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Title: **Higher Education: Women's Dominance**

Synopsis

- [1] Women first outnumbered men as undergraduates in 1993, over quarter of a century ago. The following bullets are based on undergraduate entrants into universities/colleges in 2020 in the UK.
- [2] Women entrants outnumbered men entrants by 35.8%, Refs.[1,2].
- [3] UK domiciled women entrants outnumbered UK domiciled men entrants by 38.6%, Refs.[1,2]. The following are based on all entrants. Women's dominance would be greater than indicated if attention were confined to UK domiciled students only.
- [4] Women outnumber men as undergraduate entrants in 70% of the HECoS subject categories listed by UCAS, (16 of 23) and 73% of the JACS3 subject categories (19 of 26).
- [5] Women outnumber men as undergraduate entrants in STEM subjects, **Table 1 and Figure 1**.
- [6] Women have outnumbered men as undergraduate entrants in science subjects for over 14 years, **Table 2 and Figure 2**.
- [7] Two of the 23 HECoS subject areas have more than twice as many male as female entrants, namely engineering and computing with just over four times as many men as women, **Table 4**.
- [8] Nine of the 23 HECoS subject areas have more than twice as many female as male entrants, namely: subjects allied to medicine, psychology, veterinary science, agricultural science, humanities/liberal arts, social sciences, law, languages and education. Education and veterinary science have about six times as many women as men, **Table 4**.
- [9] With the exception of maths, the proportion of women is increasing in all subjects: where men are dominant the disparity is decreasing; where women are dominant the disparity is increasing, **Figures 4**.
- [10] Early data is uncertain, but it is likely that over the whole of history, women have been awarded more degrees than men in the UK, Ref.[5].

Cultural / Policy Bias

The dominance of women in university is the culmination of their gradually increasing dominance through their schooling.

I anticipate that many people will be surprised by some of the simple facts presented here, yet they are hidden in plain sight. The equivalents of Refs.[1,2] are published annually for all to see. But attention is not usually drawn to these truths, because they run counter to what we are supposed to believe. To draw attention to them is to attract immediate censure - which politicians in particular generally wish to avoid.

Yet the popular narrative and political policy is based on a mythology which diverges more each year from reality. We continue to hear politicians of all stripes, including Government Ministers, call for more women in STEM (or STEMM) or more women in science, Ref.[6], or that women's educational achievements are being unfairly constrained by a multiplicity of disadvantages – with no mention of young men. This is not a world of gender equality but a sentiment-driven pandering to innate gender prejudices: women and girls deserve society's assistance, men and boys must look after themselves or sink.

## References

- [1] UCAS undergraduate end-of-cycle 2020 acceptances, JACS3 subject groups, <https://www.ucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-sector-level-end-cycle-data-resources-2020>
- [2] UCAS undergraduate end-of-cycle 2020 acceptances, HECoS subject groups, <https://www.ucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-sector-level-end-cycle-data-resources-2020>
- [3] Definition of the Higher Education Classification of Subjects (HECoS subject coding), <https://www.hesa.ac.uk/support/documentation/hecos/cah-list>
- [4] Definition of the Joint Academic Coding System (JACS3 subject coding), <https://www.hesa.ac.uk/support/documentation/jacs/jacs3-principal>
- [5] William Collins, *The Talk That Never Was*, The Illustrated Empathy Gap.
- [6] Department for Education, *Educational Excellence Everywhere*, March 2016.

## Conclusions

Women have outnumbered men as undergraduates for over a quarter of a century. Each year women outnumber men by an increased percentage. Women outnumber men in 70%-73% of subjects. In subjects where men are dominant the gender disparity is decreasing; in subjects where women are already dominant the disparity is increasing,

## Recommendations

The starting point must be an open recognition in Parliament and Government of reality. It must become reprehensible to simply gush platitudes about assisting women and girls more. Policy must not be driven by ancient gender-script driven sentiment.

## Notes

### STEMM Analysis

Determining the number of undergraduates accepted onto STEMM courses is made ambiguous by the definition of “science”. Specifically, the JACS3 classification, Ref.[4], includes psychology under “biological sciences”, whereas the HECoS classification, Ref.[3], does not. This is important because psychology is a very popular subject and is strongly dominated by women.

Similarly, it is not clear if veterinary science and/or agricultural science, are to be included. Again, this is important because both these subjects are also strongly dominated by women.

For the first time in 2020 this ambiguity makes no difference to which sex is dominant in STEMM: women are dominant whatever permutation of definition is adopted. Table 1 gives the percentage by which the number of female entrants exceeded the number of male entrants in 2020 for all four permutations.

