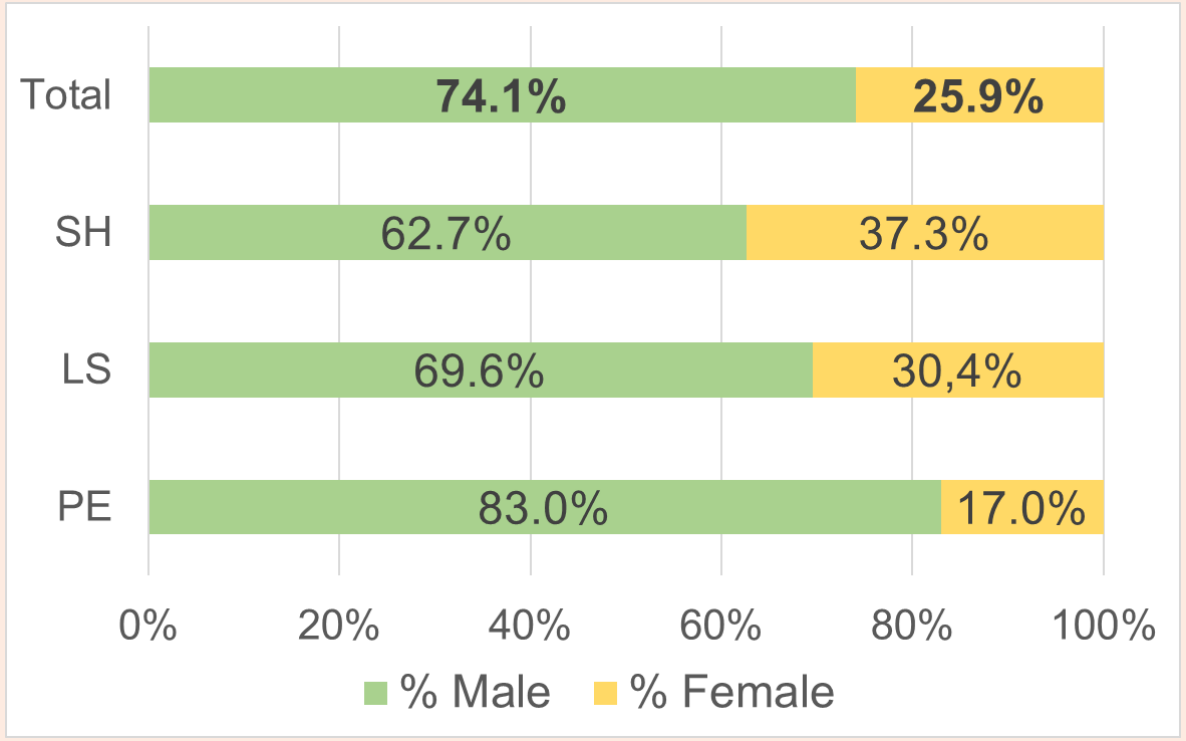
	No. Applications	No. Granted	Success rate
LS	22,146 (33.7%)	2,522 (35,3%)	11.39%
PE	29,439 (44.8%)	3,231 (45,2%)	10.98%
SH	14,193 (21.6%)	1,401 (19,6%)	9.87%
Total	65,778	7,154	10.88%

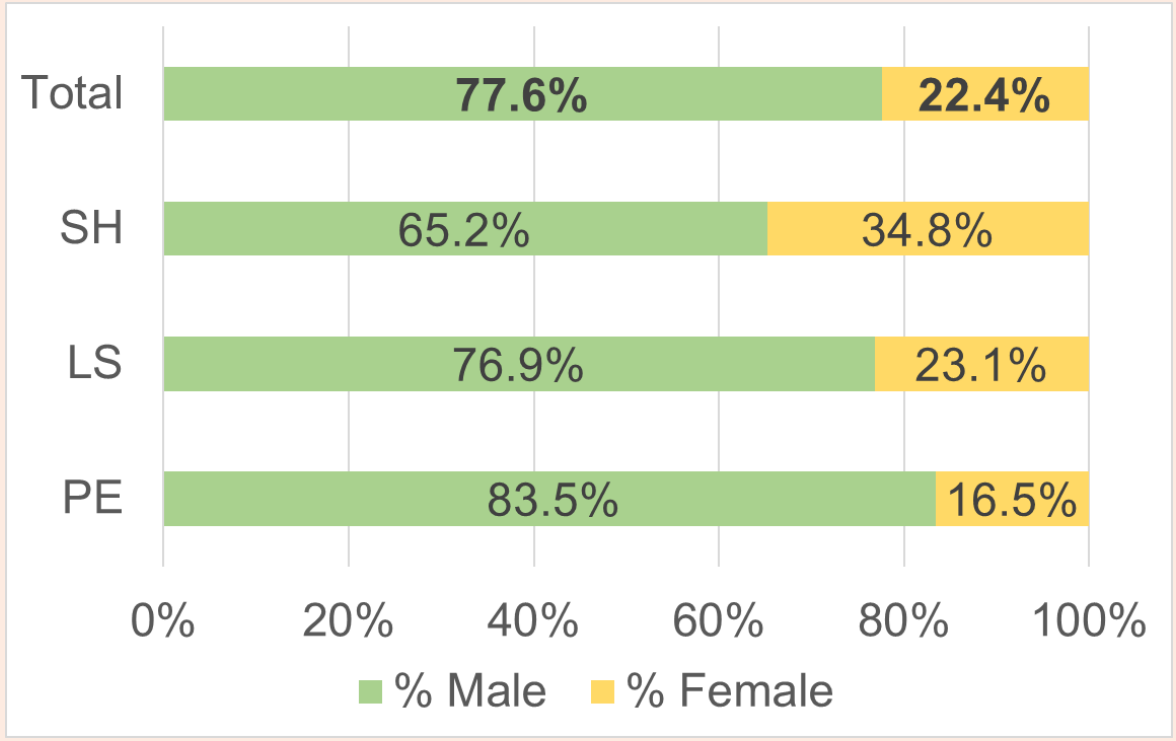


- 65,778 applications vs 7,154 (10.88%) granted.
- PE shows the highest percentage of applicants (44.8%) but LS presents the major success rate (11.39%).

