PhD's FUTURE

PIDE Working Papers
No. 2023:3

Pakistan Institute of Development Economics

Dire or Dying Demand for the Government Job: Analysing A PhD Holder's Future Prospects

Muhammad Ajmal Khan

Pakistan Institute of Development Economics
Islamabad, Pakistan

E-mail: publications@pide.org.pk
Website: http://www.pide.org.pk
Fax: +92-51-9248065

Designed, composed, and finished at the Publications Division, PIDE.

PIDE Working Papers
No. 2023:3

Dire or Dying Demand for the Government Job: Analysing A PhD Holder's Future Prospects

Muhammad Ajmal Khan
Pakistan Institute of Development Economics, Islamabad.

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS
ISLAMABAD
2023

C O N T E N T S

List of Tables

List of Figures

1. INTRODUCTION

Higher Education (HE) is continuously changing globally (Altbach, 2008). The demand for a knowledge-based economy has forced the HE system towards drastic structural transformation to supply well-qualified human capital (Welch, 2011). The structural transformation is the outcome of external and internal pressures of the twenty-first century (Altbach & Peterson, 2007). Similarly, (Qadir, 2011) noticed that the transformation of Pakistani HE in 2002 was an upshot of external influence and internal responses. Thus, the government established the HEC (Higher Education Commission) in 2002. It further replaced the University Grants Commission UGC with HEC (HEC Ordinance 455, 2002).

In the early twenty-first century, different initiatives have been introduced in Pakistani HE in general and universities in particular. The reforms were designed to bring changes in different areas, including academic capacity building and restoration of Research and Development (R&D) (Osama, et al. 2009). Moreover, the resources and energy were devoted to ramping up the human capital formation to promote the R&D capacity of academic and non-academic institutions, with around 13,000 doctoral scholarships provided between 2003-2011. Previously around 300 scholarships were provided (Rehman, 2009).

The HEC is still knuckling down on augmenting the number of doctoral degree holders in the country. According to a recent HEC report (HEC, 2021), 145 scholars went abroad for PhD studies, 33 scholars were partially supported to complete their studies abroad, 179 scholars completed their doctorates, 273 PhD scholars proceeded abroad under International Research Support Initiative Programme (IRSIP), and 32 scholars proceeded abroad to join post-doctoral research. Additionally, under the indigenous PhD fellowship program, 218 candidates joined PhD studies, with around 473 potential candidates completing their PhD.

As for the expansion of Higher Education Institutes (HEIs), the number of universities has increased dramatically. At independence, Punjab University was the only public university; the expansion occurred during Zulfiqar Ali Bhutto's tenure. Around a decade ago, there were 87 universities in Pakistan (Hoodbhoy, 2009). Currently, there are 243 universities; 144 are public universities, while 93 belong to the private sector (Higher Education Statistics, 2022). Despite the large number of HEIs, the size of doctoral degree holders' faculty is very circumscribed. We have insufficient PhDs and professors in HEIs. In HEIs, on average, 31 percent are PhDs, and 70 percent are non-PhD holders. Gender-wise, the distribution is skewed towards males, with 23.4 percent of males and only 7.4 percent of females holding PhD degrees (HEC, 2017). Similarly, Pakistani universities have insufficient professors (Haque & Khan, 2021).

Acknowledgements: Thanks to Dr Dure-e-Nayab for supervising this study and she tweets https://twitter.com/durre_nayab.

Unfortunately, the outcome of these strategies and policies has led to unemployed, under-employed and post-graduates in the country. Nayab (2011) showed that the unemployment rate is prominent among the youth (new entrants in the labour force). A Haque & Nayab (2022) study indicates that getting a job takes a decade or even more. Moreover, the study reveals that 31 percent of youth with professional and non-professional degrees are unemployed. More importantly, the HEC (HEC, 2022) has recently endorsed that more than 4000 PhD scholars are jobless in Pakistan. Thus the questions are, do we need such a large number of PhDs? Are there enough opportunities for youth and skilled human resources? Are we efficiently utilising our scarce resources? Do we consider the supply and demand dynamics for PhD holders? Do we conduct a cost-benefit analysis before making policies? Is there a quantity and quality trade-off? All these questions need to be addressed empirically.

Therefore, this study is designed to; investigate the current status of local and international post-graduate doctoral degree holders. To examine how the current status changes with the demographic characteristics. Furthermore, to study the prospects of PhD holders using the data collected by the PhD Doctors Association Pakistan (PDA) for the year 2020.

Based on the narrative stated in the preceding text, the study has narrowed down the research problem into "**Dire or Dying Demand for the Government Job: Analysing a PhD Holder's Future Prospects.**" And have operationalised the study into the following research questions and objectives.

1.2. Research Questions

This study is designed to address the following research questions;

- What is the current status of Doctoral Degree Holders (DDH)?
- How the current status varies with the demographic variables?
- Do and what dreams/preferences PhDs have?

1.3. Study Objectives

This study is designed to achieve the following objectives;

- To investigate the current status of both local and international post-graduate doctoral degree holders.
- To examine how the current status changes with the demographic characteristics.
- To study the future dreams or prospects of PhD holders.

1.4. Doctor and Professor Less Universities

In Pakistan, politicians seek to please their constituency by building universities regardless of the quality of education the institutes provide. They also knuckle down on "brick and mortar" HEC guidelines for a university, which are focused on land and hardware. There is no requirement of a doctorate holder, professors or quality. Consequently, universities in Pakistan are not successful in imparting quality education and thus awarding extremely poor-quality degrees to students (Haque & Nayab, 2022).

Table 1 shows the number of private and public universities in Pakistan's four provinces and other regions. There are now 243 universities in Pakistan; moreover, as in other sectors, the government has a significant share in this sector. And the total HEIs in private sector is only 99. However, a decade back, there were 87 universities in Pakistan (Hoodbhoy, 2009), reflecting the expansion of universities in Pakistan.

Table 1

Public and Private Universities in Pakistan

Provinces	Public	Private	Overall
Balochistan	9	1	10
Sindh	30	41	71
KPK	31	11	42
Punjab	50	36	86
ICT	17	8	25
G.B.	2	0	2
IJK	5	2	7
Total	144	99	243

Source: Higher Education Statistics, 2022.

Despite having a considerable number of universities, the number of PhD holders and professors is insufficient. In Table 2, by using the gender and PhD/non-PhD wise full-time faculty in HEIs for the year 2017-18, we investigated the percentage of gender wise, full time PhD and Non-PhD faculty in public and private sectors for four provinces and other regions of Pakistan. The finding reveals that the percentage of PhD holders' faculty is less than Non-PhD holders in the private and public sectors. The situation is even worse for females and institutions in less developed areas such as Balochistan. Beyond a doubt, this can negatively affect offshoot learning and human capital accumulation in the future.

Table 2

Gender and PhD/Non-PhD Wise Full Time Faculty in HEIs for the Year 2017-18

	No of		PhD Faculty (percentage)			Non-PhD Faculty (percentage		
Province	HEIs	Sector	Female	Male	Total	Female	Male	Total
Balochistan	7	Public	19.8	80.2	20.4	39.7	60.3	79.6
	1	Private	6.9	93.1	42.6	30.8	69.2	57.4
AJK	5	Public	19.3	80.7	28.9	38.2	61.8	71.1
	1	Private	9.3	90.7	18.5	38.4	61.6	81.5
GB	2	Public	8.6	92.06	34.8	25.4	74.6	65.2
Federal	14	Public	20.5	79.5	38.8	42.0	58.0	61.2
	5	Private	16.6	83.4	19.8	49.4	50.6	80.2
KPK	25	Public	14.1	85.9	43.3	32.7	67.3	56.7
	10	Private	8.7	91.3	28.0	24.0	76.0	72.0
Sindh	23	Public	32.6	67.4	29.4	35.5	64.5	70.6
	31	Private	32.8	67.2	14.2	45.1	54.9	85.8
Punjab	35	Public	29.7	70.3	37.5	52.3	47.7	62.5
	26	Private	23.1	76.9	22.5	39.3	60.7	77.5

Source: Author's estimation based on HEC 2017-18 report.

Similarly, a study conducted by (Haque, et al. 2021) uncovers the insufficient number of professors in Pakistani HEIs. In fact, the findings show that each province's social sciences per university range from 0.33 in AJK to 3.6 in Sindh. Professors in other disciplines range from 1.50 in G.B. to 18.37 in Sindh. Overall, professors in social sciences and other disciplines are 0.54 percent and 5.30 percent of the total faculty size. However, in knowledge-based economies, there are sufficient professors in HEI.