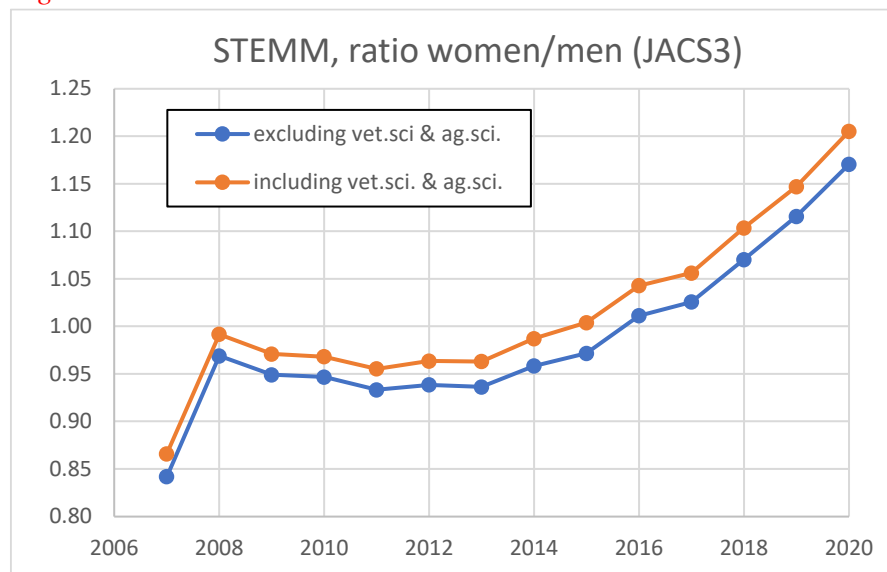
### *Table 1*

*Percentage by which female acceptances exceed male acceptances across all STEMM subjects (2020)*

<b>Sciences Included</b>	<b>JACS3</b>	<b>HECoS</b>
Excluding vet.sci. & agr.sci.	17.0%	1.0%
Including vet.sci. & agr.sci.	20.5%	5.0%

Figure 1 plots the ratio of women to men acceptances in STEMM subjects according to the JACS3 classification (i.e., including psychology) showing that, on this measure, women have been dominant in STEMM for six years now.

Figure 1



### Sciences Alone

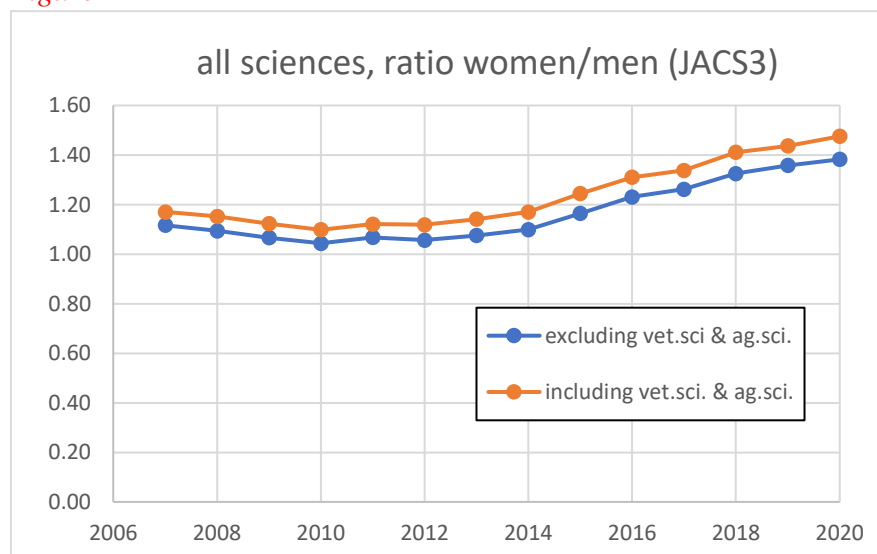
Table 2 gives the percentage by which the number of female entrants into the sciences exceeded the number of male entrants in 2020 for all four permutations of definition explained above (the one negative entry indicates an excess of men). If all subjects are included, i.e., biological sciences, physical sciences, psychological science, veterinary science and agricultural science, then acceptances of women outnumber those of men by 48%. Based on the JACS3 system, women have been dominant in the sciences since before the current UCAS dataset began in 2007, see Figure 2.

Table 2

Percentage by which female acceptances exceed male acceptances across science subjects (2020)

Sciences Included	JACS3	HECoS
Excluding vet.sci. & agr.sci.	38%	-17.1%
Including vet.sci. & agr.sci.	48%	1.2%

Figure 2



## All Subjects (HECoS 2020)

Based on the HECoS classification, Table 3 lists those subjects where the dominance of one sex was less than a factor of two, giving the percentage by which the number of entrants of the dominant sex exceeds that of the other sex in 2020. There are seven entries for women as dominant and five for men as dominant.

