Clean Energy Education & Empowerment (C3E)

ENEA
Italian National Agency for New Technologies, Energy and Sustainable Economic Development

iea International Energy Agency
Secure Sustainable Together

Knowledge Building on Women in Clean Energy

Rome, 11 April 2018

Education and cultural models

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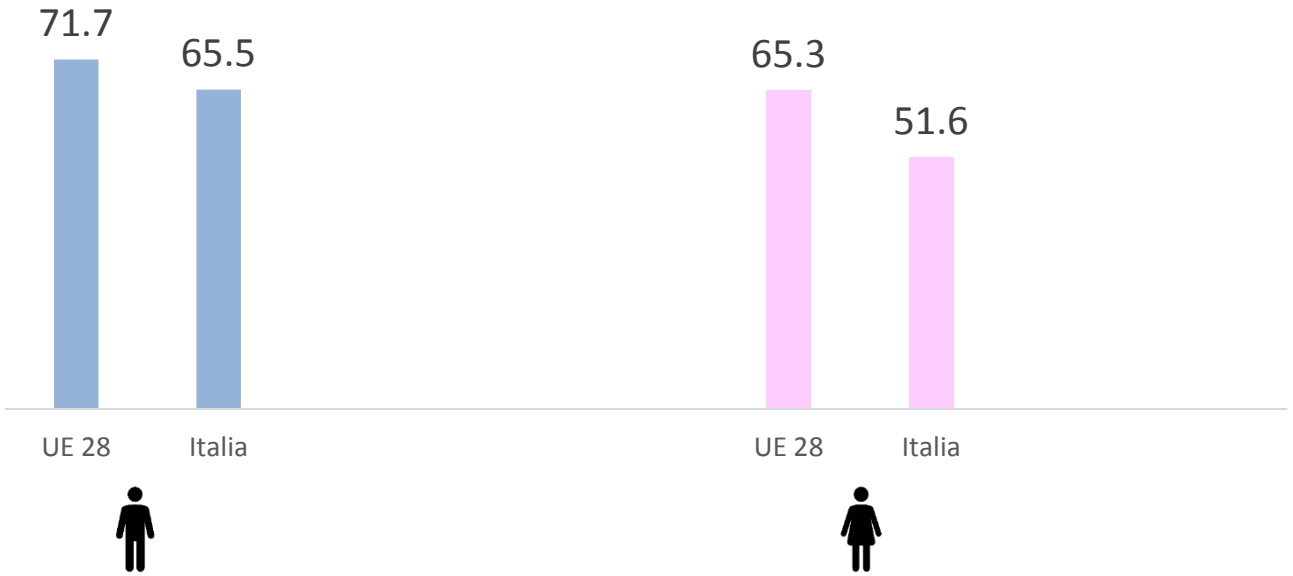
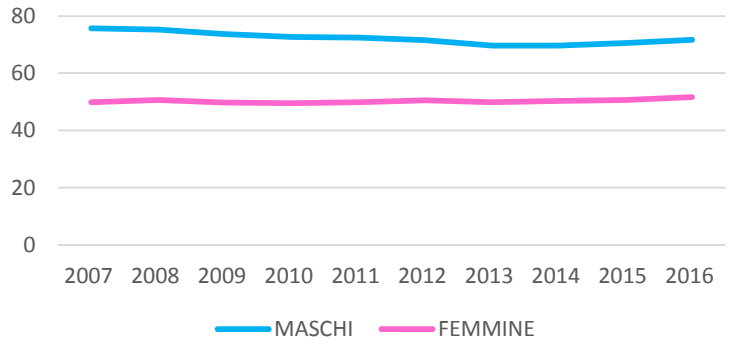
UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA

