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# Higher Education Enrollment Trend and Job Opportunities in Pakistan: A Subject-Based Comparison

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**Abstract:** Higher education has created new fields of specialization in accordance with ever changing needs and social requirements of the society. As a result, conventional fields of specialization are getting replaced with the new ones. With the emergence of the new specialization-based opportunities in the job market, enrollment trend in higher education has considerably increased in the last two decades. Candidates are willing to join the job-oriented fields at higher education level. The present study is an effort to explores the higher education enrollment trend and corresponding job opportunities in Pakistan. The survey based quantitative study revealed that there exists a gap in the enrollment trend and corresponding job opportunities. The gap is wider in the science subjects as compared to the social and administrative sciences.

**Keywords: Higher education, job-oriented fields, fields of specialization**

## I. INTRODUCTION

The higher education enlightens the way for progress and prosperity of a nation. It enhances as well as strengthens the economic status of states. It has been preferred to enhance role in creating the opportunities of jobs and skills (Jung 2020).It is playing an important role in the development of the nation. It encompasses the economic, individual as well as cultural betterment and increases the social benefits. It helps to understand the social values, beliefs, religion and social class(McKinnon 2017). It brings improvement in an individual's life as well as in the society (Ahn et al. 2019).Similarly, the higher education is expanding with tremendous speed across the globe (Altbach, Reisberg, and Rumbley 2019). It develops the intellect, serves the nation, enhances the economy, generates the skillful individuals and prepares them for jobs and attractive careers.It guides the human beings towards prosperity and progress(Thinley and Hartz-Karp 2019). Itcreates moral, physical and socially impartial knowledgeable individual who wishes to learn (Thunder 2020). It is one of the main socio-economic indicators of the growth and development of a country and guarantees prospectus economy. Many studies had found that an educated individual can earn more money when compared with the less educated person.

The enrollment of students at the higher education level throughout the world is increasing because of its demand (Jung 2019; Latif et al. 2019). Marginson (2018) noted that globally there were 32.6 million students enrolled in 1970 which rose to 99.9 million students who were enrolled in 2000. Goujon, Lutz, and Kc (2015) described that 200 million students are enrolled at the higher education level and this enrollment was 89 million in 1998 and 32.6 million students were enrolled in 1970. Similarly, according to Calderon (2018) by the year 2030, there would be 377.4 million, 471.4 million by 2035 and 594.1 million students by 2040. Few states like Korea and Japan have got their target of universal higher education approximately equal to 80% (Symaco and Chao 2019). Generally, the higher education enrollment in France, China, India, Korea and USA is high and the enrollment of students in Canada became double during the last decade (Cooper 2017; Dennis 2019). In future, the students getting higher education will be divided in to two different groups for example part time (evening) full time (morning) (Dubey 2019).

In Pakistan, the higher education starts after grade12.It accommodates individuals from 17 to 23 years of age group(Yang et al. 2017). As far as the enrollment trend at the higher education in Pakistan is concerned in Pakistan 68% of the people are below the age of 30.4 years and only 5.1% of the people in the age group 17-23 years had the chances of higher education (Demirgüç-Kunt et al. 2020). The enrollment of students is

increasing in Pakistan but the job opportunities are not increasing at the same speed. The Government is producing more and more graduate individuals who are entering the field but the job opportunities are not being created accordingly. To provide jobs for the unemployed graduates is a challenge for the authorities and unemployment is increasing drastically in Pakistan from 49.7% in 2001-02 which remains the same during 2005-06 and a little increase up to 50.0% during the other periods in Pakistan(Batool and Jamil 2019). For the Pakistani circumstances, there are different aspects to be focused like the available jobs whether related to their subjects or not. In which subjects, the enrollment of the subject is maximum.Either, available jobs are for the subjects of Arts and Social Sciences, Natural sciences and Business Administration. Which type of job graduates want to do in future. In short, there is a need to assess the trend between the higher education and the job opportunities and relevance in Pakistani perspective, although in different parts of the world. Researches had been conducted but none was done in the Pakistani scenario. For this purpose, the researcher has planned to undertake a research study tiltedhigher education enrollment trend and job opportunities in Pakistan: a subject-based comparison.

**Objectives of the Study**

1. To explore the enrollment trend at the higher education level in Pakistan
2. To find out the enrolled students' perception about the future jobs
3. To explore the job opportunities for the graduates of the higher education level
4. To determine the gap between the enrollment trend and the job opportunities

**Research Questions**

1. What is the enrollment trend in the higher education level?
2. What is the subject-wise enrollment trend in different years?
3. What are the perceptions of students about their future jobs?
4. Do the students-perceived jobs correspond to their area of studies?
5. Is there any gap between the enrollment trends and the existing job opportunities?

## II. METHODOLOGY

This is the quantitative study. Survey approach was adopted for collecting data. Two type of data was used to conduct the study. Firstly, the data of enrolled students in BS/MA/MSc was obtained from Registrar office of the selected universities (ten public sector universities was randomly selected). Secondly, the job advertisement published in daily newspapers (two Urdu and two English) during the years 2012-2016. For the purpose of data collection, students' enrollment data was obtained for the years 2014-2018. Similarly, job opportunities advertisement on each Sunday was recorded and tabulated. For the analysis of data, Descriptive as well as Inferential statistics were applied. Moreover, graphical representation of the collected data was also made.

