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Unlocking the Economic Growth amid Technological transition: An Analysis of Hybrid Skills Acquisition among Professionals in Peshawar, Khyber Pakhtunkhwa

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Abstract: Over the next decade, technological transition will build or kill millions of workers. Many workers have become hybrids; merging skills set that were never previously associated with each other, such as statistical analysis and marketing, or architecture and programming. Specific abilities serve as hybridizing powers, allowing them to spread through various positions. This research also concentrates on the effects of such changes on the demands by the employers. The objectives of the research included to investigate in the hybrid skills set-soft and hard skills, which are the most demanded skills now a days in Peshawar region; to analyze the level of economic benefits attainted upon acquiring the hybrid skills to the teaching faculty professionals. As the present research is conducted to know the effects of technology on the teaching professional only so purposive sampling was used. As the research is of descriptive nature the Cronbach's Alpha and One-way ANOVA were employed to the data. After the analysis, it was obvious that technology has impacted the education sector and that the soft skills from the hybrid skills set have become equally important long side the traditional i.e. hard skills. Furthermore, there is difference in the monetary benefits attainted by the teaching professionals in private and public universities in Peshawar, Khyber PakhtunKhwa. The current study enables people to comprehend the kinds of hybrid skills that are prevalent in Peshawar and that job seekers need to acquire in order to find employment, as well as enabling those who are already employed to continue in their existing roles. The current study may contribute to closing the knowledge gap between what academic institutions teach and produce and the capabilities that industry will require in the future. This study contributes to the knowledge on hybrid skills set needed to stay employed or get hired by the teaching professionals in public and private universities of Peshawar, Khyber PakhtunKhwa. Hybrid positions are high-potential jobs, but exploiting their potential would

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necessitate different strategies for educators and businesspeople, as well as any other discipline. There is ample research in this field in UK, USA and India. This study contributes to the research literature on the technology driven hybrids skills set by the teaching professionals in universities of Peshawar, Khyber PakhtunKhwa.

Keywords: Soft Skills, Hybrid Skills, Universities, Peshawar, Khyber PakhtunKhwa

1. Introduction

In today's world it is seen how automation, Artificial Intelligence (A.I) and digital technologies have altered the nature of the jobs, thus giving rise to hybrid job economy. In the hybrid job economy, the employers are creating a sharp rise in demand of hybrid skill set from their employees. Increasingly many jobs are hybrids- comprising skill sets which are more of both soft as well as hard skill. "Hard skills encompass the knowledge needed for a job as well the technical expertise and. People skills, interpersonal traits, and personal attributes are other names for soft skills."(Robles, 2012).

When workers acquire a hybrid skill set, their employability rises. Accordingly, "employability is the continuous, lifelong process of acquiring new information, experience, and focused learning that enhances one's marketability to enhance their capacity to obtain and hold jobs through various labour market fluctuations."(Sigelman, Bittle, Markow, & Francis, 2018).

"Hybrid tasks are growing at a rate twice as fast as the overall job market, and they pay 20–40% more than their more traditional counterparts, according to their analysis on the hybrid employment economy."(Sigelman et al., 2018). "The reason behind such a demand for hybrid lies in the fact that this strategy assists in the convergence of skills within and through organizations in order to reap the benefits of employee diversity." (Ra, Shrestha, Khatiwada, Yoon, & Kwon, 2019). In 2018, Workforce analytics firm Burning Glass Technologies predicted the hybrid

job market would expand by 21% in the coming decade, which should further motivate professionals to diversify their skills set.

Technology alone could never lead and promise growth unless the human resource is well equipped with the relevant skills. “Certain disruptive abilities that can be implemented across several fields are the true drivers of hybridization.” (Sigelman *et al.*, 2018). In this case, technology applies to instruments and computers that can be used to solve real-world problems. “The fourth industrial revolution (industry 4.0) heralds far-reaching changes in the nature of work.”(Ra *et al.*, 2019).

