

# **Evidence Papers on Women in Economics – A Case Study of Ghana**

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Ghana

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## **Abbreviations**

STEM – Science, Technology, Engineering and Mathematics

MoCD – Ministry of Communications and Digitalisation

S4LIS – Seats for Ladies in STEM Initiative

GTEC – Ghana Tertiary Education Commission

RePEc – Research Papers in Economics

h-index – Hirsch index

HoD – Head of department

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## **Executive Summary**

## 1. Introduction

Women's under-representation in academic economics is evident in almost all countries (see for example Jonung and Ståhlberg, 2008; May, 2008; and Ginther and Kahn, 2004), and arguably Ghana is no exception. Meanwhile, the economics discipline is widely recognised and offered in several institutions (i.e., from the secondary to the tertiary levels) in Ghana. Unfortunately, in Ghana, not much attention has been paid to the gender imbalance in the study of economics compared to other commitments demonstrated by the Ministry of Education, Ghana Education Service, and other stakeholders in the promotion of the study of Science, Technology, Engineering and Mathematics (STEM). For instance, on March 2023, the Ministry of Communications and Digitalisation (MoCD), in partnership with the Ghana Chamber of Telecommunications launched the "Seats for Ladies in STEM Initiative (S4LIS)" as a strategy to close the gender gap in STEM in Ghana<sup>1</sup>. Aside from state-wide interventions, individual institutions (academic or industry-based) have also embarked on strategic interventions to reduce gender gaps in the study of STEM courses. Beyond interventions to promote gender parity in the study of STEM, there have also been interventions to ignite interest in girls in STEM programmes to develop a career in STEM. Unfortunately, there has neither been any intervention explicitly designed to promote gender parity in the study of economics nor ignite interest in girls to pursue a career in the economics discipline in Ghana. Closing the gender gap in the study of economics and careers in economics is equally important for the growth and development of the economy; and to decolonise the discipline. However, policies and initiatives to promote women's presence in academic economics will depend greatly on what we know about their involvement in the discipline and the challenges they face. Unfortunately, databases on the gender breakdown and women's involvement in the discipline are either rare or non-existent in Ghana, hence the need for this study.

## 2. Research objectives

This case study on Ghana provides both a database and an in-depth assessment of women's representation in economics across the full range of academic tiers. Specifically, this study collated data that compares women's representation in the economics disciplines at the undergraduate and postgraduate (master's and doctoral) levels, and at the faculty level in universities that offer economics programmes in Ghana.

## 3. Economics Education in Ghana

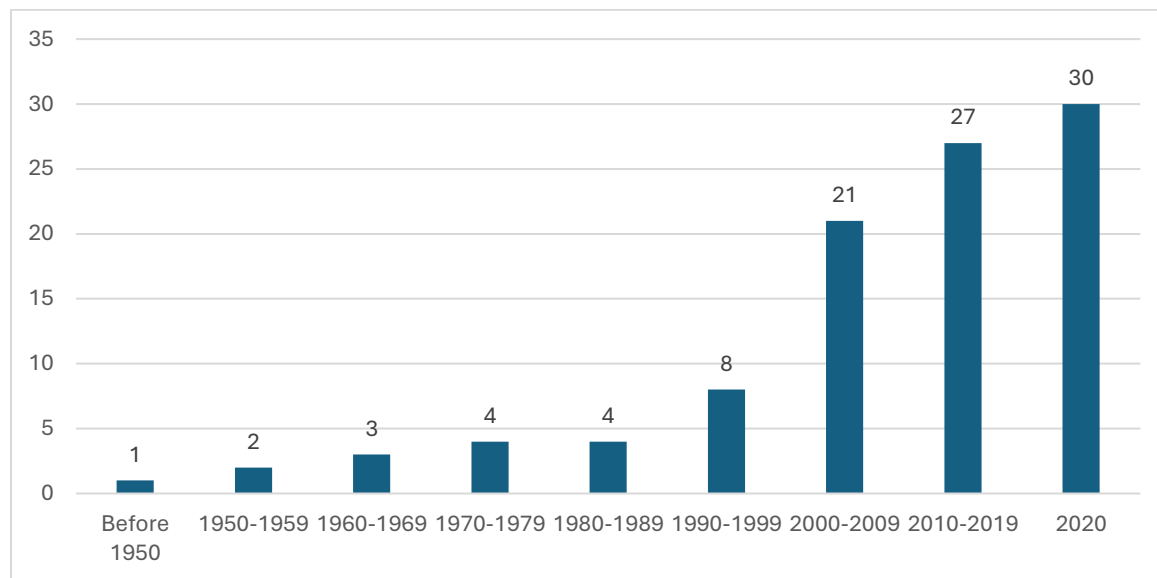
The first graduating class in economics was from the University of Ghana in 1953 and it comprised seven men (University of Ghana n.d.). The University of Ghana which was established in 1948 was the only university with a Department of Economics until 1964 when one was established at the University of Cape Coast. The number of universities with Departments of Economics or offering courses in economics rose from two in the 1950s to four by the end of the 1970s and eight by the end of the 1990s. In the first decade of the 21<sup>st</sup> century 13 universities offering economics

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<sup>1</sup> <https://moc.gov.gh/2023/03/22/launch-of-the-seats-for-ladies-in-stem-initiative-held-in-accra/> Accessed on June 10, 2024.

courses were established, bringing the total number to 21. An additional six universities were established between 2010 and 2019 and four were established in 2020 (Figure 1). In the 2022/2023 academic year, Ghana had 30 universities that either had Departments of Economics or that offered courses in economics, usually in the business schools.

Figure 1: Number of Universities that Offer Economics Courses by Year of Establishment



Source: GTEC database

### 3.1. Types of Institutions

Universities in Ghana may be classified into three categories: public, chartered private, and private. The public universities are state-owned. The private universities are privately owned but affiliated to a public university and the chartered private universities are privately and independently owned and are not affiliated to a public university

Private universities (18) outnumber public universities (12). Of the 22 universities that offer economics programmes or courses that were established in the period 2000 – 2020, seven were public. Fifteen of the 18 private universities were established after 1999 and are responsible for the surge in the number of universities established during that period. However, enrolment in private universities is much lower than in public universities. For example, in 2019 enrolment in the Arts and Social Sciences in public universities stood at 47,424 and was 9,420 in private universities. Enrolment in business studies in private universities (27,883), remains lower than in public universities (50,743), but is much higher than in the Arts and Social Sciences. Thus, private universities are less likely than public universities to have Departments of Economics. However, they do offer courses in economics in their business schools and employ faculty with postgraduate degrees in economics.



## 4. Data and Methods

Given that our objective is to analyse women's representation in economics across the different tiers of the discipline, multiple data sources were utilised. Therefore, this section describes how the data for both the student and faculty were gathered for the analysis carried out in this study.

### 4.1. Student level

All student level analyses rely on administrative data, sourced primarily from the Ghana Tertiary Education Commission (GTEC) database and from some universities. GTEC is a state agency established in 2020 under the Education Regulatory Bodies Act (Act 1023), with a mandate that includes *inter alia* coordination, regulation and accreditation of tertiary education in Ghana.<sup>2</sup>

The GTEC database has some gaps. Even though the data received from GTEC span from 2012/2013 to 2022/2023 academic years, no data was provided for the 2013/14 and 2014/15 academic years. A second shortcoming is the inconsistent representation of universities in the database. Enrolment data for an economics programme or course in a university is sometimes not provided for each year. The missing observations could be because the course is not offered in that year or because the university did not provide the information. A third difficulty with the data is that some institutions in some years provided GTEC with data aggregated at the college-level. It was therefore impossible to extract department-level data. In one instance, the researchers requested and obtained the department-level data directly from the university. A fourth limitation is the absence of consistent data on the number of graduates from a programme. The study therefore analyses enrolment data only.

To minimise the effect that inconsistent representation of universities and their courses can have on the analysis of enrolment numbers, the analysis was conducted using two samples. The first is a sample comprising four public universities and two private universities that have fairly consistent representation in the GTEC database for the period 2012/2013 to 2022/2023. The universities excluded from this sample have less than five years of data in the GTEC database. Enrolment in undergraduate economics in the six selected universities comprised 65 percent of the total enrolment in the 2022/2023 academic year. The second sample comprises the full complement of 28 universities for which the analysis will be conducted for the period 2019/2020 to 2022/2023. Of the 28 universities, 13 are public, 10 are private and the remaining 5 are chartered private. Private universities are re-classified into one category for analysis.

We define economics students as students in departments of economics and students studying sub-themes in economics such as agricultural economics, development economics, mathematical economics, energy economics etc. that are housed in other departments or schools. Development Studies and Land Economy are chosen for comparison with economics because some of their content contains economics topics. Regarding the STEM subjects, we were guided by the

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<sup>2</sup> GTEC was created out of the merging of the National Council for Tertiary Education and the National Accreditation Board

International Standard Classification of Education (UNESCO, 2015), which is used by GTEC to collate data for three STEM programmes – namely, Natural Sciences, Mathematics and Statistics; Information and Communication Technologies; and Engineering, Manufacturing and Construction. We compare enrolment in economics with total enrolment in the STEM subjects because data for some universities is aggregated at faculty-level or college-level. The different universities run a variety of programmes in economics which have been listed in the Appendix.

#### 4.2 Faculty level

We relied on multiple sources to provide insightful analysis about the journey and activities of women economists in academia.

