

Enrolment and gender trends: tertiary education

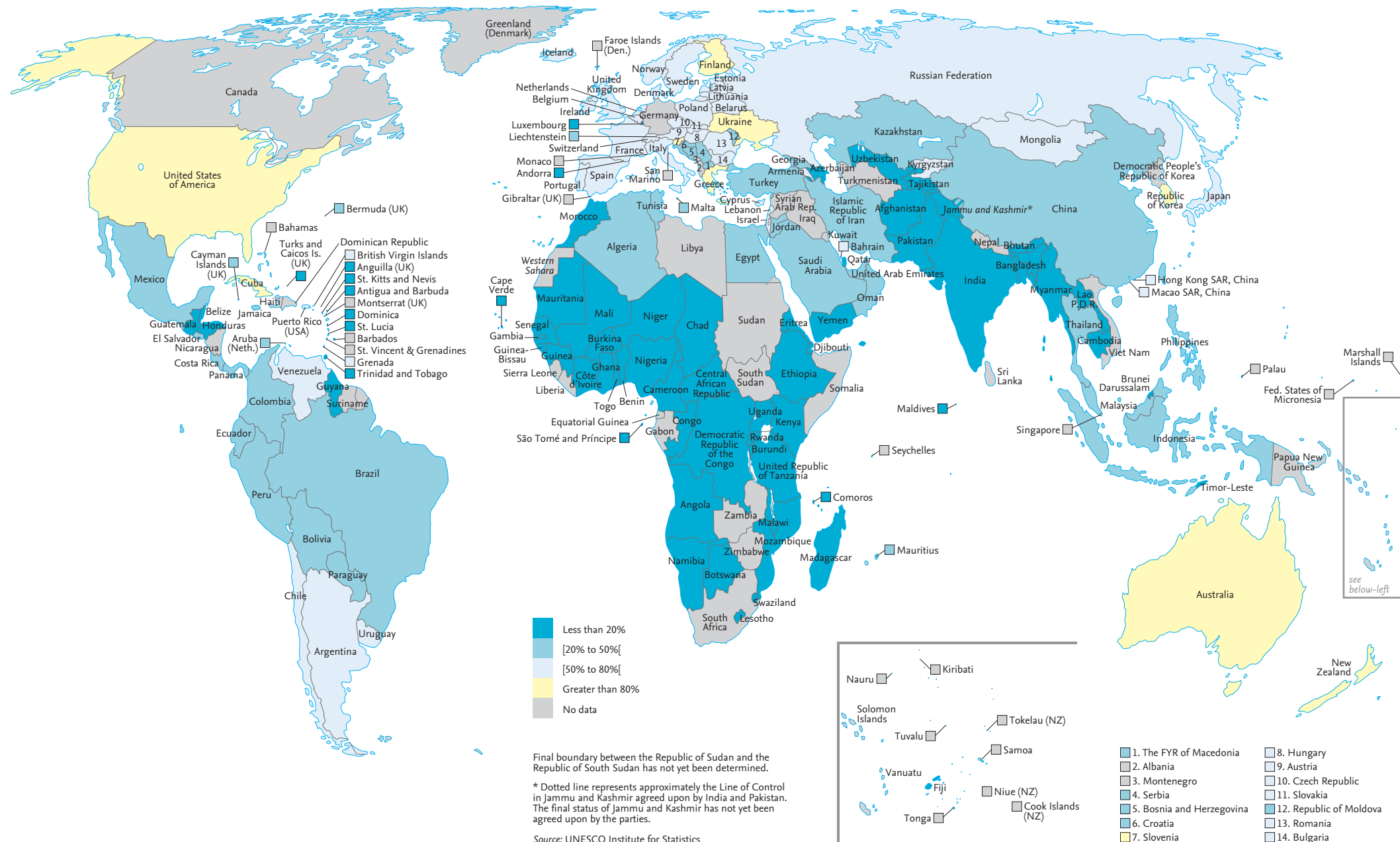
Although access to higher education remains problematic in many countries, the last four decades have brought a major expansion of higher education in every region of the world, and women have been the principal beneficiaries in all regions. Female enrolment at the tertiary level has grown almost twice as fast as that of men over the last four decades for reasons that include social mobility, enhanced income potential and international pressure to narrow the gender gap. Nevertheless, enhanced access to higher education by women has not always translated into enhanced career opportunities, including the opportunity to use their doctorates in the field of research.

1. Gross enrolment ratio soaring at the tertiary level

Total enrolment at the tertiary level soared from 32 million students in 1970 to 165 million in 2009 – an increase of around 500 percent. Map 5.1.1 depicts the gross enrolment ratio for tertiary enrolment in 158 countries for which data are available. The GER is below 20 percent in 43 percent of the countries and falls between 20 and 50 percent in a quarter. Another quarter (26 percent) of the countries fall between the 50 to 80 percent range. The GER registers above 80 percent in only nine nations.

Map 5.1.1
Tertiary level gross enrolment ratios vary across regions

Gross enrolment ratio in tertiary education



Overall enrolment figures, however, do not tell the whole story. As seen in Figure 5.1.1, although every region of the world has experienced a surge in tertiary enrolment, the most dramatic gains have been recorded in regions that had the lowest levels of enrolment in 1970 and which continue to record modest enrolment levels to this day.

Tertiary enrolments in 2009 were 24 times the 1970 figure in sub-Saharan Africa and 17 times in the Arab States. Enrolments multiplied 15-fold in East Asia and the Pacific, which now boasts the highest tertiary education enrolment of any region (52 million). Enrolments in North America and Western Europe rose by 250 percent, but the region's share of total tertiary enrolment dropped from nearly half (45 percent) in 1970 to less than a quarter (22 percent) in 2009.