The manifestations do not matter, the World Economic Forum’s 2018 study on technology. There are two main trends in literature about the impact of technology on skills and job. Firstly, alarming views on work loss caused by technology have been updated to a greater degree, a positive outlook that expects an enlargement in jobs. Upcoming jobs, however, can appear in various sectors and the need for employees to learn new skills. “Secondly, the key trend is that new positions are more likely to require higher cognitive abilities and non-routine skills. Tasks which are unlikely to be substituted for automation” (Ra *et al.*, 2019).

One should strive to develop a particular skill set based not only on what is in demand, but also on relevance to their field of work or profession with regard to their personality, likes and dislikes, otherwise their career may be short-lived. “The solution is to build a learning society in which people learn constantly in both formal and informal environments, at all stages of their careers.” (Ra *et al.*, 2019). This learning could be attainted through various measure like “trainings” (Tahir, Yousafzai, Jan, & Hashim, 2014), upon doing certified courses, “internships”(Patacsil & Tablatin, 2017) and the “higher education” (Sigelman *et al.*, 2018). The present study tends to find the actual benefits upon acquiring the hybrid skills. The possible agreed outcomes in all articles are

1. Technology’s impact is such that it is rewriting the jobs’ description as well as creating new ones. “This trend's

primary component is technology, although it's only the driving cause" (Sigelman *et al.*, 2018).

2. Some jobs that are labor intensive get automated simultaneously whereas rest of occupations less susceptible to automation on the point of having hybrid skills. "though they require analysis and judgments , the hybrid jobs are less likely to be automated than other roles" (Sigelman *et al.*, 2018).
3. Multifactor productivity is crucial for employability. "Employability skills are one of the most essential soft skills that workers in the manufacturing sector can learn." (Chan et al., 2018).
4. The economic benefits upon having hybrid skills set are long term.
5. Personal management, career building, learning and work exploration are all equally important.

The attainment of hybrid skills set is the long process which relies upon employers and workers or staffs, which are considered primary actors. Secondary participants are the educational system and its members (education sector), as well as their constituents and the legislation that will have an impact on employers, staff, and educational institutions.

For years, economists, corporate executives and labor experts have cautioned that a coming automation revolution and new technologies will upgrade the workforce, replace and de-skill some workers while transforming how and where work is done, for almost everyone.

Improving one's abilities helps one's human capital expand, and as a result, economic growth, productivity, and profitability are seen to be related to one's human capital. "The professionals are required to adopt

and upgrade skills to remain employed. It is suggested, that the workers ought to be given relevant trainings for uprising jobs" (Works, 2017). "You don't have to come from a non-technical background to profit from gaining more technical abilities; you can diversify."(Joyce, 2020). There are also economic benefits accrued to employees where economic benefits are benefits that can be quantified, such as net profits, sales, etc., in terms of money generated. How one calculates economic advantages really depends on what he analyses.

1.2 Research Questions

Which skills, out of a hybrid skill set that includes both soft and hard skills, are most in demand by teaching professionals in public and private colleges in the Peshawar region of Khyber PakhtunKhwa? What are the economic benefits to teaching professionals in public and private universities in the Peshawar region of Khyber PakhtunKhwa from obtaining hybrid skills? Among the training, internship, higher education and online learning, which contributed more in built up of hybrid skills.

1.3 Objectives

To investigate in the hybrid skills set-soft and hard skills, which are the most demanded skills now days in Peshawar region of Khyber PakhtunKhwa.

To analyze the level of economic benefits attainted upon acquiring the hybrid skills to the teaching faculty professionals in universities in Peshawar region of Khyber PakhtunKhwa.

To know among the training, internship, higher education and online learning, which contributed more in built up of hybrid skills.