First, we used data from GTEC to show women's representation in the discipline. Although the information obtained was limited in terms of the number of observations and institutions, we considered this as a starting point in our analysis. Second, we gathered information (women's (and men's) representation, publications and related activities) from the Research Papers in Economics (RePEc) platform. Third, we gathered information regarding faculties' research activities from the Google Scholar platform. Finally, based on the compiled faculty list and their contact information, we sent out emails requesting CVs of faculty across several universities (including the *traditional* universities). This was useful in gathering relevant background information (education, rank, leadership roles in university, etc.) to be able to provide some more insightful analysis about women economists in academia. We complemented the information obtained from the CVs with information from profiles published on the websites of the respective universities.

#### 4.3 Method of analysis

The analyses carried out are descriptive. They involve comparisons of women's representation in economics across all tiers of the discipline to that of their male counterparts. Specifically, with the student-level analysis, we compare female's representation in both undergraduate and graduate (master's and PhD) programmes in economics to their male counterparts. A second strand of the analysis involves a comparison of female student representation in economics with female representation in STEM subjects and allied (i.e. development studies and land economy) subjects. This comparison is conducted to determine whether the patterns in economics are peculiar to the discipline.

With the faculty level analysis, we analyse both women's representation, research and publication activities, and their research impact. In addition, we analyse women's leadership activities and services to their respective universities. Again, all these are carried out in comparison to men in the discipline.

## 5. Findings

### 5.1. Enrolment in Undergraduate Programmes and Courses

#### 5.1.1. Evidence for the Period 2012/2013-2022/2023

Enrolment of women in undergraduate economics in the six universities increased by about 43 percent between 2012/2013 and 2022/2023. Enrolment numbers for both women and men sometimes increased and then declined during the intervening years (Table 1). The female share of enrolment in economics also fluctuated during this period. Female enrolment as a share of total enrolment in economics increased from 33.4 percent after 2012/2013 peaking in the 2020/2021 academic year at 38 percent and then declining to 36.6 percent in 2022/2023 (Figure 1). There was a 3.2 percentage point increase in women's share of enrolment in 2022/23 compared to 2012/2013.

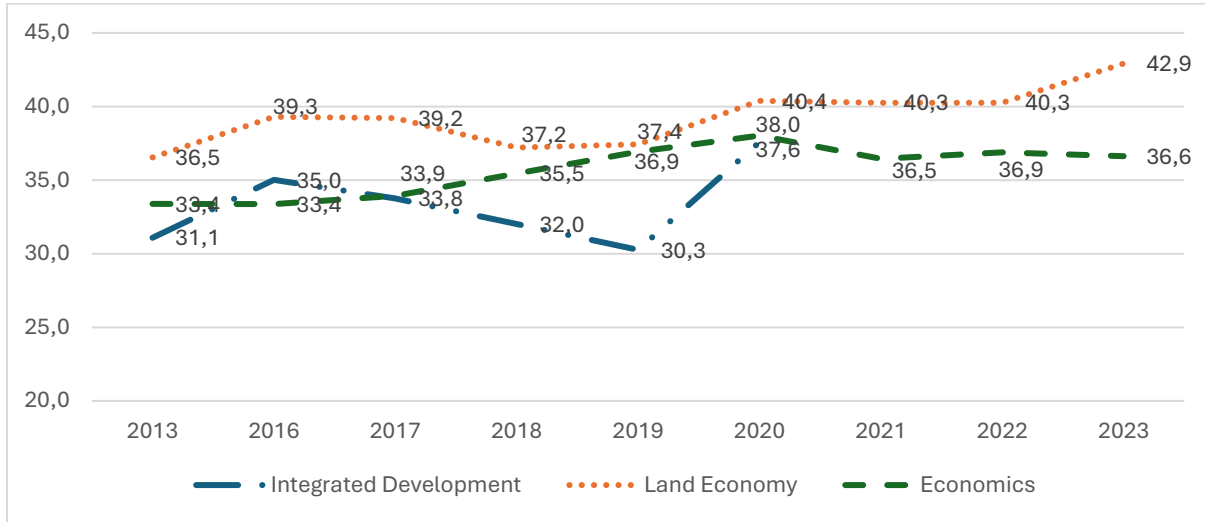
Table 1: Enrolment in Undergraduate Economics and Allied Subjects in Six Selected Universities

Year <sup>3</sup>	Economics		Development Studies		Land Economy	
	Men	Women	Men	Women	Men	Women
2013	3235	1622	2633	1188	455	262
2016	2338	1171	1329	716	417	270
2017	2034	1045	1482	755	445	287
2018	3629	1993	900	424	501	297
2019	2753	1612	371	161	495	296
2020	2908	1784	897	540	586	397
2021	3594	2062			589	397
2022	3689	2156			589	397
2023	4004	2314			399	300

Source: GTEC

<sup>3</sup> For simplicity's sake, we write the end period for an academic year. For example, 2012/2013 academic year is presented as 2013.

Figure 1: Female Share (%) of Enrolment in Undergraduate Economics and Allied Subjects, 2012/2013-2022/2023



Source: GTEC

### *Comparing Enrolment in Economics to Allied Subjects and STEM Subjects*

Enrolment in Development Studies and Land Economy is lower than in economics (Table 1). This is largely because economics courses are offered across several universities whilst Development Studies and Land Economy are not. Although the numbers enrolled in Land Economy are much lower than in economics, women’s share of the total enrolled students in the subject is consistently higher than in economics. The female share of enrolment in Development Studies on the other hand has tended to be lower than the female share of enrolment in economics (Figure 1).

In addition to comparing women’s representation in economics to allied subjects, a comparison is made between representation in economics and the STEM subjects. The comparison with enrolment in STEM subjects is restricted to public universities because of the limited information on STEM enrolment in the two private universities in this sample. Enrolment of women in STEM subjects was more than three times higher in 2022/2023 compared to 2012/2013 (Table 2). This compares favourably with an almost doubling of male enrolment. Women’s enrolment shares in economics are higher than their shares in the STEM subjects in all the years of available data (Table 2). However, the gap in the difference in the enrolment rates has narrowed because of the more rapid increase in the female share of enrolment in STEM subjects.

Table 2: Comparing Enrolment in STEM subjects to Economics in Public Universities

	Numbers Enrolled		Female Share (%)	
	Men	Women	STEM	Economics
2013	9720	2238	18.7	33.4
2016	8124	1665	17.0	33.2
2017	10815	3133	22.5	33.3
2023	19009	6900	26.2	35.5

Source: GTEC

### *Enrolment in Public and Private Universities*

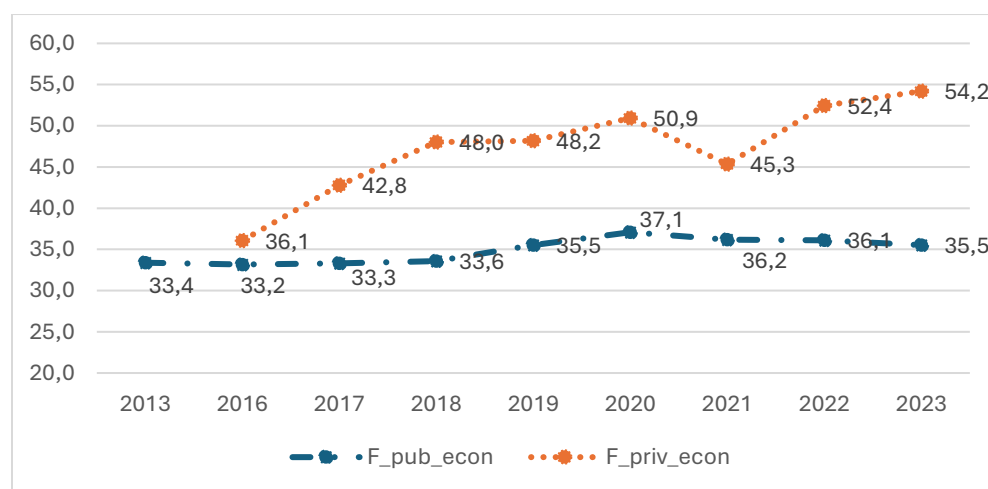
There are more students enrolled in economics in public universities than there are in private universities (Table 3). In 2022/2023 enrolment in public universities was 16 times higher than in private universities. However, despite the relatively low absolute number of women enrolled in economics in private universities, their share of total enrolment is higher. Enrolment of women in economics in private universities more than doubled in 2022/2023 compared to 2015/2016. Since 2019/2020, except for 2020/2021 academic year, the number of women enrolled in economics in private universities was higher than the number of men. The net effect of these trends in enrolment is an increase in women’s representation in economics in private universities over time (ranging between 36 percent and 54 percent). This contrasts with their representation in public universities where their shares have ranged between 33 percent and 37 percent (Figure 2).

Table 3: Enrolment in Economics in Public and Private Universities

Year	Public		Private	
	Men	Women	Men	Women
2013	3235	1622		
2016	2182	1083	156	88
2017	1919	959	115	86
2018	3247	1640	382	353
2019	2499	1376	254	236
2020	2752	1622	156	162
2021	3500	1984	94	78
2022	3553	2006	136	150
2023	3835	2114	169	200

Source: GTEC

Figure 2: Female Share (%) of Undergraduate Enrolment in Economics by Type of Institution



Source: GTEC

### 5.1.2. Evidence for the Period 2019/2020 – 2022/2023

In this section evidence is presented on trends in enrolment for the period 2019/2020 and 2022/2023 using data from 28 universities. Total enrolment in economics increased from 6,343 in 2019/2020 to 9,260 in 2022/2023 because of rising numbers of female and male enrolment. The share of women in total enrolment was 34.8 percent in 2019/2020. It declined to 32.9 percent in 2020/2021 and then rose to 34 percent in 2021/2022 and 2022/2023 (Figure 3).