4. Results: Regarding applicants and granted

1.- Awarded excellence: Distribution of men and women by applicants and granted.



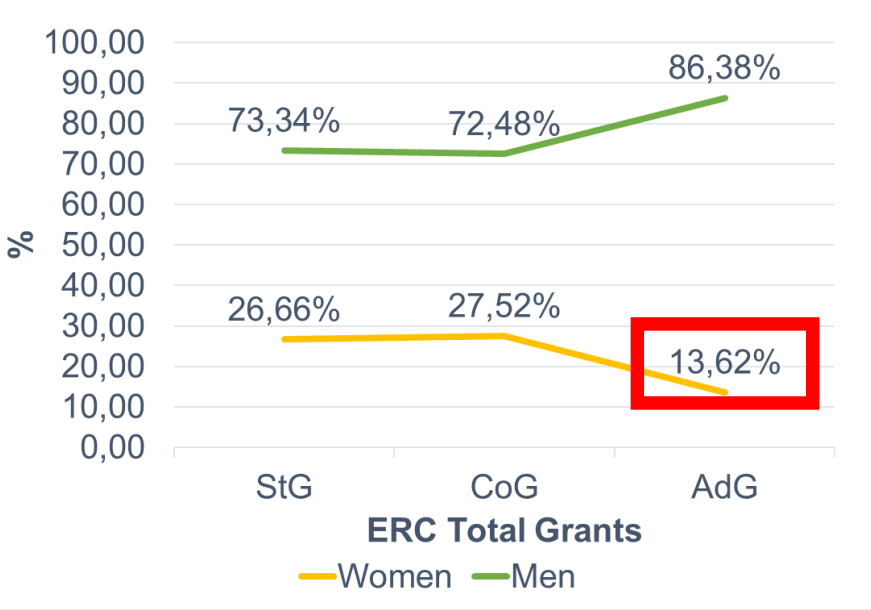


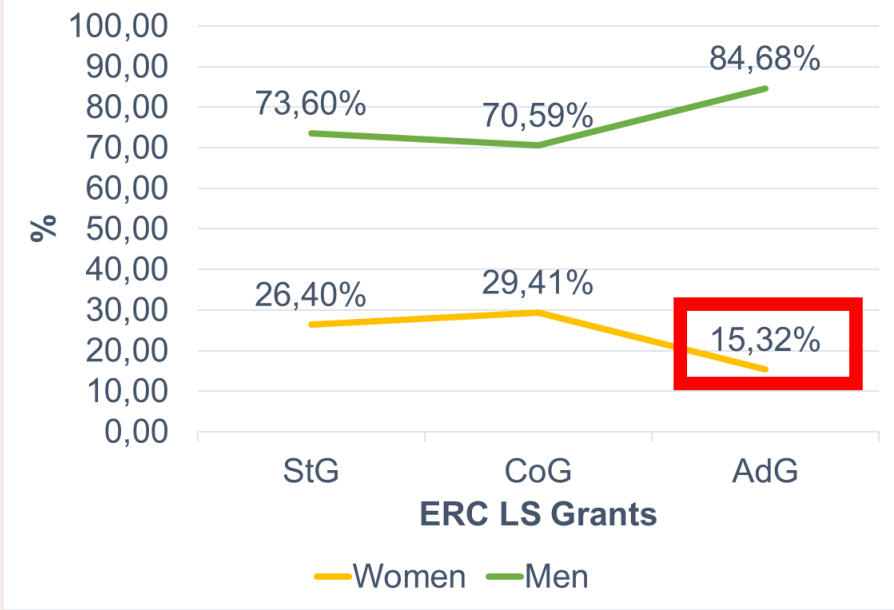
- Among the applicants, the presence of women is 25.9% vs 74.1% men.
- SH is the area with the highest presence of female applicants with 37.3% and PE the lowest with 17.0% ($p < .001$).

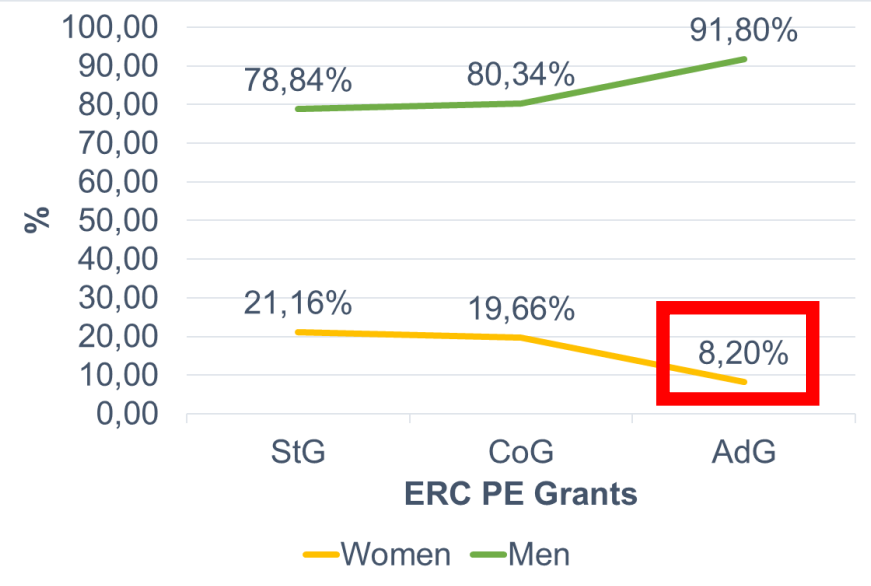
- Among the granted, the presence of women is 22.4% vs 77.6% men.
- SH is the area with a greatest presence of female granted (34.8%) and PE, the smallest proportion (16.5%) ($p < .001$).