FEMALE EMPLOYMENT IN EUROPE AND IN ITALY

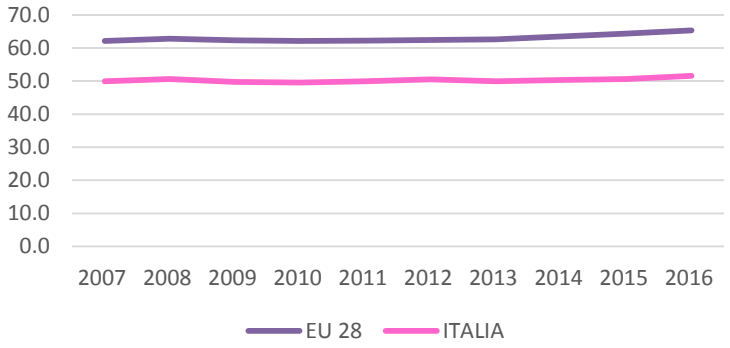
Employment rate 20-64 years old (employed/population in working age, %, 2016)



Male and female employment rate, 20-64 years old (%, 2006-2016)



Female employment in EU 28 and in Italy, 20-64 years old (%, 2007-2016)



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Source: Processed and adapted from Eurostat

MALES vs FEMALES

Prejudices and cultural stereotypes

At 6, children classify toys and games as **FOR BOYS** and **FOR GIRLS**

The importance of the family and of the competences gained at **SCHOOL** at all levels.

57% of teachers and 51% of parents admit to have (unaware) **PREJUDICES** towards scientific subjects

Only 31% of the girls between 11 and 17 years old consider **MATHS** a funny subject.

According to a meaningful share of girls, males are more **TALENTED** at scientific subjects.

Scarce presence of women in scientific fields: **LACK of ROLE MODELS** to emulate.

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UPPER-SECONDARY EDUCATION

Gender segregation across disciplines and learning tracks

HUMANITIES, SOCIAL SCIENCES, MUSIC

...

SCIENTIFIC AND TECHNOLOGICAL STUDIES

Graduates by gender (%, 2017)

	"Licei" High Schools	Technical Schools	Vocational Schools	Tot.
Males	37.0	62.0	46.1	46.7
Females	63.0	38.0	53.9	53.3

Source: Processed and adapted from AlmaDiploma, 2017

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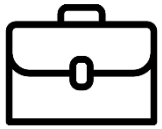
PERSPECTIVES



STUDY PERSPECTIVES

	Males	Females
Want to go further with their studies (%)	62.5	76.5
University degree course	56.6	70.6
Agriculture and veterinary	1.3	1.7
Architecture	2.1	3.0
Chemical pharmaceutical	1.5	1.7
Defence and security	0.4	0.2
Economics and Statistics	9.8	7.7
Physical education	1.6	0.6
Geo-biology	2.0	2.1
Legal	2.7	4.4
Engineering	14.5	3.2
Teaching	0.2	3.7
Literary	2.3	4.7
Languages	1.5	7.6
Medicine – Health professions	2.9	8.5
Political and social	2.6	4.5
Psychological	1.7	6.3
Scientific	4.9	1.7
Course not specified	0.7	0.7
Artistic/musical training	2.2	2.9
Post-diploma specification	1.4	0.7
Internship/Traineeship	0.3	0.2
Other activities for professional qualification	1.6	1.7
Uncertain about perspectives	17.8	13.3
Don't' want to go further with their studies	19.0	9.6

WORK PERSPECTIVES

	Males	Females
Want to work after the diploma (%)	**64.7**	**64.2**
Uncertain	13.8	13.7
Don't want to work/look for work	20.9	21.6
Favourite economic sector (%)		
Agriculture	3	1.1
Machinery manufacturing	7.5	0.6
Printing, publishing, paper making	0.6	0.8
Construction industry, building, design	7.5	3.1
Other industrial activities	9.3	3.5
Commerce, hotels, public exercises	6.7	7.9
Transports, warehousing, communication	3.7	4.2
Credit, insurance	5.8	4.4
Advertising, Public Relations	4	6
Consultancy	4.4	6.7
Information Technology, data processing	9.6	1.7
Education	3	8
Research and Development	7	5.5
Healthcare and social assistance	6.6	21.1
Public Administration	6	2.9
Other public services	6.4	10.6
International organizations and bodies	3.1	6.3

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Source: Processed and adapted from AlmaDiploma, 2017