#### *Comparing Enrolment in Economics to Allied Subjects and STEM Subjects*

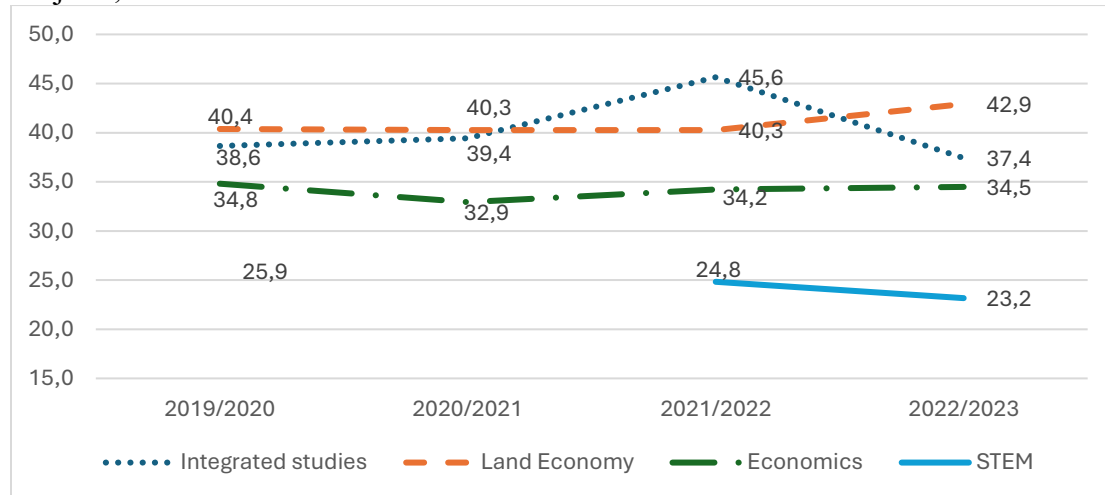
The female share of enrolment in economics is lower than the shares in both integrated development studies and land economy. It is, however, higher than the average female enrolment shares in the STEM subjects.

#### *Enrolment in Economics in Public and Private Universities*

Enrolment in economics in private universities is less than 10 percent of total enrolment (Table 4). It was as low as 2 percent in 2021/2022. The increase in female and male enrolment in public universities is not played out in private universities (Table 4).

The share of women in total enrolment in public universities was stable over the four-year period (Figure 4). This contrasts with the trend in private universities where the share declined in the 2021/2022 academic year and rose in the subsequent years. Despite the lower enrolment numbers in private universities, the female share of students was higher than the share in public universities in three out of the four years (Figure 4).

Figure 3: Female Shares (%) in Enrolment in Undergraduate Economics, Allied and STEM subjects, 2019/2020 – 2022/2023



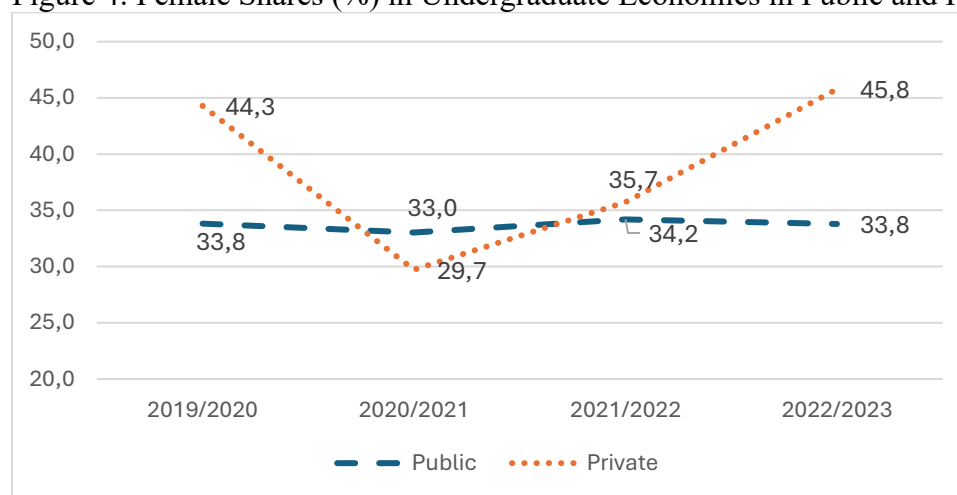
Source: GTEC

Table 4: Enrolment in Undergraduate Economics in Public and Private Universities, 2019/2020-2022/2023

Year	Public		Private	
	Women	Men	Women	Men
2019/2020	1944	3803	264	332
2020/2021	2479	5027	63	149
2021/2022	2646	5093	55	99
2022/2023	2949	5778	244	289

Source: GTEC

Figure 4: Female Shares (%) in Undergraduate Economics in Public and Private Universities



Source: GTEC

## 5.2. Enrolment in Master's Programmes

### 5.2.1. Evidence for the Period 2012/2013-2022/2023

Enrolment numbers of both female and male students in economics are much lower at the Master's level compared to the undergraduate level given the relatively smaller class sizes at the graduate level. Although larger in 2022/2023 than in 2012/2013, there has been considerable variation in enrolment at the Master's level for both women and men (Table 5).

Table 5: Enrolment in Master’s Programmes in Economics

Year	Men	Women
2013	211	65
2016	288	74
2017	246	73
2018	317	103
2019	207	59
2020	273	79
2021	257	59
2022	383	128
2023	330	82

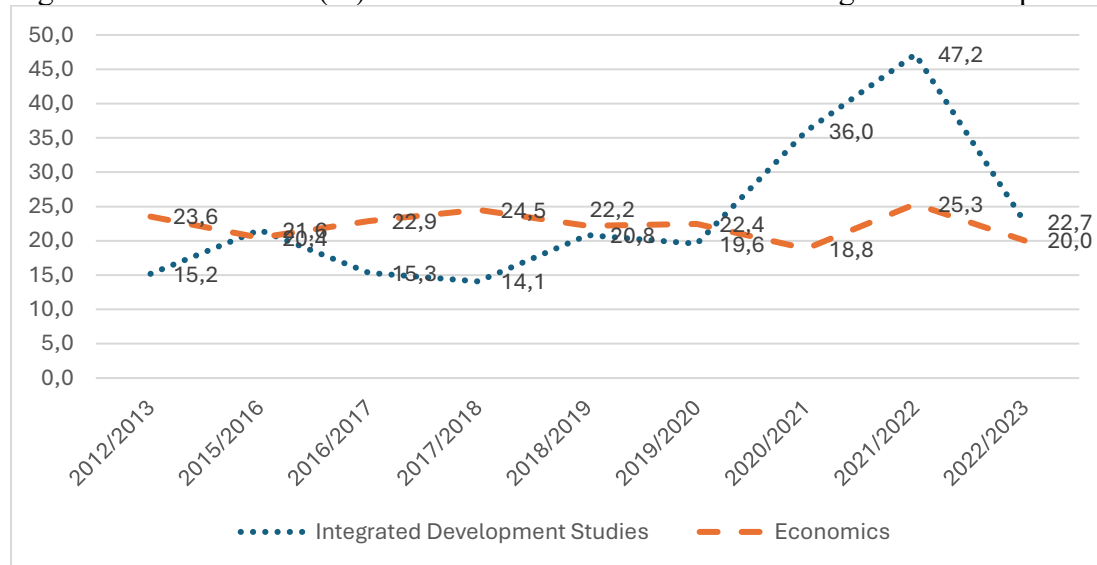
Source: GTEC

*Comparing Enrolment in Economics to Allied Subjects and STEM Subjects*

The female share of enrolment in Master’s programmes in economics fluctuated considerably during the period. Whereas there is a slight downward trend in female share of enrolment in economics, there is a distinct upward trend in the female share of enrolment in Development Studies (Figure 3). The female share of enrolment in the allied subjects has exceeded the share in economics since 2020/2021 and the gap has tended to widen over time (Figure 5).

There is no data on enrolment in master’s programmes in STEM in the two private universities in the sample. The discussion on STEM enrolment is based on data of the public universities. Except for 2022/2023, female enrolment shares in economics are higher than shares in STEM subjects. An examination of the trends over time reveals a different perspective. In the four years for which there is data on STEM enrolment, there was an increase in the female share of enrolment in the STEM subjects (Table 6). This contrasts with the female share in economics which was 3.6 percentage points lower in 2022/2023 compared to 2012/2013.