Table 4 completes the picture for the HECoS classification by listing those subjects where the dominant sex has at least twice as many entrants as the other sex. Table 4 gives the ratio of the entrants by the dominant sex to those of the other sex.

In these, more extremely dominated subjects, there are nine entries for women as dominant and just two for men as dominant.

Table 4 may be summarised thus,

- Engineering and Computing are read by over four times as many men as women;
- Social sciences and law are read by twice as many women as men;
- The humanities, languages and agricultural sciences are read between 2.5 and 3 times as many women as men;
- Psychology and subjects allied to medicine are read by over four times as many women as men;
- Education/teaching and veterinary science are read by about six times as many women as men.

**Table 3**

*HECoS subjects with less than double-dominance (2020)*

<b>Subject</b>	<b>Excess Women</b>	<b>Excess Men</b>
Other sciences	19.8%	
History, Philosophy, Religious studies	25.7%	
Communications and media	27.9%	
Geography and environmental sciences	30.5%	
Combined Studies	37.7%	
Fine Arts and Design	71.4%	
Medicine & Dentistry	81.5%	
Biological sciences		13.5%
Business studies		20.7%
Physical sciences		28.5%
Architecture		57.7%
Mathematics		74.9%

**Table 4**

*HECoS subjects with double-dominance or greater (2020), ratio of sexes*

<b>Subject</b>	<b>Women:Men</b>	<b>Men:Women</b>
Social sciences	2.00	
Law	2.00	
Humanities / Liberal Arts	2.55	
Agricultural science	2.66	
Languages	2.94	
Psychology	4.09	
Subjects allied to medicine	4.40	
Education & Teaching	5.82	
Veterinary science	6.01	
Engineering & Technology		4.35
Computing		4.63

### Trends Since 2007 (JACS3 2007 – 2020)

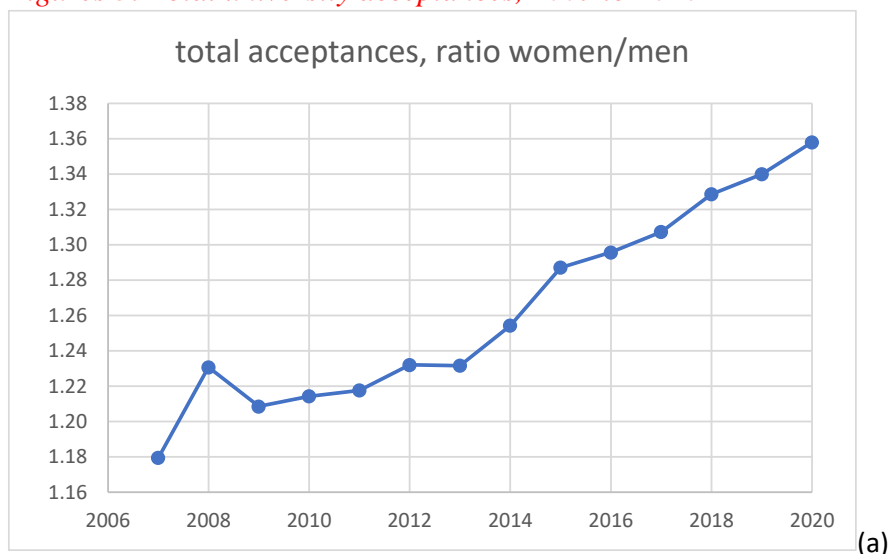
The HECoS classification was adopted only in 2019/20, so trend analysis must be based on JACS3. Trends are best displayed graphically. Figures 3(a,b) show the total acceptances against year as the ratio of sexes and as the excess of women over men. The number of both sexes starting university has increased, but the number of women is increasing far faster than the number of men. The ratio of women to men starting courses gets steadily greater each year, reaching 1.36 in 2020 (Figure 3a). Similarly, the difference in absolute numbers of the two sexes accepted onto courses increases year on year, reaching 86,625 more women than men in 2020 (Figure 3b), some 150% larger than the disparity was in 2007.

