

Gender pay gap in scientific institutions; a case study

La brecha salarial de género en las instituciones científicas. Estudio de caso

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Original article
language: spanish

Translated by
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Abstract: The study which this paper refers to aims to identify the internal and external factors comprised in the gender pay gap in a scientific institution. The research is based on the case of the University of Valencia, with secondary data from the 2015 payroll register. We measured the *adjusted pay gap* by worked hour, the *doubly adjusted gap* (by hour and category) and *triply adjusted* (by hour, category and compensation supplement). Such gap appears in all staff categories, which is reinforced by the presence of children. The magnitude of the gap and the weight of the diverse wage components varies between professional categories and fields of knowledge. We conclude that gender pay gap is not the result of a difference in merit between male and female academics, but of the functional structure of universities and of the general social structure.

Key words: salary gap, university, public administration, Spain, gender biases.

Resumen: El estudio al que se refiere este artículo pretende identificar factores internos y externos que son constitutivos de la brecha salarial de género en una institución científica, concretamente en la Universidad de Valencia, que se analizan a partir de los datos del registro de nóminas de 2015. Se ha examinado la *brecha salarial ajustada* por hora trabajada, la *brecha doblemente ajustada* (por hora y categoría) y *triplemente ajustada* (por hora, categoría y complemento retributivo). La brecha salarial de género se ha manifestado en todas las categorías del profesorado investigador y es más intensa cuando se tienen hijos e hijas. La magnitud de la brecha y el peso de los componentes varían entre categorías profesionales y entre áreas de conocimiento. Se concluye que esta brecha no es el resultado de una diferencia

Reception:
June 01st, 2018

Approval:
October 26th, 2018



de méritos entre académicas y académicos, sino de la estructura de funcionamiento de las universidades y de la estructura social general.

Palabras clave: brecha salarial, universidad, administración pública, España, sesgos de género.

Introduction¹

In this article, gender pay gap (GPG) is identified and analyzed in *Universidad de Valencia*, UV [University of Valencia] in the year 2015. It focuses on teaching/research personnel who holds a doctorate and has a fulltime schedule in the university. This entails analyzing the gender pay gap in an institution, whose wages are published in *Boletín Oficial del Estado* [Official Bulletin of the State]. This circumstance may lead to the conjuncture that this gap would not take place in a university, and in the case it existed, it would be residual. However, the persistence of sexism impacts on legal and official regulations, and the force of habits and structural praxes that patriarchy generate, as it will be exposed, on wage discrimination. The tension between a formally egalitarian regulation and the weight of the lengthy tradition of male primacy –proper, among other organizations, to university structures– is considered, moreover, reinforced by external factors such as the general division of labor in the domestic space. Since time is inelastic, women's dual shift sets restrictions to their projects and professional careers.

The initial GPG concept we resort to is the one proposed by Sallé and Molpeceres (2010: 21), who define it as “the average of gross retributions by the hour of women as a percentage of the mean of gross hourly incomes of men”. Comparing hourly wages implies an adjustment level over the *gross pay gap*, which considers pay gap of the women's total annual retributions in relation to those of men.

The purpose is to test the existence of a pay gap in the academic context where it is denied. Undergraduate courses in public universities in Spain have a high level of formalization and regulation, fundamentally heteronomous as per *Ley Orgánica 6/2001 de Universidades* [Organic Law 6/2001 for Universities]. Objective rules define the tasks, performance, promotion and remunerations for people working in these institutions.

¹ This article is based on the research “Brecha salarial de género en la Universidad de Valencia” [Gender pay gap in the University of Valencia], funded by the Equality Unit in the same university and carried out from 2016 to 2017, with the aid from technical staff and the payroll department.

This makes it difficult to think pay gaps can occur, as their existence would imply accepting cracks through which subtle and invisible forms of discretion passed, in tenders, training opportunities, personal treatment, allotment of duties, opportunities to partake of research projects, publications, among others.

In the book *Brecha salarial y brecha de cuidados* [Pay gap and care gap], Díaz (2016: 26) points out that “research works on pay gap have focused on measuring its magnitude rather than on its explanatory factors, much likely because of the complexity of the latter”. In the present article, it is argued that there are internal factors –formal and informal power elements present in any organization and those proper to an institution engaged in science and education– and external factors –general division of labor– that influence and configure GPG in the university and that allow explaining the pay gaps found in this study.

In other countries, there are relatively recent research works on gender pay gaps around the world among university graduates (Napari, 2008; Doucet *et al.*, 2012; Bredtmann and Otten, 2014; Leuze and Strauß, 2016); though only two Canadian studies on university GPG (Warman *et al.*, 2010; Nadler *et al.*, 2016). In March 2018, British universities recognized the existence of a gender pay gap per worked hour (Pells, 2018). It is worth mentioning the classic study that compares pay gaps in predominantly white universities with those of historically Afro-American colleges and universities (Renzulli *et al.*, 2006). So far, in Spanish universities, there is only another study regarding GPG in universities: the one by *Universidad del País Vasco* [University of the Basque Country] (2017).