## III. RESULTS

The details of the analysis and interpretation of data are presented below:

***Table 1: Year- wise and subject- wise enrollment trend.***

| Degree Programme | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
|---|---|---|---|---|---|---|---|
| B. Ed (H) | 30 | 260 | 251 | 2010 | 1551 | 773 | 4875 |
| B. Ed Special Education | 198 | 187 | 243 | 233 | 221 | 248 | 1330 |
| BS (H) English | 226 | 365 | 324 | 304 | 314 | 0 | 1533 |
| BS English | 255 | 332 | 283 | 343 | 303 | 293 | 1809 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MA English | 332 | 384 | 337 | 371 | 299 | 303 | 2026 |
| MA English B. Ed | 347 | 287 | 324 | 424 | 412 | 365 | 2159 |
| MA Urdu | 288 | 294 | 221 | 246 | 268 | 390 | 1707 |
| MA Urdu B. Ed | 282 | 343 | 303 | 294 | 311 | 246 | 1779 |
| MA Education | 389 | 409 | 344 | 370 | 378 | 388 | 2278 |
| MA Special Education | 375 | 390 | 321 | 390 | 402 | 366 | 2244 |
| MA History | 104 | 46 | 77 | 63 | 62 | 45 | 397 |
| MA History B. Ed | 19 | 14 | 35 | 30 | 27 | 51 | 176 |
| **Total (Social Sciences)** | **2845** | **3331** | **3063** | **5078** | **4548** | **3468** | **22313** |
| MBA1.5 | 215 | 189 | 253 | 359 | 420 | 0 | 1436 |
| MBA Executive | 265 | 246 | 272 | 294 | 265 | 273 | 1615 |
| MBA3.5 | 257 | 350 | 340 | 333 | 337 | 353 | 1970 |
| BS (H) Economics | 177 | 161 | 168 | 165 | 211 | 220 | 1102 |
| M Sc Economics | 221 | 250 | 188 | 224 | 147 | 186 | 1216 |
| BBA (H) | 416 | 1094 | 570 | 744 | 56 | 144 | 3024 |
| **Total (Business Administration)** | **1551** | **2290** | **1791** | **2119** | **1436** | **1176** | **10363** |
| BS (H) Botany | 193 | 343 | 239 | 233 | 297 | 285 | 1590 |
| BS Botany | 249 | 199 | 203 | 254 | 281 | 334 | 1520 |
| BS (H) Botany B. Ed | 232 | 212 | 241 | 248 | 291 | 264 | 1488 |
| BS Chemistry | 247 | 271 | 299 | 316 | 365 | 411 | 1909 |
| B Sc Chemistry | 269 | 254 | 227 | 283 | 306 | 264 | 1603 |
| BS (H) Chemistry | 233 | 302 | 251 | 339 | 380 | 234 | 1739 |
| BS (H) Chemistry B. Ed | 220 | 223 | 221 | 240 | 266 | 236 | 1406 |
| M Sc Chemistry | 197 | 219 | 219 | 217 | 176 | 189 | 1217 |
| M Sc Chemistry B. Ed | 216 | 185 | 220 | 232 | 194 | 271 | 1318 |
| BS (H) IT | 225 | 303 | 289 | 308 | 288 | 277 | 1690 |
| BS IT | 276 | 250 | 222 | 218 | 245 | 232 | 1443 |
| M Sc IT | 277 | 299 | 268 | 331 | 210 | 325 | 1710 |
| BS (H) Mathematics | 255 | 246 | 323 | 358 | 355 | 0 | 1537 |
| BS (H) Mathematics B. Ed | 201 | 274 | 265 | 214 | 222 | 0 | 1176 |
| M Sc Mathematics | 276 | 177 | 266 | 265 | 234 | 221 | 1439 |
| M Sc Mathematics B. Ed | 218 | 227 | 209 | 267 | 287 | 0 | 1208 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BS Math | 172 | 198 | 234 | 254 | 288 | 234 | 1380 |
| BS (H) Physics | 258 | 216 | 267 | 343 | 287 | 0 | 1371 |
| M Sc Physics | 220 | 215 | 249 | 257 | 278 | 246 | 1465 |
| M Sc Physics B. Ed | 19 | 21 | 36 | 27 | 42 | 0 | 145 |
| **Total (Natural Sciences)** | **4453** | **4634** | **4748** | **5204** | **5292** | **4023** | **28354** |
| **Grand Total** | **8849** | **10235** | **9602** | **12401** | **11276** | **8667** | **61030** |

It shows that the highest enrollment was found in the faculty of Natural Sciences, which was about 46%.The lowest trend was observed for the faculty of Business Administration. It was about 17%. Moreover, about 37% students selected Social Sciences from the subjects of study. The same is showed in the following figures:

