



An introduction to gender pay gap

By M. L. Paciello and K. Zima

The gender pay gap represents the difference between average hourly pay for women and men before tax across the economy as a whole. It reflects ongoing discrimination and inequality in the labor market which, in practice, mainly affects women.

The gender pay gap¹ is shown as a percentage of men's earnings and represents the difference between the average gross hourly earnings of male and female employees.

Gross earnings are wages or salaries paid directly to an employee before any deductions for income tax and social security contributions are made. In the Eurostat, data the gender pay gap is based on the methodology of the Structure of Earnings Survey (SES). In the EU, the gender pay gap is referred to officially as the 'unadjusted gender pay gap', as it does not take into account all of the factors that impact on the gender pay gap, such as differences in education, labor market experience, hours worked, type of job, etc. Even when these factors are taken into consideration, more than half of the gender pay gap remains unexplained. Using hourly pay as a basis for calculating the gender pay gap can also mask specific differences in pay that go unrecorded, for example, bonus payments, performance-related pay or seasonal payments.

Equal pay for equal work is one of the European Union's founding principles. "Simple and visible" cases of direct discrimination – differences in pay when a man and a woman are doing exactly the same job, with the same experience and skills, and same performance – have fallen a lot thanks to the effectiveness of European and national legislation on equal pay.

Achieving equal pay in a company or organization is an important step towards gender equality, as well as a tool for reassessing job requirements and remuneration procedures.² In addition to job remuneration, other weak points were also identified in respect of gender equality. Some jobs and departments are strongly or completely male-dominated and there is a lack of women among senior staff. As a result of the wage survey, and as a means of remedying these shortcomings, an action plan will be drawn up.

Besides revealing differences in pay between male and female staff, wage surveys also provide the employers with a detailed picture of job requirements and responsibilities, as these are specified in the job evaluation process. This in turn can cause people to revise long-held opinions about the degree of difficulty of a job and can lead to reassessment of certain occupations.

"Pay differentials remain one of the most persistent forms of inequality between women and men (...). Policies to eliminate sex-based discrimination in remuneration need to deal not only with

¹ http://ec.europa.eu/justice/gender-equality/files/gender_pay_gap/gpg_brochure_2013_final_en.pdf

² <http://www.businessandgender.eu/en/products/toolkit-2009-en-final.pdf>

For more information: http://www.equalpay.nu/docs/en/quebecor_eng.pdf

labor market inequalities, but also with perceptions of the role of women, their participation in social dialogue and the difficulty of balancing work and family responsibilities”³.

Wage inequalities have many causes, such as women being concentrated in lower status or part-time jobs, their weaker bargaining capacity, or non-objective job evaluation and wage determination systems. International standards, ratified by States, promote equal remuneration for work of equal value⁴ (see also Toolkit 2008 – Chapters 3 and 4).

Job value should be defined through analysis of the tasks involved and competencies required, and evaluated using objective, non-discriminatory, non-stereotyped criteria. Then it is important that in the institution there is a reliable competency model to evaluate the workers. The institution should be able not only to appreciate better that men and women have to be paid equally for equal jobs, but also to grasp the concept of “equal pay for work of equal value”.

Women are often offered work of equal value to that of men, but with lower pay. So-called “female” occupations, characterized by a high concentration of women, are usually less valued and lower paid than typically “male” jobs. Often more or less prestigious job titles for similar work can provide fictitious grounds for different pay levels. Horizontal segregation refers to the existence of, usually lower-paid, ‘women’s jobs’, where women are disproportionately represented while vertical segregation refers to the low representation of women among higher paid senior positions within a given occupation.

Lack of sex-disaggregated data – or more basically, lack of attention to gender differences, may bring about an inadequate breakdown and analysis of the workforce within an institution. Choices based on tradition rather than talent may entail non-strategic use of remuneration, incentives, etc.

The Gender pay gap⁵ is an important issue on the European agenda⁶ as it is desired that the pay gap between men and women – once it is corrected for differences in socio-economic characteristics – be eliminated. To this end, the European Commission has engaged in a monitoring process of the magnitude of the Gender pay gap in EU Member States, and of its evolution over time.

An accurate monitoring to the Gender pay gap is of utmost importance. Indeed, policy makers use existing measures of the Gender pay gap to evaluate progress towards the objective of gender equality, and to promote new strategies and legislation in this area.

An accurate monitoring to the Gender pay gap also requires the use of high quality data.