Gender pay gap in social sciences and in the feminist theory

One of the goals of this research is to analyze the gender pay gap adjusted according to a series of criteria: hourly, professional category, field of knowledge, wage components, and having children or not.

GPG measures the difference in wage between men and women at a certain time and space, it is a photograph. The result of this measure is the specific expression of a dynamical process, in which norms, stereotypes, and symbolical violences materialize in the access, promotion and distribution of rewards in academic institutions (Bourdieu, 2008). Studying GPG will allow finding out the way some factors intra-actuate (Barad, 2007) in such manner that professional careers that should be based on merit and

individual capability offer different wages for men and women.² Seemingly, scientific androcentrism (Harding, 1996) not only interferes in pay gaps, but also in their justification.

In feminist economy, as pointed out by Jill Rubery *et al.* (cited in Karamessini and Ioakimoglou, 2007: 36), in the analysis of GPG three dimensions of the wage structure are approached: activity sectors, classification of occupations, and remuneration systems. In the present study, these circumstances have been isolated to accomplish a better control of the variables: a single organization is assessed (Valencia University); only the four levels that demand the highest education levels (PhD); in the study of public administration, the amount of payments is regulated by an annually fixed regulation. In this way, once these elements are isolated, the research will focus on the factors that Blau and Kahn (2006) call “gender specificities”.

The hypothesis is that the formal rational and legal remuneration system is tensioned by gender structural logics, invisible and not fully acknowledged, which reproduce pay gaps between men and women. It is understood that GPG is the result of gendered social practices in access to studies and rewards in university; in this way, it is also the result of the indirect repercussion on wages from family loads. Nevertheless, these social practices are, by and large, put aside and the arguments for wage gaps are about individual characteristics –preferences, self-confidence and competences– and labor prejudices over productivity, availability and flexibility.

When *preferences* regarding studies on wages are expressed, it is insisted women prefer low productivity sectors, and thereby, with worse pays. Albeit, “this justification, precisely obviates the cultural and social load underlying such preferences” (Salle and Molpeceres, 2010: 26), and also circumvents the capacity of labor market to segregate.

There are historic examples in the academic sphere such as Pickering and astronomy, who hired women with a low wage to perform the calculations, while men were engaged in what was “valuable”: the observation (Sobel, 2017). However, when astrophysics develops, emphasis is made on measurements; it increases, then, the value given to the task of calculating, and then, it is analyzed by men. This same takes place in the change from the inheritance biology to that of genetics (Richmond, 2001). Women have not had the chance to choose, they have been inserting into less valuable tasks (Magallón, 2017).

2 The available data are grouped in the dichotomic category man/woman, despite gender is understood as a continuum (Butler, 2006).

Women have also been considered to *prefer works related to reproductive tasks*. The domestic tasks women perform are daily and repetitive, which they have to carry over and over, and in general, these are not recognized. These alleged preferences are analyzed by Babcock *et al.* (2017) in their study “Gender Differences in Accepting and Receiving Requests for Tasks with Low Promotability”.

Babcock *et al.* (2017) assess the request and allotment of tasks the same university makes and emphasize in the analysis on the works that *everyone prefers someone else do* (draft a report, be in a committee, etc.). women are more frequently asked to volunteer and accept more often than men such appointments. These are tasks that make promotion difficult and are usually less productive, which has direct effects on wages. Mitchell and Hesli (2013) conclude that female academicians carry out more collaboration services, help the organization and university, though this does not bring any benefit for their careers.

Another argumentation line to justify pay gaps is based on the *lack of confidence in their own competences*: “in this way, in the researching sphere it is pointed out how, in the face of similar levels of qualification and experience, women are seen less authoritative than their male peers” (Sánchez-Vidal, 2016: 119). However, underestimating women, in spite of having some low self-esteem dose, is mainly social. It is worth bringing to mind the study carried out in Yale University by Moss-Rascusin *et al.* (2012), which focused on the repercussions of apparently insignificant issues such as bearing the name of John or Jennifer (in the same résumé). The difference in name translated into 4-thousand-dollar pay gaps.

Are there actually productivity labor differences between men and women that justify pay gaps? In the sphere of highly skilled professional personnel, such as scientists, it is worth doubting it. According to Wennerås and Wold (1997), women in sciences need to overcome men in three categories regarding scientific merits, being 2.5 times more productive and having a significantly larger amount of published works than men to receive the same scientific recognition. This disparity in academic demands between women and men is summarized in the phrase of a female professor with a university when speaking about her promotion: “I have to work harder” (Ascencio *et al.*, 2015).

As regards *availability and flexibility* in the academic sphere, the fact of being present in the workplace is not valued much (research staff manages its schedules rather autonomously), but the conditions family conciliation causes. In everyday practice, most of care work competes with

the time necessary to maintain informal networks and with the research stays at international centers. These are relevant elements in their professional careers.