The outcome is quality education and human capital formation. But, unfortunately, in Pakistan, things are going the other way. Likewise, (Haque, et al. 2018) have highlighted the issues of junior and inexperienced faculty members in Pakistani universities.

2. REVIEW OF PHD HOLDERS EMPLOYABILITY AND CAREER PROSPECTS

This section of the study comprises the literature review of the PhD holder's employment status and career prospects based on literature and different surveys

Different studies and several global surveys show the highest rate of employment and lowest rate of unemployment (2 percent) (OECD, 2019). Likewise, a 3 and 4 percent unemployment rate has been reported in ESF studies (Boman, et al. 2021; ESF, 2017), respectively. Interestingly, (Boman., et al., 2021), using Doc Enhance survey, highlights advance jobs for PhD graduates (72 percent). Furthermore, 15 percent of those questioned reported that it takes only one to three months to get a job after completing their PhD, while 4 percent reported waiting around one year to find a job.

On the other hand, developing countries like India have relatively the same scenario as Pakistan. The number of PhD degree awarding institutions have been increased (912 reported in Times of India (Athal, 2022)). Similarly, the enrolment of PhD holders has dramatically aggrandised; the All India Survey on Higher Education Data for 2017-18 reported that 161,412 students were enrolled in PhD programs. Thus, the supply of PhDs outstripped demand. Moreover, the Indian media, Times of India (Athal, 2022), reported that out of 6000 PhDs, 2000 could not find a job commensurate with their qualifications.

The job opportunities in academia have shrunk as HEIs have already recruited many PhDs. Unfortunately, for a single position, recruiters receive more than 250 applications. These statistics reflect the lack of opportunities and unemployment among PhDs in India. Stark (2006) suggested that educated unemployment results from a surplus of educated workers. Higher education in developed nations leads to lower unemployment, and in developing countries like India, higher education means higher unemployment (Magnussen, 1979), with unemployment highest among graduates and above (Bairagya, 2015).

Moreover, regarding the carrier of PhD graduates, OECD data 2016 reports substantial differences among countries in the proportion of doctorates employment in higher education; around 15 percent of PhD holders are in Germany and Switzerland, and up to 50 percent in the Netherlands, Finland, Belgium, United Kingdom, Czech Republic, Estonia and Latvia (OECD, 2017). Some European Union (E.U.) states, e.g., Belgium, Denmark or the Netherlands, employ around one-third of

PhD graduates in the business sector. The recent data reveals that more than half (55.4 percent) of full-time PhD equivalent researchers in the E.U. worked in business enterprises, 32.6 percent in higher education and 11.1 percent in the government sector in 2020 (Eurostat, 2021). According to a European Science Foundation (ESF) survey, universities remain the prominent destination for PhD holders in the social sciences and humanities; engineers are also very present in the industry, and social scientists in the government sector (ESF, 2017).

Pakistani PhD graduates reported underemployment or mismatched jobs, either vertical or horizontal. Similarly, the literature reveals a mismatch in education levels and job requirements for other countries (Boman, et al. 2021; ESF, 2017). However, (Bebiroglu, et al. 2020) report overall close skills matching in the academic sector.

3. DATA AND RESEARCH METHODOLOGY

Our study uses secondary data from PhD Doctorate Association of Pakistan (PDA) through an online survey. The data is circumscribed to PhD holders from all four provinces and other regions (Gilgit and AJK) for 2020. The data is not public but provided to the authors by the president of PDA. The actual number of respondents was around 660. However, after data cleaning, we got the data for 633 post-graduates. The variables include gender, current status locale (districts), PhD year of completion, the PhD scholarships (financers), specialisation disciplines, the countries from where doctoral degrees were done, institution names (from where they pursued PhD), and their emails and CV links.

Moreover, it comprises the respondent's preferences for jobs in the labour market. The preferences were recorded order-wise, such as first, second, third, and fourth. However, the authors used variables aligned with this study's objectives. Additionally, the investigators have segregated and created new variables from the available data.

Similarly, this study used the data available on the HEC website regarding the number of private and public universities in Pakistan. The authors estimated gender-wise PhD and non-PhD faculties in HEIs using the HEC 2017-18 report.

This study is descriptive by nature. We have analysed the data using Stata software for the descriptive analysis and Microsoft's Power B.I. for the data visualisation.

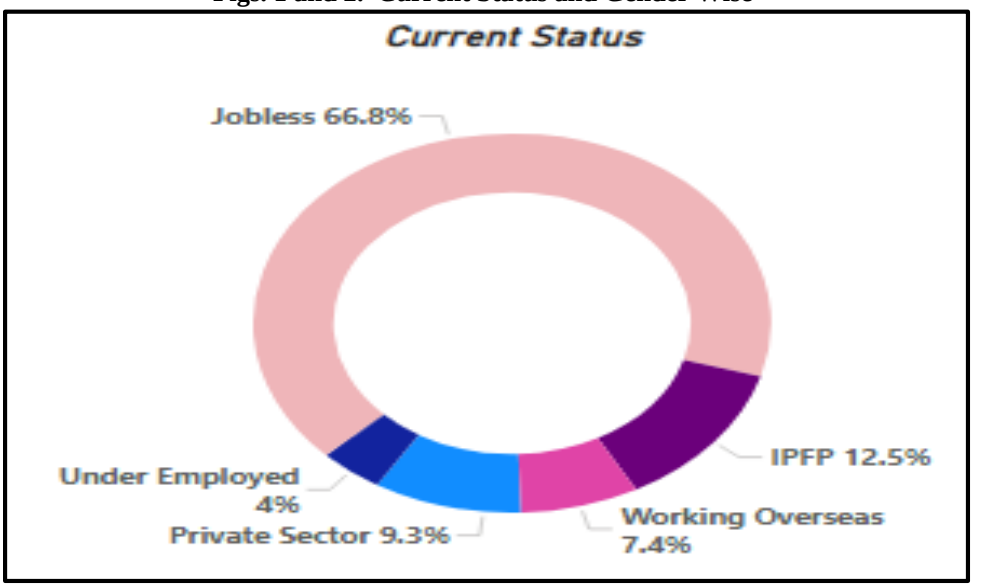
4. THE STUDY FINDINGS

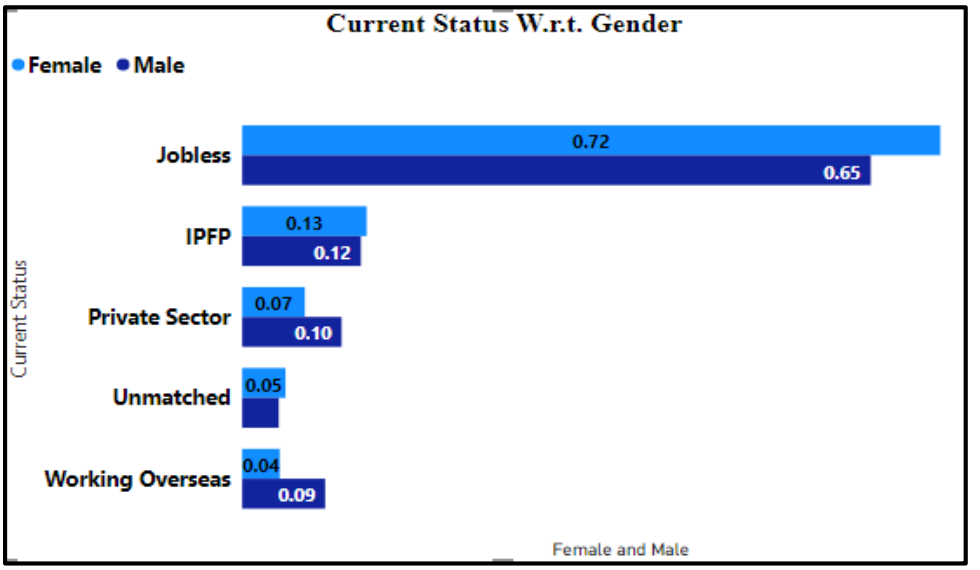
This section of the study comprises findings. Its primary focus is Pakistani PhD holders' abysmal status and future career prospects.

4.1. Current Status of PhD Holders

For this study, we used the data collected by PhD Doctorate Association of Pakistan (PDA) 2020. It comprises respondents from all four provinces, and two regions of Gilgit and AJK participated in the data. Graphs 1 and 2 show the current status of PhD holders and their gender status.

