



Examining the Nexus between Tertiary Education Enrollment Trends and Employment Opportunities in Pakistan: A Quantitative Analysis

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ABSTRACT:

This research aims to explore the trend of registration in tertiary education and their corresponding employment chances in Pakistan. The research was quantitative and based on admission data (2012-17) from 27 universities, and employment advertisement data (2012-17) from four newspapers. The multistage, stratified, purposive, and random sampling techniques were used to collect the data from different sections of the population. Descriptive as well as inferential statistics were used for the analysis of the data. The results showed that the higher education trend of registration was in the subjects of Basic Sciences. Moreover, maximum employment was presented for the field of Basic Sciences and less employment was published for the subjects of Social Sciences.

Key words: Nexus between Tertiary Education, Enrollment Trends, Employment Opportunities, Pakistan, Quantitative Analysis.

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Introduction

It is the education after completing 12 years of education. It continues until Ph.D. higher education is given in different Colleges, Universities, certified schools, Teacher-Training Schools, Institutes of Law, Technology, Music, Theology, Medicine, Business, and Arts. An individual as well as social value. It supports the Social values, opinions, beliefs, and Social class¹⁰. It nurtures intelligence benefits the country, boosts the economy, produces skilled workers, and gets them ready for jobs and lucrative careers. The knowledge, character, and behavior of individuals are changed (Rohde, France, Benedict, & Godwin, 2020) as it guides individuals toward fortune and advancement Southwick & Charney (2018) by a continuous process. The admission of students is increasing at higher educational levels all over the nation and in Pakistan (Jung, 2019). According to their field of interest, students pursue higher education in Pakistan for better employment opportunities. However, students have faced challenges in securing employment according to their specialized fields. This research aims to explore the trend of admission in higher education and their corresponding employment opportunities in Pakistan.

Research Objectives

The following are the core objectives of the current research:

1. To explore admission trends in higher education for different faculties.
2. To explore the employment market by sampling advertisements for the years (2012-17) for available faculties and matching them with admission trends.
3. To understand how enrolling into a certain discipline is associated with a career.

Research Questions

The present research focuses on the following research questions:

1. What is the pattern of admissions in higher education?
2. What is the trend for admission by year across various faculties?
3. Is there any significant difference in the admission trend among different faculties?
4. What is the status of the advertised employment for different faculties?
5. Is there any significant association between the students' admission trend and employment opportunities?
6. Is there any significant association between the students' faculty wise admission trend and employment opportunities?
7. Do the trends in admissions and the job opportunities that are currently available differ in any way?

Literature Review

Tertiary education is given in post-secondary organizations (Dorsch, 2020). Generally, three major types of Degree-awarding institutions are working at higher education levels worldwide (Altbach, Reisberg, & Rumbley, 2019). There are two-year community institutions for higher education or junior colleges, undergraduate four-year colleges, and the University (McNally, S. (2020). The present system of higher education consists of the sum of interconnecting institutes. These are comprised of the national and provincial departments of education and their involved sections, headquarters of university departments, the Tertiary Education Commission (HEC), and numerous institutions of tertiary education and their colleges. The institutions of tertiary education have administrative boards, which consist of a few Vice-Chancellors, Registrars, and Deans in the decision-making body (Gautam, 2020). The success of any country lies in presenting the extension of the tertiary education system in the country (Colombo & Piva, 2020). As tertiary education was being encouraged throughout the world, it decreased unemployment and increased progress in the world (Mann, Denis, Schleicher, Ekhtiari, Forsyth, Liu, & Chambers, 2020). There are many factors in the selection of tertiary education subjects, which play a dynamic role in the choices of students. These factors include school experiences; students' selection of subject, student experience of studying subjects with close relative effect, the importance of the subject area, educational environment, and employment opportunities. No doubt, tertiary education was not given so much importance in Pakistan in the past. As tertiary education was being encouraged throughout the world, it decreased unemployment and increased progress in the world (Pratiwi, 2019). A research study conducted in Canada by McKinnon (2017) found that Natural and Applied Sciences needed 0.6% of employees in 2016 and there was a demand for 0.1% of employees in the health sector and 0.05% of employees in Business Administration. Moreover, employment opportunities increased in the subjects of Basic Sciences, Social Sciences,