³ ILO Report “Gender Equality at the Heart of Decent Work” – page 119

⁴ ILO Convention on Equal Remuneration No. 100 (1951) <http://www.ilo.org/ilolex/cgi-lex/convde.pl?C100>

⁵ A comparative analysis of promoting pay equity: models and impacts - Marie-Thérèse Chicha - School of Industrial Relations University of Montréal - ILO Geneva

⁶ Commission Recommendation on strengthening the principle of equal pay between men and women through transparency – SWD(2014) 58 final - Brussels, 7.3.2014

Several researches are devoted to develop methodologies for measuring the Gender pay gap almost without bias⁷. In the Eurostat report '*Development of econometric methods to evaluate the Gender pay gap using Structure of Earnings Survey data*' there is an overview of explanations that have been given for the Gender pay gap, and some methods that have been used in empirical research to assess the Gender pay gap.

In this report are reviewed the methodological issues in estimating the Gender pay gap. An exhaustive list of equal pay key findings of the literature review is in the report: "The gender pay gap – A literature review"⁸.

In a recent article of *The New Yorks Times* (April 23, 2014) it is noted one can affirm that the women are paid less than men because they choose to be, by gravitating to lower-paying jobs like teaching and social work. But a majority of the pay gap between men and women actually comes from differences *within* occupations, not between them — and widens in the highest-paying ones like business, law and medicine, according to many data from Claudia Goldin⁹, a Harvard University labor economist and a leading scholar on women and the economy.

She said: "*There is a belief, which is just not true, that women are just in bad occupations and if we just put them in better occupations, we would solve the gender gap problem.*"

Then it is a necessary task for an institution:

- a clear definition of "work of equal value" and the promotion of gender-neutral job evaluation and classification systems;
- entitlement of employees to request information on pay levels, including complementary or variable components such as bonuses or payment in kind, broken down by gender;
- employers' regular reporting of average remuneration by category of employee or position, broken down by gender;
- monitoring and enforcement of the equal pay principle and awareness-raising activities year by year.

⁷ See for example: 'The value of work and gender equality' - http://www.cite.gov.pt/asstscite/downloads/guia_revalorizar_en.pdf

⁸ "The gender pay gap – A literature review" - NJEWG – 2011 and bibliography there in <http://ucea.ac.uk/en/publications/index.cfm/njgpygapJ>

see also EWG

⁹ <http://scholar.harvard.edu/goldin/publications>

In fact, INFN's TAP includes the following action:

Action 4: Observatory for monitoring and evaluating women participation in research

Name action 4	Observatory for monitoring and evaluating women participation in research
Objective	To organise an observatory for monitoring and evaluation, appointed by the board, formed by: CUG workgroup specifically involved in Equal Opportunity, team of GenisLab project, HR dept., components internal and external evaluation committees (CIV, CVI), coordinated by the Vice President S. Falciano.
Methods	Board resolution
Expected Output	Observatory for monitoring and data collecting
Person in charge	V.President Falciano + GenisLab team: Di Carlo + CUG: Masullo
Human resources involved	Executive Board, CUG, GenisLab, HR dept., CIV, CVI
Other resources needed	
Timing	Institution of the observatory by the end of 2013. Report of first year activities by October 2014: on time to be published on CVI report
Process indicators	Names of observatory members with their respective component (CUG, GenisLab team and Board)
Results indicators	Brief report on the results of the first year's activity.

The general framework that we have developed in the TAP regarding the collection and analysis of the data on access to resources includes the creation of a preliminary system for collecting and processing data from a gender perspective. But it will have to be a task of a specific structure of the INFN to set up **a gender observatory**. It will be a CUG processing work to make this activity institutionalized and especially sustainable in the future. In particular, INFN has recently realized a group of technicians involved in the care of the data base, divided by gender. In particular, respect to pay gap, an onerous and difficult work is expected.

A report¹⁰ by the European Commission from December 2013 on the implementation of EU rules on equal treatment for women and men in employment (Directive 2006/54/EC) found that equal pay is hindered by a number of factors, including a lack of transparency in pay systems (IP/13/1227). This report includes a section that assesses how equal pay provisions are applied in practice.

In order to better promote and facilitate the application of equal pay provisions in practice, this report is accompanied by a Commission Staff Working Document that consists of four annexes: a section on gender-neutral job evaluation and classification systems; a summary of equal pay case law of the Court of Justice of the European Union ('CJEU'); examples of the national case-law on equal pay; and a description of the factors that cause the gender pay gap, the Commission's actions to tackle it and examples of national best practices.