Figs. 1 and 2. Current Status and Gender Wise





Source: Author's estimation using PhD Doctorate Association of Pakistan (PDA) Data, 2020.

The data reveals that the majority of 66.8 percent the respondents reported themselves as jobless. However, in the developed world, the rate of PhD graduates' unemployment is the lowest, and they can easily find employment (OECD CDH; Boman et al. 2021; ESF, 2013, 2017). Furthermore, the finding shows that 12.5 percent of the doctorates are engaged in HEC's Interim Placement of Fresh PhDs (IPFP) programme. The HEC programme aims to create an opportunity for fresh PhDs to obtain academic experience and mentorship for one year in HEIs, federal/provincial government post-graduate colleges or public sector R&D organisations before formal entry into the

academic job market. Furthermore, 9.3 percent of the respondents reported that they are working in the private sector.

Overall, 7.4 percent of respondents are working abroad, and 4 percent of the doctorates reported that they are under-employed or unmatched. This category comprises the number of PhD holders working at a lower scale or with less compensation. The mismatch may be explained by the abundant demand for government jobs and near-to-zero preferences for industries or businesses. Many studies and surveys report the exact reasons behind the mismatched workforce (Boman, et al., 2021; ESF, 2017). In the context of Pakistan, the primary reason behind job mismatch is owing to weak coordination between demand and supply factors.

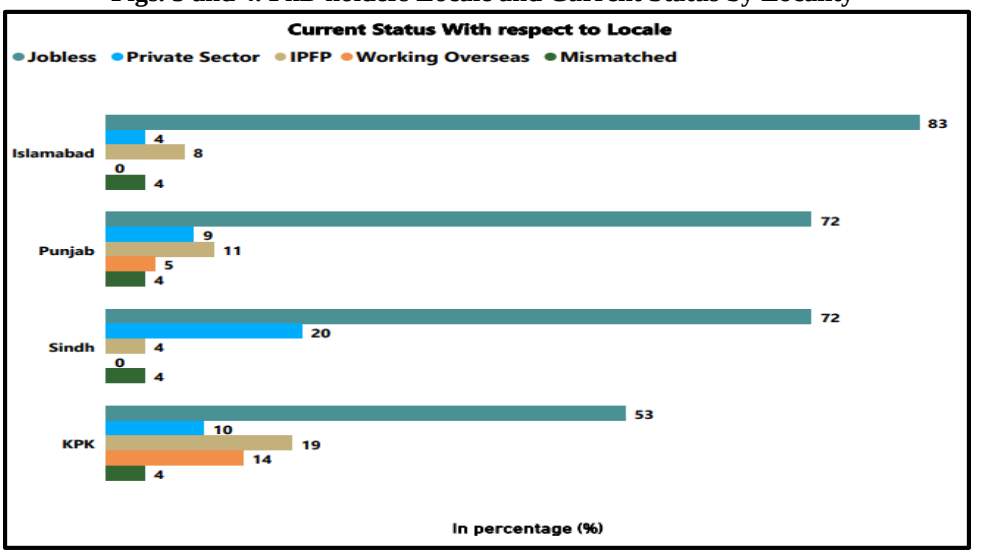
The education system in Pakistan is either producing inefficient skills or producing graduates in disciplines with low market demand (Farooq, 2011). Moreover, education policies have suffered from frequent political undulation, and outdated curricula devastate human capital formation (Nasir,1999). Thus, these empirical findings suggest bringing reforms in the education system, producing quality or skilled graduates and reforming the labour market.

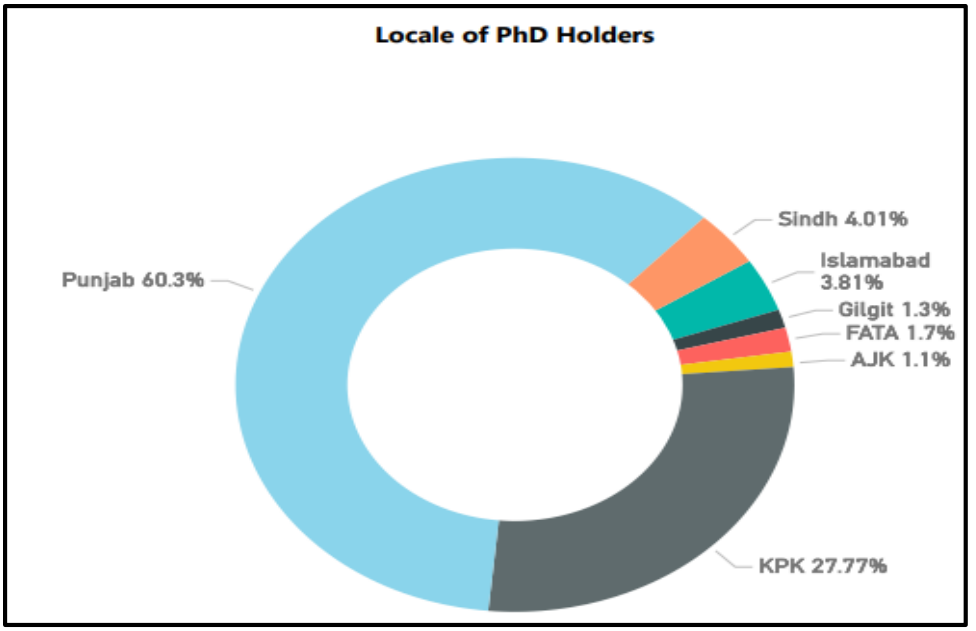
On the other hand, current status concerning gender pinpoints that as compared to males (65 percent), most females are jobless (72 percent); on average, 13 percent of females and 12 percent of males are working under the HEC's Interim Placement of Fresh PhDs (IPFP) program. However, in the private sector, male participation is 3 percent higher than female. Similarly, 9 percent of male doctorates are working overseas, and only 4 percent of females reported working overseas. Additionally, around 5 percent of males and females declared themselves underemployed or mismatched in the job market.

4.2. Locale of Doctorate Degree Holders (DDH)

Figure 3 shows the locale of PhD holders. Most post-graduates belong to Punjab, followed by Khyber Pakhtunkhwa (KPK) 60 percent and 27.7 percent, respectively.

Figs. 3 and 4. PhD holders Locale and Current Status by Locality





Source: Author's estimation using the data (PDA, 2020).

The bar graph (Figure 4)[2] points out the respondent's current status regarding the locale. The percentage of jobless is prominent among the resident of the capital territory of Islamabad, followed by Punjab and Sindh. The high unemployment rate in Islamabad may be explained by the highest literacy rate (84 percent) (Pakistan Economic Survey, 2021-22). In other words, the excess supply of educated persons in district. The other reason might be the exodus of people from other areas of the country for better job opportunities in Islamabad.

Moreover, the finding uncovers that around 19 percent of post-graduates from KPK province are working under HEC, the Interim Placement of Fresh PhDs (IPFP) program; the figure is only 4 percent for graduates from Sindh. However, participation in the private sector is comparatively high in Sindh province. Additionally, the result shows that four percent of doctors have reported mismatched jobs from each province. Finally, the graph reveals that only the residents of KPK (14 percent) and Punjab (5 percent) have jobs abroad.

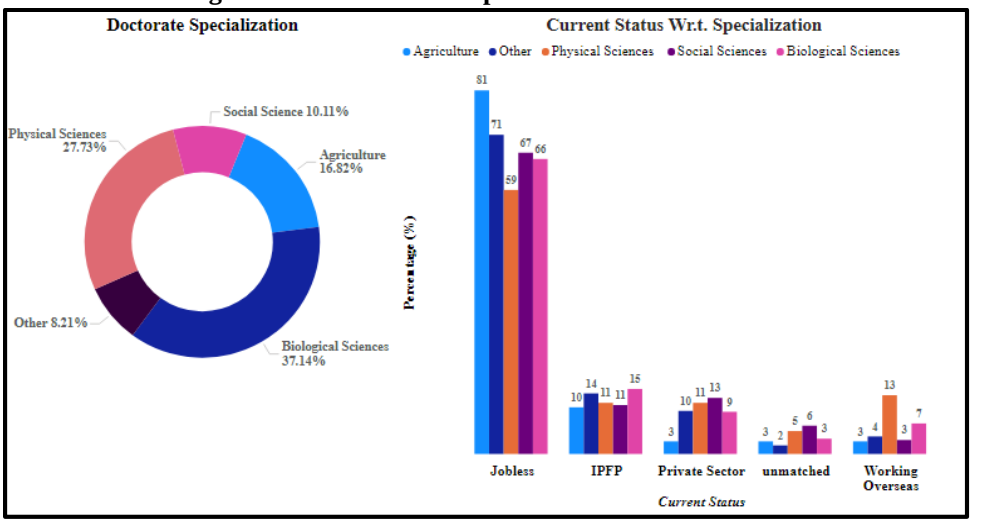
4.3. Doctorate Specialisation

Based on the available data, we categorised the doctorate specialisation into four categories: Physical Sciences, Biological Sciences, Social Science Agriculture and another category which comprises specialisation other than above mention categories. Physical and Biological Sciences are considered branches of science. Figures 5 and 6 show "Doctorate Specialisation". On average. 37.4 percent of PhDs hold specialisations

[2] In (Figure 4), the authors have excluded Balochistan Province and other regions such as Gilgit, AJK and FATA from the cross analysis. Because, the respondents from these regions was very less approximately 1.3 percent from each region. Thus, this could lead inappropriate findings.

in biological sciences, and approximately 28 percent have specialised in physical science. Thus, most respondents specialise in a pure science (approximately 64 percent). Additionally, around 17 percent have a doctorate in agriculture-related disciplines, while 10.1 percent specialise in social science. Finally, 8.2 percent have specialisations in other subjects.