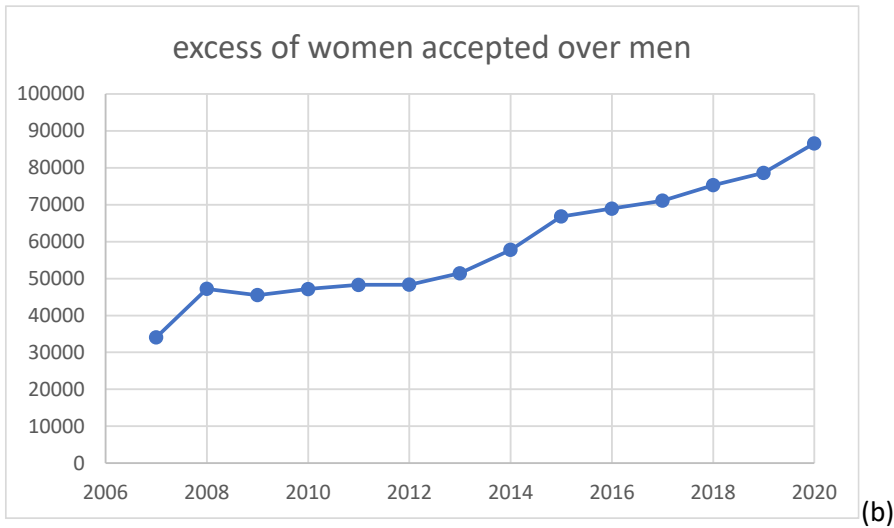
Figures 4(a-p) show how the ratio of women to men entrants has varied between 2007 and 2020 for each JACS3 subject area. Note that these graphs cover all entrants, and all JACS3 subjects are included, either singly or in aggregation.

The reader is urged to scroll through these figures. The salient feature is that virtually all are trending upwards, i.e., that the proportion of women is increasing (maths is a rare exception). Thus, the proportion of women is increasing even in those subjects (most subjects) where they are already dominant; but the proportion of women is also increasing in subjects where men are dominant (except maths), especially in physical sciences and architecture. In other words, with the exception of maths...

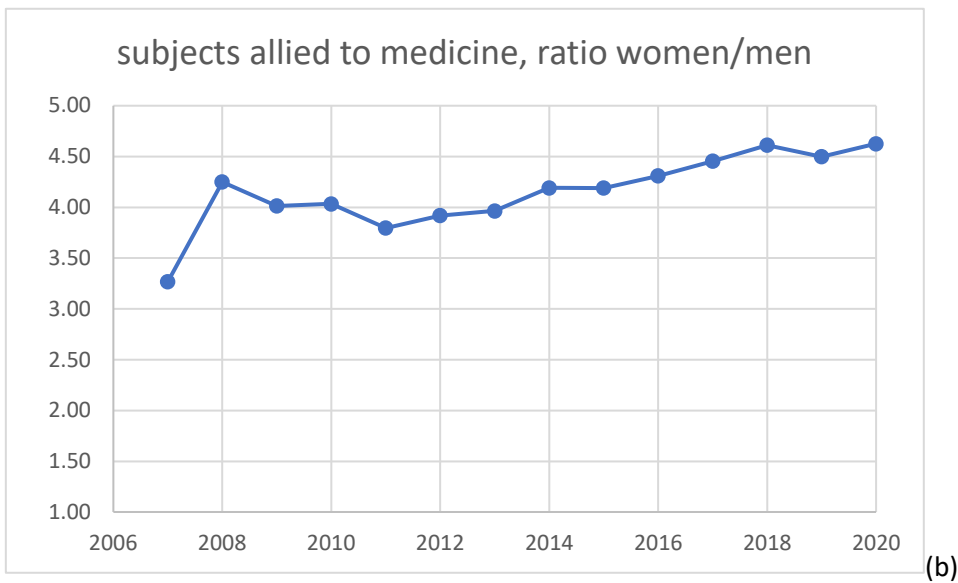
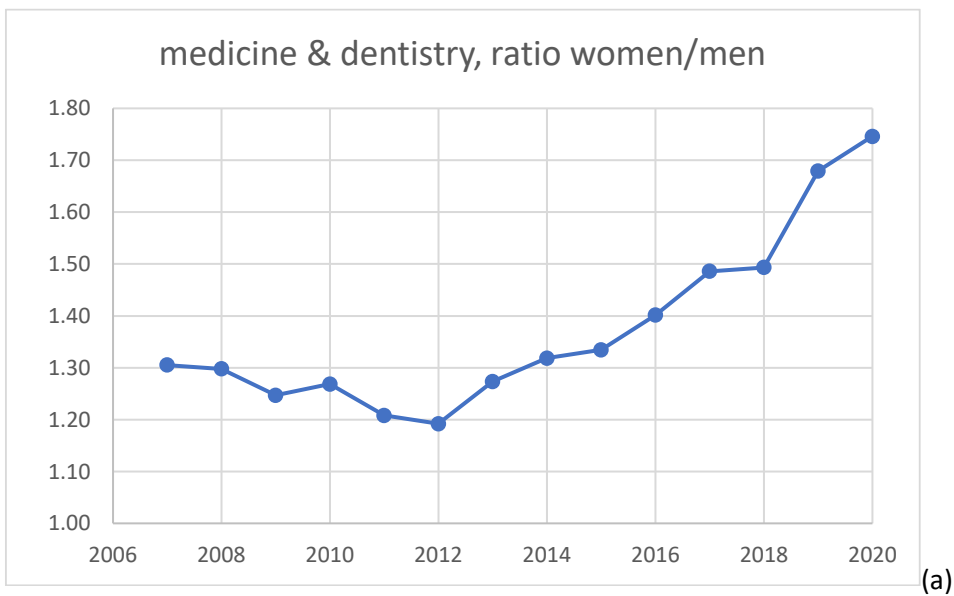
- Where men are dominant the disparity is decreasing;
- Where women are dominant the disparity is increasing.