Figure 5.1.2 shows how the tertiary GER rose in selected countries. Particularly notable is Thailand, where the 2009 gross enrolment ratio was 16 times the 1971 level. Particularly dramatic increases also occurred in Bahrain (up to 36 times) and Cameroon (up to 20 times).

Increases in tertiary enrolment have far out-stripped the growth of the school-age population in all regions and for both sexes. As shown in Figure 5.1.3, consistent with the trends described above, the most dramatic gains were in East Asia and the Pacific, especially among women, and in sub-Saharan Africa, where the growth of enrolment among males was marginally higher than that among females.

Figure 5.1.1 Largest gains seen for regions that had the furthest to go

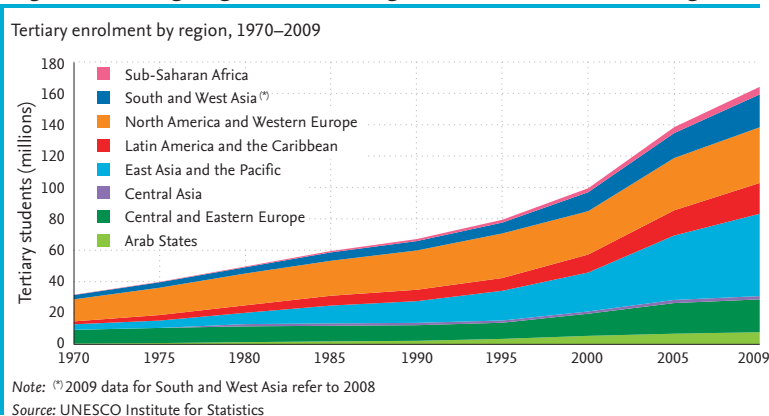


Figure 5.1.2 Dramatic gains seen in Thailand, Bahrain and Cameroon

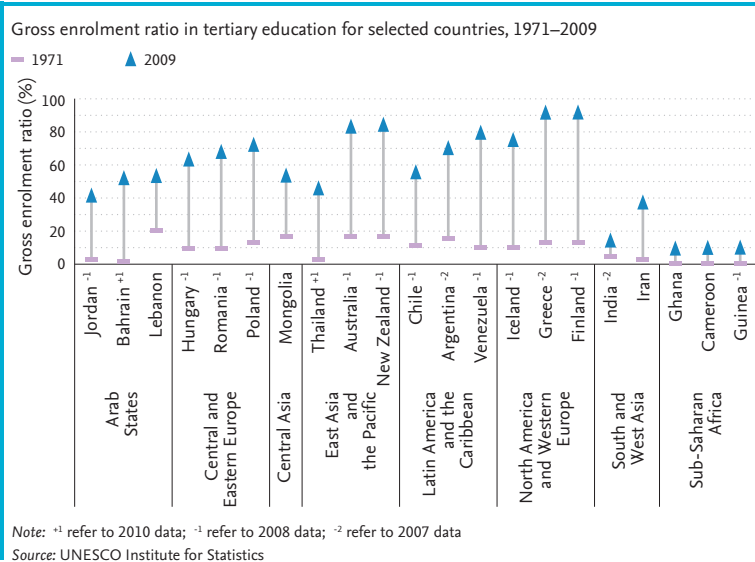
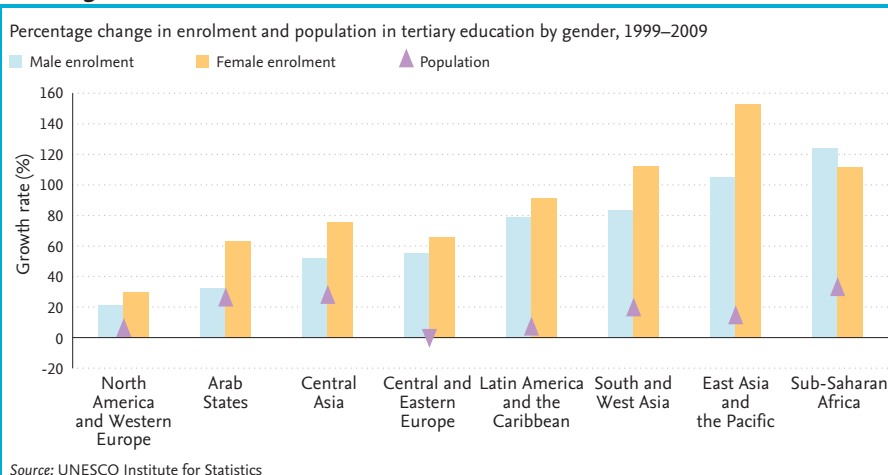


Figure 5.1.3 Tertiary enrolment growth exceeding population growth in all regions and for both sexes



2. Women are the biggest beneficiaries of rising tertiary enrolments

Women have been the prime beneficiaries of this surge in tertiary enrolment – with the number of women enrolling in tertiary institutions growing almost twice as fast as that of men over the last four decades. The GER of men went from 11 percent in 1970 to 26 percent in 2009, an increase of about 230 percent. The comparable ratio for women tripled during this period, from 8 to 28 percent.

In some cases, young men may be more likely than young women to move directly from secondary education into the work force or non-formal education or to go abroad to continue their education. Nevertheless, the long-term shift from male to female dominance in enrolment is a function of changing societal and family attitudes towards girls' education. In most areas of the world, it reflects girls' growing expectations and positive attitudes toward schooling rather than lowered expectation among boys, although in some countries, such as the United States, such lowered expectations are an issue. It is also likely that in countries with rapidly growing tertiary education systems, girls may anticipate greater opportunities for higher education and thus raise their own expectations.