Figs. 5 and 6. Doctorate Specialisation Gender Wise



Source: Author's estimation using the data (PDA, 2020).

While examining the current status of doctorates concerning PhD specialisation, our findings discover that most jobless doctors specialise in agriculture-related subjects. As shown in the graph "Current Status W.r.t Specialisation", 81 percent of the respondents who are jobless have a doctorate in agriculture, followed by the other category, 71 percent. Moreover, among pure science doctorate, the jobless are those specialising in Biological Sciences (66 percent). However, the jobless are comparatively less among Physical Sciences PhDs. Interestingly, PhD holders with different specialisations have almost the same participation in HEC's Interim Placement of Fresh PhDs (IPFP) program.

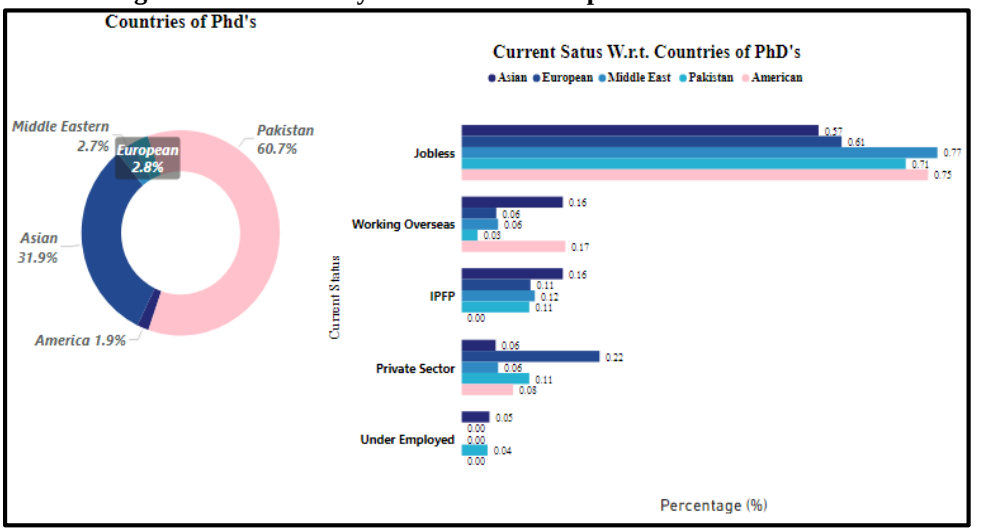
However, in the private sector labour market, the participation of doctorates with specialisation in Agriculture, Physical Sciences, Biological Sciences, Social Sciences and others is 3, 11, 9, 3 and 10 percent, respectively. Indeed, participation is discouraging, although it is high among social science experts. Likewise, the percentage of doctorates is comparatively less among the unmatched category of current status irrespective of their specialisation. Finally, the findings reveal that a majority (13 percent) specialisation in biological science are working abroad, followed by social experts (7 percent).

4.4. Specialisation From

For this study, we have analysed the countries where doctorates have completed higher education and linked their current status with countries where they obtained their PhDs.

Figure 7 shows the percentage of countries from where the doctors have completed their PhDs. The finding postulates that most doctorates have completed higher education in Pakistan and Asian countries, while a very small number have PhDs from American or European countries. As shown in the pie chart, on average, around 61 percent of the PhD holders have completed higher education from Pakistani HEIs. Approximately 32 percent have PhD's from Asian countries. And, lowest ration from the American states with only 1.9 percent have PhD degree from there.

Figs. 7 and 8. PhDs by Countries and Respective Currents Status



Source: Author's estimation using the data (PDA, 2020).

While analysing the current status concerning countries or regions where the PhD scholars have accomplished their higher education, the study uncovers that the number of jobless is high (77 percent) if the respondents have a PhD from middle eastern countries. It is lower if they have a doctorate from Asian countries (57 percent, excluding Pakistan). However, participation in overseas work is comparatively low. But, it is high for graduates from the U.S (17 percent), followed by those from Asian countries. And, around 6 percent from each middle east and European post graduates are engage abroad.

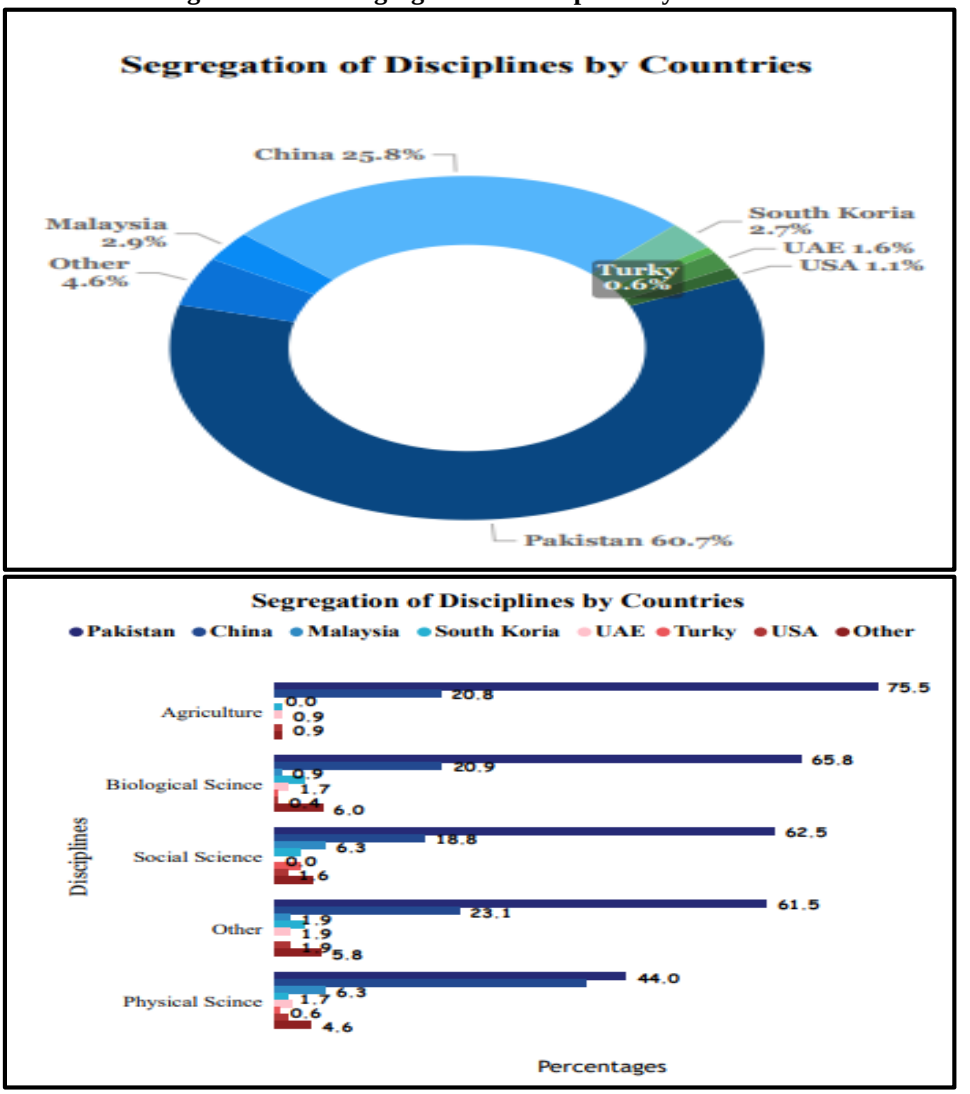
However, 16 percent who have obtained doctorates from Asian countries reported that they are working under HEC's IPFP program; approximately 11 percent of PhD holders who completed higher education from Pakistan, European and the Middle East are employed under HEC's IPFP programme. In the private sector, most of the graduates are from European countries, followed by Pakistan and the U.S, with 22, 11 and 8 percent, respectively. Finally, the graph shows that only doctorates who have PhDs from Pakistan or Asian countries have been reported as underemployed or mismatched.