Moreover there are interesting guides¹¹ to applying methodologies for assessing the value of work free from gender bias and there are many tools¹² implemented by several nations to *evaluate the equal pay between women and men*.

¹⁰ http://www.dag.mef.gov.it/comitati/cug/documenti/CommEU_131209_directive_en_annex_dic_2013.pdf

¹¹ <http://www.equalityhumanrights.com/advice-and-guidance/tools-equal-pay/equal-pay-audit-toolkit/>

¹¹ http://www.cite.gov.pt/asstscite/downloads/guia_revalorizar_en.pdf

¹² <http://www.equalityhumanrights.com/advice-and-guidance/tools-equal-pay/equal-pay-audit-toolkit/>

"Logib" <http://www.luxembourg.public.lu/fr/actualites/2012/07/16-mega/index.html>

Logib-d tool, Germany – <http://www.logib-d.de>

Logib tool, Luxembourg – http://www.mega.public.lu/actions_projets/ecart_salaire

Logib tool, Switzerland – http://www.equality-salaire.ch/f/passers_a_laction.htm

INFN '*remuneration gap*' analysis

1. Data collection

The data has been collected in October 2013 and it refers to the actual personnel cost for 2012. The data has been categorized by professional profile and salary level with level 1 being the highest and level 8 the lowest.

We took in consideration only staff with open-ended contracts (permanent staff).

2. Analysis

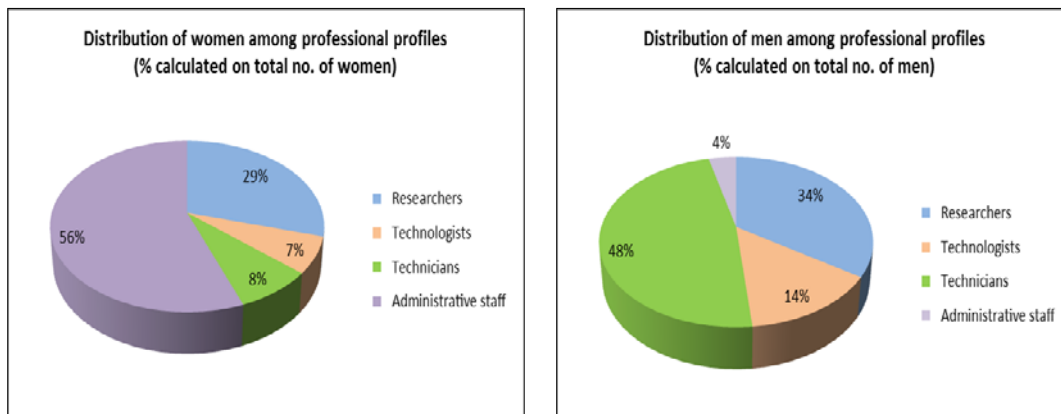
The INFN personnel are categorized as following:

- Executives (1st level, 2nd level)
- Researchers (director of research, 1st researcher, researcher)
salary level from 1 to 3
- Technologists (director of technologists, 1st technologist, technologist)
salary level from 1 to 3
- Technicians (technical collaborator, technical operator, auxiliary technician)
salary level from 4 to 8
- Administrative staff (administration official, administrative collaborator, administrative operator)
salary level from 4 to 7

The analysis was based on the total of 1,766 employee full time equivalent¹³, of which 25% are women and 75% are men.

¹³ Analysis was based on full time equivalent (FTE) number because of various changes among contracts during the year in question

The charts below show the distribution of two sexes among different professional profiles



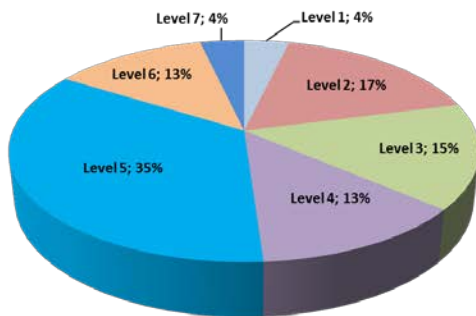
2012	FTE No. Women	% of Women	FTE No. Men	% of Men
Researchers	127	29%	456	34%
Technologists	30	7%	188	14%
Technicians	35	8%	636	48%
Administrative staff	241	56%	51	4%
TOTAL	433		1,331	

The charts show that the most of female population is found among administrative staff (56%) while the most of men are among technicians (48%). There is very low number of men among administrative staff, only 4% of all male population and only 8% of women are among technicians.