The overall growth in female tertiary enrolment is also reflected at the regional level. As shown in Figure 5.2.1, in 1970 the GER was higher for males in all regions except for Central and Eastern Europe. By 2009 four regions had reached the point where the GER favoured females, and there were only two where males continued to have the edge. In the other region there was parity. The largest proportional disparity favouring females was

found in North America and Western Europe. The largest favouring males was in sub-Saharan Africa.

The largest gains in enrolment have occurred in North America and Western Europe, in Latin America and the Caribbean and in Central and Eastern Europe – three areas where males also made lesser but still substantial gains. Females went from a position of disadvantage in 1970 to a majority position in 2009 in three regions: East Asia and the Pacific, Latin America and the Caribbean, and North America and Western Europe.

Figure 5.2.2 depicts the increase in female participation in tertiary education over the last four decades in terms of the changes in the gender parity index for tertiary enrolment. The global GPI as a whole rose dramatically from 0.74 favouring men in 1970 to 1.08 in 2009, which falls within the range of parity and slightly favours women. In 1970 only one region, Central and Eastern Europe, registered a GPI over 1.03 favouring women. By 2009 a majority of four regions had an index favouring women.

While the GPI rose in all regions during this period, the relative position of some of the regions shifted. The largest gains occurred in Latin America and the Caribbean, where the GPI rose from 0.62 to 1.21 over the past four decades. North America and Western Europe moved from second to first place, while South and West Asia, which was at the bottom of the table in 1970, rose to seventh place. Sub-Saharan Africa dropped from sixth to eighth place.

Figure 5.2.1 Overall female advantage in tertiary enrolment growth mirrored at regional level

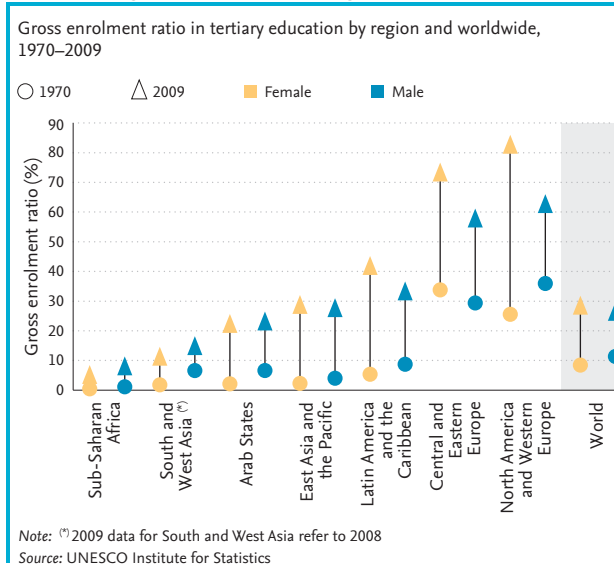
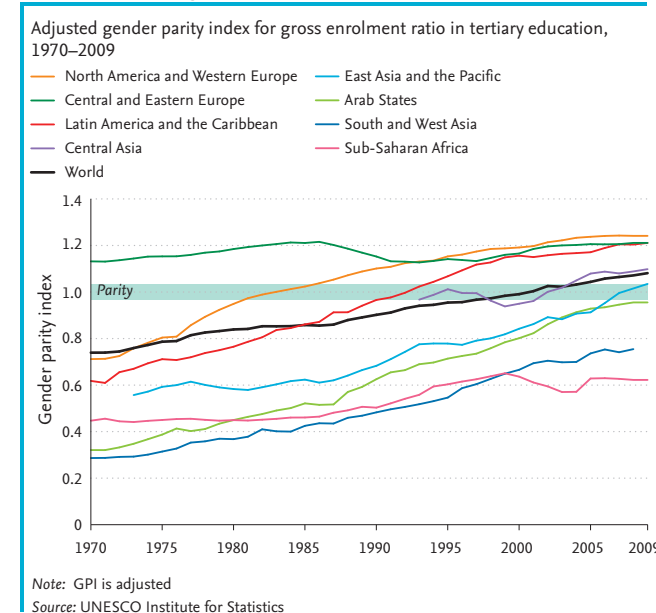


Figure 5.2.2 Global GPI up from 0.74 favouring men to 1.08 favouring women since 1970



Women now account for a majority of students in most countries. Map 5.2.1 depicts the gender parity index at the tertiary level for 149 countries. It shows that women are favoured in a sizeable majority of 93 countries while men are favoured in only 46. Ten countries have achieved gender parity at the tertiary level.

Figure 5.2.3 shows the proportion of the world's students in countries with varying gender parity status for higher education. It shows that 54 percent of youth populations reside in countries where men are favoured, and 43 percent of students reside in countries where women are favoured. Since 31 percent of countries have a level of GPI favouring men and 62 percent have a GPI favouring women, the data suggest that despite a larger number of countries where the GPI is greater than 1.03, the majority of students reside in countries where men are favoured.

Table 5.2.1 demonstrates the variety of patterns among countries. It lists ten countries where the tertiary GPI ranges from 0.17 to 0.41 and heavily favours men, and ten others where the range is 1.46 to 1.84 favouring women.

The strong participation of women in tertiary education represents an interesting contrast to patterns of gender parity at the primary and secondary levels. The overall global picture is one of parity at the low end of the 0.97 to 1.03 range for the primary and secondary levels and over-representation of women at the tertiary level.