Figure 5: Female Share (%) of Enrolment in Economics and Integrated Development Studies



Source: GTEC



Table 6: Comparing Master’s Enrolment in STEM subjects and Economics in Public Universities

	STEM Enrolment		Female Share (%)	
	Men	Women	STEM	Economics
2013	522	81	13.4	23.6
2016	384	74	16.2	20.4
2017	419	95	18.5	22.9
2023	449	119	21.0	20.0

Source: GTEC

### *Enrolment in Public and Private Universities*

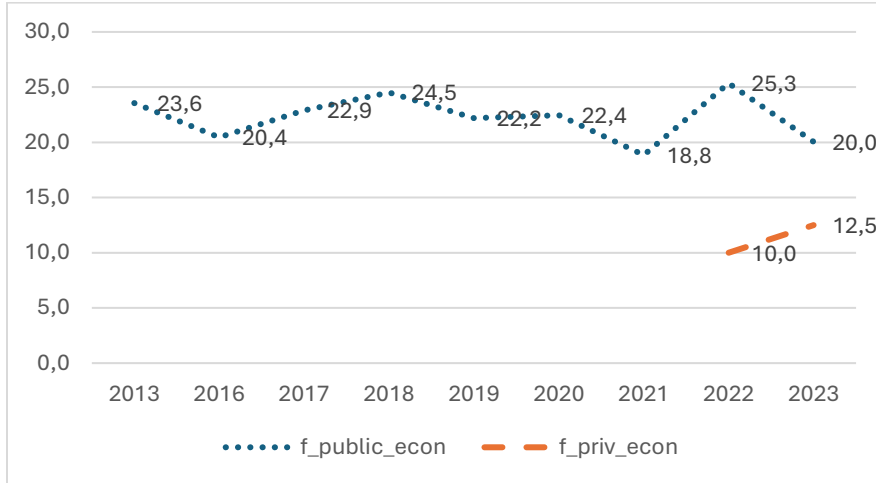
Private universities do not tend to run postgraduate programmes in economics. There is only information on postgraduate enrolment in economics in the two private universities for the period 2020/2021 to 2022/2023 academic years. In the three years for which there is comparable data, enrolment in public universities exceeded that in private universities. In 2020/2021, no women were enrolled in the Master’s programmes in the private universities and only one woman was enrolled in each of the subsequent years. Figure 6 presents information on female shares in the public and private universities. The shares have oscillated over the period within a narrow band.

Table 7: Enrolment in Master’s Programmes in Public and Private Universities, 2012/2013-2022/2023

Year	Public Universities		Private Universities	
	Men	Women	Men	Women
2013	211	65		
2016	288	74		
2017	246	73		
2018	317	103		
2019	207	59		
2020	273	79		
2021	254	59	3	0
2022	374	127	9	1
2023	323	81	7	1

Source: GTEC

Figure 6: Female Share (%) of Enrolment in Master’s Programmes in Public and Private Universities 2012/2013-2022/2023



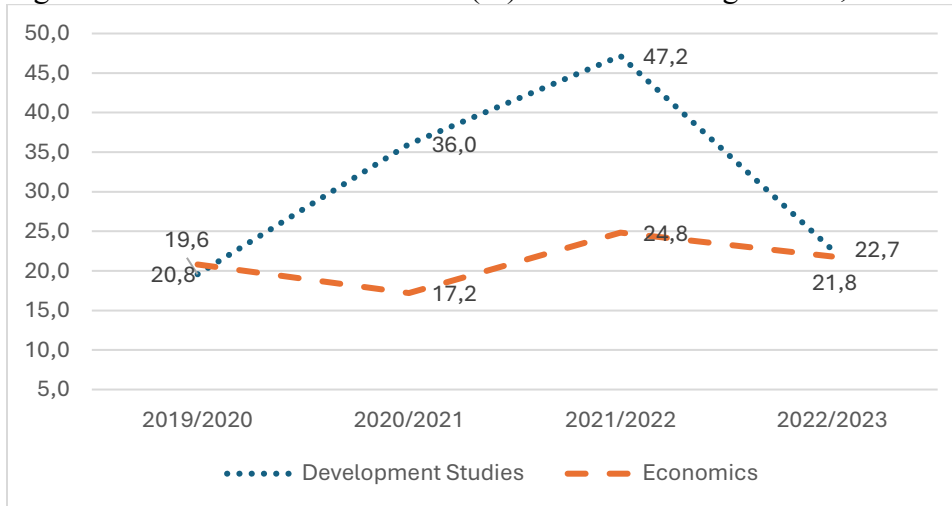
Source: GTEC

### 5.2.2. Evidence for the Period 2019/2020 – 2022/2023

Female shares in enrolment in the public universities fluctuated in the four-year period. They stood at about 25 percent in 2021/2022 having risen from 17.2 percent in 2020/2021. Female shares of enrolment in economics in 2022/2023 were almost the same as their shares in 2019/2020.

Although the numbers enrolled in the Development Studies programme is lower than in economics, there is greater representation of women (Figure 7).

Figure 7: Female Enrolment Shares (%) in Master’s Programmes, 2019-2020 to 2022/2023



Source: GTEC

### 5.3. PhD

#### 5.3.1. Evidence for the Period 2012/2013-2022/2023<sup>4</sup>

The number of women and men enrolled in PhD programmes in economics has increased over time (Table 8). As expected, the numbers enrolled in PhD programmes are smaller than those enrolled in Master's programmes in economics. None of the two private universities in the sample run PhD programmes in economics, STEM and the allied subjects.

Women's share of enrolment in economics over the period ranged between 8.3 percent and 28.1 percent. There has been a fluctuating downward trend since 2017 when the female share peaked at 28.1 percent (Figure 8). This is largely because the increase in the number of women enrolled in economics stalled after 2019 whilst male enrolment increased.

The absolute number of women enrolled in PhD economics programmes is higher than the numbers enrolled in Development Studies and in Land Economy (Table 8). However, women's enrolment in economics stalled after 2019/2020 whilst it increased strongly after 2019/2020 in Development Studies. The increase in female enrolment in Development Studies was much larger than the increase in male enrolment in this later period. These trends in female enrolment in both subjects explain why the female share of enrolment in economics was higher than the shares in Development Studies prior to 2018 and has fallen behind since 2020/2021.

The female's share of students in PhD economics has tended to be quite similar to their share in the STEM subjects (Table 8).

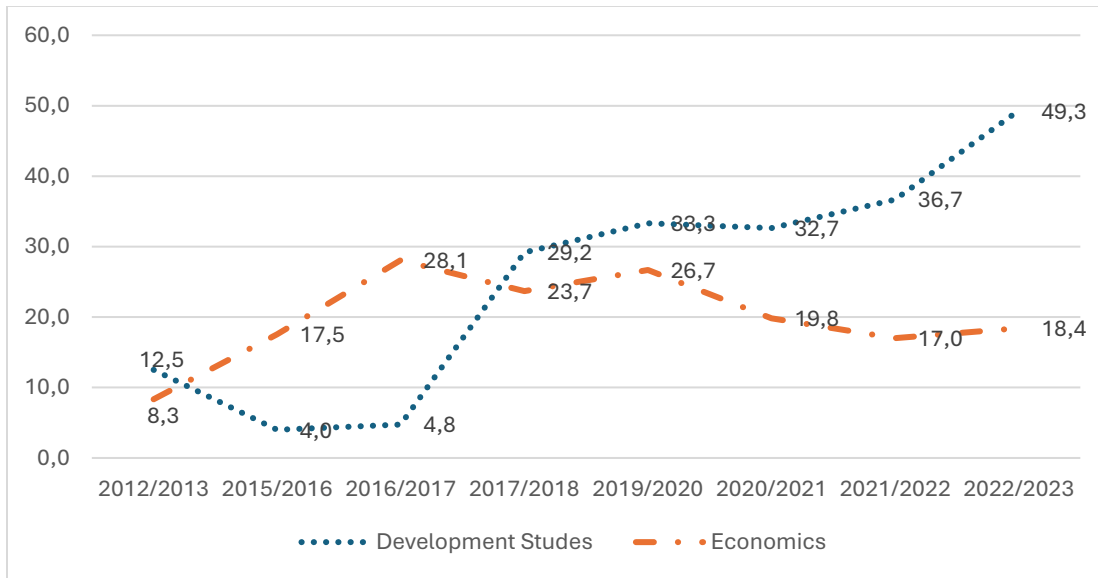
Table 8: Enrolment in PhD Programmes in Public Universities, 2012/2013-2022/2023

Year	Economics		Land Economy		Development Studies	
	Men	Women	Men	Women	Men	Women
2013	22	2	1	1	7	1
2016	47	10	3	0	24	1
2017	41	16	2	0	20	1
2018	58	18			17	7
2020	66	24			14	7
2021	97	24	2	0	33	16
2022	122	25	2	0	38	22
2023	93	21	2	0	36	35

Source: GTEC

<sup>4</sup> There is no analysis of patterns using the larger sample because the universities that run PhD programmes in the GTEC database are captured in the smaller sample.

Figure 8: Female Share (%) of PhD Students, 2012/2013-2022/2023



Source: GTEC

Table 9: Female shares (%) in PhD Economics and STEM subjects

	Economics	STEM
2013	8.3	10.2
2016	17.5	17.3
2017	28.1	18.0
2023	18.4	18.5

Source: GTEC

#### 5.4 Faculty: Women Economists in Academia in Ghana

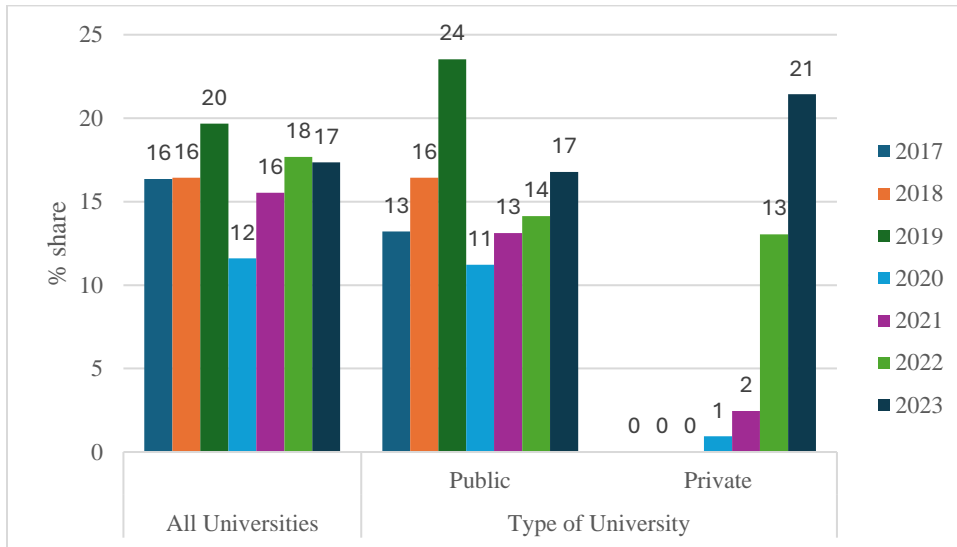
In this section, we analyse female economists in academia in terms of their representation, key background characteristics (highest education obtained and current rank), research and publication activities, and their leadership or service to their university. These are compared to their male counterparts. Given the multiple data sources explored for this analysis, the presentation of the findings is based on the source of data.