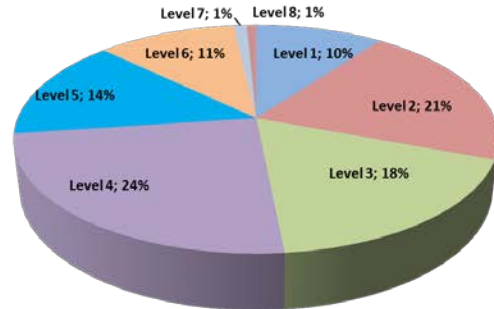
In particular we note that the percentage of women respect to men among the administrative staff is 82% (from the level 4 to the level 8) and the percentage of women respect to men among the researchers is 12% among directors of research (level 1), 21% among lead researchers (level 2) and 24% among researchers (level 3). The percentages of women respect to men among the technologists are 6% for director technologists (level 1), 12% for lead technologists (level 2) and 18% for technologists in the level 3.

The following charts show the distribution of two sexes within salary levels.

Percentual distribution of women within different salary levels
(% based on all women population)



Percentual distribution of men within different salary levels
(% based on all men population)



Salary Level	% Women	% Men
1	4%	10%
2	17%	21%
3	15%	18%
4	13%	24%
5	35%	14%
6	13%	11%
7	4%	1%
8	0%	1%

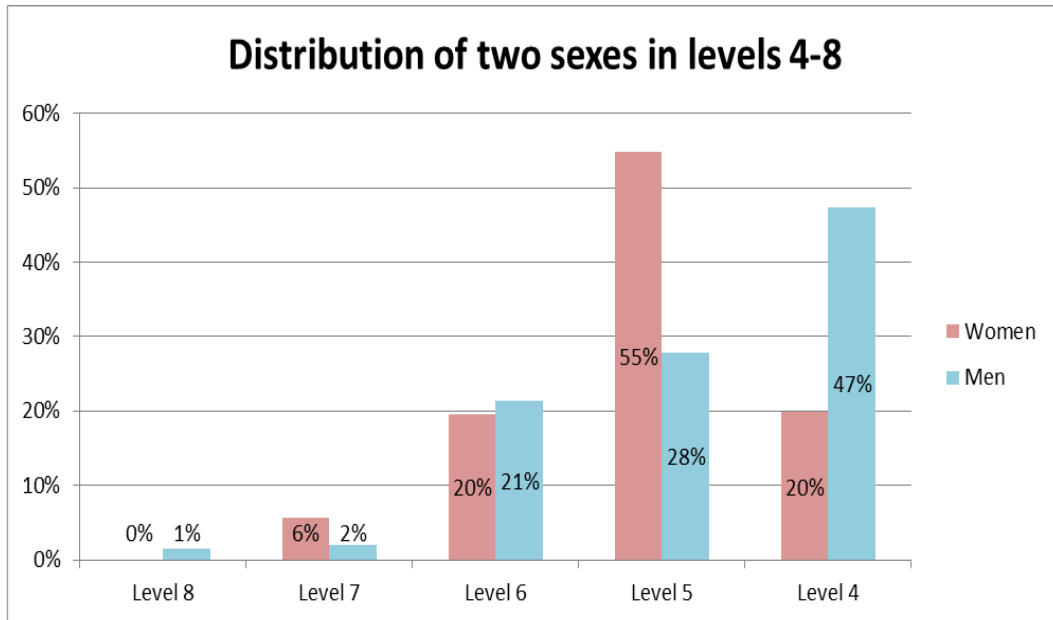
When considering the first three salary levels, which correspond to the sum of researchers and technologists, we see that men represent 48% of the male population while women represent only 36% of the female population.

This discrepancy further increases if we also include level 4, the percentage becoming 73% for males and 49% for females.

It is interesting to note that among men researchers and technologists the 20% is in the highest salary level, while for women this percentage reduces to 11%.

The graph also shows that the majority of men are in the level 4 and the majority of women in the level 5. These two levels contain technicians and administrative staff whose distribution is clearer in the next graph.