As shown in Figure 5.2.4, almost all regions are closest to parity at the primary level, though two regions are within the parity range for both the primary and secondary levels – but not tertiary. Two regions – South and West Asia, and sub-Saharan Africa – show declining GPI values as they move from primary to higher levels.

Table 5.2.1 Examples of countries favouring males or females, 2009 or latest year available

Males favoured		Females favoured	
Country	GPI	Country	GPI
Chad	0.17	Belize	1.46
Congo	0.21	United Arab Emirates	1.47
Afghanistan	0.24	Iceland	1.48
Ethiopia ⁻¹	0.31	Antigua and Barbuda	1.55
Eritrea ⁺¹	0.33	Jamaica ⁻¹	1.55
Guinea ⁻¹	0.34	Bermuda	1.61
Dem. Rep. Congo ⁻²	0.35	St. Lucia	1.61
Niger ⁺¹	0.36	Dominica ⁻¹	1.69
Mali	0.41	Anguilla ⁻¹	1.80
Tajikistan	0.41	Qatar	1.84

Note: ⁺¹ refer to 2010 data; ⁻¹ refer to 2008 data; ⁻² refer to 2007 data
GPI in tables is adjusted

Source: UNESCO Institute for Statistics

Map 5.2.1 Women now a majority of tertiary level students in most countries

Gender parity index, tertiary education

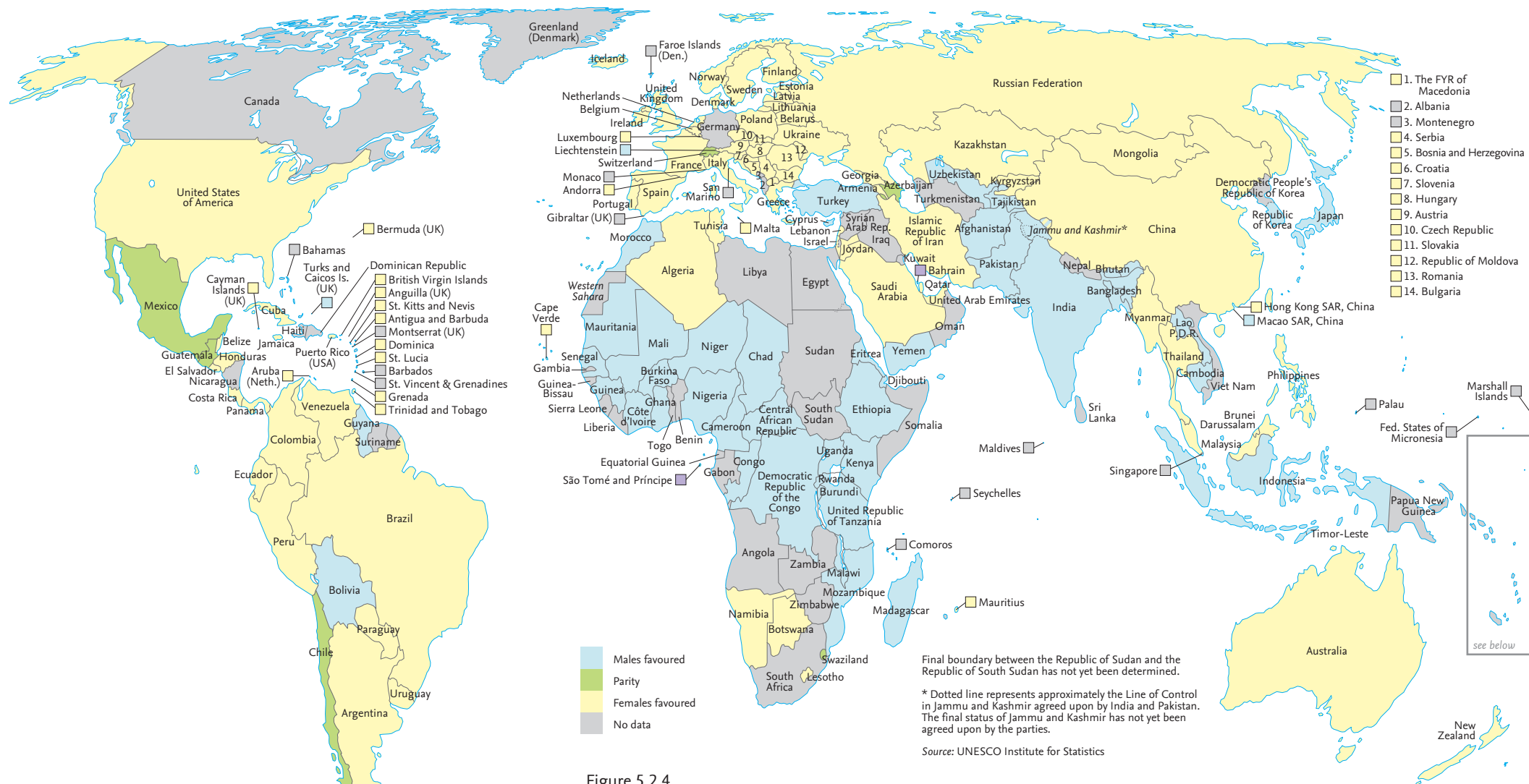
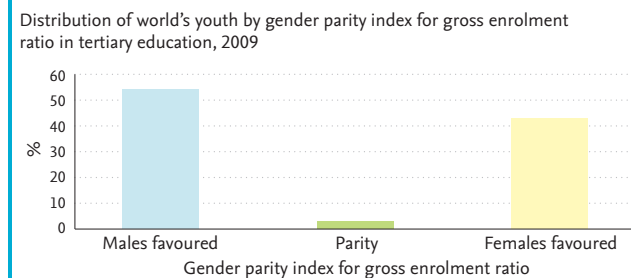
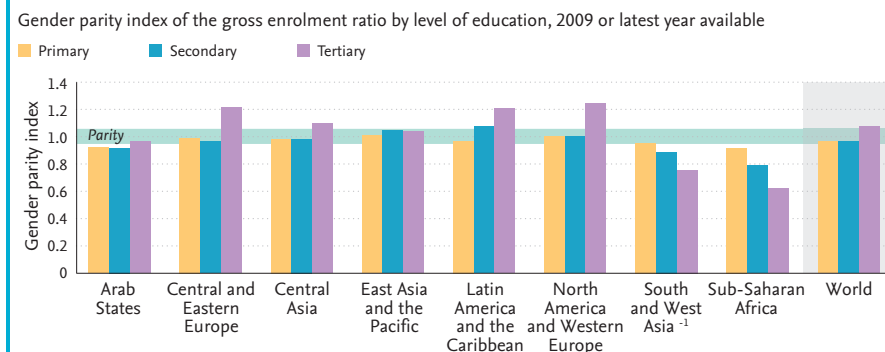