*Figures 3: Total university acceptances, 2007 to 2020*

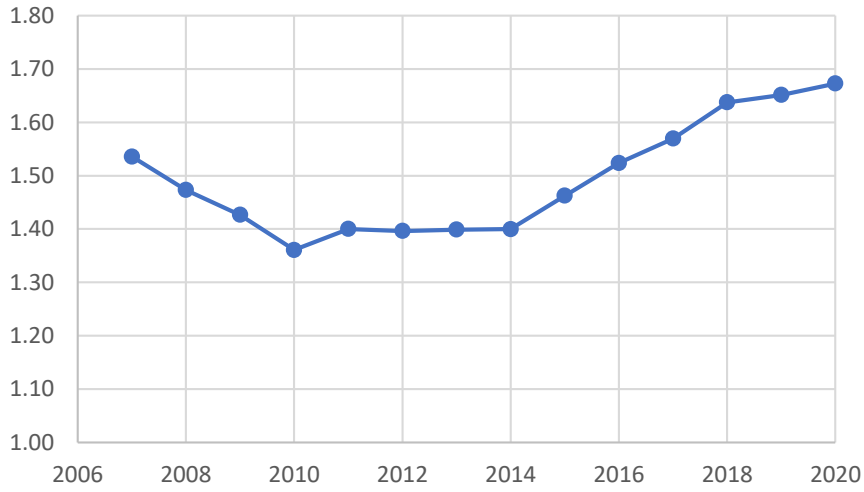




Figures 4: Ratio of women to men across all university JACS3 subject areas

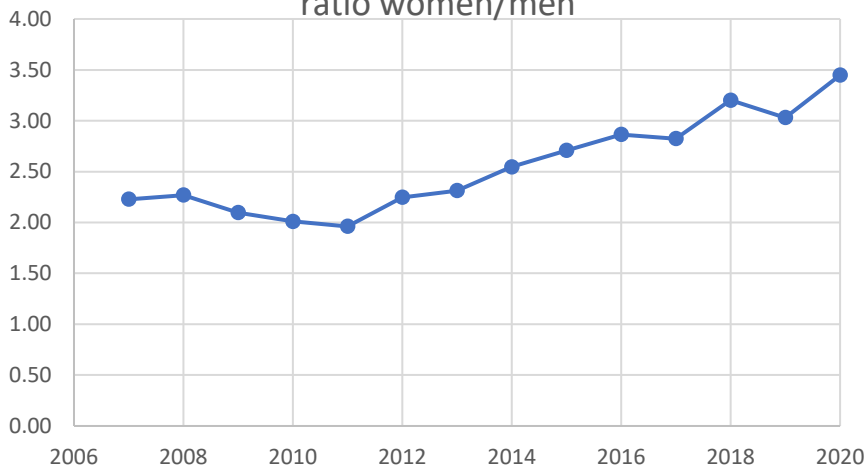


biological sciences, ratio women/men



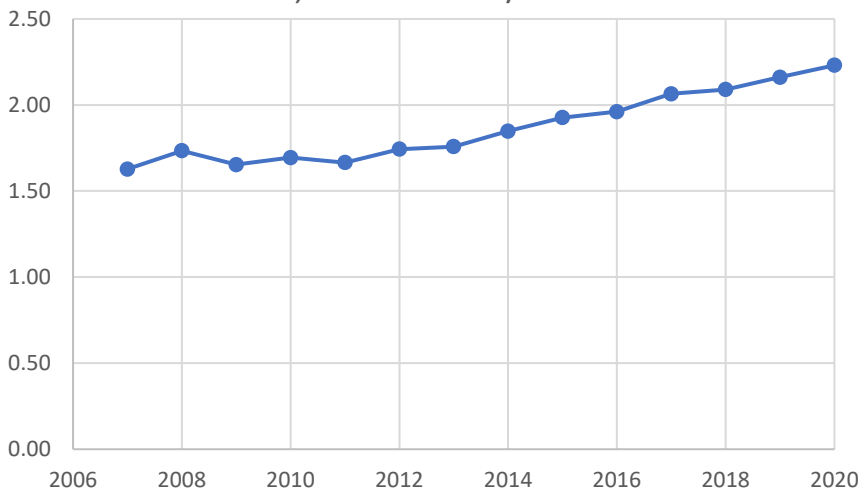
(c)