and Physical Sciences like Biology, Physics, Management, and Chemistry admission has increased in the public and private tertiary education organizations (Choudaha & van Rest, 2018). Similarly, found that the well-educated people of the world were taking interest in training related to employment at the tertiary education level, or making a strong association between employment and tertiary education. Moreover, another study described that a science degree provided the chances of good employment in the future. The subjects related to the Basic Sciences were specific to get attractive employment like Physics, Medicine, Technology, and Chemistry Technicians (Sithole, Chiyaka, McCarthy, Mupinga, Bucklein, & Kibirige, 2017). Likewise, another research study found that the maximum employment was observed for the graduates of Science, Technology, Engineering, and Math (STEM) (McKinnon, 2017).

Moreover, another study found that students with Arts degrees did not get employment as compared to Science graduates (Thinley & Hartz-Karp, 2019). Arts Degree holders had to wait for employment or they failed to get employment soon (Rissle, Hale, Joffe, & Caruso, 2020). Similarly, Rissle, Hale, Joffe, & Caruso (2020) stated that the students of Arts, Management, and Political Science did not get employment after getting the Degree for three years. Moreover, another study related to Science and Arts graduation degree holders shows that the employment rate among male Science graduates is very low as compared to the Arts and Business. Moreover, there is a need to focus on the real situation of employment opportunities for graduates. Rahman, Farooq, & Selim (2021) found that graduates of IT and Computers could not get employment after six months of completing their Degrees. Moreover, a study conducted by (Colombo & Piva, 2020) found that Engineering, Building, and Management degree graduates got very rare employment during the last six months of completing their degree. The same study also found that 33.2%, 29.8%, 17.6%, 2.4%, and 8.4% of graduates from Science, Physics, Chemistry, MEd, and Mathematics graduates were enrolled in these subjects respectively. Furthermore, the same study found that (46.7%) of Arts graduates were employed in the field of Arts, Culture or Sports, Design, Commercial Artists (3.3%), Fine artists (7%), Web designers (1.9%), product of cloth and its Engineers (3.2%), Photojournalists (2.7%), melodious instrument players (2.6%). Moreover, (11.1%) of sports graduates were employed as a teacher, (and 7.6%) of graduates were employed in the Management area.

Method

Data regarding admission trends were obtained from Registrars of the universities. This data was archival was extracted using their tables and figures. Secondly, advertisement data related to employment was collected from four newspapers and a descriptive design. The study comprised 8667 students who were enrolled in one general Category University of the province of Punjab during the semester of fall 2017 and all the students who had passed their sixteen years of education from a public sector university and currently working in any public sector organization. Two newspapers published in Urdu and two newspapers published in the English language were selected as the data source for employment opportunities in the public sector. Moreover, only the employment advertisements published on Sunday in the sampled newspapers were considered for the study.

Results and Analyses

Section 1. Enrollment Data

Table 1

Admission Data for Six Years (2012-2017) and Gender for Social Sciences, Business Administration and Basic Sciences

Degree	Faculty	2012	2013	2014	2015	2016	2017	Men	Women	Total
	Basic Sciences	4453	4634	4748	5204	5292	4023	15917	12437	28354
	Social Sciences	2845	3331	3063	5078	4548	3468	8738	13575	22313
	Business Administration	1551	2290	1791	2119	1436	1176	5895	4468	0363
Grand Total	All Faculties	8849	10255	9602	12401	11276	8667	30550	30480	61030

The following graphs summarize the information from Table 1.