Figure 5.2.3 Majority of world's youth live in countries where men have an edge in tertiary GPI



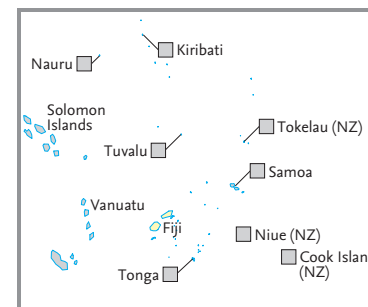
Source: UNESCO Institute for Statistics

Figure 5.2.4 Women's participation in tertiary education much higher than at lower levels



Note: ⁻¹ refer to 2008 data

Source: UNESCO Institute for Statistics



3. National wealth a major factor in gender gaps at tertiary level

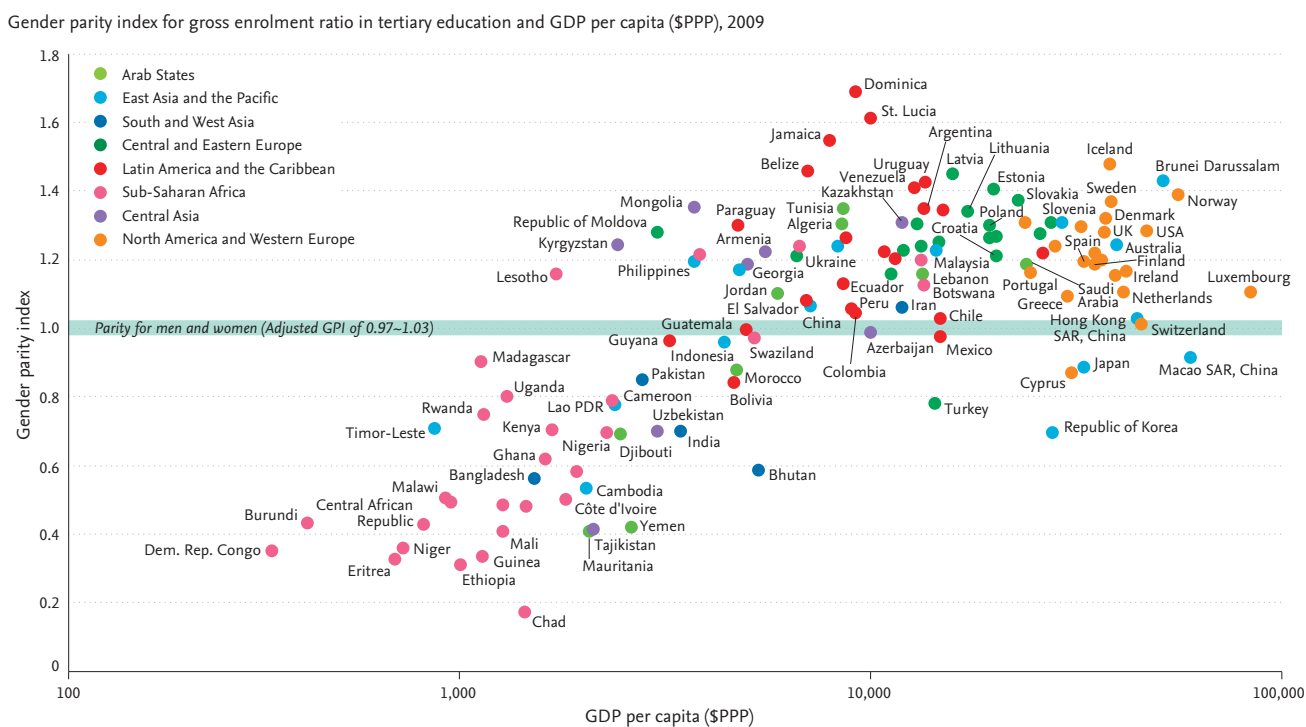
National wealth plays an important role in shaping the ways in which men and women participate in tertiary education. Women are more likely to pursue tertiary education in countries with relatively high income and less likely to do so in low-income countries. Even modest rises in national wealth correlate with lower levels of gender disparities.

Figure 5.3.1 shows how most of the countries and regions above the gender parity range of 0.97 to 1.03 are also at the high end of the axis depicting levels of GDP per capita. By contrast, most of the countries and regions

with low levels of GDP per capita also have GPIs below the parity range.