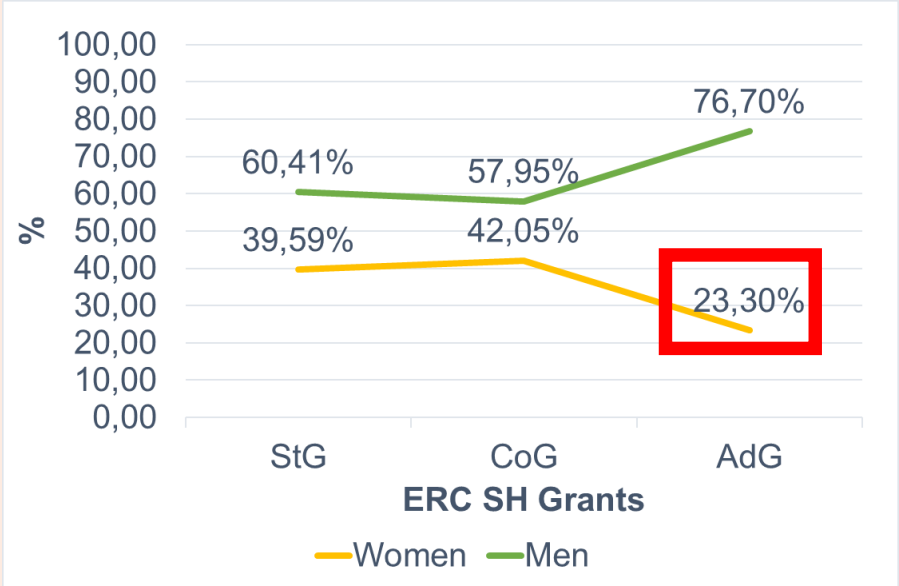
4. Results: Regarding granted

1.- Awarded excellence: Distribution of women and men by type of grants (StG, CoG, AdG).





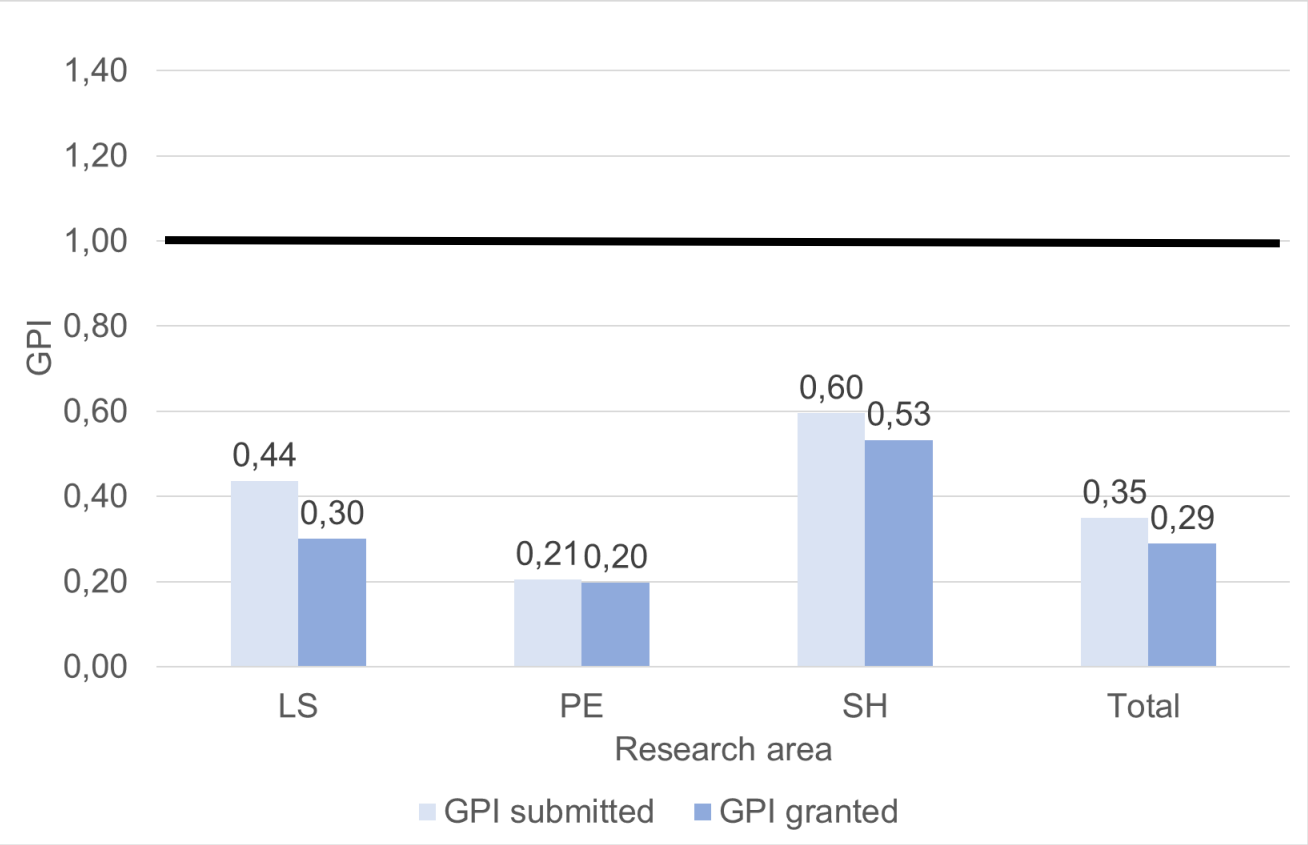




- The lowest percentage of women is found in AdG (13.62%).
- PE shows the smallest proportion of women in AdG (8.20% female vs 91.80% men).
- SH presents the highest percentage of female presence in AdG (23.30% vs 76.70% men).