Despite formal equality, opportunities are not homogeneously and equally available to everyone. This is the case of invitations to be part of a research team, draft an article, be part of a tribunal or a scientific committee, tutoring, etc. All these “assets” are obtained on the basis of personal skills and belonging to informal networks, though such networks are also marked by gender alliances.

Most of these opportunities are not part of the formal structures in the academic sphere. And this lack of structure (Freeman, 1972), or uncertainty windows (Crozier and Friedberg, 1990) benefit the elite that controls the organization. Because the elite, as demonstrated by Bourdieu in *Distinction* (1996), always finds crevices to adapt and maintain its power.

Methodology

This article will take its time in the methodological explanation as it ensures the trustworthiness of results, in particular when academic sexism contests the importance of gender perspective in research. Moreover, a thorough explanation makes the analysis of GPG replicable in other studies.

To be able to address the complexity of the stated objectives, the gap has been analyzed according to new measures specifically produced for the present study: 1) gender pay gap adjusted by time and professional category (dual); and 2) adjusted by time, category, and compensation supplement (triple). The analysis of the gap three times adjusted was carried out only for the majority (TU), and according to fields of knowledge.

Four fields of knowledge have been defined from data per school:

- 1) Biomedicine: schools of Medicine and Dentistry, Pharmacy, Biology.
- 2) Science and Engineering: Higher Technical School of Engineering, Mathematics, Chemistry, Physics.
- 3) Social sciences: Psychology, Social sciences, Magisterium, Economy, Law.
- 4) Humanities: Philosophy and Education sciences, Philology and Geography, and history.

The research takes as analysis unit professors exclusively engaged in the following: doctor assistant (DA) and doctor hired (DH); university tenure (UT) and university professor (UP). The categories DA and DH are operative staff, that is to say, despite they access via a public application based on academic merits, they are regulated by *Estatuto de los Trabajadores*

[Workers' Statute] which regulates private contractual relations. The other two categories (UT and UP) are ruled by *Ley de la Función Pública* [Law on Public Function].

Hypothesis

The main hypothesis is that the situation of women in universities is the result of tension between equality rules formally established and the old structures and practices of gender inequality. Then:

H0: there exists a global GPG in *Universidad de Valencia*, which mainly comes from the uneven presence of men and women in chairs and tenures. On this gap the inequalities in H2 also have an influence.

From this starting hypothesis, the following four hypotheses have been established:

H1: there is GPG in each professor researcher category in *Universidad de Valencia*.

H2: there is GPG from having children.

H3: the gendered configuration of disciplines and fields of knowledge expresses as the differential access to variable supplements that individual trajectories remunerate.

Variable description

The analysis was carried out on a database of all the payrolls of the personnel with teaching and researching functions in *Universidad de Valencia* in 2015. The four dimensions and their variables are listed below:

Personal data: sex, date of birth, children or not.

Employment data: category, college, and duration of the shift.

Payroll data: basic components (wage, and specific and destination supplements³TN), variable components (terms, academic post, productivity and teaching research merits) and extraordinary activities (conferences, courses, campaigns, copyrights and other gratifications).

3 TN Destination supplement: part of the incomes of functionaries that matches the level of their post or personal degree.

Data on absences: leaves, surplus, sick leaves, commissioned appointments, enrollments and dismissals.

With the information above, a single data matrix was built; later, it was analyzed by means of statistic software SPSS v22. Following, the description of variables related to payroll is presented in detail.

The basic components of remuneration and their value

The basic components of wage (whose value is fixed in the category) are: wage, destination complement, and specific complement. Wage by the hour progresses depending on staff: in the first category, DA, is 6.96 €; DH, 7.8 €. For a public functionary, *wage* is the same for the two categories, UT and UP earn 7.41 € (see Table I).⁴ *Destination supplement* is 5.62 € for almost every category, with the exception of DA (4.88 €). What actually makes a difference between categories is the specific supplement, which is not received by AD personnel; while for DH and UP this complement increases geometrically from 0.99 € to 6.92 € (it increases six times).

Even if UT and UP are exclusively engaged and their status as members of public service entail they hold the highest labor category in public administration (A1), there is a pay gap of 23% between them; while UT earn from these three fixed components of remuneration (wage, specific and destination) 16.26 € by the hour, CU earn 19.95 €.

Variable complements of remuneration

Variable complements comprise all payments not directly defined by category, but which come from the career of professor-researchers. Following, those with the most significance in the analyses will be defined.

Trienios (triennials) relate to seniority in public institutions, considering the time an individual worked in another public office prior to UV, plus the time in the university itself.

Quinquenios [Quinquennials] (called “docent merits”) are the complement obtained per each five-year term as a professor (either in the same university or in others). It is automatically accessed, not need for procedures or merits.

⁴ These data are available in the Tables and Graphs in Annex at the end of the article.