INFORMATION TECHNOLOGY SKILLS

Information Technology skills by gender (%, 2017)

IT SKILLS	Maschi	Femmine
At least good knowledge %		
Web surfing	83.5	81.3
Word Processor	58.4	50.6
Spreadsheets	**49.1**	**37.2**
Presentation tools	55.8	56.8
Operating Systems	**61.6**	**47.1**
Multimedia	38.7	37.8
Programming languages	**16.3**	**6.0**
Database	**14.5**	**7.3**
Websites creation	**16.1**	**8.0**
Data transmission networks	**14.0**	**6.6**
CAD/CAM/CAE – Computer-aided design/manufacturing/engineering	**15.3**	**4.4**
Completed the ECDL	**9.0**	**6.8**

Source: Processed and adapted from AlmaDiploma, 2017

«Only **16%**
of the 8 million workers in
the IT sector are women»

Lucilla Sioli,
Head of Unit Digital Economy and
Skills of the European Commission

Persistence of the family background (%, 2017)

	"Licei" High Schools	Technical Schools	Vocational Schools	Tot.
Social origin (%)				
University Degree	37	13.8	15.5	26.2
Upper secondary education	11	23.3	34.6	17.6
Lower secondary education	5.7	60.8	49	54.1
Elementary school or no title	0.6	1.3	4.5	1.2

Source: Processed and adapted from AlmaDiploma, 2017

UNIVERSITY

The growth of female participation to university courses is accompanied by an **UNDER-REPRESENTATION** of women in **SCIENTIFIC DISCIPLINES, ENGINEERING, STATISTICS** and an **OVER-REPRESENTATION** in **HUMANITIES**.

THERE ARE NO OBJECTIVE REASONS: the female students who choose scientific programmes don't show any deficit in terms of academic results.

Women are the **59,7%** of the graduated students,
with an average grade of **103,2** (vs. 101.1)
and they usually get the degree at **26.1** years old (vs. 26.5)

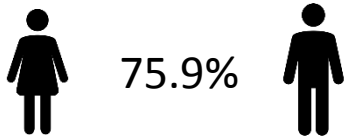
Source: www.varoed.it

Women are penalised when entering the job market:

1 YEAR AFTER THE DEGREE

2 YEARS AFTER THE DEGREE

3 YEARS AFTER THE DEGREE



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Source: Processed and adapted from AlmaLaurea, 2017