Figure 1

Year and Grade wise Comparison

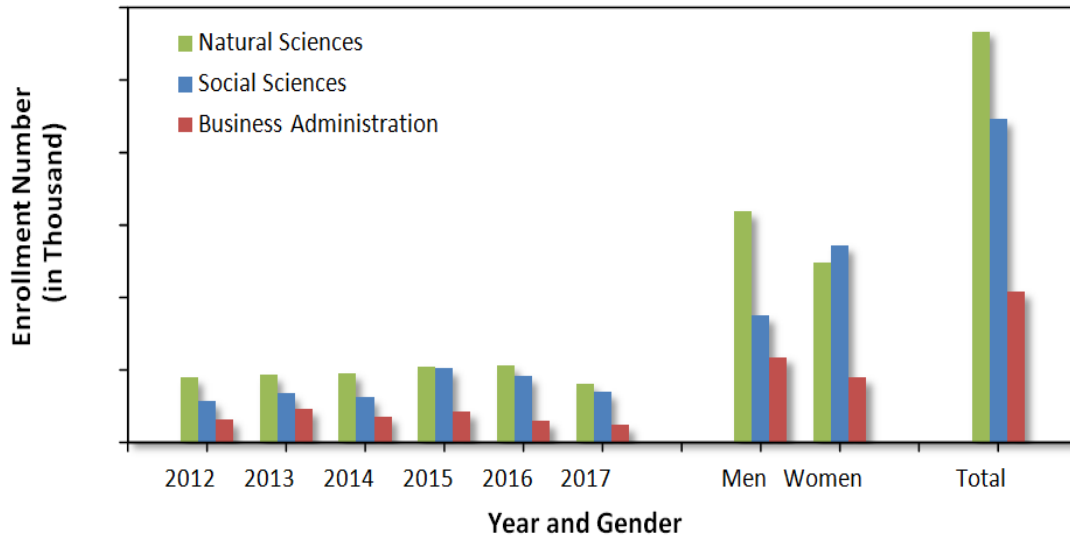
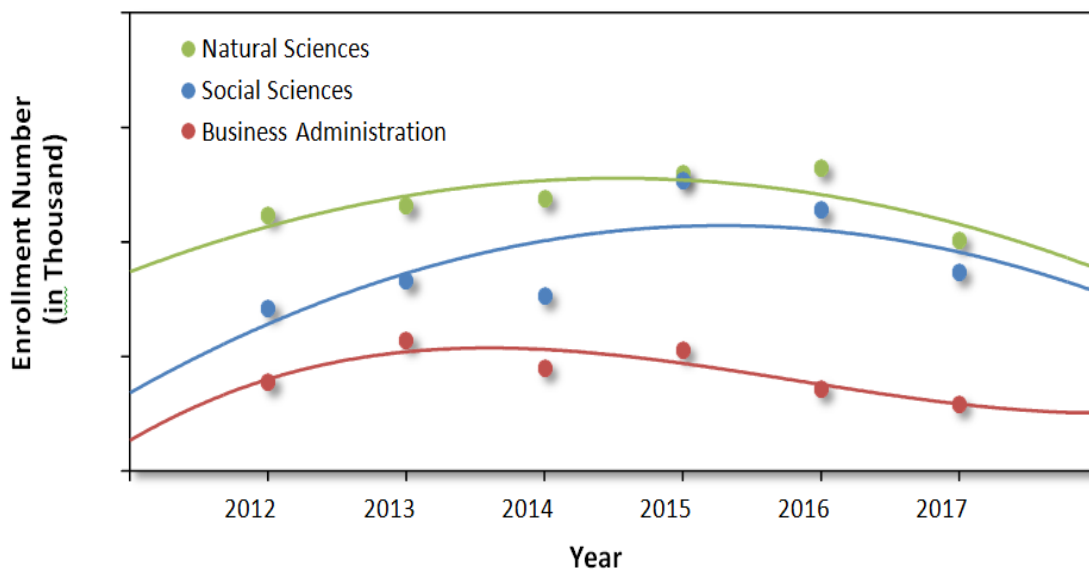


Figure 2

Admission trends for the period 2012-17



The above figure shows trends in admissions over six years displaying a rise, fall in admissions for three faculties, for example, admissions in 2015 rose from the previous three years for all faculties, and then started to decline to the year 2017. One trend in Social Sciences is worth noting and that after 2014 the numbers of admissions for Social Sciences were very similar to Basic Sciences (2015) and remained close to Basic Sciences in 2016 and 2017. The year 2016 saw the most admissions in the basic sciences, 2015 in the social sciences, and 2013 in the administrative sciences.

Table 2

Comparison of faculty wise admission trend:

Admission	Squares of Sum	ANOVA			
		Df	Square Mean	F	Sig
Between Groups	783932.972	2	391966.486	1.480	.234
Within Groups	19333730.975	73	264845.630		
Total	20117663.947	75			

Faculty wise comparison (ANOVA) of total admission over six years (2012-17) also revealed no significant difference ($p > .05$), mean admission for Business Administration ($M = 1727.17, SD = 705.72$) was similar to Basic Sciences ($M = 1417.70, SD=353.73$) which was similar to Social Sciences ($M=1859.42, SD=1164.86$).