Sexenios (six-year terms) measure research productivity. They have to be requested by professors when they consider they meet the requirements as per *Agencia Nacional de Evaluación de la Calidad y Acreditación*, ANECA [National Agency for Quality Assessment and Accreditation]. Such agency may approve or deny the *sexenio* according to research quality. Owing to this, the staff in one category can have no *sexenios* or have up to six recognized. There are two exceptions: DA personnel, as up to 2015, they were not authorized to request *sexenios*. Another requirement is the material time that has to pass to take place (at least six years for each of them).

Supplement of merits: five elements have been grouped here; five complements which in function of a number of motivations *Comunidad Autónoma Valenciana*⁵ provides: teaching-researching experience, research productivity, mobility and involvement in university management.

Finally, as regards incomes from *research projects*, it is necessary to say that only some particular projects generate incomes for researchers (most of the funds for projects can only cover research expenses). Though when incomes are generated, these account for a very important amount of the earner's wage.

Distribution of the analyzed population, by categories and sex

The lowest category in the hierarchy is DA, and accounts for 10% of the staff (graph 1), then DH with 9%. These are steppingstone categories (even labor contracts for DH are temporary, i.e., five years), for the “normalized” goal in the academia is to become a functionary via the accreditation of merits and the corresponding proofs (oppositions). There are no significant differences in these initial categories as regards the presence of men and women. In DA, the proportion of women and men is 48/52, and in DH, 55/45.

UT (represents 55% of the staff) the difference in the proportion of women and men is notable: 42/58, and UP (26% of the staff) is actually high: 28/72.

5 Each autonomous community in Spain sets its own complements and amounts.

Analysis proposal and formulas

it is worth pointing out that the study focuses on pay gap not on income gap, as no incomes earned outside the UV payroll are considered; for example, lectures paid by other institutions. The methodology *Encuesta de Estructura Salarial* [Survey on Wage Structure] of INE was followed; it establishes that “for an adequate interpretation of earnings, one has to bear in mind that no incomes from the other and following works of the same individuals are considered, but it accounts for the earnings in the firm in which they were selected” (INE, 2018: 5).

The dependent variable is gender pay gap (GPG), and total annual remuneration is taken as a measure unit (wage plus supplements) by hour worked (shift and days worked) perceived over 2015. This calculation is performed separately for men and women. When referring to *pay gap by worked hour*, it refers to the so-called *adjusted pay gap*. In this way, the European Commission pattern is followed as regards Spanish official studies and British universities.

To ensure data compatibility by worked hour, hours corresponding to leaves, absences, service appointments, and unpaid licenses. Also new accesses and retirements were considered over the reference year.

In the calculation all the components of the payroll, fixed or variable, produced over the years and are divided between the worked time (days in the year and hours in the shift).

$$\text{Remuneration by worked hour} = \frac{\text{Gross income for a year}}{\text{No of hours in the shift} \times 260 \text{ days}^*}$$

**the figure in the denominator, 260, comes from multiplying 52 weeks in a year by five (as the shift is calculated on five working days). This figure may be inferior when nonremunerated days are discounted, as previously pointed out (absences).*

To compare the various groups, the mean of the retribution of worked hours is calculated:

$$\text{Mean annual remuneration by worked hour} = \frac{\Sigma \text{ remuneration by worked hour}}{\text{Reference population (N)}^*}$$

**Reference population may be all the professors in University, professors of a mayor, of a field of knowledge.*

The final step is to obtain the differences between mean annual remuneration by worked hour of women regarding men, the following formula is applied:

$$\text{GPG} = \frac{\frac{\text{Mean annual remuneration x worked hour of women}}{\text{Mean annual remuneration x worked hour of men}} - 1}{\text{Mean annual remuneration x worked hour for men}} \times 100$$

Results

After a thorough treatment of data. The main hypothesis was verified; identify the existence of GPG in a public institution such as UV. As a set (including the four professional categories), simple adjusted GPG (per worked hour) reaches 10.9%, which is inferior to the Spanish GPG that reaches 14.9% in 2015.⁶ GPG in UV is not a large gap, though significant if one considers that the gap is calculated on a relatively homogeneous demographic group (for all the individuals analyzed hold a PhD).

An element that gravitates on the global gap of the university is known as *glass ceiling*, that is to say, the differential access of women and men to chairs (72% men); however, as exposed below, it is also receptacle for the differences that originate in the categories.

Before advancing in the analysis, it is worth calling attention on how to read the GPG measures that –let us bear in mind– is a measure that relates means: incomes of women as compared with those of men. The more the measure of the gap is adjusted (by the hour, category, field of knowledge), the smaller the percentage result, as it is made on more homogeneous collectives.

In this way, the global gap for professors in UV that reaches 10.9% subsumes all the elements of wage differentiation. What may surprise the deniers of gender discrimination in academy, is that in spite of adjustments (thereby, reductions in differentiation elements), GPG still occurs in all the categories, though its highest intra-category value is 3.99%.