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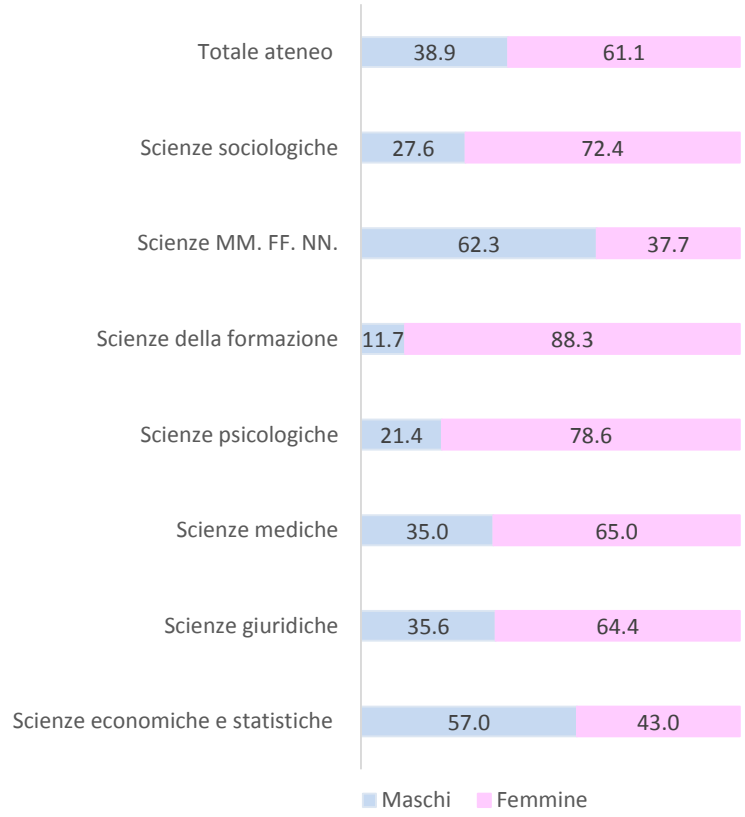
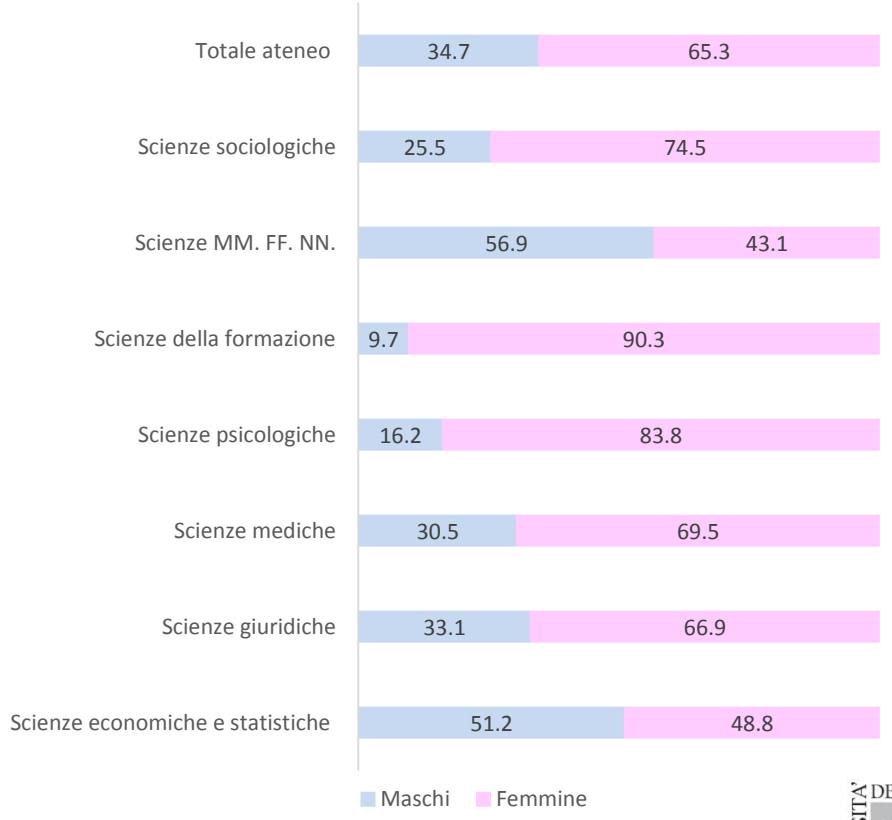
ENROLLED STUDENTS

by gender and disciplinary areas (%, 2016)



GRADUATED STUDENTS

by gender and disciplinary areas (%, 2016)