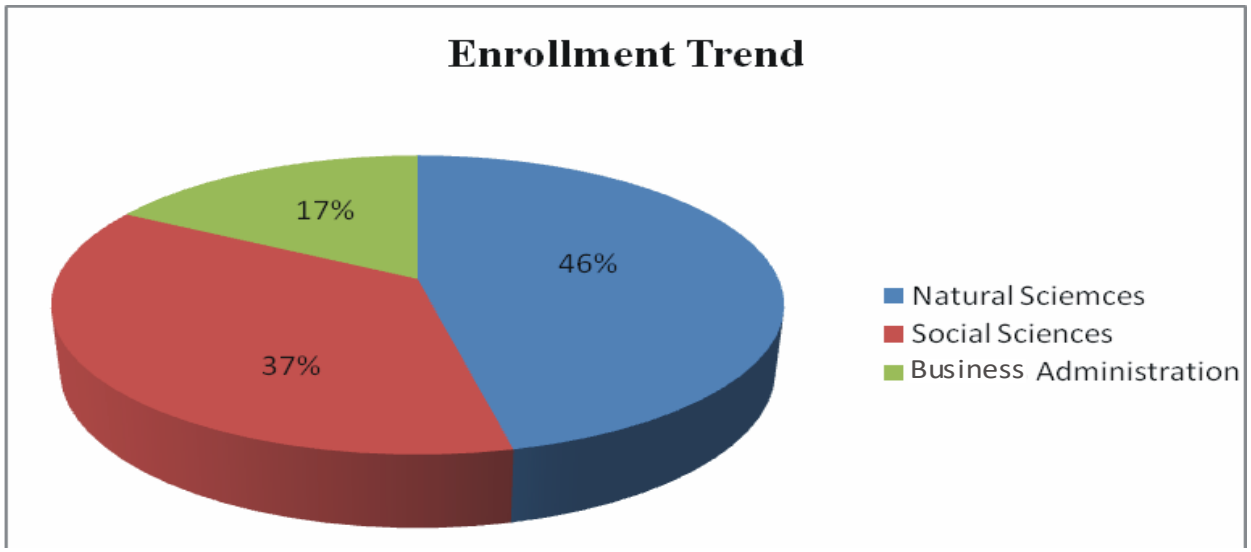


***Figure 1: Enrollment trend in different subjects***

Further details about the year- wise enrollment trend is shown in the below graph which illustrates that the enrollment trend was relatively higher in the Natural Sciences as compared to the Social Sciences and the Administrative Sciences. The highest enrollment was observed in 2016 in the Natural Sciences, in 2015 for Social Sciences and in 2013 for the Administrative Sciences.

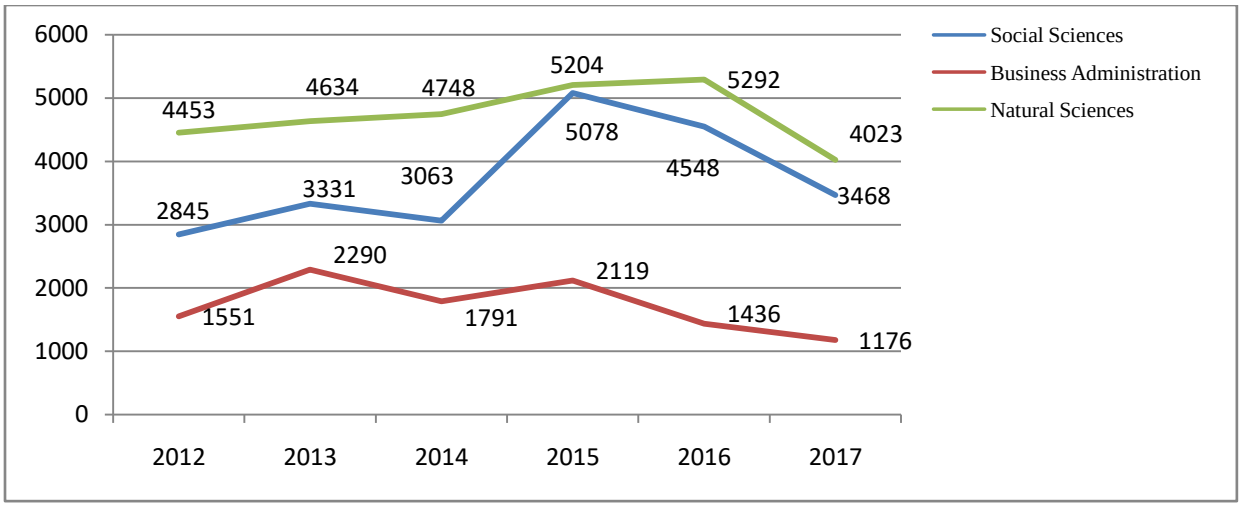


***Figure 2: Year wise subject wise enrollment of subjects***

In the same way, the following graph presents subject- wise summary of the enrollment trend in six years of the study period. It shows that in the Natural Sciences, the enrollment trend is higher in the subjects of Mathematics, Chemistry and Information Technology. For the Social Sciences, the students chose B. Ed (H) as well as English more frequently as compared to the other subjects like History, Urdu etc. On the other hand, in the Business Administration, the preference of the students was MBA and BBA whereas MBA Executive, MSc Economics or BS Economics are less preferred.