There are, however, some notable exceptions. Lesotho, Kyrgyzstan, Mongolia and the Philippines have high GPIs even though they are in the middle income range. Japan, which ranks among the wealthiest countries, has a GPI of only 0.88, mainly because the rise in female advancement to university is relatively recent. Hence, women are poorly represented among the ranks in higher education administration compared to many OECD countries.

Figure 5.3.1 Women more likely to pursue tertiary education in wealthy countries



Note: GPI is adjusted
Source: UNESCO Institute for Statistics

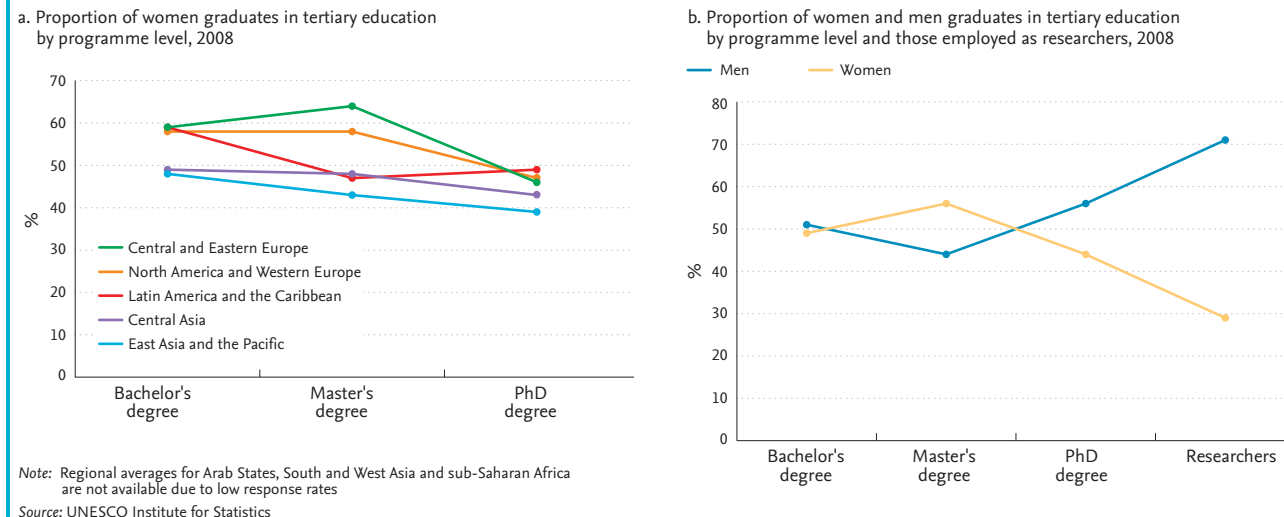
4. Women have edge in graduate degrees up until PhD level

Significant differences exist in the extent to which men and women pursue education at the various levels.

Figure 5.4.1 shows that women have reached parity with men in earning bachelor's degrees. They have an edge over men of 56 to 44 percent in master's degrees, but this ratio is exactly reversed at the PhD level.

Women receive more bachelor's degrees than men in three of the five regions and more master's degrees in two. When it comes to PhDs, however, men have the advantage in all regions. One interesting region is Latin America and the Caribbean, which is the only region where females participate at a higher rate in PhD than in master's programmes.

Figure 5.4.1 Women's edge in bachelor's and master's degrees reversed at PhD level



Note: Regional averages for Arab States, South and West Asia and sub-Saharan Africa are not available due to low response rates
Source: UNESCO Institute for Statistics

5. Significant gender differences in various fields of study

Despite the narrowing of the gender gap in tertiary enrolment, significant differences are observed in the fields in which men and women choose to earn degrees.

Table 5.5.1 shows the distribution of female graduates among various disciplines in science and in the social sciences, business and law in various regions. Females account for a majority of graduates in science in two regions: Central Asia and the Arab States. Central Asia has the highest proportion of female graduates in the sciences (53), while North America and Western Europe has the lowest (40).

In all regions women gravitate strongly toward the life sciences, where their majorities reach 70 percent in the Arab States and Central and Eastern Europe. Women

show relatively low interest in computing, although the disparities are wide, ranging from 21 percent in North America and Western Europe to 39 percent in Central Asia.

The proportion of female graduates is much higher in the social sciences, business and law, where women are the majority of graduates in all but one region and in all of the sub-fields of social and behavioural science, journalism and information, business and administration, and law. The major regional exception to these patterns is Central Asia, which strongly favours women in science and where female graduates are a minority in the social sciences, business and law.

Table 5.5.1 Proportion of women graduates strongest in social sciences, business, law and the life sciences

Percentage of women graduates in the fields of science and social sciences, business and law by region, 2008