4. Results: Regarding applicants and granted

1.- Awarded excellence: Gender Parity Index (GPI): submitted and granted



GPI= 1
Parity

- Between **submitted** the GPI is 0.35. That is for 35 female applicants, we found 100 male applicants.

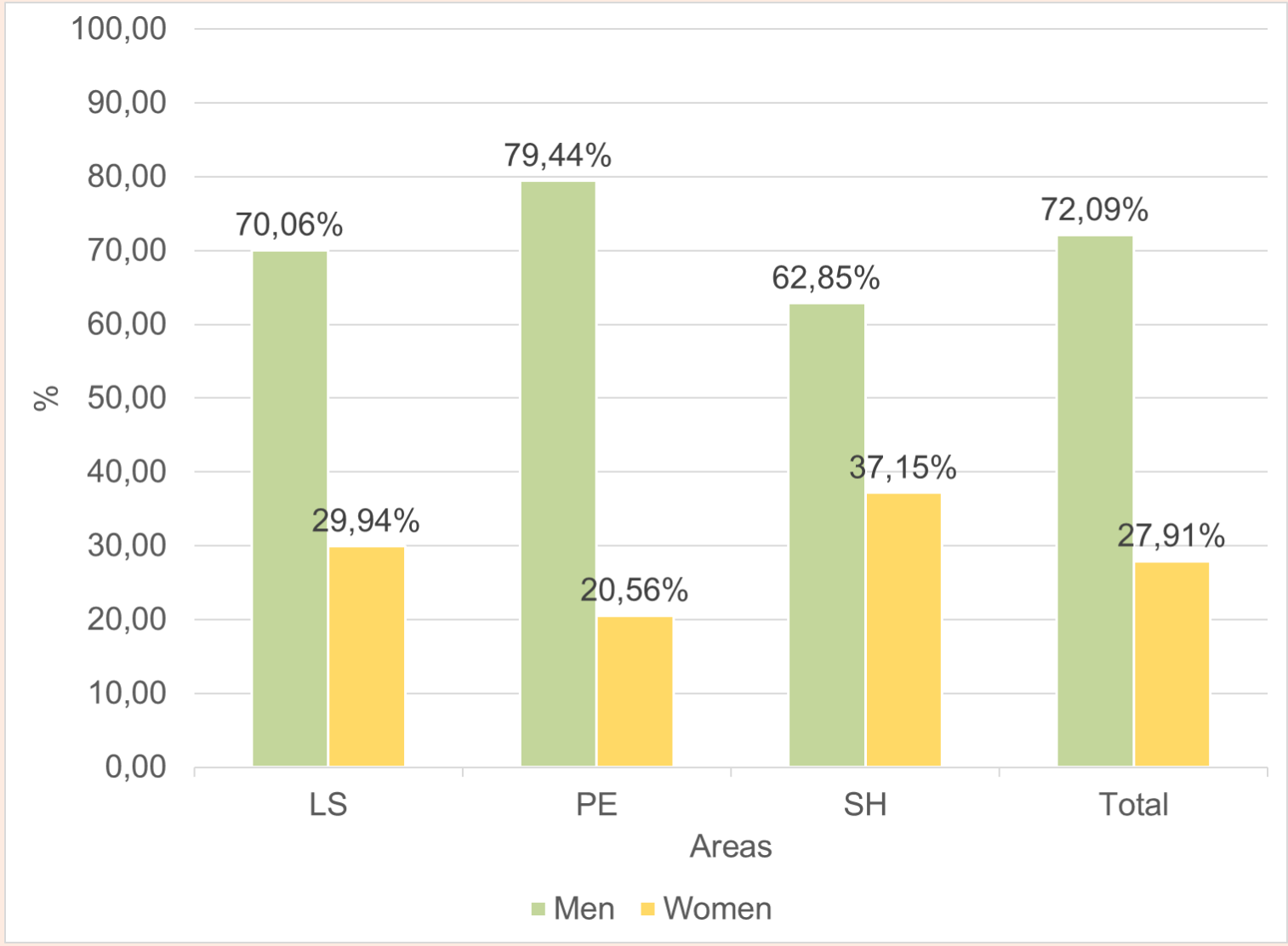
- In **granted,** the GPI is 0.29. This means that for 29 female granted, 100 male is granted.

4. Results: Regarding expert panels

2.- Scientific leadership: Number of men and women as expert panel members.