4.4 (a). *Segregation of Disciplines by Countries*

In Figure 9 and 10, we segregated the countries producing post-graduates and linked them with the disciplines in which they specialise. The findings show that most post-graduates are from Pakistan, followed by China, and it's the least for Turkey.

Likewise, a similar trend is found concerning disciplines by country. Pakistan and China are prominent irrespective of discipline, followed by Malaysia. Therefore, most Pakistani post-graduates pursue their PhDs in developing countries.

Figs. 9 and 10. Segregation of Disciplines by Countries



Source: Author's estimation using the data (PDA, 2020).

5. DREAM/ PREFERENCES OF PAKISTANI DOCTORATE DEGREE HOLDERS

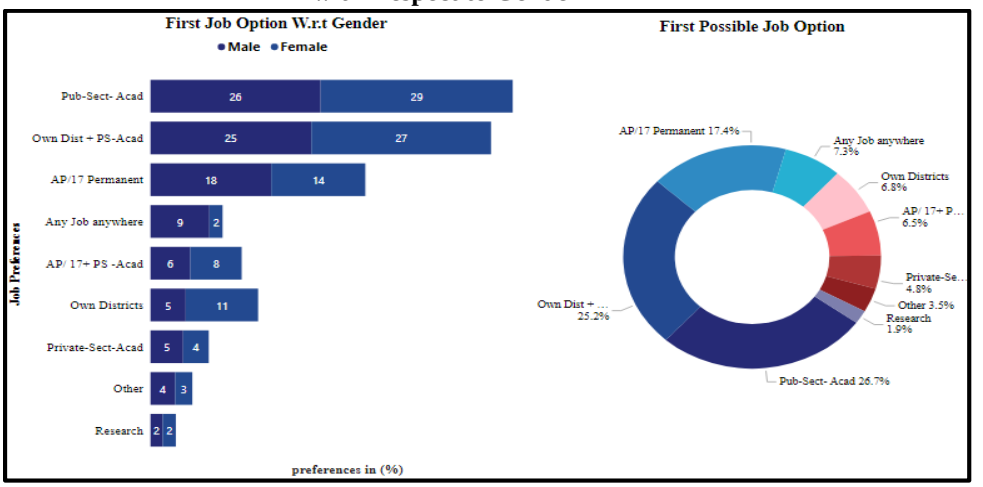
This section of the study addresses some key questions regarding the PhD holders' dreams or future career prospects. The questions include: "Do PhD holders have dreams"?; "What dreams do they have"?; "Are the dreams limited to government jobs"?; "Do they dream differently"?; and how the dream they have very with specialisation?

5.1. The First Dream / Job Preferences of PhD Holders

This study concentrates on the PhD holders' job preferences. Each respondent revealed four possible options for a job in the labour market. As shown in the pie chart (Figure 11), most PhDs opted for public sector academics as their first job preference. On the other hand, only 4.8 percent are willing to get a job in the private sector. Surprisingly, the finding pinpoints that most respondents dream of having a job in their home town or district. About 25.2 percent opted for a government job in their district, and 7.3 percent opted for their districts without disclosing the sectors they were willing to enter. This behaviour discourages intellectual mobility in the labour market.

Moreover, more than 17 percent of the respondent's preferences reveal that they want the assistant professor job. However, around 2 percent of PhDs are willing to get research-related jobs. However, the PhD degree is a research degree and is perceived as a career path to research (Hnatkova, et al., 2022). Additionally, according to the European Commission, precariously, most of the researchers are primarily prepared for a career in academia. In contrast, the need is for many of them to work in other sectors" (European Commission, 2021). Additionally, the study indicates that 7.3 percent are ready to get any job anywhere. In a nutshell, academia remains Pakistan's primary destination for PhD holders, consistent with existing literature (ESF, 2017).

Figs. 11 and 12. First Dream/ Job Options of PhD Holders and with Respect to Gender



Source: Author's estimation using the data (PDA, 2020).

The bar graph (Figure 12) shows the first conceivable job option with respect to gender. The findings, however, reveal that female has more inclination towards the public sector and are employed in their districts compared to male respondents. In the private sector, there is only a 1 percent difference between male and female preferences. Additionally, on average, the preferences are the same for research-related jobs. However, there is huge difference in the "Any Job Anywhere" category: 9 percent of the male and 2 percent of females are willing just to get any job anywhere. This reflects the unavailability of jobs in the labour market.

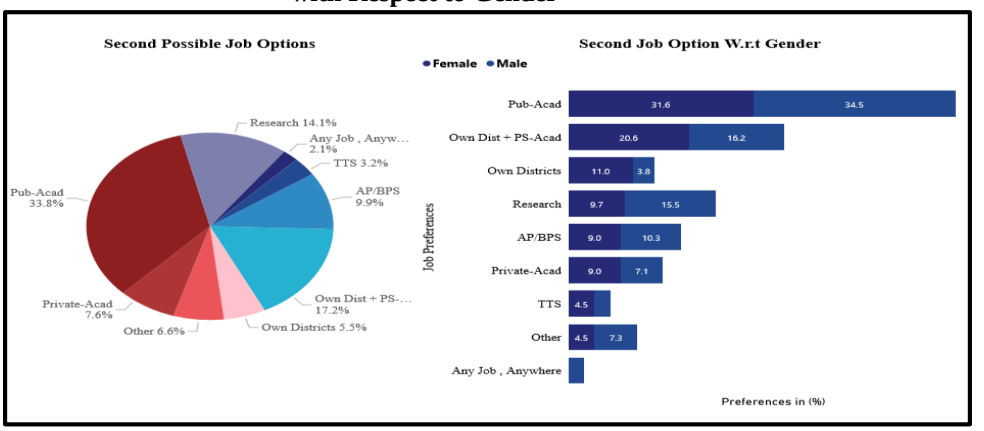
5.2. The Second Possible Job Option/ Dreams

Furthermore, the preferences for the second possible job are almost the same, with minor differences in inclination toward opted jobs. As reflected in the pie chart (Figure 13), around 34 percent of the PhD scholars are willing to get a job in public sector HEIs. However, the encouraging trend in second preferences is toward a research-related job, where 14 percent are willing to work.

Similarly, 7.6 percent opted for private sector academics as the second possible job option compared to first job preferences. Comparatively, the preferences for one's districts plus public sector academics' desire reduced to 17.2 percent (compared to 26.7 percent in the first possible job option). Additionally, as a second preference, 3.2 percent are willing to get a TTS job, and 9.9 percent are willing to get assistant professor jobs. However, 2.1 percent are willing to get any job, anywhere.

Likewise, as a first preference, the respondents have predominantly opted academic sector as a future career. This reflects the lack of demand or respondents' willingness to choose other sectors, e.g. industries, business or independent research. However, in the developed world (E.U.), a highly skilled workforce is engaged in industries and business (Eurostat, 2021).

Figs. 13 & 14. Second Dream/ Job Options of PhD Holders and with Respect to Gender



Source: Author's estimation using the data (PDA, 2020).