1.4 Research Methodology

The research is of descriptive nature, primary data has been collected and analyzed by reliability tests like Cronbach Alpha and one-way ANOVA. The current study is descriptive. In the Peshawar region of Khyber Pakhtunkhwa (KP), a descriptive survey is constructed and utilised to

analyse the vital skills needed and obtained by the teaching faculty professionals of public and private colleges. “Explaining the data and demographic features is the aim of a descriptive analysis.”(Chan *et al.*, 2018). As the primary data is collected with the help of questionnaire, the analysis gives us the result in numbers, which makes it quantitative study. The results generalized from descriptive analysis, The present researcher is able to identify the hybrid talents that are most crucial for teaching faculty professionals at public and private universities in the Peshawar region of KP to learn by using Cronbach alpha and One-way ANOVA. Descriptive approach has been used widely by many researchers like (Chan *et al.*, 2018; Patacsil & Tablatin, 2017; Tahir *et al.*, 2014) in their respective studies as this approach holds best in studying such phenomenon. A descriptive research design is adopted to collect required data. In this research only primary data is used. The data collected and results obtained using IBM SPSS to fulfil the goals that this study has set forth.

1.4.1 Research Gap

Researchers focused their investigations on the development of hybrid skill sets that automation has sparked. This research focused on hybrid skills in Khyber Pakhtunkhwa on provincial level in Pakistan but there is no study on national level to have an understanding of hybrid skills sets acquisition on country level so this becomes a research gap. Upgrading oneself with both hard and soft skills is necessary to get in demand because more education less unemployment.

2. Literature Review

Sigelman et al. (2018), conducted a research on how automation and arrival of new technologies changes every job with every second spent. The researcher used the secondary data for analysis. According to their study, jobs have become more hybrids i.e. to carry out duties of work; the employees need to have multi-disciplinary knowledge and skills. These

jobs are also making up to 20 to 40% high paying than their traditional counterparts. The study pointed out five broad skill areas which needed skill adaptation namely, The study found that the theme of lifelong learning is the key to success. It concluded that hybrid skills- mostly soft skills are the most demanded and its demand will continue to grow. Further, it proposed that there should be collaboration between employers and the educators for filling the rising demand for hybrid skills.

Frey and Osborne (2017), examined the vulnerability of jobs with increased computerization. The methodology adopted was to estimate the computerization probability for nearly 702 professions by employing Gaussian process classifier. The impact on US labor market outcomes due to future computerization was evaluated keeping the foremost objective of investigating the jobs at threat along analyzing the association between professions probability of computerization, educational achievement and pays.

(Asian-Bank, 2018), showed the positive outlook of impact of technology on skills and explained how Innovations increase productivity, which lays the groundwork for higher-paying jobs and economic expansion. The study made clear that while some activities of a profession can be automated by technologies, the complete job cannot. Automation of jobs only progresses in areas where it is both technically and financially viable. The study discovered that new industries and jobs are created by technological advancement and economic expansion. In the fields of health care, education, finance, insurance, real estate, and other industries, there have been several job titles created, as well as new job categories that have emerged and will likely exist in the future. This increased the need for improving existing abilities and acquiring new ones. The majority of non-routine cognitive, social, and information communication technology (ICT) work would see an increase in demand. Average real wages for non-routine jobs increased faster than for routine and manual job.

Works (2017), discussed the link between the technological revolutions and economic growth. He highlighted the outcomes of automations. The framework of study was based on previous research, but the structure was expanded for the varying proportion of tasks performed by robots across industries. The model reduced the shift in jobs and salaries on exposure to robots, which is measured as the national penetration of robots into each industry times the local labor market employment share of that industry). Sex, business, occupation, schooling, and wage percentiles were also considered in the study. The jobs impact for males was found to be 1.5-2 times greater than for females, and the results are concentrated in the manufacturing industries. Except for managerial positions, negative results are seen in all professions. Not unexpectedly, there are significant reductions in blue-collar employment with repetitive manual tasks, such as assembly workers, transport workers, and machinists. The study found that increasing robots in the economy had a negative and positive impact on wages and employment.