The graph below shows the percentage of population within levels 4-8. Note that the percentages for women/men reported in this graph refer to the women/men population in levels from 4 to 8

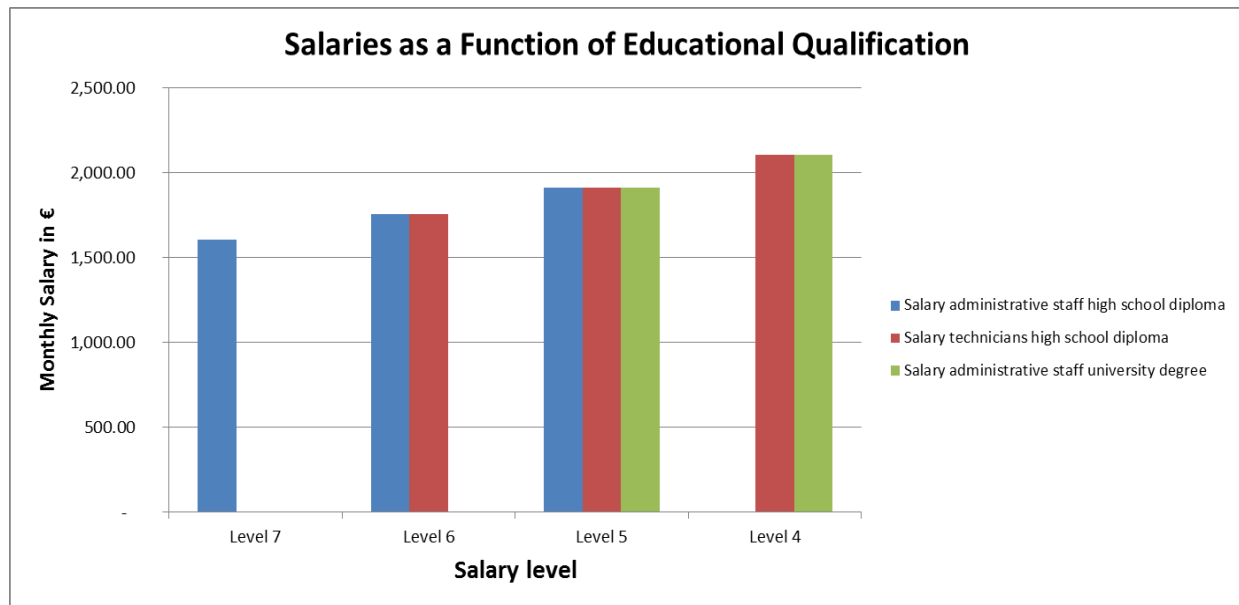


For the analysis of salaries, in the following table we introduce the last provisions established by the national collective agreement of the Research Sector.

Stipendi tabellari
(decorrenza 1.1.2009)
CCNL 2006-2009

Livello		Fascia stip. o posiz. economica	anni permanenza	Stip. base annuo	Stip. base mensile	Progressione economica mensile
Ricerca e Tecnologi	I	I	da 0 a 2	47.781,37	3.981,78	
		II	da 3 a 7	52.656,54	4.388,05	
		III	da 8 a 12	57.716,02	4.809,67	
		IV	da 13 a 16	62.742,74	5.228,56	
		V	da 17 a 21	71.907,00	5.992,25	
		VI	da 22 a 29	78.829,15	6.569,10	
		VII	da 30	87.805,34	7.317,11	
	II	I	da 0 a 2	37.025,36	3.085,45	
		II	da 3 a 7	40.510,50	3.375,88	
		III	da 8 a 12	44.110,33	3.675,86	
		IV	da 13 a 16	47.704,24	3.975,35	
		V	da 17 a 21	53.756,15	4.479,68	
		VI	da 22 a 29	58.750,76	4.895,90	
		VII	da 30	65.150,32	5.429,19	
	III	I	da 0 a 2	29.017,82	2.418,15	
		II	da 3 a 7	31.407,63	2.617,30	
		III	da 8 a 12	33.873,10	2.822,76	
		IV	da 13 a 16	36.404,86	3.033,74	
		V	da 17 a 21	40.892,02	3.407,67	
		VI	da 22 a 29	44.443,68	3.703,64	
		VII	da 30	48.988,60	4.082,38	
Tecnici e Amministrativi	Dir.Div.r.e.			29.399,34	2.449,95	
	IV	super I		25.298,71	2.108,23	92,17
		super II				184,34
		super III				276,51
	V	super I		22.977,49	1.914,79	80,06
		super II				160,12
		super III				240,18
	VI	super I		21.050,63	1.754,22	70,12
		super II				140,24
		super III				210,36
	VII	super I		19.292,72	1.607,73	60,99
		super II				121,98
		super III				182,97
	VIII	super I		18.190,09	1.515,84	55,39
super II			110,78			
super III			166,17			
IX						

The histogram below based on above salary table shows the salary scales between different profiles (excluding scientific staff)



These provisions give more value to technical and scientific professions than to those in administration. This means that the collective agreement itself holds gender biases in job evaluation criteria.