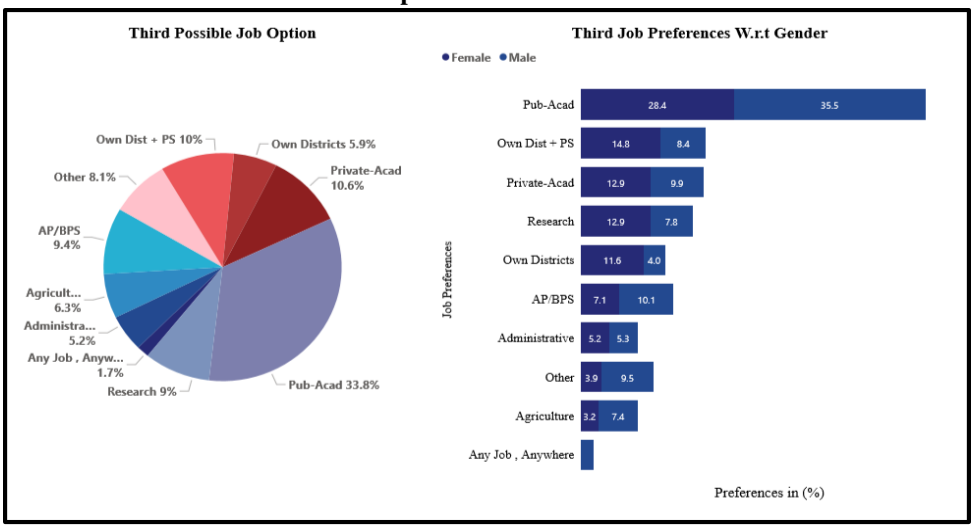
The bar graph (Figure 14) uncovers the second possible job option with respect to gender. The findings, however, show that males are more inclined toward the public sector (34.5 percent) than females (31.6 percent). However, females wish to work in their districts and private sector academic jobs. On the other hand, 15.5 percent of males and 9.7 percent of females are wailing to get research-related jobs. Similarly, a Fox & Stephan (2001) study reveals that the preference for an academic career in research is higher among men.

Conversely, the preference for an academic teaching career is higher among women. Moreover, 4.5 percent of females and 2.7 percent of males have shown interest in TTS as the second possible job option in the labour market. Moreover, 2.7 percent of males reported that they are willing to do any job anywhere.

5.3. Third Dream/Possible Job Option of PhD Holders

A third job preference or dream of Pakistani PhDs reveals that preferences for public sector academics are still prominent (33.8 percent), followed by the preferences for private sector universities (10.6 percent). Moreover, 10 percent of the PhD holders reported that they are willing to get a public job in their districts. However, the preferences for their district reduced compared to the second preference; 9 percent reported that they were willing to do research. Moreover, as a third preference, the respondents reported two additional categories of job preferences: administrative (5.2 percent), agriculture sector (6.3 percent), and around 2 percent revealed that they are willing to do any job anywhere.

Fig. 15 and 16. Third Dream/ Job Options of PhD Holders and with Respect to Gender



Source: Author's estimation using the data (PDA, 2020).

Additionally, the bar graph (Figure 16) shows the PhD doctors' third preferences with respect to gender. The objective is to seek gender-based preferences and dreams for jobs in the labour market. The findings reveal that males (35.5 percent) are more inclined to public sector academics than females (28.4 percent). However, as in the first and second preferences for a job, females are more likely to prefer the job in their districts plus public sector (14.8 percent) and private sector jobs (12.9 percent) as compared to male doctorates (8.4 percent and 9.9 percent) respectively.

On the other hand, the females' preference for research jobs is augmented to 12.9 percent from 9.7 percent as compared to second-order preferences. And, it has reduced for male. The preferences for administrative nature job is almost the same. This trend is consistent with the findings of (Fox & Stephan, 2001).

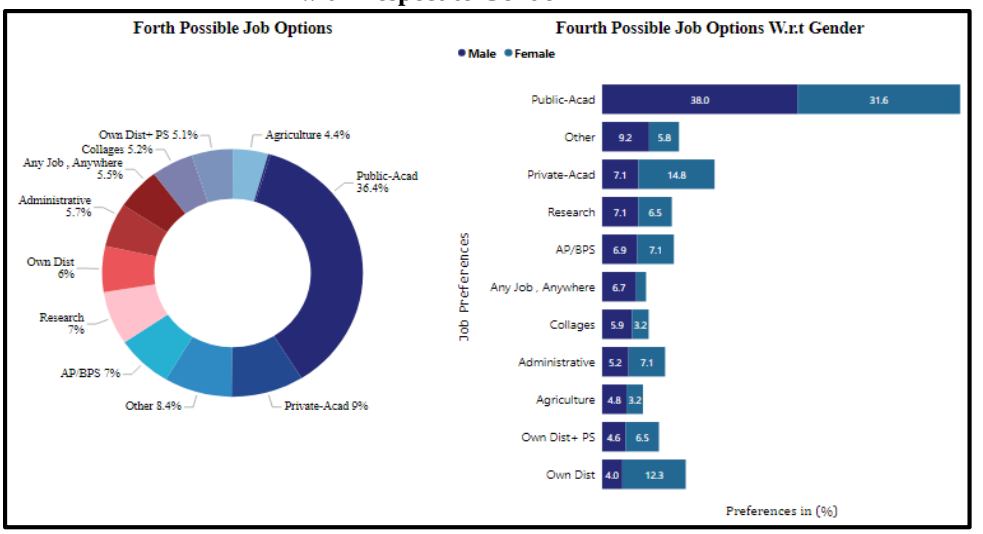
However, male doctors have shown more interest in agriculture sector jobs (9.5 percent) than females (3.9 percent). Moreover, 2.3 percent of males are looking for any job anywhere. This reflects the lack of jobs or the rate of unemployment among PhD holders.

5.4. Forth Dream/Job Option of PhD Holders

Finally, PhD holders have recorded the fourth possible job option in the labour market. Although, the desire for public sector academics is prominent in all four preferences order. Similarly, in the last around 36.4 percent of the PhD holders expressed the desire for public sector academic jobs, with 9 percent of the respondents showing interest in the private sector. However, the desire for jobs in their districts, plus the public sector, is declining with each additional choice. In the fourth possible job option,5.1 percent revealed the desire for jobs in their district plus public sector. Additionally, 6 percent have just mentioned their districts without disclosing the nature of jobs.

Moreover, 7 percent reported that they are either interested in research or regular Assistant Professor jobs in the labour market. Furthermore, in the final choice, respondents who were willing to get a job in universities also revealed a desire for academic jobs in colleges (5.2 percent), 5.7 percent wanted to get administrative jobs, 4.4 percent in the agriculture sector and 5.5 percent would take any job.

Figs. 17 and 18. Fourth Dream/ Job Options of PhD Holders and with Respect to Gender



Source: Author's estimation using the data (PDA, 2020).

Furthermore, (Figure 18) shows the fourth possible option for a job with regard to gender. As shown in the figure, on the vertical axis, we have job preferences, and on the vertical axis, we have preferences in percentages. The findings indicate that males are more likely to opt for public sector academics jobs (38 percent) compared to females (31.6 percent). The variation in sample size may explain this variation.

Likewise, in the first three preferences, the female preference for the private sector academic job is higher (14.8 percent) than males (7.1 percent). Similarly, the female desire for a job in their districts is more prominent than male doctorates. However, the preferences for research and assistant professor job are approximately the same for both males and females. Moreover, 5.2 percent of males and 7.1 percent of females have shown interest in administrative jobs. In the agriculture sector, 4.8 percent of males and

3.2 percent of females have expressed their fourth desire for a possible job in the labour market. Additionally, the findings reveal that around 6.7 percent of males and 1.9 percent of females are willing to get any job anywhere in the labour market.

To sum up, Pakistani post-graduates, both male and female in all four preferences order, prefer academic career over non-academic career. But, in the developed world, e.g. the USA, the majority of PhD candidates' preferences are for a non-academic career (industrial/government) or academic research over academic teaching (Fox & Stephan, 2001).

5(a) WITH RESPECT TO DOCTORATE SPECIALISATION

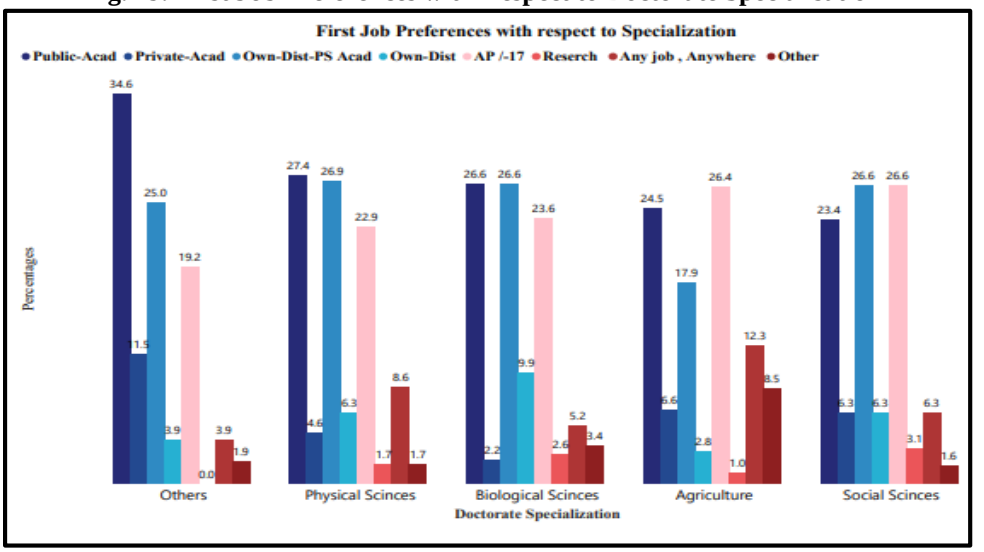
This section of the study has disclosed the doctorate holder's future career dream or job preferences.