Joyce (2020), discussed that jobs changes are unexpected, soft and hard skill combinations. The implementation of a single skill in fact raised wages by up to 40 percent. The study further discussed that hybrid occupations rely on skill sets from broadly distinct areas that are typically unrelated. The hybrid jobs are dynamic, multidisciplinary, and combine left-brain technical abilities with right-brain creative abilities. The study explained that big data and analytics skills expanded career opportunities, especially in fields such as data science, but the greater effect is on professions that once had nothing or little to do with statistics, such as business and marketing, according to the Hybrid Work Economy study. A growing number of practitioners used the data science expertise to raise questions and discuss issues. The researcher further discussed that the online education is a fantastic tool for developing hybrid skill sets, including the ability to expand your education with an advanced certification or portion of a degree to more effectively combine humanities skills with technology skills, coding skills communication

skills, design skills data analysis skills, etc. and better position yourself in the job market today.

FutureLearn (2020), explained that the pandemic has had an influence on people's lives in ways that many of us could never have anticipated. In addition to the awful loss of life, livelihoods and entire industries have been destroyed. People remained resilient and resourceful, resulting in the development of new ways of working and new skills. These new abilities have the potential to be quite beneficial in the future. The research paper discussed how emerging innovations have managed to alter those workers' environment. They use the examples the fields of programming and data analysis. Previously, a reasonable amount of technical knowledge and preparation was needed by practitioners in these positions. Developments in technology and modern tools, however, meant that some of these tasks could now be performed by a variety of company and marketing positions. A web development tool, and Google Analytics, and web analytics software, are two examples outlined. Both of these tech suits were much more available to other practitioners for previously specialized tasks.

Hjertstrand, Norbäck, and Persson (2020), explained that in today's celebrity economy, elite abilities have become critical. The present world created a multi-period model of skill formation in which it is illustrated that people with temporary disadvantages need to make greater efforts to obtain access to elite education. The study found support in soccer data for this mechanism: Youth football is dominated by players born early in the year, but late-born (but not too late) youngsters can emerge as the year's biggest stars. It also demonstrated how high elite education standards will raise the expected lifetime welfare for underprivileged pupils if youth disregard the "too much" future.

Chan *et al.* (2018), employability skills in the manufacturing sector were analyzed from the perspective of employers. The study set out to investigate the difficulties Malaysian graduates encountered in getting their skills evaluated by employers in the manufacturing sector, taking

into account factors such as gender, firm size, and business type. The study analyzed the data using descriptive and inferential analyses. It was quantitative research. It used random sampling which chose sample of total of 182 respondents from 400 employers in BatuPahat, Malaysia. Questionnaire was used to collect primary data using 3-point Likert scale rating. It pretested 30 employers of manufacturing industry. The Cronbach Alpha value was 0.712, considered acceptable. The study used t-test and ANOVA. The result showed that there exists no significance between the employer's perceptions and gender along manufacturing sector type, but there do exists relevant significance for company's size. The study concluded that communication skills have greater demand and that the graduates need to have better and updated employability skills for securing a job.

Patacsil and Tablatin (2017), suggested a skill breach methodology involving the internees of IT and evaluating the significance of IT skills breach as perceived by IT industry and students, Philippines. A descriptive study was carried comprising of survey based on purposive sampling in which the respondents were asked to fill questionnaire. Cronbach alpha value of 0.833 was obtained. The findings unraveled that communication and teamwork as dominant skills to be owned by IT graduates as perceived by respondents. The study also showed the industry held hard skills less important. The research proposed enriching of soft skills along hard skills into curriculum of university.

Ra *et al.* (2019), discussed in their study that how the start of the industry 4.0 foreshadows the transformation of the work nature. It heightened the fact that automation is happening phenomenon, displacing workers thus creating new occupations. This article stresses upon strengthening learning skills prevailing in industry 4.0. Mostly secondary data was used. The study provided with the rising trends in academics system and identified the trends demanded by firms regarding learnability. In the end

paper suggested a learning society which inculcates learnability on every step of workforce development.