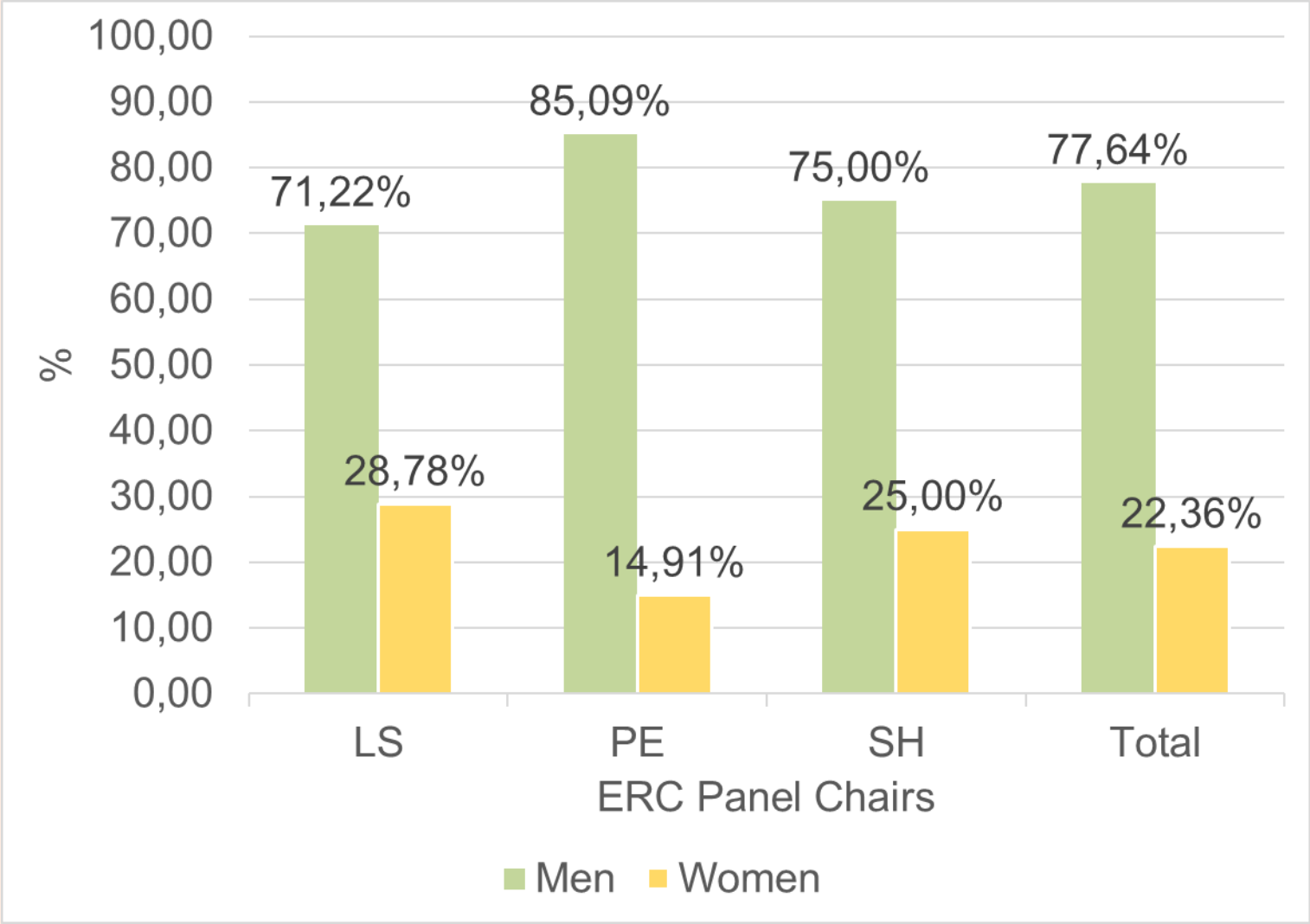
- 6,908 expert panels members were identified: 27.91% women 72.09% men.

- By research area, PE shows the lowest percentage, with 20.56% women. On the other hand, SH presents the highest with 37.15%.



4. Results: Regarding expert panels

2.- Scientific leadership: Number of men and women as panel chairs.