##### 5.4.1 Women's representation and rank over time: evidence from GTEC database

Using the sample of six universities from the GTEC database revealed that on average, only about 16 percent of faculty in economics-related programmes are women. The trend for all universities was positive with a one-percentage point increase between 2017 and 2018. The years 2019 and 2020 departed from this trend with shares rising to 20 percent in 2019 and declining to 12 percent in 2020 before rising back to 16 percent in 2021.

The trend was generally stable during the reviewed period (2017–2023), with the highest female faculty share (20%) recorded in 2019. The disaggregation by the type of university (public versus private) showed a different trend. That is, while the trend in public universities mirrors that of all universities, for private universities, we notice a consistent rise in the share of female faculty between 2020 and 2023 – see Figure 9.

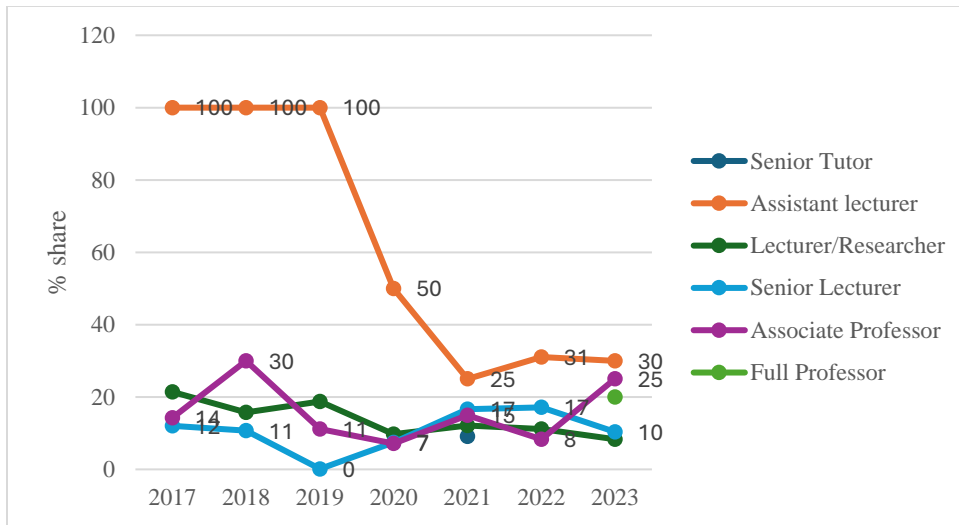
Figure 9: The share of women faculty in Economics-related programmes (%)



Source: GTEC, 2017–2023

Figure 10 presents information on women’s representation across the ranks over time. A comparison of women’s representation across the different ranks finds that women’s share of assistant lecturers, lecturers and senior lecturers was higher in 2017 than in 2023 whilst their share of associate professors and full professors was lower in 2017 than in 2023. Indeed in 2017 there were no women in the rank of full professor. The trends are suggestive of mobility among women faculty over the period. However, it is difficult to disentangle the effects of retirement and possible exit from academia in the analysis of the trends. A notable trend is the sharp decline in the female share of assistant lecturers. Typically, the assistant lecturer position in public universities is for faculty without a doctoral degree. Faculty hired into that position are required to obtain a doctorate within a contractually determined period. They transition to the lecturer position on attaining the doctoral degree. The declining trend in women’s share of assistant lectureship could imply either that women have successfully obtained their doctorates thus making them eligible for the lectureship positions or only a few women were applying and being recruited for the assistant lecturer position or that there is an increase in the number of men in that position. The number of women economists at the professorial rank (associate and full professor) between 2017 and 2023 academic years for our six-universities sample was 14, representing 13.6%.

Figure 10: The share of women faculty of a particular rank over time (%)

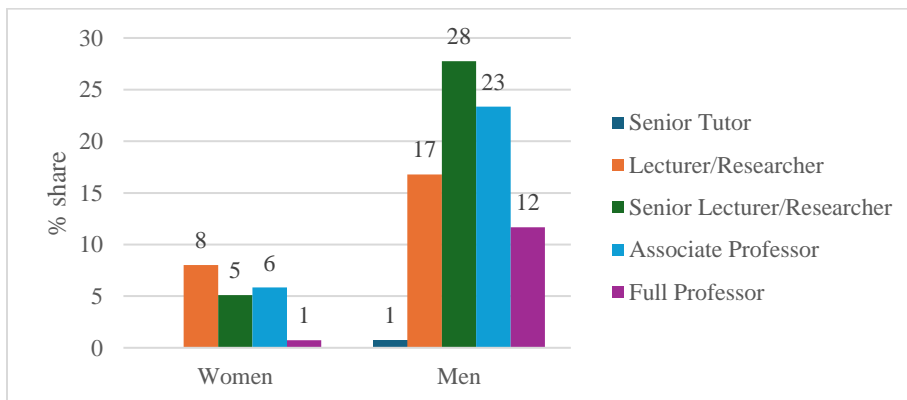


Source: GTEC, 2017–2013

#### 5.4.2 Women’s current rank and highest level of education: evidence from institutions’ websites and CVs

We also obtained the current rank of 137 faculty members made up of 27 women and 110 men across 21 relevant economics-related departments/schools in eight universities. As expected, the male faculty dominated all ranks (Figure 11). Most female faculty (8%) were ranked in lecturer/researcher positions, while their male counterparts were mostly senior lecturers/researchers. The share of female faculty generally reduced along rank ladder (except the associate professorial level). Consistent with the GTEC database, there was only one female full professor in economics compared the 12 recorded for the male faculty (Figure 11).

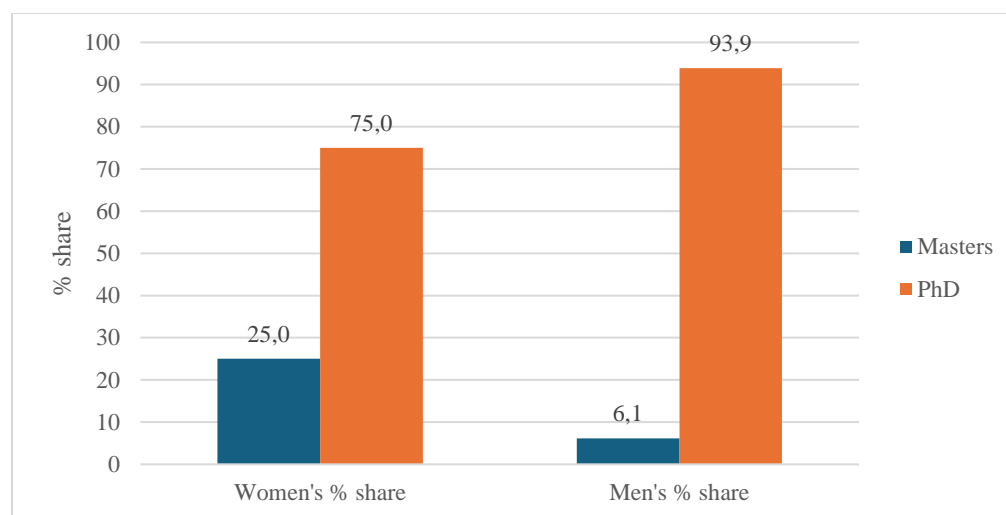
Figure 11: Current rank of Faculty in Economics-related programmes (%)



Source: Authors’ compilation from institutions’ websites and faculties’ CVs

About 75 percent of female faculty have a doctoral (or PhD) degree, whilst almost all male faculty (94%), have one. The remaining 25 percent of female faculty in economics-related programmes have master's degree (Figure 12). The high incidence of doctoral degree holders among faculty can be partly explained by the policy reform that required public universities to employ only PhD degree holders into the lecturer/researcher position which the Ministry of Education admonished universities to enforce post-2017.

Figure 12: Highest education of faculty in Economics-related programmes



Source: Authors' compilation from institutions' websites and faculties' CVs

#### 5.4.3 Women's Research and Publication Activities: evidence from Research Papers in Economics (RePEc)

Given the importance of RePEc with regard to bibliographic services for the economics and related disciplines (Zimmermann, 2013), our first analysis of women's research and publication activities relied on data from RePEc. We, however, precede the research and publication analysis with women's representation and author rankings.