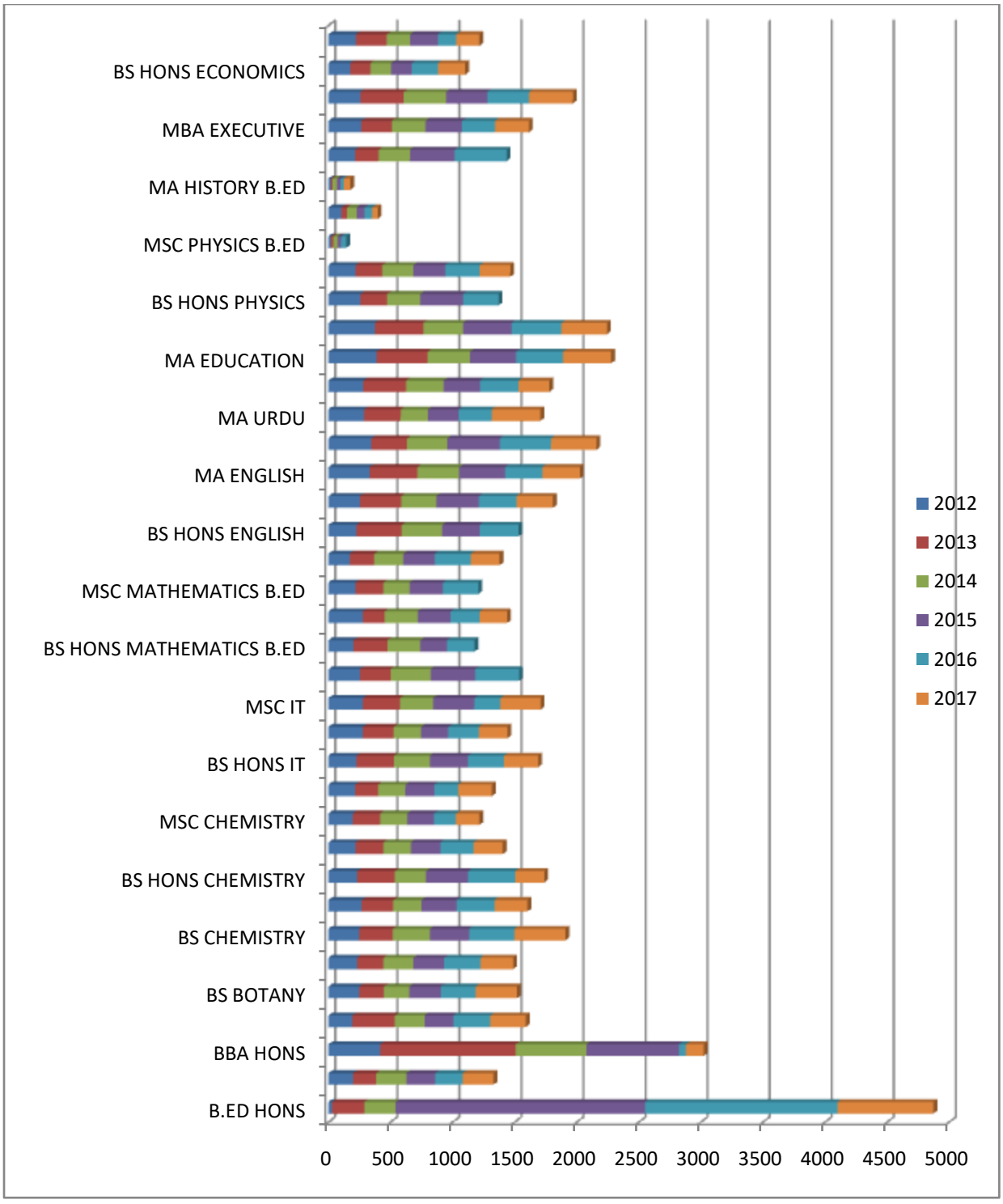


***Figure 3: Year- wise and over all enrollment in subjects***

***Table 2: Students perceived jobs corresponding to their area of studies:***

| Nature of Prospective Job | Frequency | Percent |
|---|---|---|
| Relevant Job | 1559 | 51.6 |
| Irrelevant Job | 1461 | 48.4 |

| | | |
|---|---|---|
| Total | 3020 | 100 |

From the above table, it is obvious that 51.6 % students' perception about their future jobs were according to their area of study, whereas 48 .4 % students perceived jobs which were not relevant to their area of study or specialization. The same is reflected in the graph below.