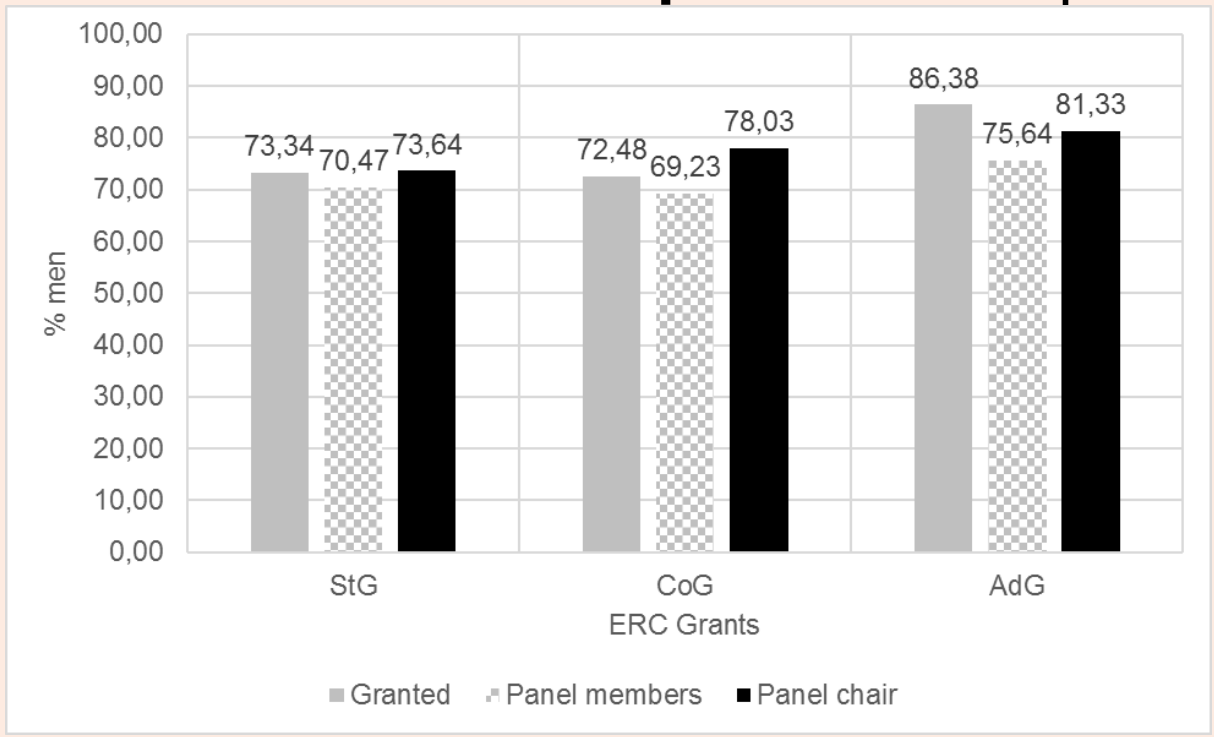


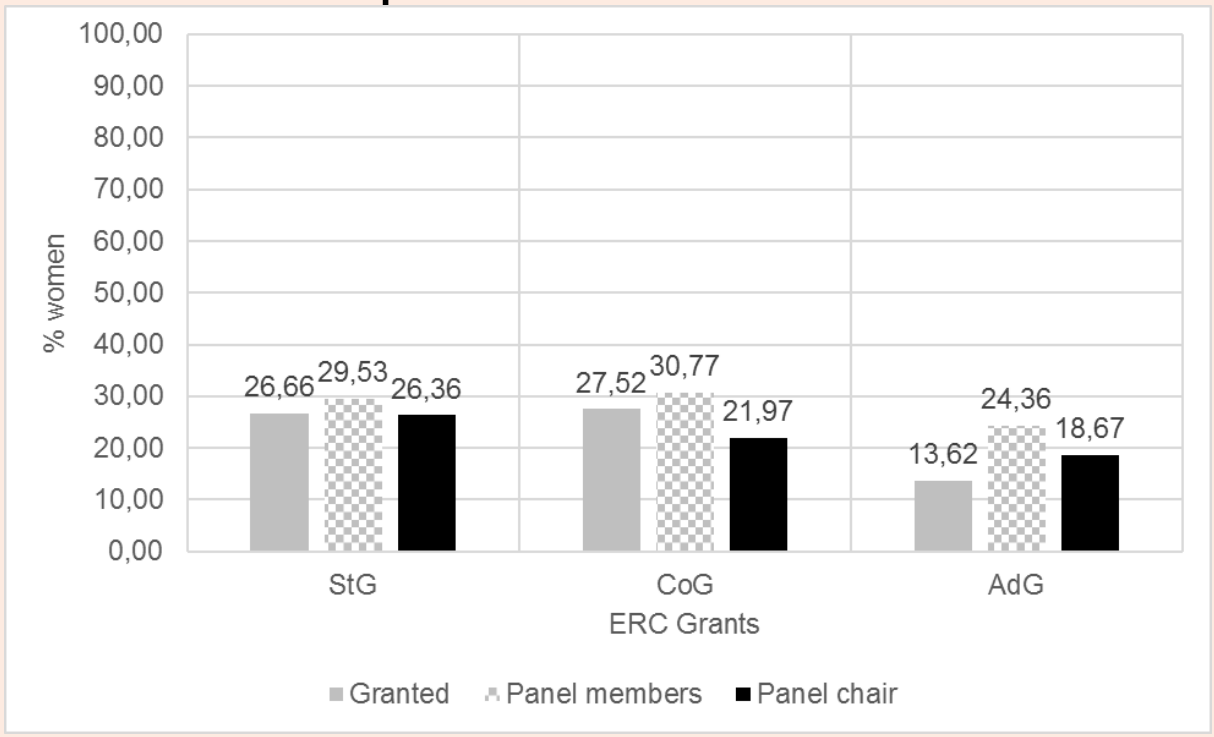
- 557 panel chairs were identified:
  22.36% women
  77.64% men.

- By research area, the women role of panel chair is lowest in PE area (14.91%), followed by SH (25%).