##### *Women's representation and ranking*

In all, we obtained data on 89 faculty members across fourteen departments/schools in eight universities from RePEc's database. Of this, there were 11 women, representing 12.4 percent and 78 (87.6%) men. The representation of women was skewed given that they are from seven (out of the fourteen) departments/schools in four (out of the eight) universities. Indeed, even in terms of universities, 7 out of the 11 women are from one university. This reiterates the skewness of female economics-related faculty in Ghana. RePEc ranks the top 25 percent authors considering all publication years and then publication in the last ten years separately. RePEc ranks each registered individual in its Author Service with works listed in the profile using several indicators (e.g., number of works authored, citations counts, journal page counts, popularity on reporting RePEc

services, co-authorship networks), and an adjusted<sup>5</sup> harmonic mean of the rank is computed from the 31 different ranking outputs which show how differently authors perform (see Zimmermann, 2013 for detailed information about the methodology). The top 25 percent authors in Ghana, across all publication years consisted of 35 authors. Of this, only 2 women (5.71%) made it to the list. With regard to the top 25 percent authors relative to the last decade, there are 3 women. Interestingly, all the women in both rankings are from the same institution. Even though only authors registered with RePEc are counted and only works listed on RePEc and claimed by registered authors as theirs are counted and used in the rankings<sup>6</sup>, women's representation is poor. However, considering that the ranking relative to the last decade shows an improvement (albeit marginal) in women's representation, we are optimistic and see it as a positive signal for a potentially increased female presence at the high level. While we are hopeful, we also acknowledge the need for strategic interventions to improve women's presence in the field.

### *Women's research productivity*

#### **Publications**

The university setup in Ghana considers research publications key for promotion and renewal of appointment of teaching staff, although there are differences across institutions in terms of the number of publications needed to move to the next level of the academic/professional rankings. Aside from that, having more women's research and publications could make women very relevant in the field and this has a potential of decolonizing the discipline in a way that becomes more gender-aware in terms of theoretical and analytical frameworks.

We obtained publication information for 74 authors on RePEc, and 7 (9.45%) of them were women. The total publication for all women is 118 while that of men was 1,356. Therefore, the average total number of publications (made up of journal articles, book chapters, edited books and working/discussion papers) for women is about 17 compared to 20 for men. Even though comparing the absolute number of publications indicated a bigger gender gap; by adjusting for the number of authors, there is a relatively smaller gender gap.

Next, we looked at the types of publications across gender and noticed more of the publications of both women and men are journal articles. Again, the gender gaps across the different types of publications are generally small (except in the case of edited books where no woman had authored a book based on RePEc's database) – see Figure 13.

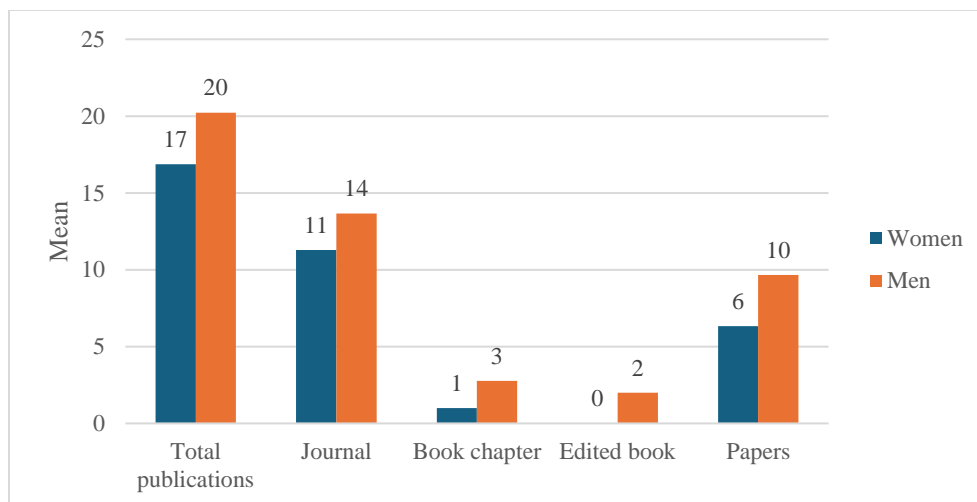
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<sup>5</sup> Done by adding a constant of one to each rank

<sup>6</sup> <https://ideas.repec.org/top/top.ghana.html#authors>



Figure 13: Average publications by gender and type of publication



Source: RePEc, January 2025

### *Women's Research impact*

#### Citation, h-index and i10-index

Three of the most informative metrics used for measuring the impact of research are the number of citations, Hirsch index (or h-index) and i10-index. The citation data for RePEc ranking are provided by the CitEc project, which runs on hardware provided by the Valencian Economic Research Institute Zimmermann (2013)<sup>7</sup>. It is important to note that while self-citations are not counted, citations to other versions of an article are counted (Zimmermann, 2013). We obtained citations for 6 of the 7 female authors with records on publications (and similarly for 64 out of the 67 male authors). The average citation for women was about 142 compared to 178 for men.

The Hirsch index (h-index) is an aggregate measure of a researcher's productivity (number of publications) and impact (number of citations) so that "a scientist has an index  $h$  if  $h$  of his/her  $N_p$  papers have at least  $h$  citations each, and the other  $(N_p - h)$  papers have no more than  $h$  citations each", and since the h-index "puts more emphasis on an important body of work, instead of a few very highly cited papers, by giving higher score to those who have many cited papers" (Zimmermann, 2013; p260), it provides insights into authors' relevance in terms of publications and how widely (s)he is cited. We obtained the h-index values for 5 of the 7 female authors with records on publications (and similarly for 53 out of the 67 male authors). The average h-index for the female authors was 3.20 while that of their male counterparts was 5.17. This means that on average, about 3 female-authored publications had each been cited at least 3 times. The *i10-index*, also a widely used metric to provide additional information about a researcher's impact,

<sup>7</sup> For detailed information about the process see Zimmermann (2013).

shows the number of papers that have received at least 10 citations<sup>8</sup>. Our analysis revealed a rather more apparent gender gap regarding the i10-index, where the average i10-index index for female authors was 0.8 compared to 3.91 for male authors, suggesting that on average, about 1 female-authored publication had been cited at least 10 times compared to about 4 male-authored publications.

While these provide a good basis for comparing women's research impact to that of their male counterparts, it is also important to make the point that since the registration to the RePEc platform is purely voluntary, and the number of registered authors is few, inferences about research productivity and impact need to be made with caution.

#### 5.4.4 Women's Research and Publication Activities: evidence from Google Scholar

Google Scholar appears to be a more popular platform for not only economic-related researchers in Ghana but for most disciplines. Therefore, based on the list of economics-related faculty already created, we obtained similar information (as presented using RePEc) about more faculty members which arguably may be more representative for the Ghanaian case. Also, given the extensive coverage, we were able to conduct more detailed analyses such as cohort analysis (which is explained later).

##### *Women's representation*

Information on about 128 economic-related researchers was obtained from Google Scholar consisting of 21 (16.4%) women and 107 (83.3%) men. Clearly, women's representation on this platform almost doubled compared to what was recorded under the RePEc platform. Also, unlike the RePEc platform, the women here were widely spread across (6 out of the 8) universities and departments/schools (11 out of 20) represented.

##### *Women's research productivity*

##### *Publications<sup>9</sup>*

We obtained publication information for all 128 registered authors on Google Scholar. The total publications (journal articles, book chapters, edited books, working/discussion papers, and reports) for all women is 763, which implies an average of about 36 publications per woman. The total publications for all men on the other hand is 6,867. This means the average number of publications for a man is 64, representing almost twice that of a woman.

We also looked at research productivity by cohorts by defining cohorts based on the year of first publication. From the data, there were only 9 authors (1 woman and 8 men) whose first publication was before the year 2000. Therefore, the first cohort was made up of this group of authors (which we label as <2000). The rest of the cohorts were created for 5-year intervals (i.e., 2000–2004 (2 women and 17 men); 2005–2009 (4 women and 19 men); 2010–2014 (9 women and 47 men);

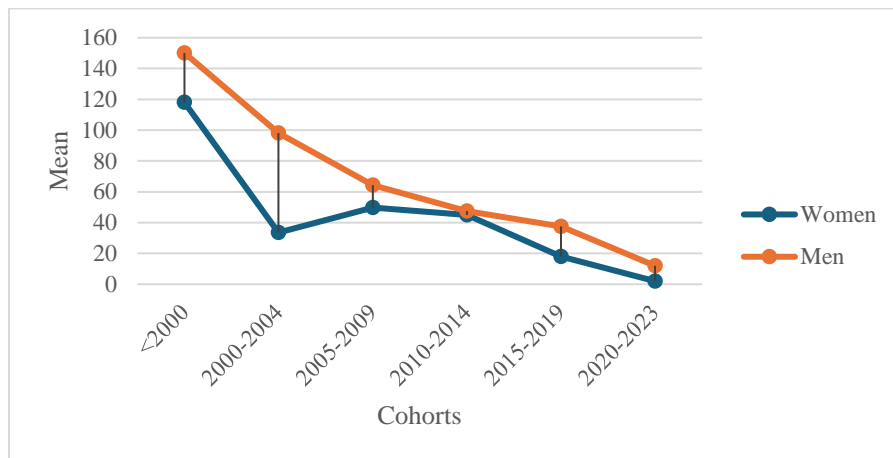
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<sup>8</sup> [https://guides.library.umass.edu/Research\\_Impact/Author\\_Level\\_Metrics#s-lg-box-26550386](https://guides.library.umass.edu/Research_Impact/Author_Level_Metrics#s-lg-box-26550386)

<sup>9</sup> Kindly note that we are still working to disaggregate publications

2015–2019 (5 women and 14 men); and 2020–2023<sup>10</sup> (1 woman and 2 men)). Even though we did not have the actual age of researchers to be able to compare productivity of young and old researchers by gender, the objective of creating these cohorts is to provide a similar analysis. Although this may not be the best approach, it nonetheless gives some insight into women’s productivity over time, and how they compare to their male counterparts (Figure 14).