Section2: Employment Advertisement Data

As far as when comparing the employment available between diverse faculties, it can be detected that the bulk of employment was available for the graduates of Basic Sciences whereas the least employment was available for the graduates of Social Sciences. The association between male and female employment advertisements is revealed in the diagram below.

Table 3

Employment Ads in Four Newspapers (2012-17) for Degree and Faculty across Gender

Degree	Faculty	Total
BS Program	Natural Science	7234
BS Program	Social Science	830
BS Program	Business Administration	1727

Figure 3

Employment opportunities in different fields of study



The above diagram indicates that employment is available in different areas of study. It is also clear that 74% of employment was advertised in the area of Basic Sciences; 18% of employment was published in the field of Business Administration whereas only 8% of employment was published in the area of Social Sciences.

Table 4

The relationship between job opportunities and the trend of student admissions

	n	Pearson r	Sig. (2-tailed)
Admission	76	.617	.058
Employment Opportunity			

The relationship between the trend in admittance and job opportunities is seen in the upper table. Furthermore, it is evident that there is no statistically significant correlation between the job posting and the trend of students being admitted to various fields of study ($r = -.617, p = .058 > .05$).

Table 5

The association between the students' faculty-wise admittance trend and employment opportunities

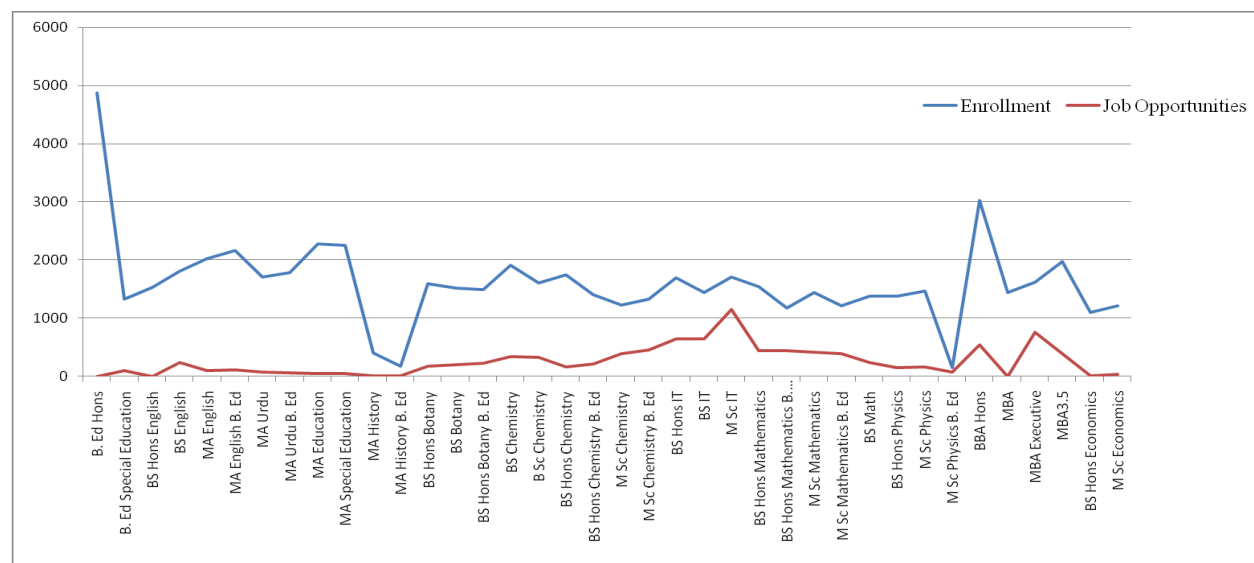
	Faculty	n	Pearson r	Sig.(2-tailed)
Admission	Social Sciences	24	-.037	.864
Employment Opportunity				
Admission	Basic Sciences	40	.343**	.030
Employment Opportunity				
Admission	Business Administration	12	.566**	.045
Employment Opportunity				

**Correlation is significant at the 0.05 level (2-tailed)

In the given overhead table, the association between the admission trend and employment advertisement based on faculties is described. It shows that for the faculty of Social Sciences, there existed an insignificant correlation ($r = -.037, p = .864 > .05$). Whereas for the faculty of Basic Sciences, a significant correlation ($r = .343, p = .030 < .05$) between the trend of admission and employment opportunities was found. Similarly, for the faculty of Business Administration a positive correlation ($r = .566, p = .045 < .05$) was observed between the trend of admission and the employment opportunities.