veterinary and agricultural sciences  
ratio women/men

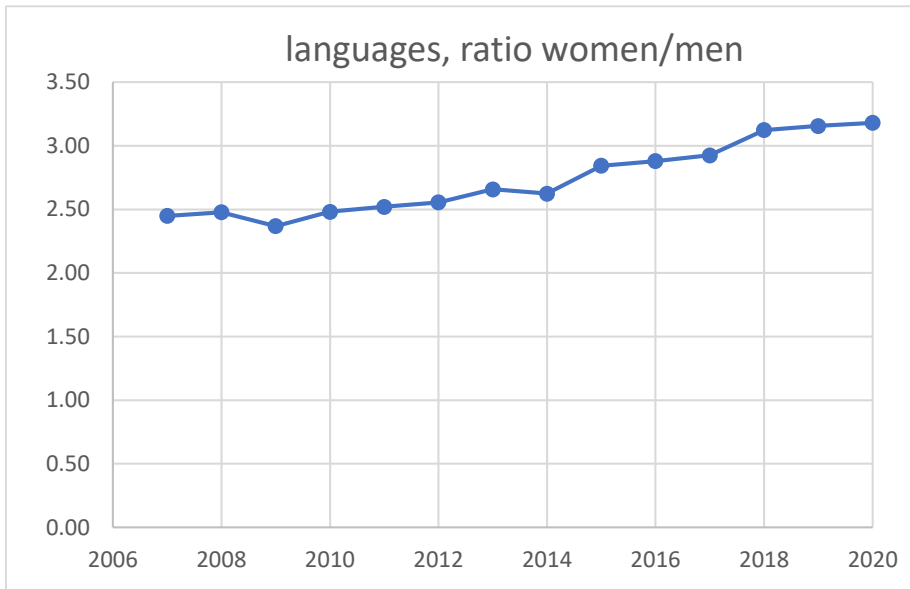


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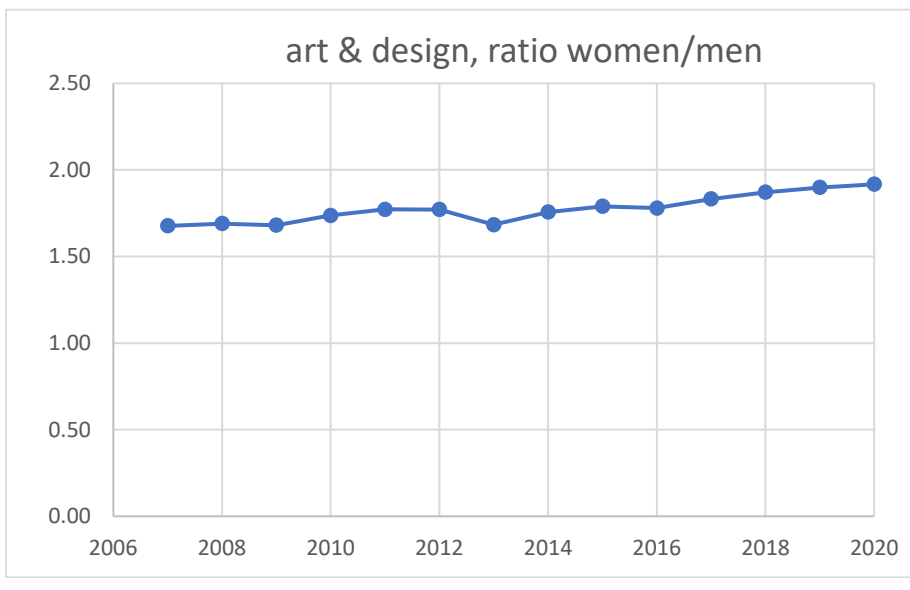
law, ratio women/men