4. Results: Regarding expert panels

2.- **Scientific leadership:** Granted vs panel members vs panel chair

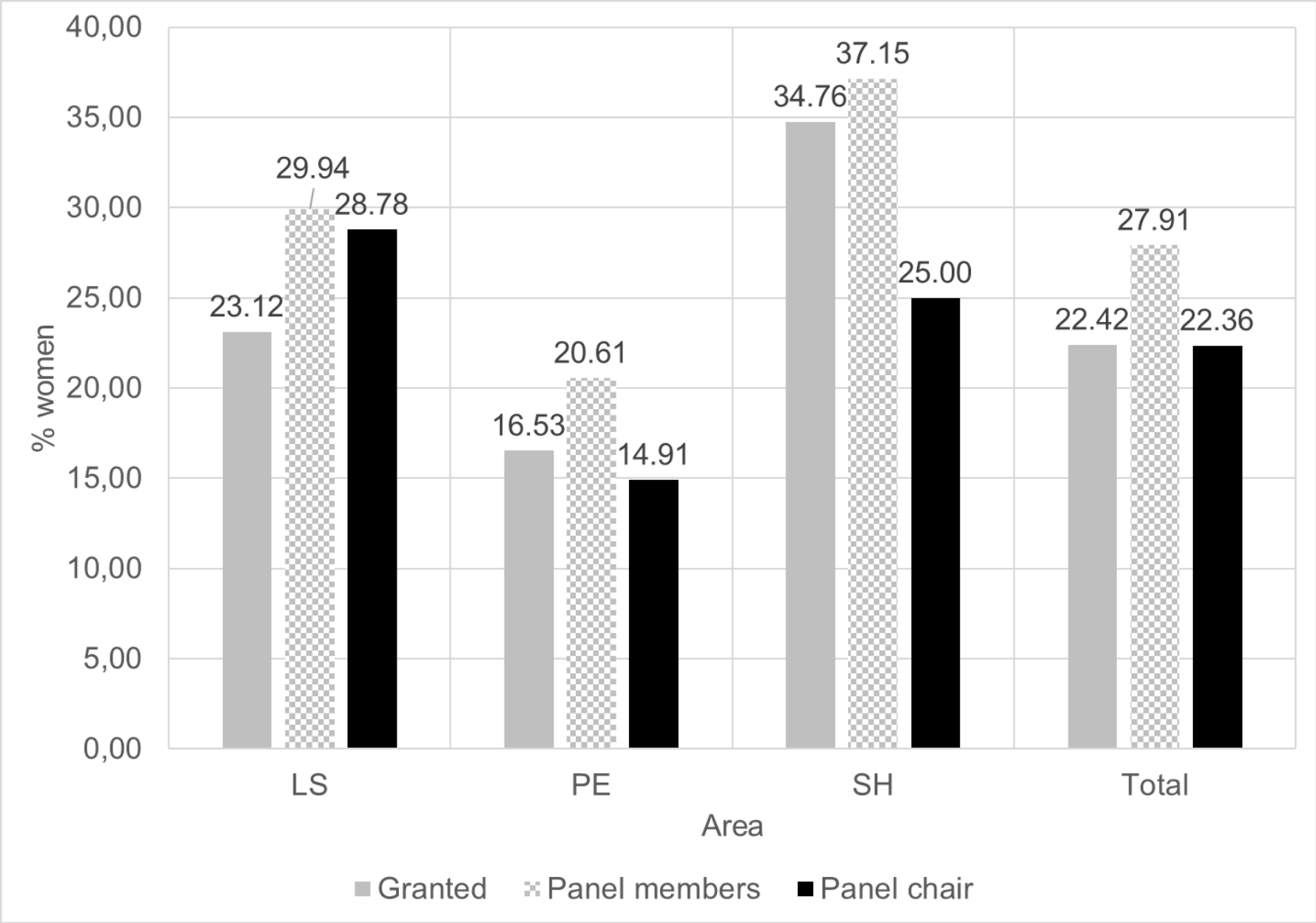




- In all types of grant, it is quite remarkable that the percentage of men as is higher than as a panel member.
- Women present a different trend. Their presence as panel member is higher than granted in all types of grant, especially in AdG.

4. Results: Regarding expert panels

2.- **Scientific leadership:** Granted vs panel members vs panel chair.



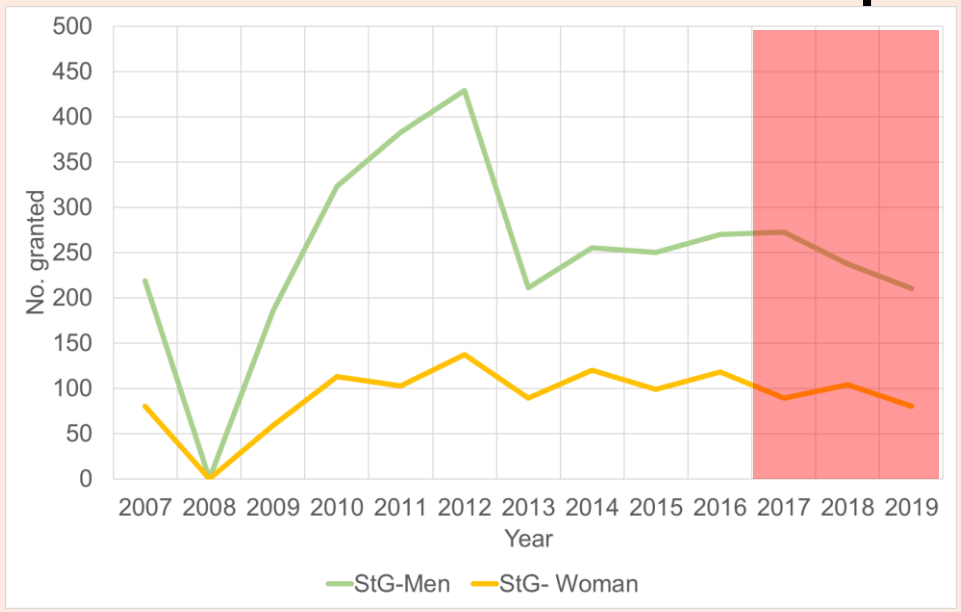
-The percentage of women is 22.42% as granted, 27.91 as a panel member and 22.36 as a panel chair.

-The percentage of women as granted is lower than as a panel member in all research areas.

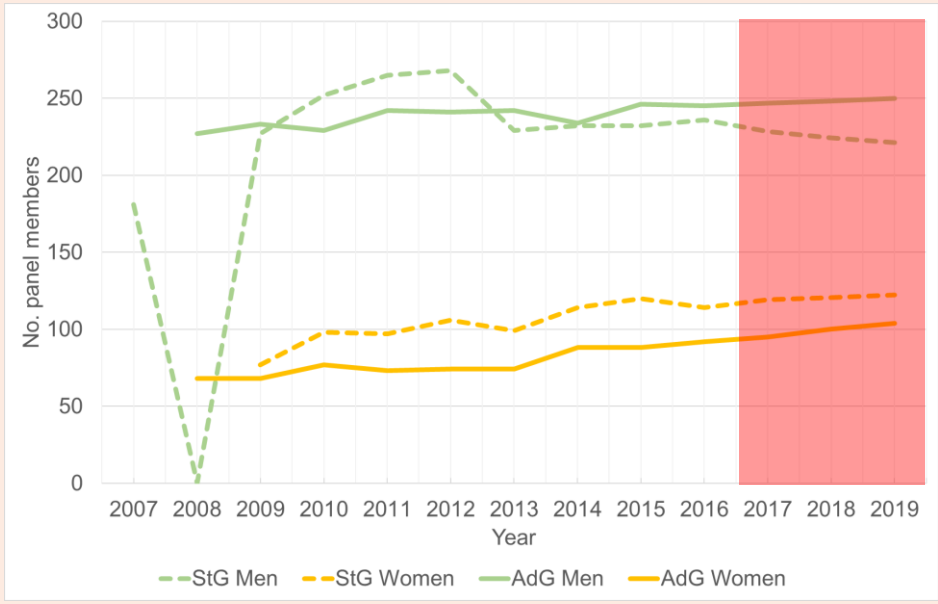
- The percentage of women as panel chair is lower than granted in all areas, except in Life Science (23.12% vs 29.94%).