Figure 4

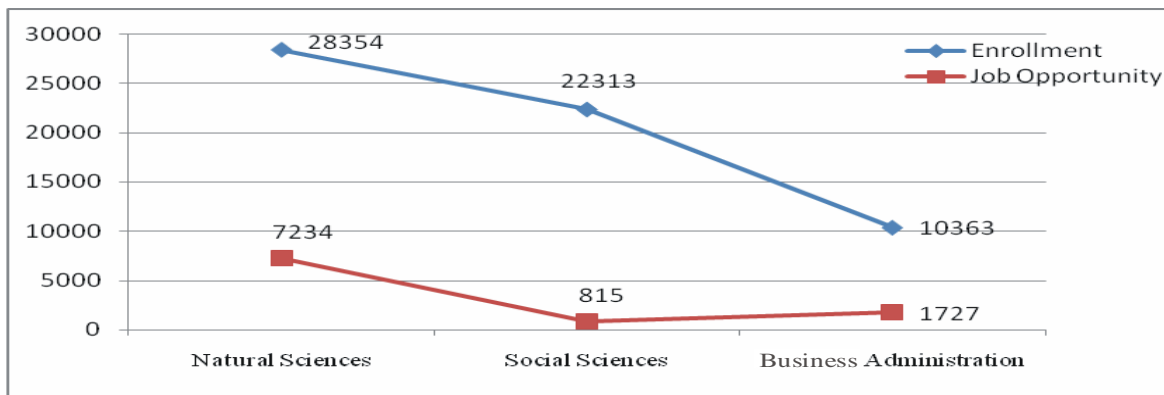
Enrollment and Job Opportunities



The discrepancy between admission patterns at the postsecondary education level and available job opportunities is finally depicted in the following diagram. Similarly, the graphic below provides a clear picture of the trend in university admissions as well as job chances in the market. It demonstrates that while the difference between admission and employment is smaller for business administration, it is larger for social science subjects. There was a discernible but pervasive discrepancy between the career prospects and the admissions trend in the Basic Sciences faculty.

Figure 5

Gap between the trends of admission and the existing employment opportunities



Findings

The highest admission trend (46%) was observed for the Faculty of Natural Science, whereas the lowest admission (17%) trend was found in the subjects of Business Administration. In the Faculty of Social Sciences (37%) students were enrolled. During the selected study period, the admission trend was the highest for the Basic Sciences in 2016 (5292), for Social Sciences in 2015 (5204), and the Business Administration in 2013 (2290). Similarly, the lowest admission for the selected period was observed in Basic Sciences in 2017(4023), for Social Sciences in 2012 (2845), and in Business Administration in 2017 (1176). It was also found that 74% of employment was published in the field of Basic Sciences, 18% in the field of Business Administration, and 8% in the field of Social Sciences. Similarly, it was found that there was an insignificant association ($r=-.617, p=.058>.05$) between the employment published and the student's admission trend in dissimilar fields of study. It is found that for the faculty of Social Sciences, there existed an insignificant co-relation ($r=-.037, p=.864>.05$) between the admission trend and the employment opportunities whereas for the Faculty of Basic Sciences, a significant co-relation ($r=.343, p=.030<.05$) was found between the admission trend and employment opportunities. Similarly, for the faculty of Business Administration a strong and positive co-relation ($r=.566, p=.045<.05$) was observed between the admission trend and the employment opportunities. In the same way, the association between the area of study and employment advertisement based on Faculty shows that for the faculty of Social Sciences, there existed insignificant co-relation ($r=-.462, p=.000<.05$) whereas for the faculty of Basic Sciences, a significant and negative correlation between the admission trend and employment opportunities was found ($r=-.096, p=.000<.05$). Similarly, for the faculty of Business Administration a strong and positive co-relation ($r=.410, p=.000<.05$) was observed between the admission trend and the employment opportunities for the University graduates. It was discovered that there is a minimum gap in the case of business administration and a maximum gap in the case of social science disciplines between the published employment and admission trend. The career opportunities and the admission trend and the Faculty of Basic Sciences differed somewhat, although not significantly.