In fact, in the analysis of pay gap it is important to mention that executives, researchers and technologists are required to have a university degree or higher academic title, while among administrative staff we find both university graduates and high school graduates.

At initial recruitment, university degree is required for **administration official** (5th and 4th salary level¹⁴); high school degree is required for **administrative collaborator** (7th, 6th and 5th level) and junior high school diploma for **administrative operator** (7th level).

On the other hand, a **technical collaborator**, who is recruited at 6th salary level and is required to have at least a high school degree, can progress up till 5th and 4th level, the same two levels where a university graduated administration official is classified.

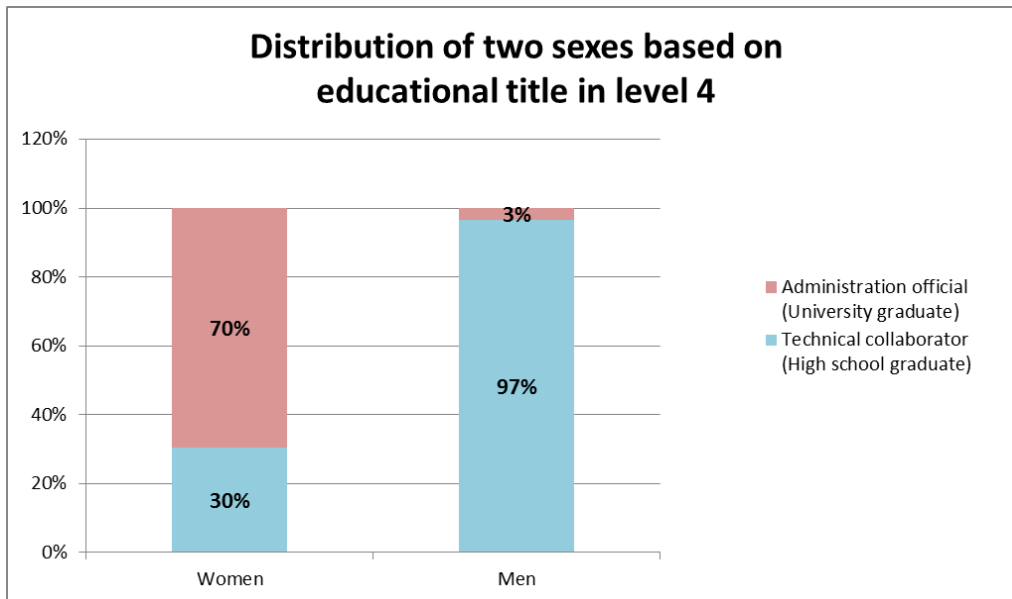
We notice a discrepancy in salary scales between technicians and administrative staff: educational qualifications levels are differently remunerated in two professional profiles making technician, who do not possess a university degree, have the same base salary as university graduated administrative (at 5th and 4th level):

**no equal pay for equal educational qualification:
the difference in salaries between 5th and 4th level is € 193.44 monthly**

This remuneration gap is a typical example of a horizontal segregation referring to the existence of, usually lower-paid, 'women's jobs'.

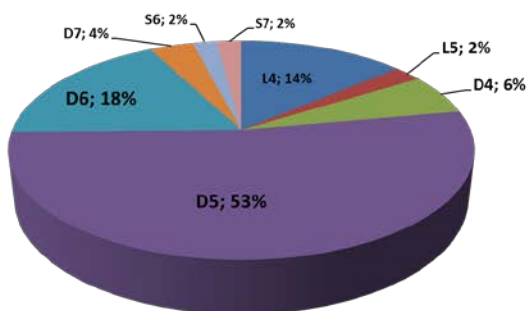
¹⁴ Actually, from the 90's, when the profile of technologist has been introduced in the INFN collective agreement, many females with the function of administrative official have been recruited as 3rd level technologists

The following histogram shows more clearly the distribution of university and high school graduates within the level 4.