Following, GPG is identified in the various categories. Then, GPG will be specified (or adjusted) to test the rest of hypotheses, noticing that some analyses will only be carried out with UT professors, as it is the largest staff (55%), in this way, the adjusted measures do not lose statistical significance.

⁶ From *Encuesta de Estructura Salarial*, INE.

There are gender pay gaps in all the professor categories in *Universidad de Valencia*

GPG is present in all the categories (see Graph 3), which indicates that it is a sort of inequality that reproduces in a systematic and persistent way in the university organization. It is structural.

The highest GPG occurs in the category with the most individuals, UT, with a gap of 3.99%, and means that women in this category receive on average 1.05 € less than their male peers by each remunerated hour (see table III).

The lowest GPG is in DA and it is because in 2015, this teaching category was not authorized to request *sexenios*, and in this way, this differentiating element is not included. Likewise, people in this category are temporarily hired for five years, consequently, they have neither the seniority nor academic position to access the rest of *pluses*. All of this makes gender gap reduce in this category, 1.39%. It is estimated that a gap so short is not worth considering.

If it is considered that when one moves up the hierarchy (assistant professors) the list of wage component increases for those able to access (which increases the conditions of possibility for a pay gap), it may be supposed that the progression of the gap should be always increasing. Though the curve goes up to UT (3.99%) and comes down at UP (where GPG is 2.44%). This is explained because the category UT is the academic summit in the expectations of most professors. Becoming UP is facultative and there are various motivations not to promote to chair.

Gender pay gap due to having children

In this section, the GPG adjusted by hour, age and having children is analyzed. It is separately calculated for men and women with and without children. As a result, it can be stated that GPG is higher when there are children, and this repeats at all ages. Data analysis verifies the hypothesis of handicap persistence from having children along the entire academic career of women, including the post-care stage.

At the intermediate age strip (46-55 years of age), there is the most significant difference between those with and without children: GPG reaches 10.07% *between men and women with children*; while, there is no GPG when there are no children (see graph 3). In the case of older people (56 and older), the difference with and without children is not as sharp (see graph 3).

The incidence of variable wage complements in GPG in UT professors in the fields of knowledge

For the study of the variable components to be performed in a homogeneous collective, it was decided to run the analysis talking the case of UT professors for it was the most numerous (it accounts for 55% of the total university personnel).

Variable components are those that vary independently from category (they are not *tied* to them). In short: research projects that remunerate people (not always acquired in a competition); *sexenios* (research productivity assessed by an agency alien to universities, ANECA); courses, lectures and other gratifications; coordination tasks and academic posts; and also, *trienios*, *quinquenios* and merit supplements (related to seniority).

In this section, mean incomes of men in each remuneration complement and field of knowledge, and women are subtracted. Differences are reflected in graph 4. Positive results (+) indicate that complement favors men, while negative (-) women.

In the first place, it is worth pointing out that most of the competitive projects in UV (proper to the Spanish R&D system) do not remunerate the researchers, but afford other research costs. Thereby, the pay gap in projects analyzed here is located in the context of the subset of projects that remunerate for the researchers, the distribution of stipends among members of research teams is not always externally regulated, and decisions of retributions can include some sort of discretion.

In Graph 4, it is noticed that it is participation in these research projects what produces the most GPG. It is important to remark, at this point, that GPG becomes particularly relevant in Sciences and Engineering.

Secondly, there is a notorious contrast between low payment or participation of women in this sort of projects, and the quasi-equality in research productivity of men and women. In graph 4, the insignificant contribution of *sexenios* is noticed in GPG (these are granted after a strict external assessment that determines the productivity of research).

Out of these data, it may be deduced that men and women are equally productive as academicians, in this way, if the highest income from research project and productivity (mainly measured as scientific publications with an impact on the academic community) is for males, it is then noticed there is no relation: men earn more by each project

regardless of their productivity. This evidence disproves the argumentation according to which the existence of GPG is due to individual meritocratic factors.

The second complement by contribution to GPG corresponds to *courses, conferences and other gratifications*. And it takes place in all the areas, though particularly in Social Sciences.

For their part, complements related to seniority such as *trienios, quinquenios and méritos*, they are especially relevant in Humanities and Social. In Biomedicine, seniority favors men, though to a negligible extent. Noticeable cases are Sciences and Engineering, where seniority favors women. The cases of Physics and Mathematics may help understand this phenomenon. In the case of Physics, the proportion of UT men/women is 39/12; while in Mathematics is 22/8. The few women in these disciplines are the most senior, and thereby, since means are compared, the gap in this group of complements related to seniority favors women. This indicates that, despite being a few, women are more consolidated and this reduces the pay gap.