Discussion

The present research found that the maximum admission trend at the Tertiary Education level was found in the subjects of Basic Sciences and the minimum admission trend was found in the subjects of Business Administration. Over the six years of the research period, the admission trend in all the subjects was consistent. Shen also supported the results of the study & Ho (2020) found that maximum admission was found in the subjects of Basic Sciences. Another study

found by (Altbach, Reisberg, & Rumbley, 2019) also supported the results of the research study by exploring that more than sixty percent of the admissions were noted in the Science subjects. Contrary, to the findings of the research, McGuigan, Morçöl, & Grosser proposed it (2021) that more admissions were found in the field of Social Sciences and there were fewer admissions in the Faculty of Natural Sciences. Similarly, Sithole, Chiyaka, McCarthy, Mupinga, Bucklein, & Kibirige (2017) finding that more admissions were noted in the faculty of Business Administration also noted the contradiction. Moreover, McNally (2020) also did not agree with the findings of the study at hand that admissions for the subjects of Natural Science subjects were low. Likewise, another research study by McGuigan, Morçöl, & Grosser (2021) described that the admissions in Natural Science subjects and Technology were decreasing and this situation was not suitable for the Science subjects. Similarly Ahn, Roijackers, Fini, and & Mortara (2019) agreed that more employment was pushed in the faculty of Basic Sciences. Moreover, fewer employments were published for the Faculty of Arts and Social Sciences, Public Policy, and Education. Furthermore, McGuigan, Morçöl, & Grosser (2021) agree with the results of the present research that more employment was published in the faculty of Basic Sciences. Moreover, Choudaha & van Rest (2018) also refuted the research that more employments were published for the Faculty of Basic Sciences. Furthermore, Dorsch (2020) and Xu, Jaggars, Fletcher, & Fink (2018) supported that more subject-related employment was published for males. Likewise, McGuigan, Morçöl, & Grosser (2021) supported the results of the research that 16% of the individuals were doing employment irrelevant to their subjects. Similarly, (Gautam, 2020) did not support the results of the research that the published employments were not according to their subjects. In the same way, Zatsiorsky, Kraemer, & Fry (2020) described that employment was publicized for Natural Science subjects. Social Science-related employment was not published according to the subjects that the graduates studied at the university level, which contradicted the present study to some extent. Furthermore, Ningrum, Pansombut, & Uerantasanun (2020) found different results that very few Social Sciences and Business Administration-related employment were published.

Conclusion and Recommendations

The highest admission trend was found in Basic Sciences and the lowest admission trend was found in Business Administration. No difference was found in the admission trend among different faculties. Over the six years of the study period, the admission trend in all the subjects was consistent. It was also found that maximum employment was published in the field of Basic Sciences, Moderate employment was published in the field of Business Administration, and lowest employment was published in the field of Social Sciences. It was found that there was an insignificant association between the employment published and the admission trend in different areas of study. It was found that for the faculty of Social Sciences, there existed an insignificant correlation between the admission trend and the employment opportunities whereas for the Faculty of Basic Sciences, a significant correlation was found between the admission trend and employment opportunities. Moreover, for the faculty of Business Administration, a strong and positive correlation was observed between the admission trend and employment opportunities. The maximum employment gaps between the admission trend and the employment opportunities existed in the field of Social Sciences whereas, for the Business Administration, this gap was relatively small. However, for the Faculty of Basic Sciences, the gap was moderate. By exploring the objectives and the facts developed in this research, the following recommendations are put forward for the consideration of policy-makers. The study found out that the students opt for a subject of study depending upon the public trend instead of their talents. Interested students should be guided to select the area of study at the tertiary education level as per their interest instead of the public trend that is the glamorous field. In selecting the profession, university graduates should consider their interests, subjects, and abilities in choosing a career that particularly involves the subjects of Basic Sciences, Business Administration, Arts, and Social Sciences.

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Declaration of Interest: The authors declare that there is no clash of interests.

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