5.1(a). First Job Preferences with Respect to Doctorate Specialisation

Similarly, for this study, we have analysed the job preferences with respect to PhD holders' specialisation. The objective is to seek each discipline's post-graduate preferences. As shown in (Figure 19), among social science post-graduates, 27 percent are willing to get AP-17 (Assistant Professor) jobs and a job in their districts, 23 percent are willing to get a job in public sector universities, and around 6 percent of social science doctorates have shown interest in private sector academic, or any job anywhere. Additionally, only 3 percent are interested in research-related jobs.

Among the post-graduates in agriculture, around 26 percent are willing to get AP-17 job as a first preference, 25 percent have shown interest in public-sector academics. Moreover, 18 percent opted for a job in their district plus public sector academics as a first preference for a job in labour market, and 7 percent opted for private sector academics. However, only one percent has shown interest in research.

Fig. 19. First Job Preferences with Respect to Doctorate Specialisation



Source: Author's estimation using the data (PDA, 2020).

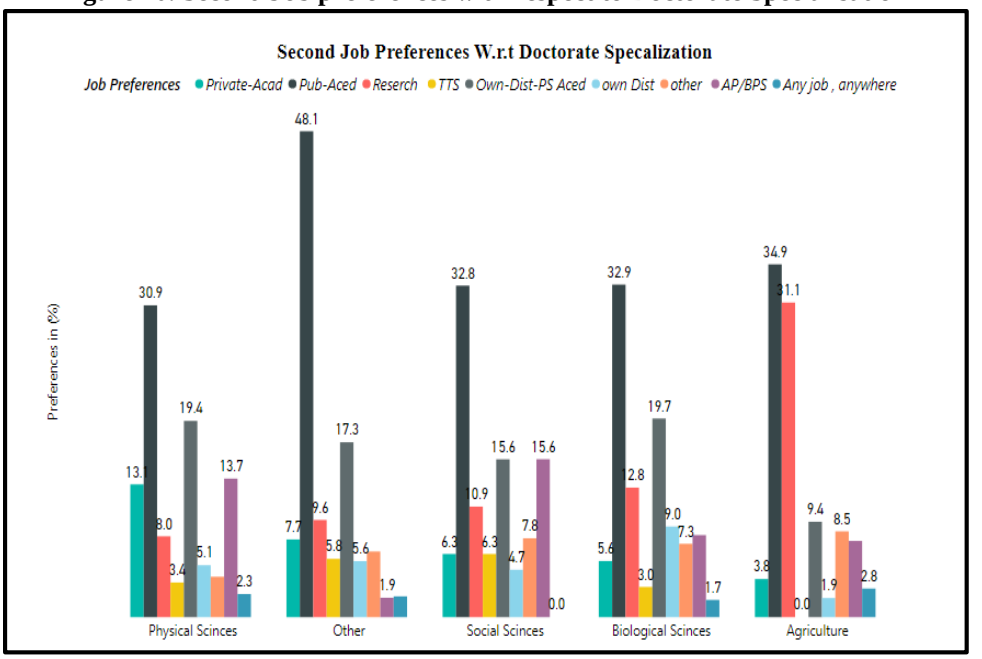
Furthermore, the first preferences of both biological and physical science are almost the same. The prominent preferences are public sector academics (27 percent), own districts plus public universities (27 percent) and AP-17 (on average 23.5 percent). However, there is a minor difference regarding private-sector academics; only 2 percent of biological science and 5 percent of physical science doctorates are willing to do research as the first possible option.

5.2(a) Second Job Preferences W.r.t Doctorate Specialisation

Figure 20 reports the PhD holders' second possible option for a job with respect to doctorate specialisation. The finding pinpoints that, irrespective of specialisation, most doctorates opted for public sector academics as the second highest preference for the job. However, the ratio for own district plus public universities has reduced for each category.

There is a minor rise in preferences for the private sector compared to the first option. Similarly, the preferences for research have also augmented. Moreover, TTS has emerged as an additional preference category in the second possible option

Figure 20. Second Job preferences with respect to Doctorate Specialisation



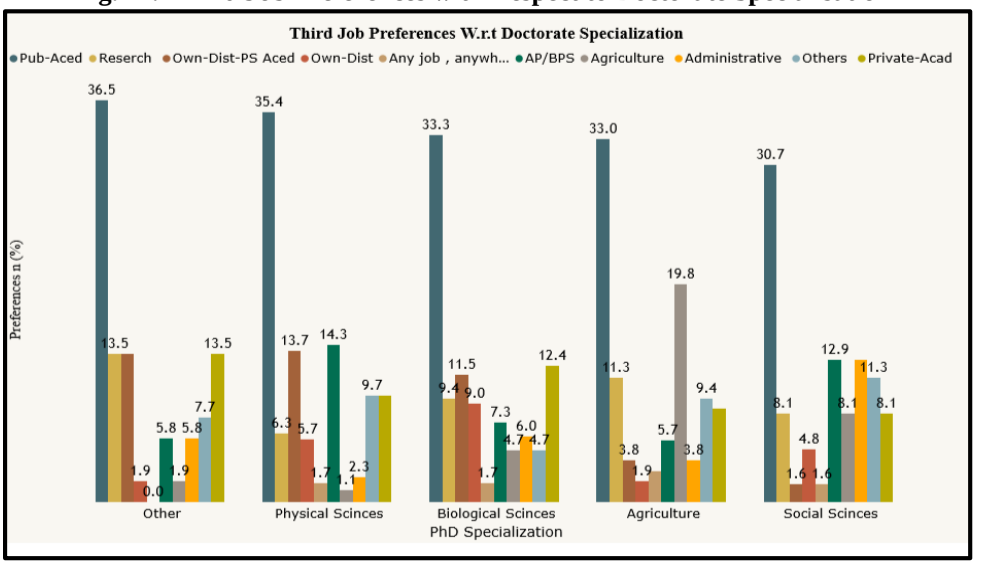
Source: Author's estimation using the data (PDA, 2020).

5.3(a). Third possible Job Option w.r.t Doctorate Specialisation

Figure 21 shows the PhD holders' third possible option for a job close to their specialisation. The study uncovers that preferences for the government or public sector academics are prominent irrespective of PhD specialisation and job options orders. Among social science post-graduates, around 30.7 percent opted for public sector academics as a third possible job option, and around 13 percent want to be Assistant Professors job in the public sector. On the other hand, 8 percent showed interest in

private-sector HEIs and research-related jobs. In the third preference, the respondents also revealed preferences for administrative and agriculture-related jobs. At the same time, 11.3 percent of social science post-graduates opted for administrative jobs, and around 8.1 percent showed interest in the agriculture sector.

Fig. 21. Third Job Preferences with Respect to Doctorate Specialisation



Source: Author's estimation using the data (PDA, 2020).

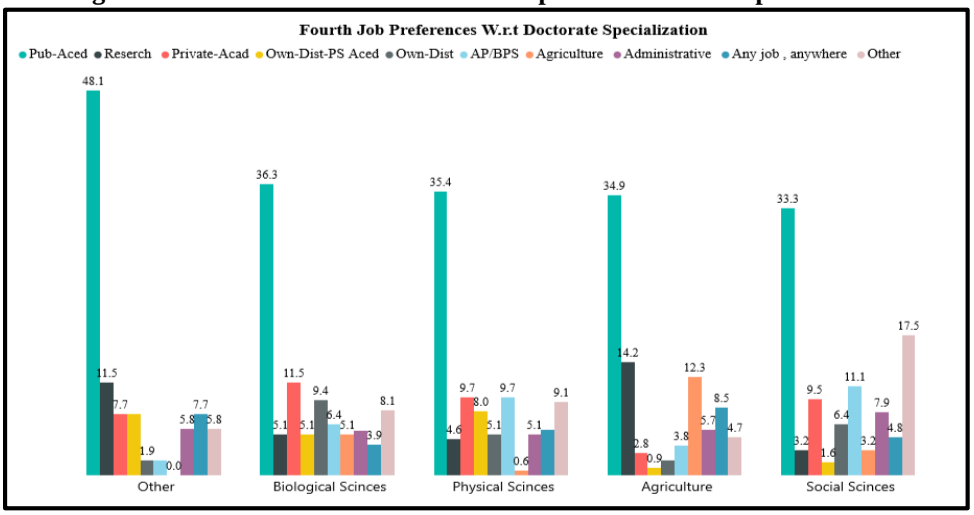
Among the agriculture sector experts, the majority revealed preferences for public sector academics (33 percent), followed by agriculture sector jobs (approximately 20 percent), and 11.3 percent reported research as their third job priority. Interestingly, the preferences for a job in native districts are declining with additional preferences (compared to the first and second possible job options). Additionally, the biological and physical science experts have high preferences for public sector academics - 33 percent and 35 percent, respectively. But, in the third preference, the ratio of biological science experts is high (12.4 percent) for the private sector compared to physical science specialists (9.7 percent). Additionally, 9.4 percent of biological and 6.3 percent of physical science experts revealed preferences for research-related jobs, showing comparatively low preferences for the agriculture sector.