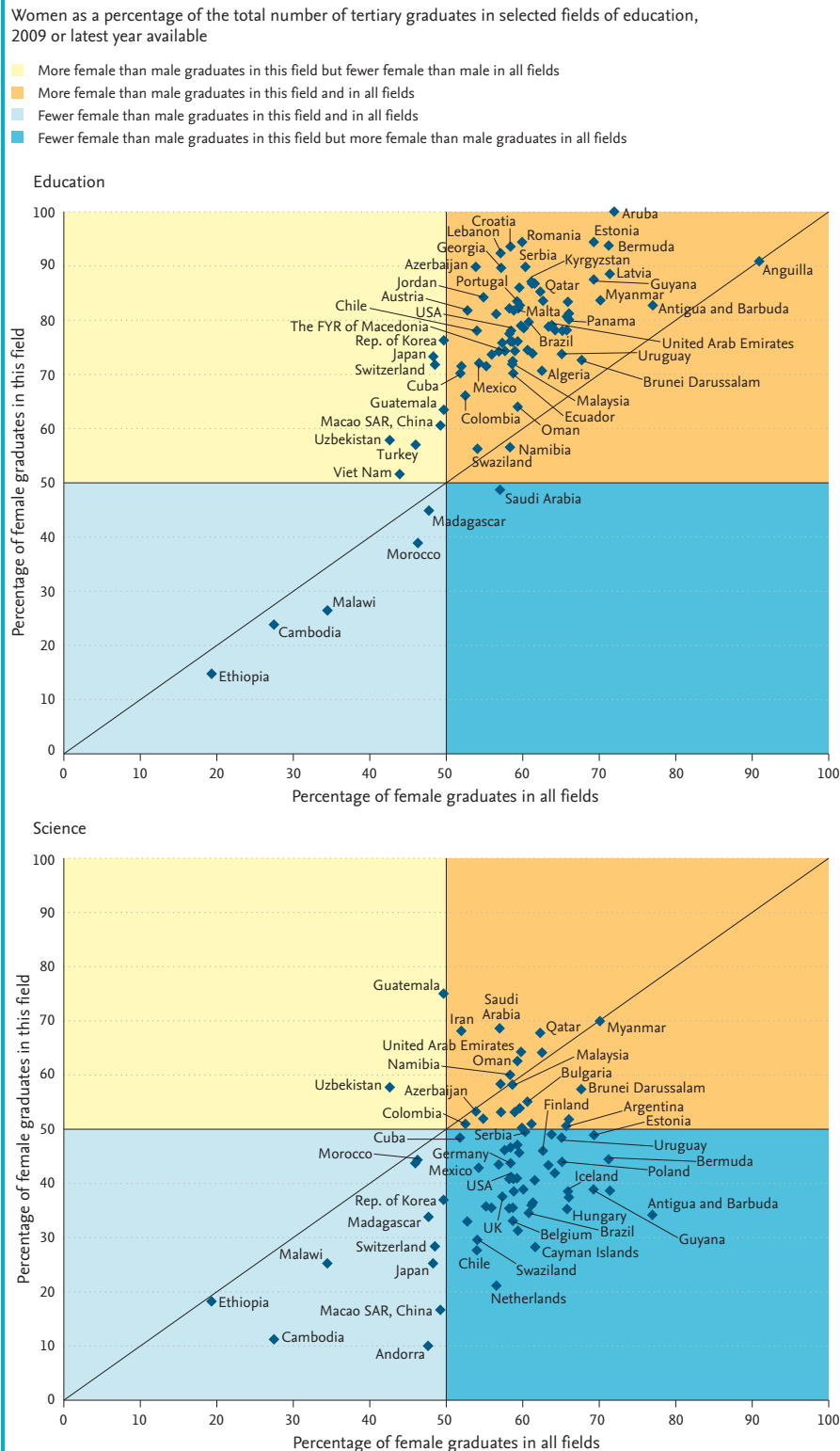
Region	Broad and sub-field	Science				Social sciences, business and law				
		Life sciences	Physical sciences	Mathematics and statistics	Computing	Social and behaviour science	Journalism and information	Business and administration	Law	
Arab States		51	73	61	33	53	69	58	42	55
Central and Eastern Europe		47	70	54	29	61	62	69	61	58
Central Asia		53	68	44	39	41	46	60	43	34
East Asia and the Pacific		48	60	58	29	53	56	64	52	51
Latin America and the Caribbean		41	67	51	31	57	70	61	56	52
North America and Western Europe		40	60	43	21	57	64	63	53	59

Source: UNESCO Institute for Statistics

Figure 5.5.1 displays graduate data for four broad fields of education and shows how the proportion of female graduates in each of the four compares with the share of female graduates in all fields.

Among the four fields presented, education is the most popular with women. Women are more likely than men to graduate in this field in 77 of the 84 countries with data. They account for more than nine in ten graduates in several countries, including Aruba, Bermuda, Croatia, Estonia, Lebanon and Latvia. There are, however, some notable exceptions, most of which reflect general patterns of tertiary participation. In Morocco, for example, women make up 46 percent of the tertiary graduate population and 39 percent of those in the field of education.

Figure 5.5.1 Percentage of female tertiary graduates differs in education and engineering



Source: UNESCO Institute for Statistics

By contrast, in the area of engineering, manufacturing and construction, males constitute a majority of graduates in all but one of the 84 countries for which data are available. Women come closest to gender balance in Brunei Darussalam, Mongolia and Uruguay. Even in countries such as Germany, Japan, Switzerland and the United States, where women have reached parity or even constitute a majority of graduates in all fields, however, females account for less than a fifth of graduates in engineering, manufacturing and construction.

More mixed pictures are seen in the fields of science and the social sciences, business and law. In science, women make up a majority of graduates in a number of countries, mainly in those where they account for a majority of graduates in all fields. Graduates in the social sciences, business and law tend to be more equally divided among males and females.

6. Men continue to predominate in research jobs

As already seen in Figure 5.4.1, there is a sharp drop-off in the number of women who move from the master's level to PhDs, and there is an even sharper drop in those who go on to careers in research. Clearly women face considerable barriers as they move up the educational ladder to research careers.

When it comes to employment as researchers, men have the edge by an enormous ratio of 71 to 29 percent. Map 5.6.1 gives the global picture of the percentage of female researchers. In a majority (54) of the 90 countries for which data are available, women account for 25 to 45 percent of researchers. They represent more than 45 percent of researchers in only 21 nations, or one in five.