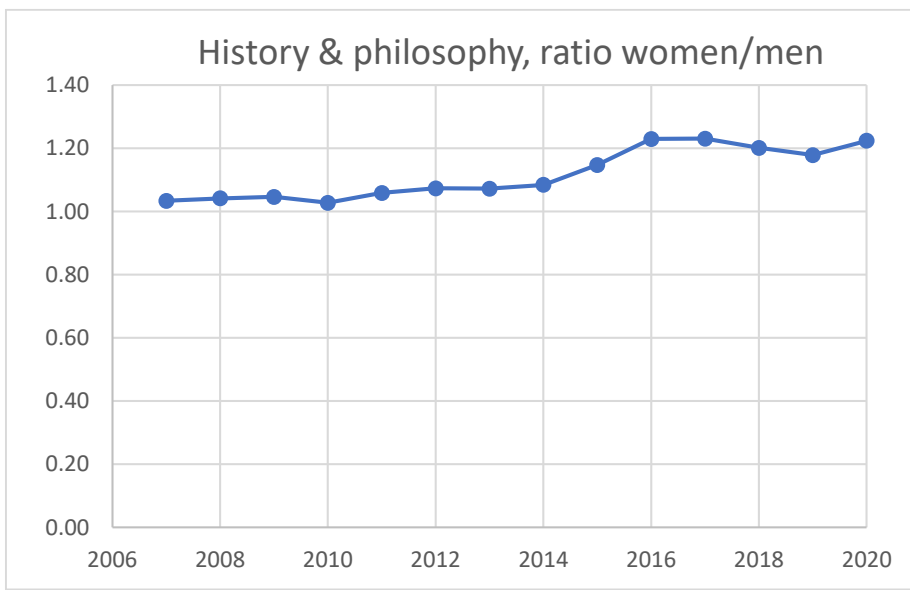
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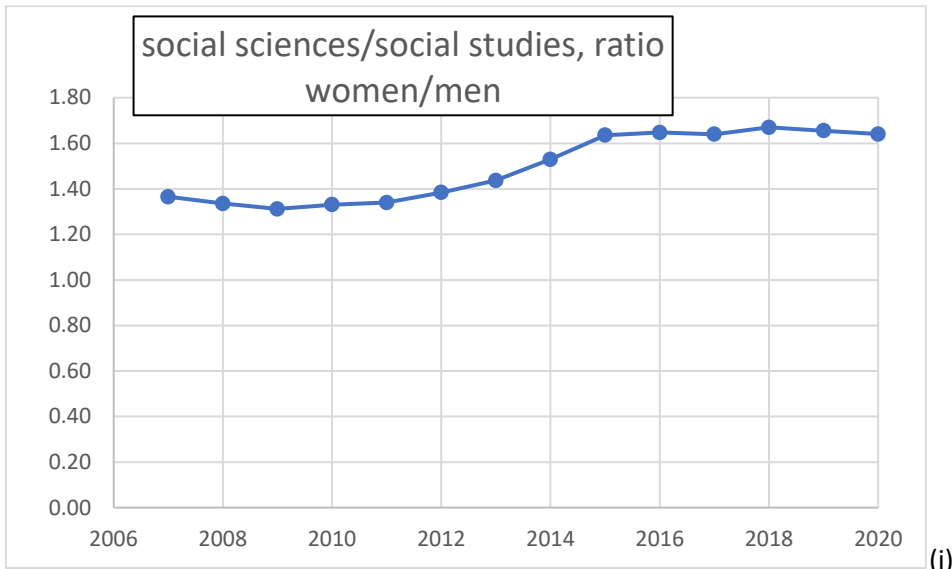


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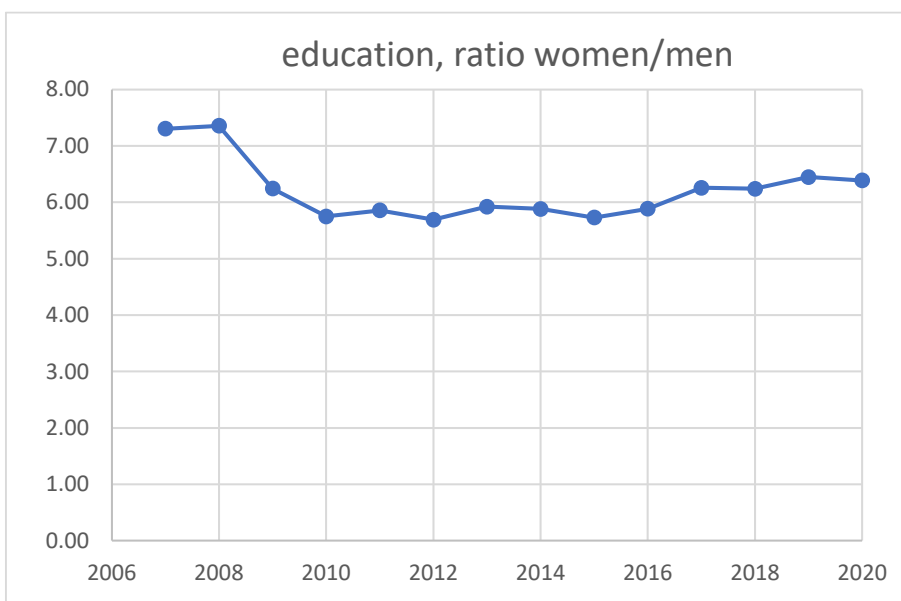