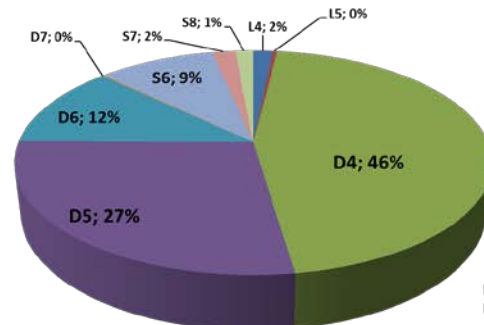


The following two pie charts show the distribution of both women and men by educational qualification as requested for the levels 4-8. University graduated women represent 16% of female population in levels 4-8; while university graduated males represent only 2%.

Distribution of women based on requested educational qualification (levels 4-8)



Distribution of men based on requested educational qualification (levels 4-8)



L4-L5: University graduate
D4-D7: High school diploma
S6-S8: Junior high school

2012	Percentage Of Women in levels 4-8			Percentage Of Men in levels 4-8		
	University degree	High school diploma	Junior high school	University degree	High school diploma	Junior high school
4	14%	6%		2%	46%	
5	2%	53%		0%	27%	
6		18%	2%		12%	9%
7		4%	2%		0%	2%
8						1%
Total	16%	80%	4%	2%	85%	13%

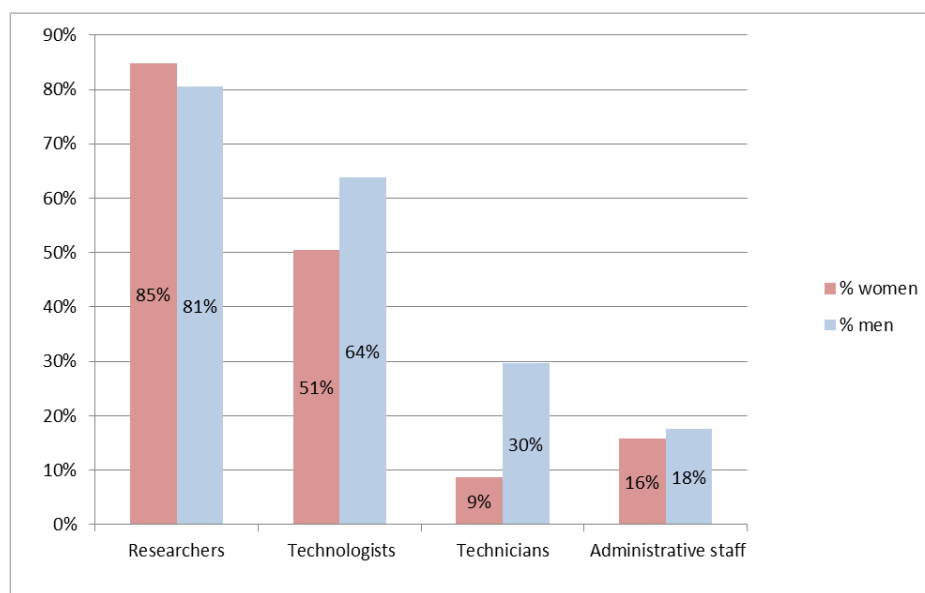
Besides the discrepancy in salaries among administrative staff and technicians, we have analysed in detail other personnel costs for different profiles. We have analysed average costs of business trips, of earnings from giving lectures and of overtimes, items where we noted major differences among two sexes. For these analyses it is not necessary to use sophisticated methods, as noted in the introduction to the pay gap, because the items are well defined and referred to a particular remunerations.

The remuneration gap has been calculated as following:

$$(Average\ cost\ of\ men - Average\ cost\ of\ women) / Average\ cost\ of\ men$$

- **Business trips average costs** include all costs of business trips like accommodation, meals and transport expenses. Analysis that we made for all levels has shown that:
 - Technicians: 9% of women out of 35 were involved in business trips
30% of men out of 636 were involved
 - Administrative staff: 16% of 241 women went on business trips
18% of 51 males went on business trips
 - Technologists: 51% of 30 female and
64% of 188 male technologists went on business trips
 - Researchers: we see less difference between two sexes in the number of business trips: 85% out of 127 females
81% out of 456 of males

These results are shown on the following histogram:



The average cost of business trips for women technicians is 15% higher than for males, but this data has little significance because of small number of women technicians.