Venezuela and Latvia have the highest proportion of female researchers of any country – 55 percent. They are followed by: Azerbaijan, Georgia, Philippines, Thailand, Argentina, Lithuania, the FYR of Macedonia, Paraguay and Uruguay.

Factors that may explain the lower number of female researchers, especially in senior positions, include the work-life balance, gender stereotyping, performance measurement and promotion criteria, governance, and the role of researchers in society. Apart from being under-represented, women in research are also often paid less than equally-qualified men, are less likely to be promoted, and are consistently clustered at the lower ranking of the science system.

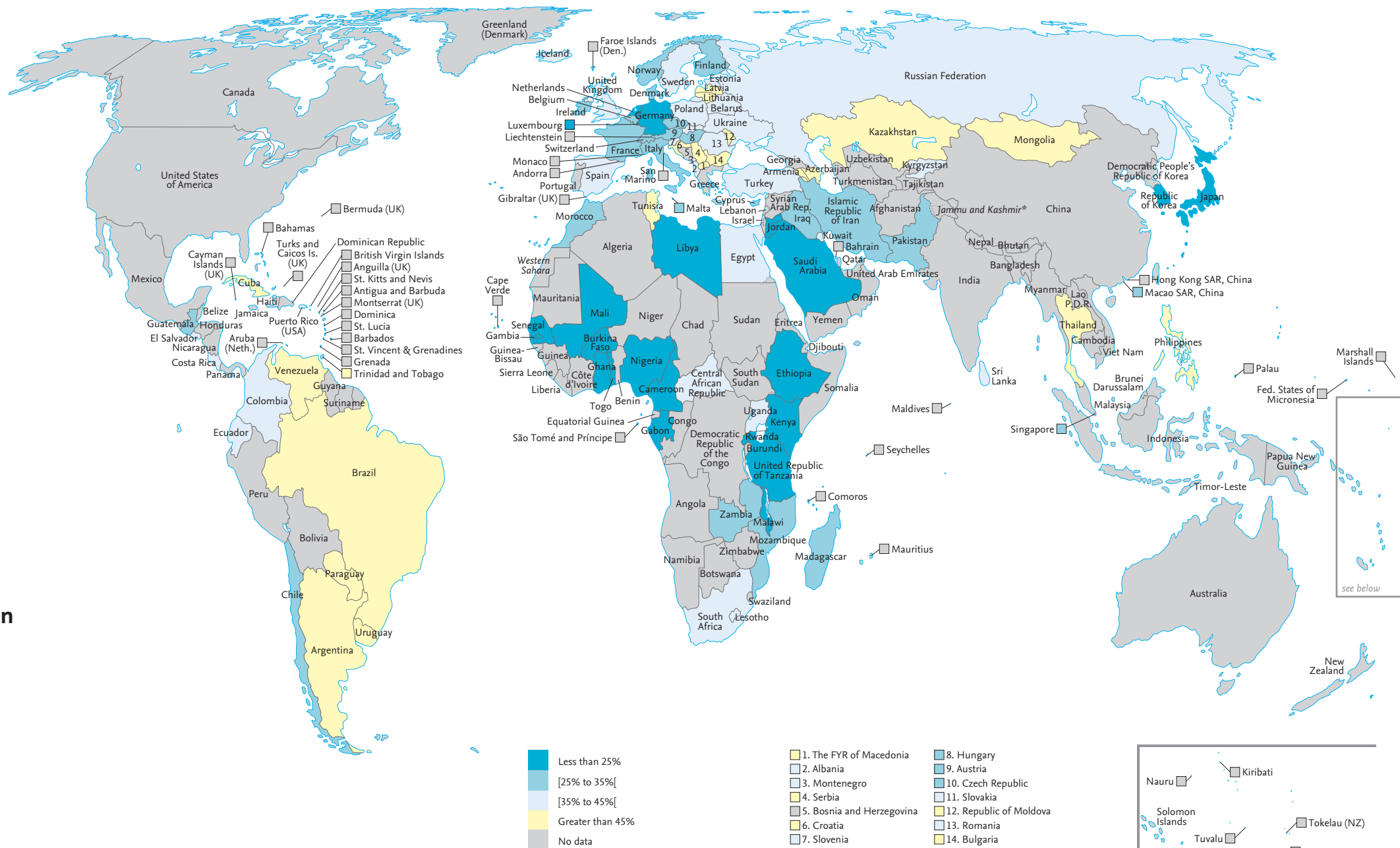
7. Multiple reasons for over-representation of women in post-secondary education

Over-representation of women in higher education is not necessarily the result of affirmative action in their favour, for such legislation is rare. Rather, empirical research highlights several reasons for the growing participation of women in post-secondary education, beginning with the fact that higher levels of schooling are now required to attain social mobility and escape poverty. Even though higher education leads to individual returns in the form of higher income, women often need to have more education than men to get the same jobs. Globalization has led to more attention to gender egalitarianism. Finally, once women gain access to higher education they frequently exceed men in grades, evaluations and degree completion.

It must also be noted that over-representation of women in higher education has yet to translate into proportional representation in the labour market, especially in leadership and decision-making positions^{iv}. Even though

Map 5.6.1
What is the share of women among researchers?

Women as a share of total researchers



many women have started to benefit from their countries' improved education systems, they face barriers to the same work opportunities available to men. Women continue to confront discrimination in jobs, disparities in power, voice and political representation and the laws that are prejudicial on the basis of their gender. As a result, well-educated women often end up in jobs where they do not use their full potential and skills.

Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.
* Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Source: UNESCO Institute for Statistics