Figure 14: Average publication by gender and cohorts



Source: Authors’ compilation from Google Scholar

From Figure 14, we notice a general declining trend in average total publications by cohort for both women and men but perhaps a point worth noting is the gender gap by cohort. Specifically, this gap has generally been closing over time (i.e., from the 2005–2009 cohort onwards (except 2015–2019)). This is also a positive signal for women’s advancement in economics-related research activities and publication.

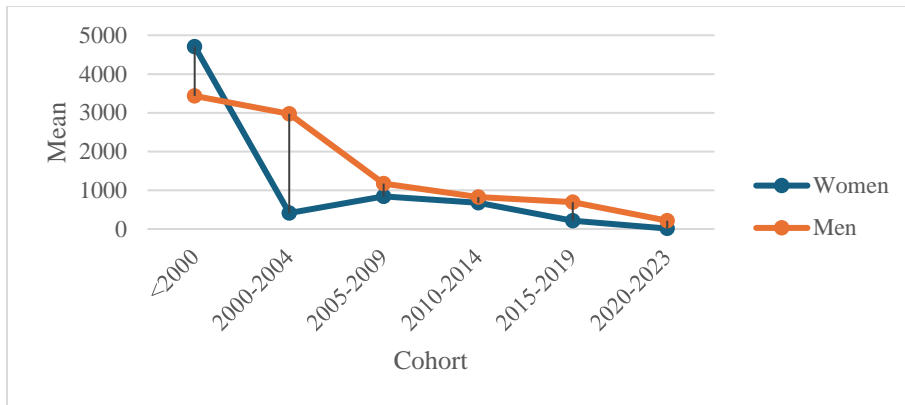
### *Women’s Research impact*

#### Citation, h-index and i10-index

Google Scholar provides information about research impact for all years and since 2020 separately. This breakdown is particularly useful to provide insights into researchers’ recent impact. The average citation for a woman (considering all years) was 541, and this was just about 39% of the average citation (1,393) for a man. The highest citation for a female researcher in economics-related research was 4,711, which was only about one-fourth that (17,559) for her male counterpart. The average citation for a woman (since 2020) was about 449, which was about 48% of what was recorded (931) for a man. While simply comparing the citations across all women and men showed a big gender gap in research impact, comparing across cohorts provides a glimpse of hope given the declining trend in gender gap (Figures 15 and 16).

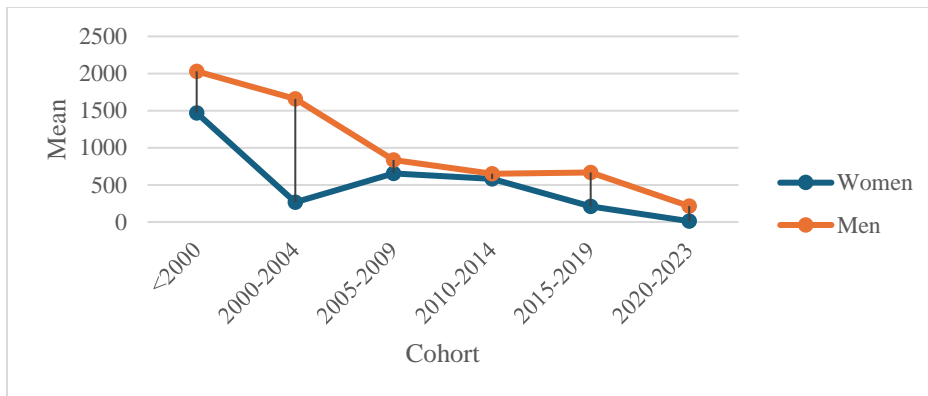
<sup>10</sup> The latest date for the year of first publication was 2023.

Figure 15: Average citation by gender and cohort (All years)



Source: Authors' compilation from Google Scholar

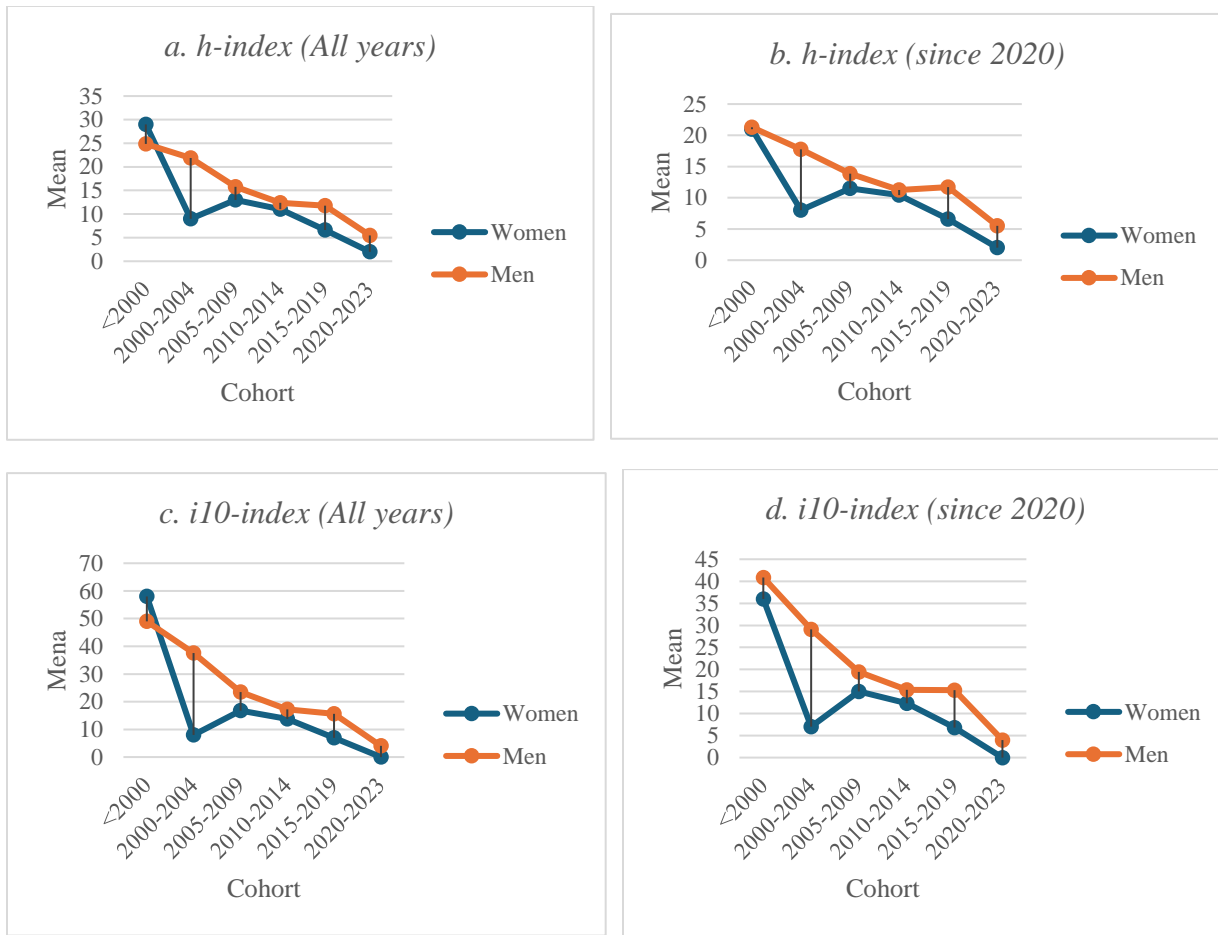
Figure 16: Average citation by gender and cohort (Since 2020)



Source: Authors' compilation from Google Scholar

Considering all years, the average h-index for a female economics-related author registered on Google Scholar was 9.7; meaning, on average, about 10 female-authored publications had each been cited at least 10 times. This was about 64 percent of her male counterpart whose h-index was estimated at 15.1 on average. Using the i10-index revealed a relatively bigger gender gap given that the average i10-index for a female author is 11.5 compared to 23.31 for a male author (across all years). Even though there were some marginal improvements in both indices since 2020, the general picture did not change significantly. The average h-index for a female author was 9.1, compared to 13.4 for a male author – i.e., about 68 percent of the average h-index for a male author. The average i10-index for a female author was 10.4, which was about 53 percent of her male counterpart (19.7). Once again, there is a glimpse of hope in the cohort analyses for both indices whether considering all years or focusing on developments since 2020. Our hope stems from the declining gender gap in the i10-index by cohort analysis which arguably suggests that women are catching up with men in terms their research impact. These are shown in panels *a* to *d* of Figure 17.