The average cost of business trips for women administrative staff (€ 101) however is lower than average cost of males (€ 121), so:

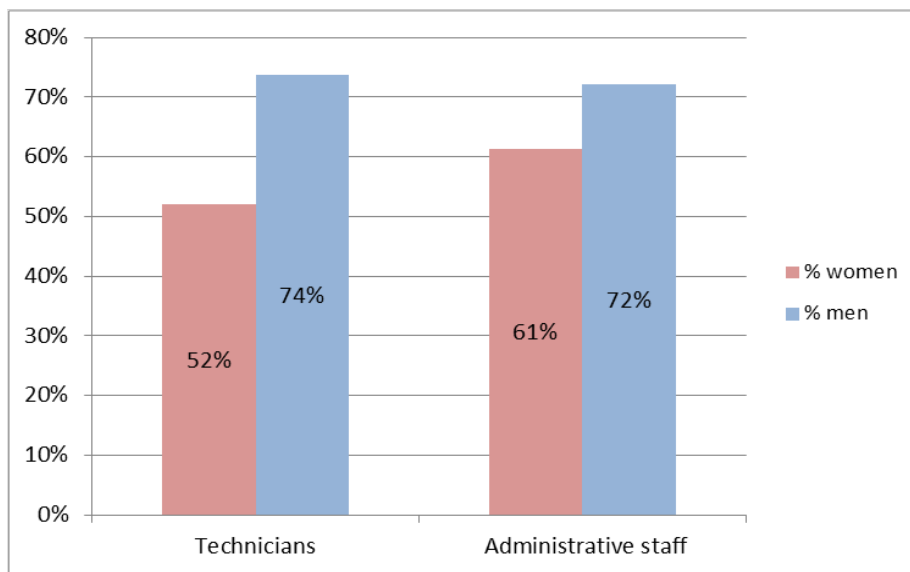
the remuneration gap is of 16%

- **Overtime average costs** have been analysed only for administrative staff and technicians since only these profiles are concerned.

For all levels, the percentages of staff that had overtime are as follows:

- Technicians: 52% out of 35 women
74% out of 636 men
- Administrative staff: 61% out of 241 of women
72% out of 51 of men

This distribution is shown on the following histogram:



The analysis of overtimes shows that women of both profiles do fewer overtimes than men: that indicates that women usually carry the main burden of care and domestic work and since are not available to work overtime.

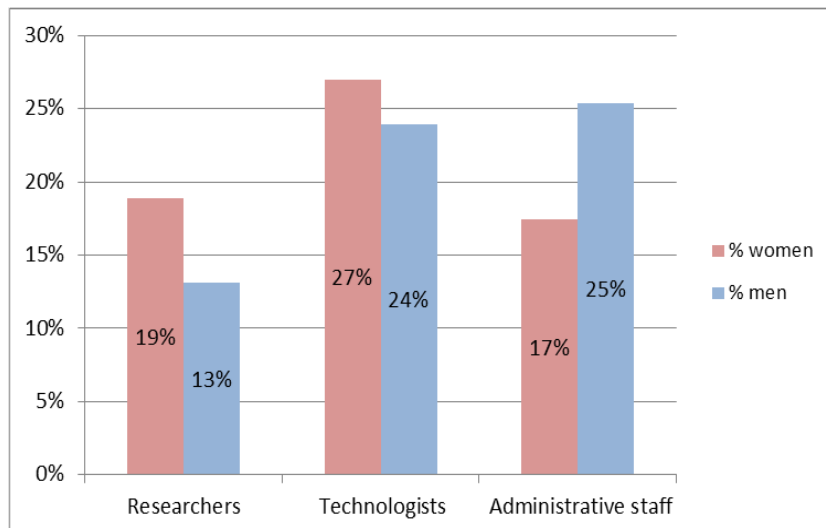
In particular the “maternal wall” is one of the multiple constraining barriers that women with family responsibilities face. Because of the reason of fewer overtimes, women’s salaries are lower than men’s.

- **Earnings from giving lectures average costs** have been analysed for researchers, technologists and administrative staff included in training activities as teachers. Only 3 women technicians were involved in lectures so the percentage for technicians regarding this cost is irrelevant.

The analysis for all levels has shown:

- Researchers: 19% out of 127 women
13% out of 456 males
- Technologists: 27% out of 30 women
24% out of 188 men
- Administrative staff: 17% out of 241 women
25% out of 51 men

These results are demonstrated on histogram below:



The earnings from giving lectures average cost for technologists and researchers is very similar for both women and men. Instead, for administrative staff, where the average lectures cost of women is € 271 and of men is € 563 we notice:

the remuneration gap of 52% (€ 292)