Finally, complements from coordination tasks and academic posts, as in the previous case, produce GPG in all the fields, save Sciences and Engineering. In the culture of these disciplines, administrative functions are less valued and opportunities are resolved in the sphere of research projects. As commented in the previous paragraphs in colleges such as Physics and Mathematics, highly masculinized, hide horizontal segregation for men are more numerous, and besides, perform *relevant* tasks (research projects and courses, and lectures), while women carry out *supportive* tasks (coordination and management), that is to say, the care of the organizations.

Conclusions

It has been verified in the present study that despite a formally egalitarian legislation and positive actions in Spanish universities, there exists a substrate of gender inequalities in the University of Valencia, which becomes wage differences between men and women.

The global gender pay gap of university professors in UV –when all categories are aggregated– reaches 10.9% (H0). This figure demonstrates the persistence of the glass ceiling as a heavier explanatory factor: only 28% of chairs in UV are held by women. Even if there are no studies with which to establish a direct comparison, this figure matches with similar labor environments. By 2017, in British research institutions (with higher labor heterogeneity), GPG reaches 20% (Pells, 2018).

In the present case, the teaching population is more homogenous, as not only staff exclusively engaged in the university necessarily holds a doctor's degree, but the requirements to access and promote the various categories are similar. However, in this research it has been disclosed that androcentrism permeates scientific institutions.

Despite teaching-researching career has processes defined via universal mechanisms of merit competitive assessment, systematically there is GPG in each and every teaching category (H1), which gives a clear account of the structural nature of gender discrimination. The spaces by means of which micro-discriminations pass are called discretion cracks, which perpetuate gender differences, most likely unconsciously, though systematically, inside university structures.

The existence of external factors that may be producing GPG has also been pointed out. This way, it has been exposed that conciliating labor and family/personal life conditions men and women in different manner, also in the academic sphere. Having children produces negative outcomes on the wage of women (H2). Moreover, the analysis of age groups indicates that GPG creates inequalities that remain over the entire academic career of women.

In this way, it may be stated that GPG is *a structural phenomenon in the university* because it comes from the glass ceiling; it persists in every teach-research category and because it is produced by internal (organizational: discretion cracks and micro-discrimination) and external factors (social: related to gendered care).

As put forward in the introduction, structurally produced GPG is not explained by individual characteristics or preferences, neither is by the lesser productivity of women. In the analysis of wage complements of tenured professors (H3), it is noticed that despite women's productivity, they do not attain the same economic results as their male peers in research projects. It is plain to see that women's *preferences* focus on competitive research such as men's (they participate in projects and publish their results in journals with an impact in their fields), however, this participation does not produce the same economic outcomes as for men. The same idea is insisted upon: it is not lack of self-confidence, society is more willing to pay men (Moss-Rascusin *et al.*, 2012).

Here, it has been demonstrated that in some fields of knowledge there is higher allotment of coordination tasks for women, less valued in research and wealth, which introduces certain generalized division of labor in academia, restating the cited results: Mitchell and Hesli (2013), and Babcock *et al.* (2017).

Finally, by means of computing and analyzing the five-year terms it has been possible to observe that when women have more seniority, GPG reduces. Though, this is at the expense of unbalanced time investment with a view to reaching their male peers' wages. It is one of the manifestations of what Asencio (2015) verifies in her interviews with academic women and which is summarized in a sentence uttered by one of the respondents: "I have to work harder". Along the way, all the women whose circumstances (among them, the institution's micro-sexisms or excessive investment on proper time) have prevented them from advancing their careers.

To sum up, it is noticed that groups of variable complements regulated as *sexenios* (defined via external assessment) and *trienios*, *quinquenios* and merits (depending on seniority, on the measurement of objective time) contribute a little to GPG. Conversely, the most accidental variable complements and with higher uncertainty (research projects, courses and lectures) largely contribute to GPG. In the absence of defined and publicly known structures, wage differences slide in favor of men and disguise as lack of women's individual competence (Freeman, 1972).

There exists a series of small discriminations that permeate the social and university structure, which are naturalized and which almost all the staff deems them acceptable differences in treatment and behaviors. They are not usually interpreted as discriminations, save they are blatant. These subtle micro-distinctions underlie the payment gaps measured in this work. Since they are not perceived as discrimination by the university staff, they are not contested and thereby, they are perpetuated over time so that there is nothing wrong with them. They are naturalized, as their consequence; i.e., pay gap.

Described in detail, the characteristics of discrimination –mainly pay– against women in the university sphere, it is worth adding that universities are highly competitive spaces structured to favor competition and owing to their century tradition are used to promoting men instead of women. Moreover, men because of their socialization and not being responsible for the tasks of care women take reach university with more disposition to succeed in this environment.

Keeping the historic tradition of male prevalence favors the consonance of universities with the rest of social institutions in their discriminating nature. It is well known that causing dissonances usually has negative outcomes for the provokers. This restricts the changes universities try to make, though they publicly state they favor equality and even create institutions to fight against it (Equality units, or similar). However, due to the factors above, gender gaps perpetuate, though progressively lessened.