Figure 17: Research impact by gender and cohorts (All years and since 2020)



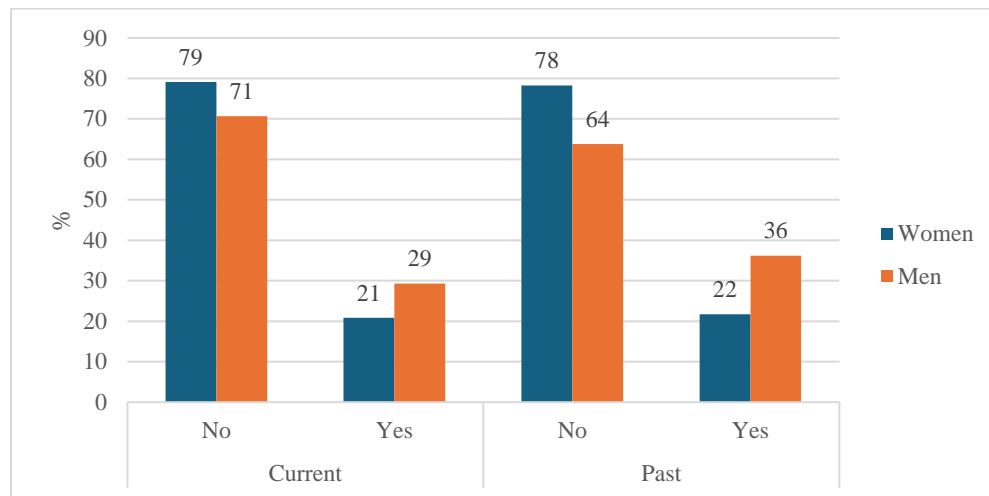
Source: Authors' compilation from Google Scholar

#### 5.4.5 Women's leadership roles and service to their university: evidence from institutions' websites and CVs

Women economists in leadership positions (such as head of department/school) within universities have important implications for the advancement of the economics discipline both in terms of shaping policies that can benefit women faculty, and as a source of inspiration for female students in economics. In the case of the former, younger female faculty could easily tap into networks created by women economists in leadership positions for collaborative research projects and exposure to both domestic and international communities, which they can leverage upon to develop themselves in the economics profession. In addition, policies could be shaped or redefined in ways that could help women combine their academic/professional work efficiently with their domestic and care responsibilities at home (e.g., working remotely when the need arises). For students, seeing women who have navigated through a discipline that is very quantitative (and “masculine”) and occupying leadership roles could be an inspiration and encourage female students to pursue the subject to the highest level, and perhaps take up a profession in the

discipline. We relied on information from faculties' profiles on their respective universities' websites and their CVs. The following leadership portfolios were considered: head of department (HoD), dean of a school, director of a center/institute, provost of a college, and chair or membership of university-wide committee/board (e.g., academic board or disciplinary committee). We looked at current and past leadership positions held separately. In all, we obtained the relevant data for 99 faculty members, made up of 24 women (24%) and 75 men (76%) and Figure 18 presents our findings.

Figure 18: Past and current leadership position held by faculty by gender (%)



Source: Authors' compilation from institutions' websites and faculties' CVs

From Figure 18, the proportion of women in leadership positions (both current and in the past) has generally remained constant. As expected, there is a gender gap regarding leadership positions held currently and in the past. For instance, only 2 in every 10 women (21%) currently hold a leadership position, and a similar proportion (22%) was observed for those who had held a leadership position in the past. For men, this was slightly higher – i.e., 29 percent are currently in leadership position; and 36 percent previously held a leadership position. Another observation made is that the most common leadership portfolio among women is membership of academic boards, which one becomes a member of by virtue of being at the professorial level. Only 3 women had at least ever (i.e., either currently or in the past) headed a department/school/centre/institute. The positions held by men on the other hand spread across a wider range (HoD, dean/director of a school/centre/institute, and membership of boards/committees).

## 6.0 Discussion and Conclusion

The discussion on the findings will be based on the sample used to track women's participation in economics since 2012/2013. This is because trends in the patterns in the larger sample of countries over the shorter period do not yield significantly different results.

The number of women enrolled in economics in universities at the undergraduate and graduate levels was higher in 2022/2023 than was the case 10 years earlier. The progress has not been linear because declines and increases in total enrolment have been registered in the intervening years. The growth in women's enrolment numbers has occurred within the context of rising enrollment numbers.

The enrolment of women and men in economics has increased since 2012/2013. The changes in total enrolment numbers may sometimes be because universities may want to control the growth in student numbers. At the postgraduate level, courses may not be offered if the number of applications does not reach a critical minimum. Challenges with accreditation may result in a programme not being mounted until such time as accreditation has been restored.

Total enrolment in economics is lower at the Master's level compared to the undergraduate level and is lower at the PhD level compared to the Master's level. This may be explained on the one hand by supply-side factors, such as the capacity of universities to offer postgraduate programmes and by demand-side factors on the other. Focusing on the supply side, not all universities offer Master's programmes and the number that mount PhD programmes is even smaller.

Despite the fluctuating enrolment numbers at the undergraduate and postgraduate levels, the female share of enrolment has increased, albeit slowly. At the undergraduate level, the female share of enrolment was 3.2 percentage point higher in 2012/2013 compared to 2022/2023. At the Master's level the female share of enrolment in 2022/2023 was 3.6 percentage points lower compared to 2012/2013, whilst it was 5.9 percentage points higher at the PhD level. There has been a lot of churning in the intervening years with the shares rising in some years and declining in others. The female share of enrolment in economics is lower in PhD programmes than Master's programmes and is lower in Master's programmes than in undergraduate programmes. In 2022/2023, for example, the female share were 35.5 percent at the undergraduate level, 20 percent at the Master's level and 18.4 percent at the PhD level.

A comparison of undergraduate female enrolment shares in economics with the shares in Land Economy finds that the latter was continually higher than shares in economics and exceeded 40 percent after 2019/2020 academic year. Undergraduate female enrolment shares in economics remained below 40 percent in the period under review. At both the Master's and PhD levels even though female enrolment shares in Development Studies were lower than the shares in economics in 2012/2013, they soon overtook economics, crossing the 40 percent mark in some years. However, the female share of enrolment in economics is higher than the shares in STEM subjects at the undergraduate and Master's levels and is almost at par in all but one year for which comparable data is available at the PhD level.

Three observations can be made from these trends and patterns in female shares in enrolment in economics. The first is that there has not been a sustained increase in female enrolment shares. The shares tend to hover within a narrow band particularly at the undergraduate and Master's levels. Second, female enrolment shares evaporate at the higher levels. This is also evident in the

Development Studies and STEM subjects but to a smaller extent than in economics. Third, female shares in subjects that have content that overlaps with economics are higher and have registered more significant increases than has economics.

If representation of female students in economics is to reach the 50 percent mark, then it is necessary to understand why women choose to study economics at the undergraduate level and why they may either complete the four-year undergraduate degree programme or else drop the subject at the end of their second year. Enrolment onto a Master's programme is in most cases determined by having a first degree in economics so that understanding what determines activity in the undergraduate pipeline is critical. Social norms and expectations, such as pressures on women to get married and have children become increasingly important at the graduate level. However, women in other disciplines also face similar social pressures so that this cannot explain the differences in the trends in female enrolment shares across disciplines.

Women's representation at the faculty level is even lower than their representation among students. Evidence from GTEC's database for the six universities with fairly consistent data shows an average share of about 16% for all universities. Even though women's share in private universities is lower than this average, we noticed some progress (between 2020 and 2023). This may be partly explained by the relatively lower entry requirement for faculty in private universities. That is, unlike the public universities, the private universities are not bound by the PhD degree entry requirements, and indeed, this could be an important avenue to improve women's representation at the faculty level, while they obtain their doctorates later.

In terms of ranks, we observed that women are generally in lower ranks (typically as lecturers/researchers) compared to men (who mostly occupy senior lecturer/researcher positions). This did not come as a surprise as men have typically been in this space for relatively longer periods and so it is more likely that they would have obtained the requirements for promotion than women. It was however impressive to see an increase in women at the professorial rank (specifically associate professors) since 2020, with the first woman full professor in economics recorded in 2023. Even though this progress has not been linear, because of a decline in 2022, it is an indication of women's determination to break barriers in this male-dominated environment which could be an inspiration not only to younger women faculty but also to female economics students.

Regarding women economists' research activities and impact, we focus on the findings from Google scholar given that there were more female authors registered on the platform in Ghana, thereby providing a more representative sample of women economists in academia in Ghana.

The average number of publications by women (research productivity) is about half of their male counterparts, which may suggest that women are less productive than men. However, this does not control for how long women have been in academia. In terms of research impact, the average citation for a woman is less than that half of the figure for a man. Also, the h-index and i10-index for a female author are on average between 53–68 percent of their male counterpart. However, the cohort analysis provided some hope, particularly for research productivity where we noticed a declining gender gap (although this progress was not linear). Specifically, the research productivity of relatively younger cohorts of women (specifically those whose first publication was in 2005–2009 and 2010–2014 periods) was relatively higher. What is rather worrying is the decline in



productivity for much younger female cohorts (i.e., 2015–2019 and 2020–2023 groups). Although we noticed a similar and slightly faster trend for men thereby reducing the gender gap in research productivity, this is an issue that requires further investigation because a similar observation was made for the research impact (h-index and i10-index). In other words, for a sustained decline in gender gaps in research productivity and impact to be achieved, there is the need for further investigations that can lead to effective policy interventions.

Finally, while it was good to see women take up leadership roles in their institutions. The wide gender gaps observed means women need to be encouraged to get involved in leadership at the highest level of the educational system. This is important to influence policies to reshape teaching and research in university education in general, and economics in particular.

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## **Appendix**

### **Economics-related programmes run by the institutions**

#### **Economics programmes**

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Economics education

Agricultural Economics

Economics and Statistics

School of Business and Economics

Development Economics

International Economics

Mathematics and Economics

Economics and Finance

Economics and Social Studies Education

Quantity surveying and Construction economics

Economic Policy

Economics and Management

Energy Economics/Resource Economics

Environmental Economic Policy

Financial economics

Health Policy, Management and Economics

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