Source: Processed University data

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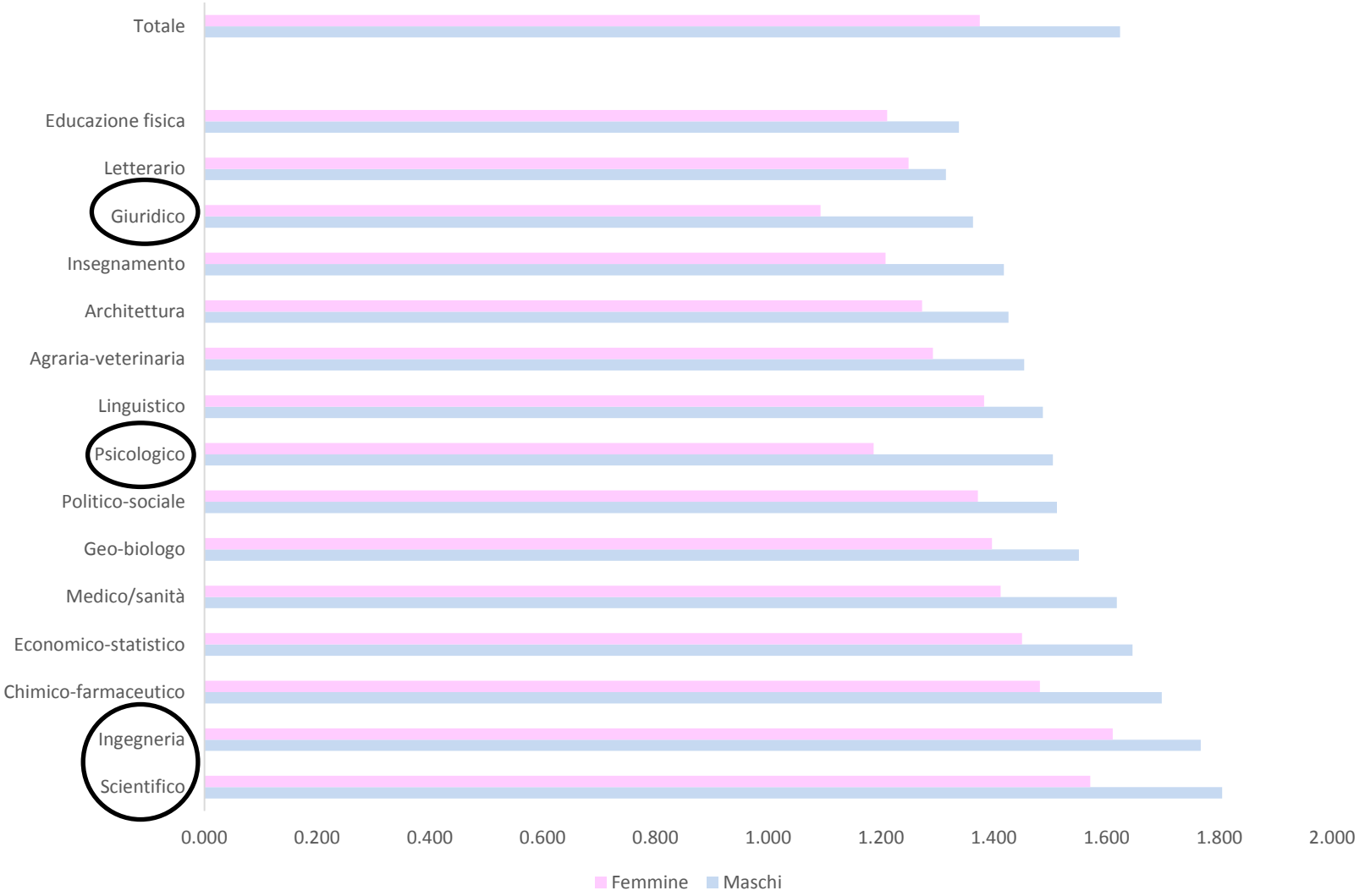
GENDER PAY GAP

Employed Masters' graduate 2011, five years after the degree:
monthly net retribution by gender and disciplinary area (average values in Euros)



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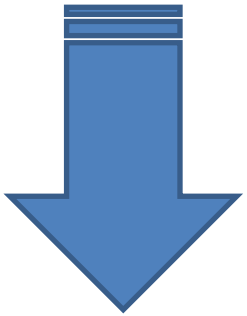
Source: Processed and adapted from AlmaLaurea, 2017

Which factors influence the educational and professional choices?

Gender stereotypes at school, in families, in society



- Young men pursue instrumental work-related purposes and aim at the instrumental aspects of their satisfaction.

- Young women pursue a professional project and aim at their personal fulfilment.

What vision of science do young women have?

According to a meaningful percentage of young women, males are more talented at scientific and technological subjects.

A «hard» vision:

- Science is «rationality», «rigidity», «calculation»
- Science Is perceived as difficult and distant

Furthermore, paths related to the scientific field are perceived as less flexible in terms of work-life balance.

OPEN ISSUES

In schools

Distinction between male and female attitudes and skills

In families

Inter-generational stability of cultural models

In companies

Career difficulties for women: lack of work-life balance policies

In society

Scarce presence of women in scientific fields: lack of role models

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