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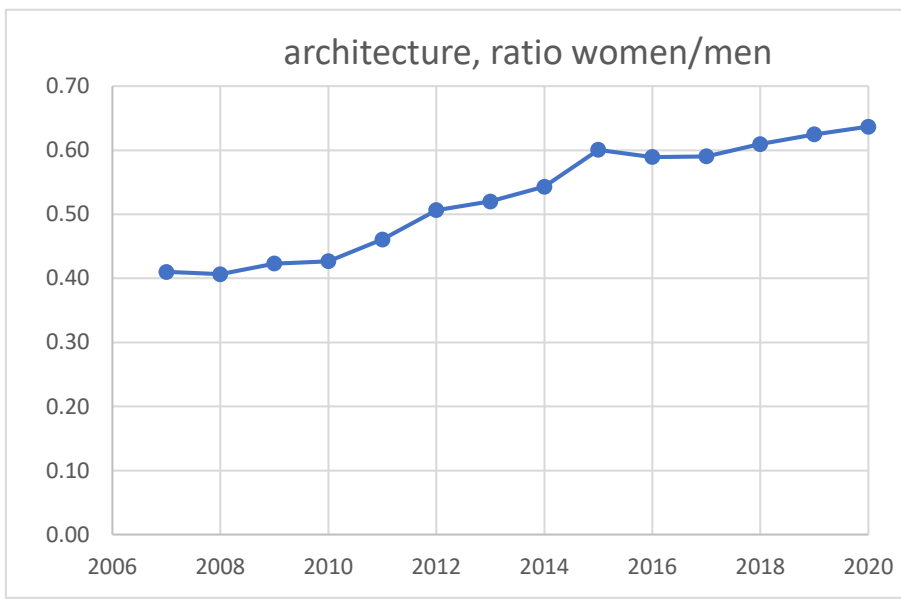




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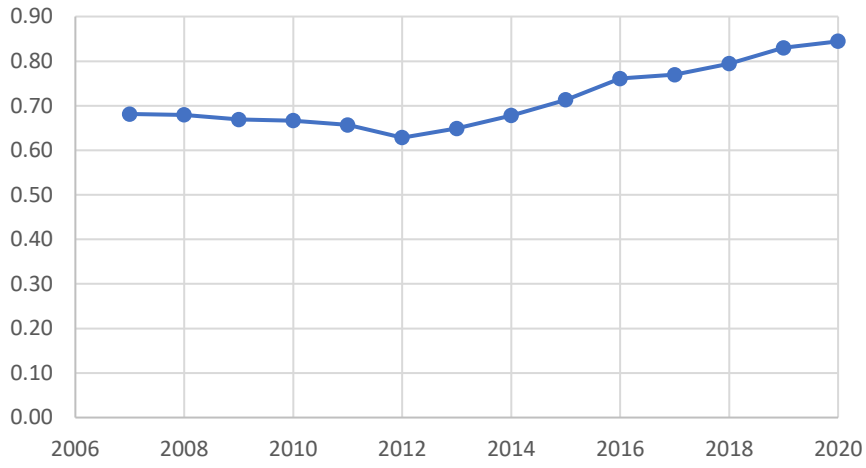


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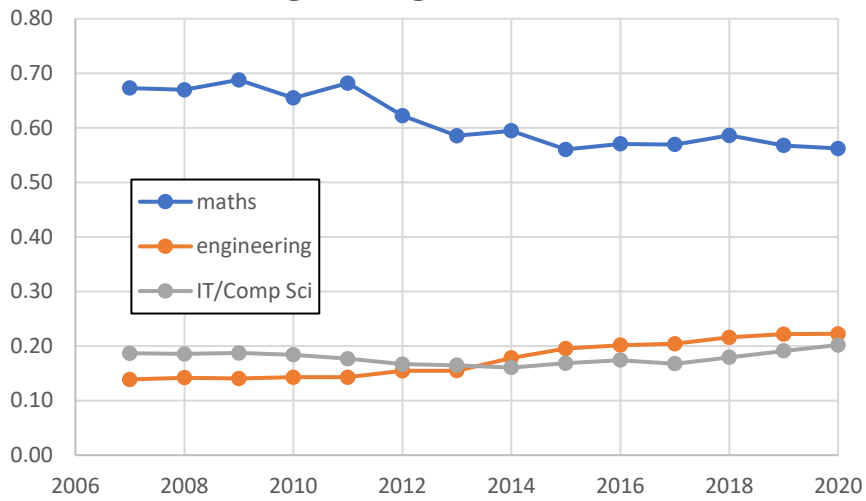
(m)

physical sciences, ratio women/men



(n)

maths, engineering & IT, ratio women/men



(p)