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Annex

Table I

Hour value of fixed wage components by category, UV 2015

Fixed components	Personnel		Public functionaries	
	AD	CD	TU	CU
Wage	6.96 €	7.80 €	7.41 €	7.41 €
Destination supplement	4.88 €	5.62 €	5.62 €	5.62 €
Specific supplement	0 €	0.99 €	3.23 €	6.92 €
Total	11.84 €	14.41 €	16.26 €	19.95 €

Source: Own elaboration based on payroll data, UV.

Tabla 2

Brecha salarial de género del PDI de la Universitat de València, 2015

Sex	Individuals	Mean annual remuneration by worked hour	Standard deviation	Gender pay gap
Men	1238	27.94 €	8.74	10.90%
Women	838	24.90 €	7.32	
Total	2076	26.71 €	8.33	

Source: Own elaboration from the data base in UV payroll.

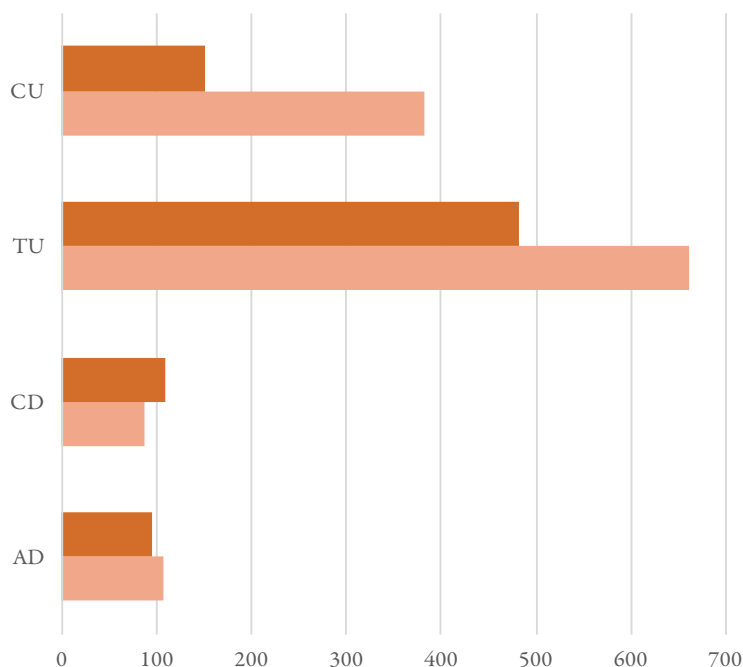
Table III
Gender wage gap adjusted by hour and category

Sexo	Category	Individuals	Mean annual remuneration by worked hour	Standard deviation	Gender pay gap	Wage difference € by hour
Men	Ayudante doctor	106	12.90 €	1.07		
	Contratado doctor	88	18.97 €	4.03		
	Titular de Universidad	662	26.35 €	4.31		
	Catedrático de Universidad	382	36.93 €	6.71		
Women	Ayudante doctora	96	12.72 €	0.99	1.39%	0.18 €
	Contratada doctora	108	18.37 €	1.44	3.17%	0.60 €
	Titular de Universidad	483	25.30 €	3.08	3.99%	1.05 €
	Catedrática de Universidad	151	36.03 €	3.95	2.44%	0.90 €

Source: Own elaboration from data from UV payroll.

Graph 1

**Distribution according to gender and labor categories
(2015 amount of people)**

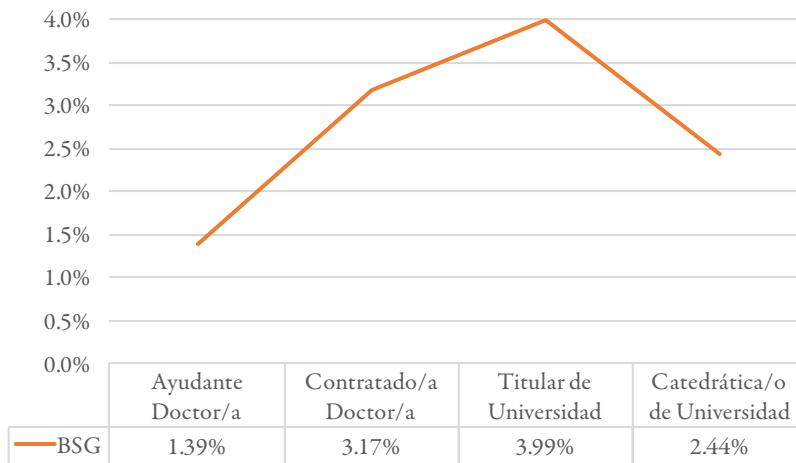


	AD		CD		TU		CU		Total	
Mujeres	96	48%	108	55%	483	42%	151	28%	838	40%
Hombres	106	52%	88	45%	662	58%	382	72%	1238	60%
	202	100%	196	100%	1145	100%	533	100%	2076	100%
	10%		9%		55%		26%		100%	

Source: Own elaboration based on UV payroll data.