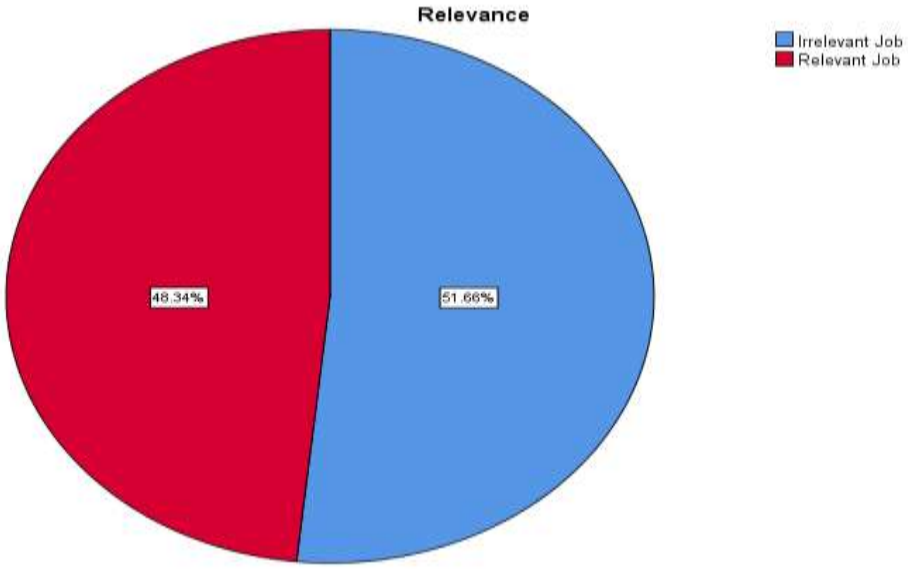


***Figure 4: Students perceived jobs related to their area of studies***

***Table 3:Relationship between the students' area of study and their perceived jobs:***

| | N | Pearson r | Sig. (2-tailed) |
|---|---|---|---|
| Subject Enrolled<br>Perceived Job | 3020 | -.080** | .000 |

**Correlation is significant at the 0.01 level (2-tailed)

As far as the relationship between the students' area of study and their perceived jobs is concerned, it was found that there existed significant but a negative relationship between the students' subject area and their perceived jobs (r=-.080, *p*=.000<.05).

***Table 4: The status of advertised jobs for male and female graduates***

| **Degree** | **Jobs M** | **Jobs F** | **Total** |
|---|---|---|---|
| B. Ed (H) | 0 | 0 | 0 |
| B. Ed Special Education | 55 | 40 | 95 |
| BS (H) English | 0 | 0 | 0 |
| BS English | 134 | 100 | 234 |
| MA English | 77 | 26 | 103 |
| MA English B. Ed | 80 | 49 | 129 |
| MA Urdu | 52 | 21 | 73 |
| MA Urdu B. Ed | 35 | 23 | 58 |
| MA Education | 34 | 20 | 54 |
| MA Special Education | 34 | 15 | 49 |
| MA History | 8 | 9 | 17 |

| | | | |
|---|---|---|---|
| MA History B. Ed | 13 | 5 | 18 |
| **Total (Social Sciences)** | **522** | **308** | **830** |
| MBA | 0 | 0 | 0 |
| MBA Executive | 475 | 281 | 756 |
| MBA3.5 | 244 | 143 | 387 |
| BS (H) Economics | 4 | 6 | 10 |
| M Sc Economics | 22 | 13 | 35 |
| BBA (H) | 270 | 269 | 539 |
| **Total (Business Administration)** | **1015** | **712** | **1727** |
| BS (H) Botany | 113 | 67 | 180 |
| BS Botany | 127 | 73 | 200 |
| BS (H) Botany B. Ed | 156 | 75 | 231 |
| BS Chemistry | 212 | 128 | 340 |
| B Sc Chemistry | 171 | 154 | 325 |
| BS (H) Chemistry | 90 | 71 | 161 |
| BS (H) Chemistry B. Ed | 116 | 96 | 212 |
| M Sc Chemistry | 212 | 173 | 385 |
| M Sc Chemistry B. Ed | 159 | 294 | 453 |
| BS (H) IT | 312 | 326 | 638 |
| BS IT | 308 | 330 | 638 |
| M Sc IT | 675 | 471 | 1146 |
| BS (H) Mathematics | 293 | 146 | 439 |
| BS (H) Mathematics B. Ed | 277 | 165 | 442 |
| M Sc Mathematics | 278 | 141 | 419 |
| M Sc Mathematics B. Ed | 307 | 86 | 393 |
| BS Math | 147 | 97 | 244 |
| BS (H) Physics | 95 | 54 | 149 |
| M Sc Physics | 139 | 26 | 165 |
| M Sc Physics B. Ed | 52 | 22 | 74 |
| **Total (Natural Sciences)** | **4239** | **2995** | **7234** |
| **Grand Total** | **5776** | **4015** | **9776** |

As far as the comparison of job advertised between male and female graduates is concerned, it was found that most of the jobs were advertised for the male pass- outs whereas thesmaller number of jobs were advertised for the females. The above table shows the subject- wise and gender- wise distribution of advertised Jobs. The same is shown in the graph below. It can be observed that the majority of jobs were advertised for the graduates of Natural Sciences whereas minimum jobs were advertised for the graduates of Social Sciences. The comparison between male and female job advertisements is shown in the graph below:

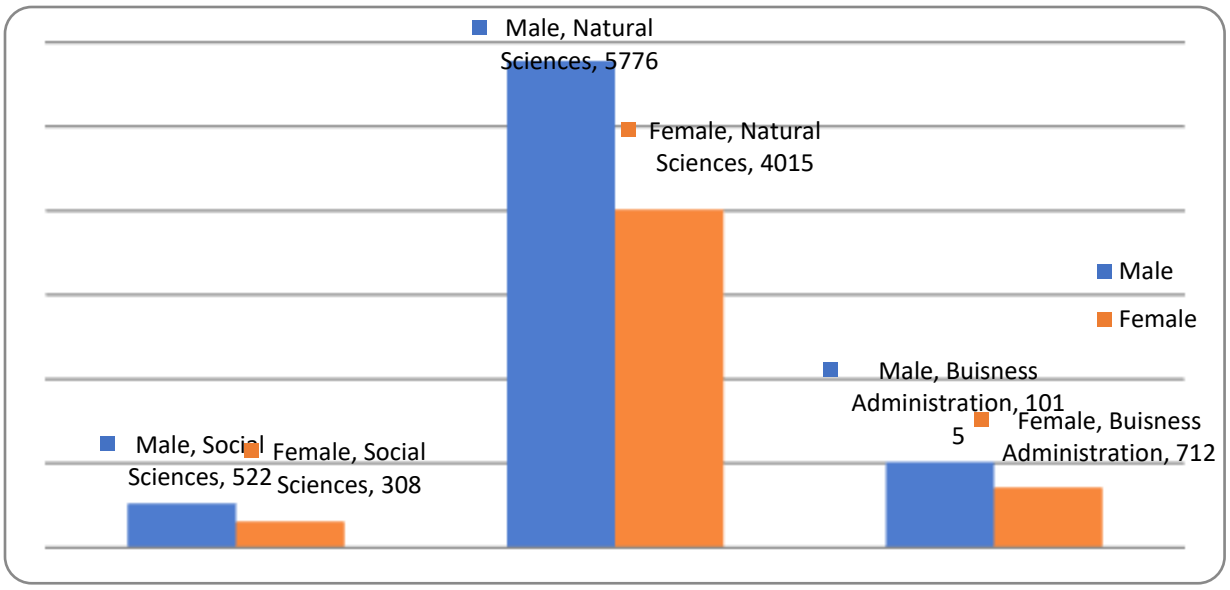


***Figure 5: The status of advertised jobs for male and female graduates of different subjects***

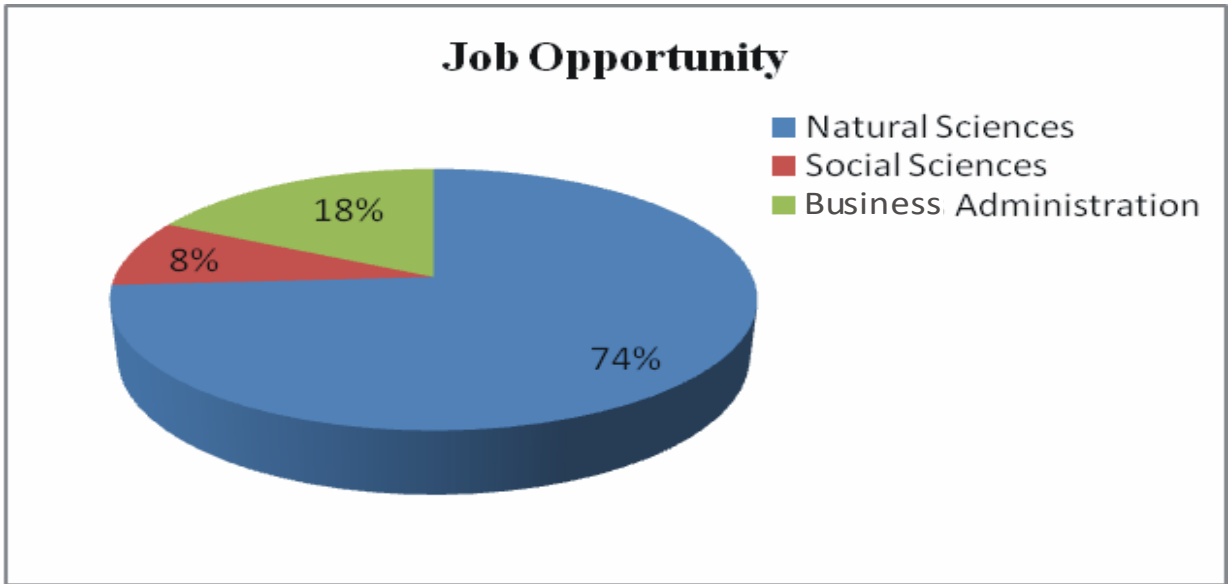


***Figure 6: Job opportunities in different fields of study***

The above graph shows the advertised job opportunities in different fields of study. It can be seen that 74% jobs were advertised in the field of Natural Sciences; 18% jobs were advertised in the field of Business Administration whereas only 8% jobs were advertised in the field of Social Sciences.

***Table 5:The relationship between the students' enrollment trend and job opportunities***

| | N | Pearson r | Sig. (2-tailed) |
|---|---|---|---|
| Enrollment<br>Job Opportunity | 76 | .617 | .058 |

The above table reflects the relationship between the trend of enrollment and the job opportunities. It shows that there is not a significant relationship between the jobs advertised and the students'trendof enrollment in different areas of study (r = -. 617, *p* =. 058>. 05).

***Table 6:The relationship between the Subject of Study and field of employment***

| | N | Pearson r | Sig. (2-tailed) |
|---|---|---|---|
| Subject Studied<br>Field of Employment | 2570 | -.326** | .000 |

**Correlation is significant at the 0.01 level (2-tailed)

From the above table, it is obvious that there existed significant and negative correlation (r=-.326, *p*=.000<.05) between the area of study and the field of employment for the graduates of higher education.