2 Materials and Methods

This section's objectives are to examine the materials connected to the data to reveal the study's goals by computing and approximating the taken into account data, as well as by looking through and talk about the outcomes. In addition, it covers the research area, objectives, methods of recognition, new technique investigation, research variables, and model gathering for desired outcomes. Additionally, this study analyses methods to answer research questions and objectives.

2.1 Area of Study

This study is about the acquisition of certain hard and soft skills set required to get high in demand in job market in Khyber Pakhtunkhwa. Time period is year 2020. In Pakistan there was no such work done at that time. Is therefore unique in itself and beneficial to society, professionals who want to know the areas to focus to improve their employability.

3 Theoretical framework

Human Resource Economics examines individual, family, and business investments in many types of human capital, such as education, on-the-job training, and health. Other branches of economics include labor economics, education economics, and personnel economics, among others. The enhancement, development and growth of skills one has come in human capital formation. It can be described as the economic value of a worker's experience and skills. There have been conducted eminent studies internationally regarding the importance of new skill set being in demand in job economy. The seminal study by Burning Glass

technologies were the first to identify the hybrid trends in 2015, which after then has been observed a sharp rise in the hybrid skills trend initiated by various types of technologies. The Burning Glass holds jobs as more hybrid if

- They needed skills that were not commonly requested in their field.
- They necessitated competence clusters that often included several functional domains.
- They necessitated a more diverse collection of core skills and competencies.

Based upon the above distinction, determining the organization's dominant technologies is essential before delving into the impact of developing digital technology on skills and organisations. (Dhondt *et al.*, 2019).

4.1 Data Sources

The current study is descriptive in origin. In the Peshawar region of Khyber Pakhtunkhwa (KP), a descriptive survey is constructed and utilised to analyse the vital skills needed and obtained by teaching faculty professionals of public and private colleges. As the primary data is collected with the help of questionnaire, the analysis gives us the result in numbers, which makes it quantitative study. The results generalized from descriptive analysis, applying Cronbach alpha and One-way ANOVA, permits the researcher to determine the hybrid skills that are the most important to be acquired by the teaching faculty professionals of public and private universities in Peshawar region of KP. Descriptive approach has been used widely by many researchers like (Chan *et al.*, 2018; Patacsil & Tablatin, 2017; Tahir *et al.*, 2014) in their respective studies as this approach holds best in studying such phenomenon.

4 Empirical framework

This research is basically designed to study the most demanded skills of the hybrid skills set as well as to know the economic benefits accrued upon attaining those skills. Population means the totality of individuals from which a sample is taken. In the present study, teaching faculty professionals in the public and private universities of Peshawar region of KPK is the population, which comprises about 3627 total faculty, including PhDs and non-PhDs of both public and private universities of Peshawar in the year 2017-18 (Higher Education Comission, 2017-18). The private universities comprise about 1653 total PhDs and non-PhDs faculty in the year 2017-18 (Higher Education Comission, 2017-18). The public universities comprise about 1974 total PhDs and non-PhDs faculty in the year 2017-18 (Higher Education Comission, 2017-18).

Keeping in view the nature, cost, Covid-19 pandemic and limitations of the research understudy, it is suitable to employ purposive sampling and draw out the sample of teaching faculty professionals in private universities, mainly in higher ranks education namely, Professors, lecturers etc, in order to be able to draw generalizations of important hybrid skills demanded as well as acquired in Peshawar, KP. In this essence the sample drawn out of the total sample is 52 respondents, with 26 respondents each from private and public universities in Peshawar, KP.

Various non-probability sampling approaches are grouped together under the term "purposeful sampling." Purposive sampling's primary goal is to concentrate on unique features of a population that are interesting and will best allow the current study to address research concerns. In this study, purposeful sampling is used since it makes the most sense given the circumstances. "Choosing the right people to include in the sample is made possible by selecting the sample based on knowledge of the research problem."(Ali, 2014). One of the most economical and time-efficient methods of sampling that is now available is purposeful sampling. Purposeful sampling can be your best bet if there aren't many primary data sources available to support the study.