Graph 2

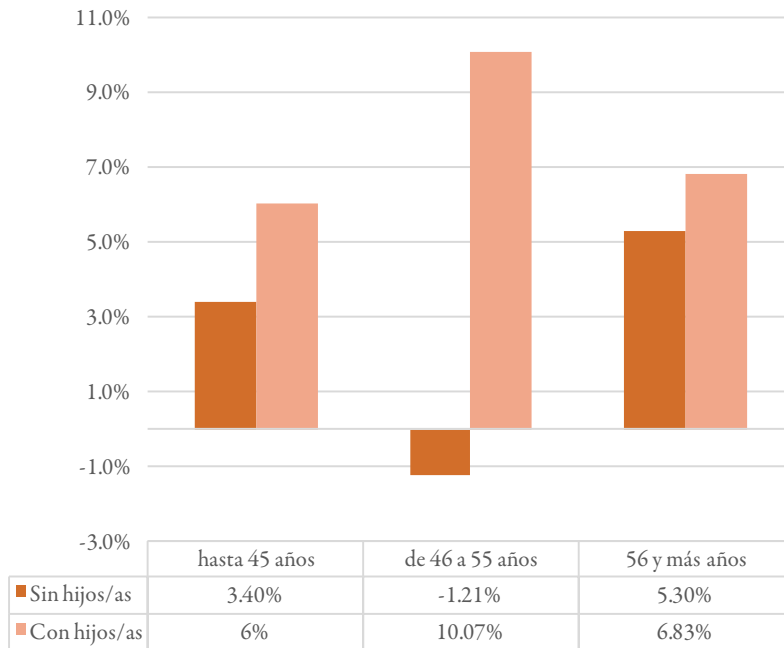
GPG adjusted by hour and category, 2015



Source: Own elaboration from UV payroll data.

Graph 3

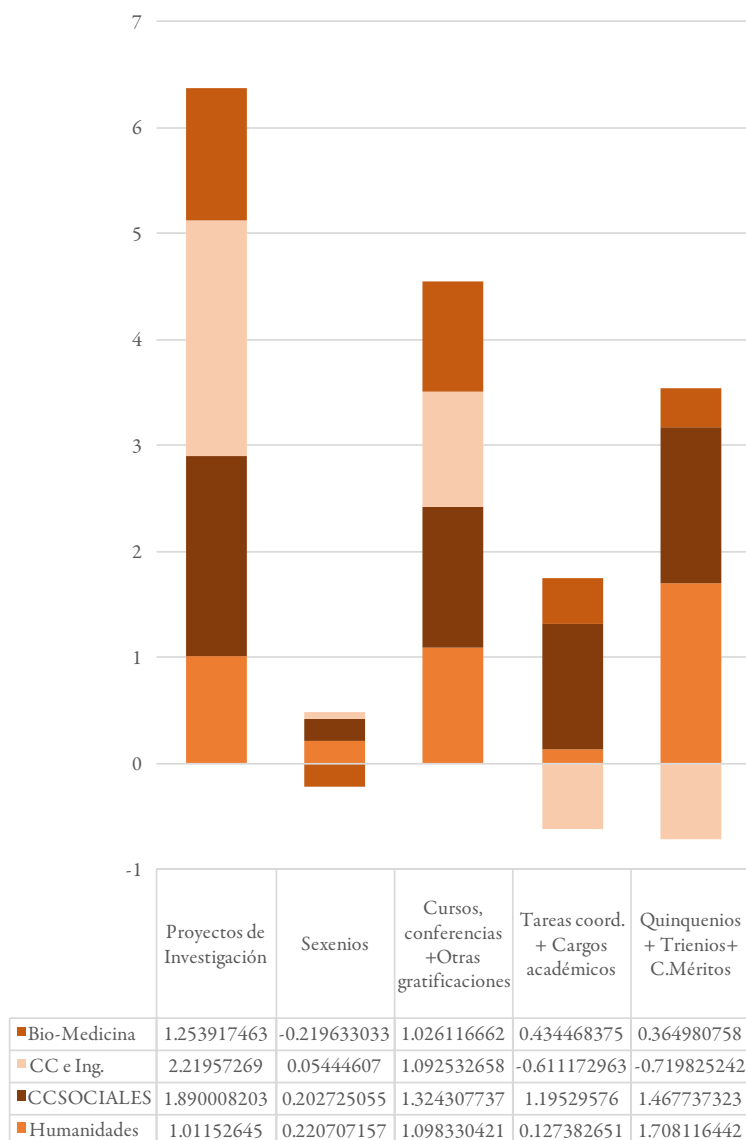
GPG according to age ranges and having children



Source: Own elaboration based on UV payroll data.

Graph 4

Wage difference (EUR per hour) between the average earned by TU professors in variable wage components by field of knowledge, 2015



Source: Own elaboration based on UV payroll data.

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