***Table 7: Gap between enrollment trends and the existing job opportunities.***

| Degree Programme | Sum of Total Enrollment | sum of subject wise total Jobs from news papers | Sum of Difference b/w enrollment and job |
|---|---|---|---|
| B. Ed (H) 106 | 4875 | 0 | 4875 |
| B. Ed Special Education | 1330 | 95 | 1235 |
| BS (H) English | 1533 | 0 | 1533 |
| BS English | 1809 | 234 | 1575 |
| MA English | 2026 | 103 | 1923 |
| MA English B. Ed | 2159 | 108 | 2051 |
| MA Urdu | 1707 | 79 | 1628 |
| MA Urdu B. Ed | 1779 | 58 | 1721 |
| MA Education | 2278 | 54 | 2224 |
| MA Special Education | 2244 | 49 | 2195 |
| MA History | 397 | 17 | 380 |
| MA History B. Ed | 176 | 18 | 158 |
| MBA1.5 | 1436 | 0 | 1436 |
| MBA Executive | 1615 | 756 | 859 |
| MBA3.5 | 1970 | 387 | 1583 |
| BS (H) Economics | 1102 | 10 | 1092 |
| M Sc Economics | 1216 | 35 | 1181 |
| BBA (H) | 3024 | 539 | 2485 |
| BS (H) Botany | 1590 | 180 | 1410 |
| BS Botany | 1520 | 200 | 1320 |
| BS (H) Botany B. Ed | 1488 | 231 | 1257 |
| BS Chemistry | 1909 | 340 | 1569 |
| B Sc Chemistry | 1603 | 325 | 1278 |
| BS (H) Chemistry | 1739 | 161 | 1578 |

| | | | |
|---|---|---|---|
| BS (H) Chemistry B. Ed | 1406 | 212 | 1194 |
| M Sc Chemistry | 1217 | 385 | 832 |
| M Sc Chemistry B. Ed | 1318 | 453 | 865 |
| BS (H) IT | 1690 | 638 | 1052 |
| BS IT | 1443 | 638 | 805 |
| M Sc IT | 1710 | 1146 | 564 |
| BS (H) Mathematics | 1537 | 439 | 1098 |
| BS (H) Mathematics B. Ed | 1176 | 442 | 734 |
| M Sc Mathematics | 1439 | 419 | 1020 |
| M Sc Mathematics B. Ed | 1208 | 393 | 815 |
| BS Math | 1380 | 244 | 1136 |
| BS (H) Physics | 1371 | 149 | 1222 |
| M Sc Physics | 1465 | 165 | 1300 |
| M Sc Physics B. Ed | 145 | 74 | 71 |
| **Grand Total** | **61030** | **9776** | **51254** |

According to the above table, maximum job gap is observed in the subject B. Ed (H) (4875), BBA ((H)) (2485), MA Education (2224), MA English B. Ed (2051), MA English (1923). Similarly,the least job gap is observed in MSc Physics B .Ed (71), MA History B.Ed. (158), MA History (380), MSc IT (564), BS (H) Mathematics B. Ed (734), MSc Mathematics B. Ed (815) MSc Chemistry (832),and MBA Executive (859) and MSc Chemistry B. Ed (865).Further detailed information related to job gap can be taken from the above table.

The subject- wise pictorial depiction of the field of study and the field of work for the university graduates is shown in the graph below. It is obvious that the minimum gap prevails in the subjects of Business Administration.Whereas the maximum gap is found between the subjects of Social Sciences.