4. Results: Regarding future prediction

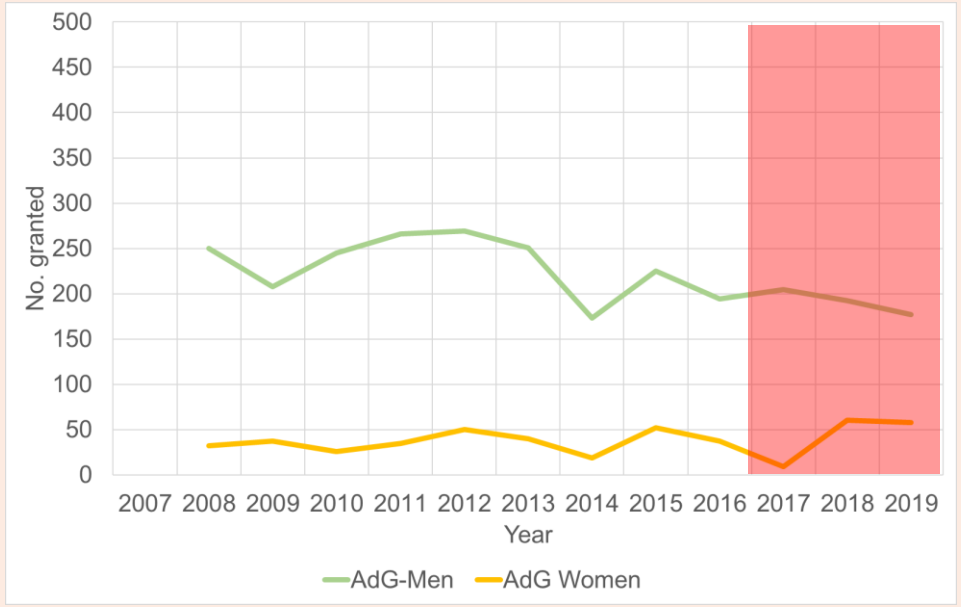
3.- Time series evolution and prediction: Will there be 60/40 distribution in 2024?



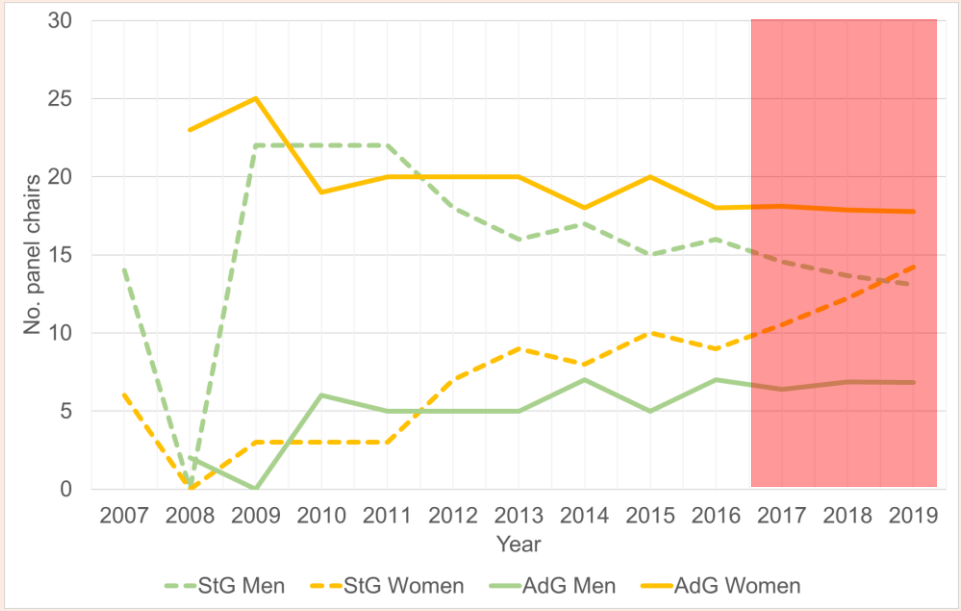
StG- 2024:
71.83% M
28.17% W



Panel member:
- StG- 2024:
61.47% M
38.53% W
- AdG- 2024:
66.69% M
33.31% W



AdG- 2024:
77.99% M
22.01% W



Panel chair:
-StG- 2024:
77.71% M
22.29% W
- AdG- 2024:
67.14% M
32.86% W

5. Conclusions

- Monitoring the percentage of women in ERC grants can provide interesting information about the unequal situation of women on these competitive calls.

Regarding applicants and granted

- In the period of the study (2007-2016), a total of 65,778 applications were analysed, from which a total of 7,154 were granted (10.88%).
- By research area, PE shows the highest number of applicants, despite the best success rate shown by LS (11.39%).
- By gender, the situation of women in ERC is especially low, both in submitted (25.9%) and granted (22.4%). PE presents the lowest percentage of women. According to the literature, this shows that women presence is minor in technical areas (horizontal segregation).
- The lowest percentage of women granted is found in AdG (13.62%). This fact is related to the ‘leaky pipeline’ phenomenon or vertical segregation of women in science.
- GPI is alarming in all areas (0.35 submitted vs 0.29 granted): in PE area values are highly remarkable, especially in highest categories (0.21 as submitted and 0.21 as granted). This result indicates a poor presence and equity of women.

5. Conclusions

Regarding expert panels

- The percentage of women in expert panels is 27,91% and as a panel chair is 22.36% which denote that they do not represent even a 30%.
- The presence of women as panel member is higher than granted in all types of grant. This might suggest that women are involved in evaluation processes that imply hard work and a higher quality profile. A priori it might suggest that they do not have less confidence for applying to ERC grants.
- This group of female panel members could be potential applicants for AdG and CoG.

Regarding future prediction:

- State-space models could be a tool for estimating the forecast for women presence in ERC calls in the following years. The preliminary results seem to indicate the 60/40 framework will take years to be a reality. A more deep analysis with other inputs should be considered.

Any questions? Thank you!

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