5.4(a). Fourth Possible Job Option W.r.t Doctorate Specialisation

The above bar graph (Figure 22) reports the PhD holders' fourth possible job option for job with respect to their specialisation. Thus, the findings show that irrespective of the doctorates specialisation, more than 33 percent have preferences for public sector academic jobs. Moreover, among the social science experts, 9.5 percent opted for private sector universities, 3.2 percent opted for research, 6.4 percent opted for jobs in their native districts 11.1 percent opted for AP/PBS, 3.2 percent opted for agriculture, 7.9 percent have preferences for administrative job and 4.8 percent of the respondents revealed they would take any job anywhere. Similarly, among the agriculture

sector experts, 14.2 percent opted research as fourth possible job option. Finally, 12.4 percent have preferences for agriculture sector jobs and 8.5 percent just want jobs (any job anywhere).

Fig. 22. Fourth Job Preferences with Respect to Doctorate Specialisation



Source: Author's estimation using the data (PDA, 2020).

There is almost the same pattern in job preferences between physical and biological science specialists. However, biological science doctorates have comparatively high preferences for agriculture compared to physical science doctorates. Overall, the preferences for the government sector academics are prominent irrespective of their specialisation. Own districts' preferences are declining with preferences order (high in the first preferences) and for research, it is increasing.

6. CONCLUSION AND RECOMMENDATIONS

The study uncovered important findings that could lead to future research studies. For instance, why are we aggrandising the number of PhD holders? Do we need such a large number of subsidised post-graduates? Is the decision based on the supply and demand of post-graduates in labour market? Does the HEC consider the cost and benefit analysis before initiating any policy, and is it aware of the market dynamics? Which specialised doctors are needed? Are the post-graduates from developing countries contributing to Pakistan's R&D? Is there a quality and quantity trade-off? Why are the majority of post-graduates jobless? Why is there no willingness for mobility among PhD holders? Even though the doctorate is a research degree, why are PhD holders not willing to opt for research? Why do they have limited dreams? How and when will we think beyond government jobs? All these questions require to be addressed.

However, the study is limited to the PhD holder only, with a sample size of 633 respondents across Pakistan. The PhD PDA collected the data through an online questionnaire in 2020. The authors have analysed the descriptive analysis using Stata software and Microsoft Power B.I. to visualise the data. PhD holders' employment status

and other variables in percentages and have gender, locale and disciplines wise cross-tabulation.

However, the finding concludes that higher education's focus is on augmenting the quantity of doctorate degree holders in Pakistan. And, like many other sectors government has a prominent presence in the academic sector. Despite this, the ratio of PhD faculty in HEIs is very low, irrespective of gender and sector, with insufficient professors (Haque, et al., 2021.; Haque, et al., 2018). Moreover, the study indicates that more than half of the respondents reported their current status as "jobless" and high among females. Moreover, most jobless post-graduates are from the capital (Islamabad), followed by Punjab and Sindh. Post-graduates from domestic (Pakistani) HEIs, followed by China, make up most of the unemployed. Discipline-wise, joblessness is most prominent among those pursuing higher agriculture education. Comparatively the rate of joblessness is least among the males, especially those of KPK, who pursued PhD from European HEIs and for post-graduates' joblessness is least among those who are specialised in physical sciences.

Regarding ambitions or future career prospects, the finding indicates that higher degree holders have dark dreams, as they do not think beyond government jobs. Analysing the four order-based preferences, we can categorise their dreams or future career prospects in the following categories: public sector academic, public sector academic in their respective districts, private sector academic, research, permanent jobs (equal ante to Grade-17), contract based jobs through TTS, administrative and agriculture sector jobs (these two preferences were recorded in the third and fourth preferences order) and a tiny portion are willing to do any job anywhere.

To sum up, Pakistani post-graduates, both male and female in all four preferences, prefer an academic career over a non-academic career. There are negligible variations in post-graduate preferences with respect to their specialisation. Thus, the public sector academia remains the prominent destination for PhD holders in Pakistan. But, in the developed world, e.g. the USA, most PhD candidates prefer non-academic careers (industrial/government) or academic research over academic teaching (Fox and Stephan, 2001).

REFERENCES

Altbach, P. G. (2008). *The complex roles of universities in the period of globalisation*.

Altbach, P. G., & Peterson, P. M. (2007). *Higher education in the new century: Global challenges and innovative ideas*. BRILL.

Bairagya, I. (2015). *Socio-economic determinants of educated unemployment in India*. Institute for Social and Economic Change.

Boman, J., Beeson, H., Sanchez Barrioluengo, & Rusitoru,. (2021). *What comes after a PhD? Findings from the DocEnhance survey of doctorate holders on their employment situation, skills match, and the value of the doctorate*. European Science Foundation (ESF).

ESF. (2017). *Career-tracking survey of doctorate holders.European Science Foundation (ESF)*. European Science Foundation (ESF).

European Commission. (2021). *Taking stock, evaluating the achievements and identifying the way forward for the ERA priority 3 policy measures. Final report.* European Commission.

Farooq, S. (2011). Mismatch between Education and Occupation: A Case Study of Pakistani Graduates. *The Pakistan Development Review*, *50*(4), 531–552.

Fox, M. F., & Stephan, P. E. (2001). Careers of young scientists: Preferences, prospects and realities by gender and field. *Social Studies of Science*, *31*(1), 109–122.

Haque U. N., Mahmood M., Abbas S., & Lodhi A. (2018). *The university research system in Pakistan. Retrieved from*.

HEC. (2017). *Gender and PhD/non-PhD wise Full Time Faculty in HEIs for year 2017-18*.

HEC. (2021). *Higher Education Commission-Pakistan, Annual Report*. HEC.

HEC ordinance (455). (2002). https://www.hec.gov.pk/english/aboutus/Documents/455_HECOrdinance.pdf

Hnatkova, E., Degtyarova, I., Kersschot, M., & Boman, J. (2022). Labour market perspectives for PhD graduates in Europe. *European Journal of Education*, *57*(3), 395–409.

Hoodbhoy, P. (2009). Pakistan's higher education system—What went wrong and how to fix it. *The Pakistan Development Review*, *48*(4), 581–594.

Krishna Athal. (2022). Does India need more PhD holders? *Time of India*.

Mangematin, V. (2000). PhD job market: Professional trajectories and incentives during the PhD. *Research Policy*, *29*(6), 741–756.

Nadeem Ul Haque & Durre-e-Nayab. (2022). *Pakistan Opportunity to Excel: Now and the Future*. Pakistan Institute of Development Economics.

Nadeem Ul Haque & Muhammad Jehangir Khan. (2021). *Professor-less Universities in Pakistan*. Pakistan Institute of Development Economics.

Nasir, Zafar Mueen (1999) Do Private Schools Produce More Productive Workers? The Pakistan Development Review 38:4, 9—Google Search. (n.d.). Retrieved December 22, 2022.

Osama, A., Najam, A., Kassim-Lakha, S., Zulfiqar Gilani, S., & King, C. (2009). Pakistan's reform experiment. *Nature*, *461*(7260), 38–39.

Pakistan Economic Survey. (2021). *Pakistan Economic Survey*.

Qadir, A. (2011). *Tangential modernity: Culture of higher education reform in Pakistan*. Tampere University Press.

Pakistan Institute of Development Economics
Post Box No. 1091, Islamabad, Pakistan

www.pide.org.pk