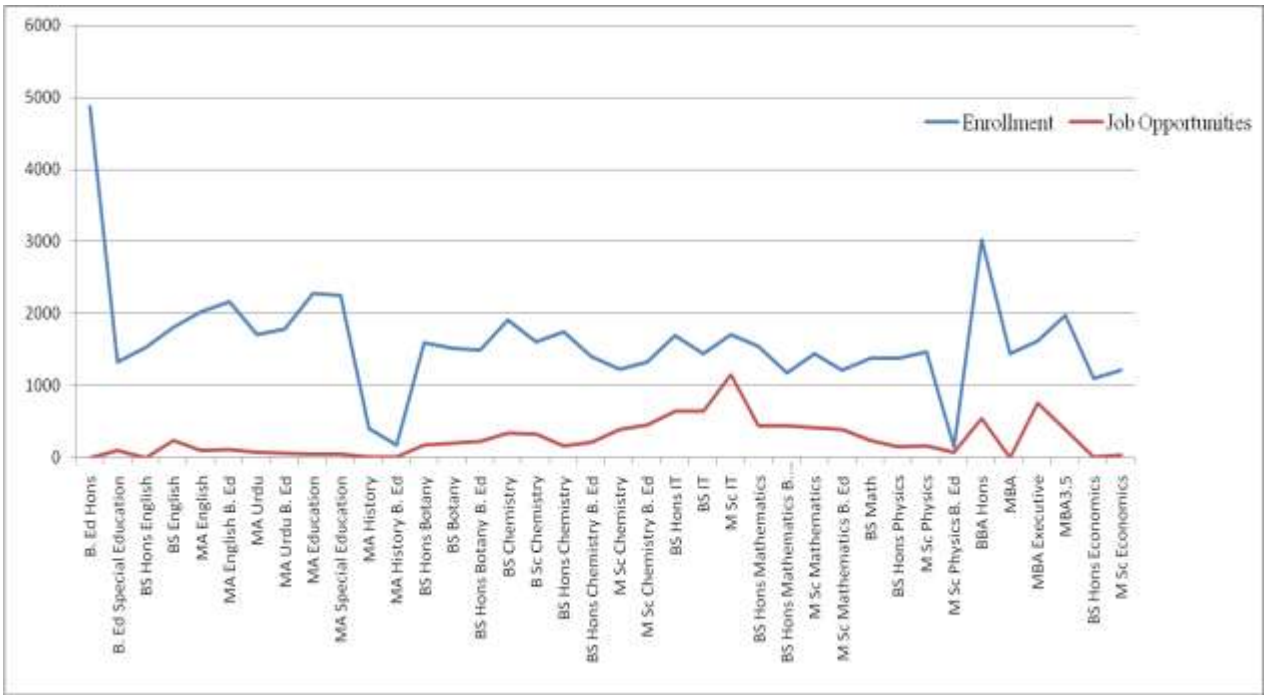


***Figure 7: Gap between enrollment trends and the existing job opportunities***

Finally, the following figure reflects the gap between the trends of enrollment in the higher education level and the available job opportunities. Similarly, a clear picture of the trend of enrollment at the university level and the job opportunities in the market can be seen from the graph below. It reflects that for the subjects of Social Sciences, the gap between jobs and enrollment is maximum and for the Business Administration, this gap is minimum. There existed a moderate, but wide gap between the job opportunities and the trend of enrollment and the faculty of Natural Sciences.

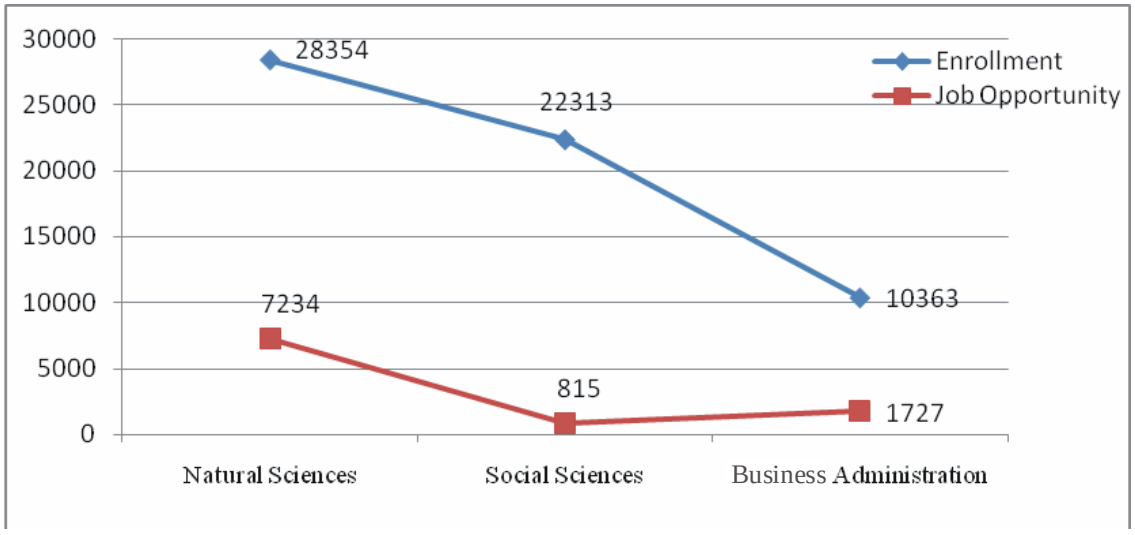


***Figure 8: Gap between the trends of enrollment and the existing job opportunities***

## IV. Discussion

The research study at hand reveals that the highest enrollment trend at the Higher Education level was found in the subjects related to Natural Sciences and the lowest enrollment trend was found in the subjects related to the Business Administration. The results of study were also supported by Sithole et al. (2017) describing that more enrollment was noted in the subjects of Natural Sciences. Moreover, it revealed that the students' perceptions about their future job that they desire to work as Lecturer, Science Teacher, member of the Armed Forces, Head Teachers, Office Administrator, Research Assistants, Forest Officers and Consultants. Similarly, a study conducted by Román-Graván et al. (2020) found that 64% of the females and 56 % of the males want to work as a Teacher and Lecturer in the future. Another research conducted by Wulandari (2020) did not agree to the present research that 34 % of the males and 22% of the females want to do non-teaching jobs. Moreover, students perceived that the jobs were not relevant to their areas of subjects. Both the students of Social Sciences and Natural Sciences perceived jobs were not relevant to their subjects.

As regards the actual Jobs available in the market, it was observed that the majority of the jobs were advertised for the males' graduates. Similarly, the majority of jobs were advertised for the faculty of Natural Sciences but fewer for the Social Sciences. Similarly, the researches conducted by Assis, Bedeschi, and de Faria (2020),Lei, Leaungkhamma, and Le (2020) supported that the perceived jobs and their subjects had no relationship. Furthermore, more gap between the enrollment trend and the job opportunities existed in the field of Social Sciences whereas for the Business Administration, this gap was relatively small. But for the Faculty of Natural Sciences, the gap was moderate. Likewise, Martinez Jr and Huerta (2020) found similar results to some extent that more gaps were found in the field of Social Sciences and Natural Science enrollment and the job opportunities as compared to the Business Administration. Likewise, Shrestha et al. (2020) found different results that more gaps existed between the enrollment trend and the job opportunities in the field of Business Administration.

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