Data analysis is a method of analyzing, cleaning the data, modification and designing, with the goal of highlighting the required knowledge that supports this decision-making. Since this study examines the most demanded skills of the hybrid skills set of teaching professionals in Peshawar, KP, along with the economic benefits to them; to extract the precise results for the data analysis, all **52** questionnaires were entered into the computer software application SPSS 23 version. In the present study the population of teaching faculty professionals in the public and private universities of the KPK region of Peshawar comprises of about 3627 total faculty professors. The data was obtained from 560 respondents using a questionnaire using the purposive of sampling. The questionnaire was further divided into three parts, Section A consisting of the prerequisite details, and the B&C sections consisting of relevant questions to the present research. Pilot testing was used as technique to draw out any flaws in the questionnaire. Furthermore, one way ANOVA was used to check whether there were any statistically significant variations between the means of two i.e. soft skills and hard skills.

5 Results and Discussions

The first objective of the research was to investigate in the hybrid skills set-soft and hard skills, which are the most demanded skills now a days by the professionals in public as well as private universities in Peshawar region of KPK. In order to achieve the objective of the present research, the average score was used. The reason it was utilized was to determine the importance of certain skills from the hybrid skills set. The average mean scores were calculated for all the dimensions of hybrid skill sets. This methodology was adopted by Chan, 2018 and Patacsil, 2017. The following table 4.2.1 presents the average mean scores and specifies the differences in importance of all skills as well as highlights important skills.

a. Descriptive Statistics

Table 6.1Average mean scores of all skills

Hybrid skills set	N	Range	Sum	Mean	Std. Deviation
Soft skills: **Agile thinking**	52	2.00	128.00	**2.4615**	.60913
Interpersonal communication	52	1.00	146.00	**2.8077**	.39796
Critical thinking	52	2.00	142.00	**2.7308**	.48971
Decision making	52	2.00	144.00	**2.7692**	.46927
Negotiation	52	2.00	127.00	**2.4423**	.69771
Team work	52	1.00	150.00	**2.8846**	.32260
Collaboration	52	2.00	139.00	**2.6731**	.58481
Self confidence	52	2.00	142.00	**2.7308**	.52824
Self management	52	1.00	144.00	**2.7692**	.42544
Leadership	52	2.00	137.00	**2.6346**	.56112

Hybrid skills set	**N**	**Range**	**Sum**	**Mean**	**Std. Deviation**
Work ethics	52	2.00	141.00	**2.7115**	.53638
<u>Hard skills:</u> **Public speaking**	52	1.00	154.00	**2.9615**	.19418
Record keeping	52	2.00	137.00	**2.6346**	.59504
Curriculum development	52	2.00	109.00	**2.0962**	.35753
Administration	52	2.00	107.00	**2.0577**	.50151
Digital operations	52	2.00	114.00	**2.1923**	.52537
Technical skill	52	2.00	117.00	**2.2500**	.83725
Data analytics	52	2.00	111.00	**2.1346**	.44408
I.T skills	52	2.00	138.00	**2.6538**	.62260
Valid N (listwise)	52				

Source; Author's compilation

The table depicts the calculated average mean scores for the all the skills included in the hybrid skill sets, where N= total number of respondents i.e. 52. The descriptive analysis was used by various authors. “Descriptive SPSS were applied to see the reliability and consistency” (Tahir *et al.*, 2014).(Patacsil & Tablatin, 2017).

Soft skills include agile thinking, interpersonal communication, critical thinking, decision-making, negotiation, team work, collaboration, self-confidence, self-management, leadership, and work ethics. Hard skills include public speaking/lecture delivering, record keeping, curriculum development, administration, digital operating skills, technical skills, data analytics, and I.T skills.

The soft skills with the highest average mean scores were team work 2.88, interpersonal communication 2.8, and self-management. Whereas, soft skills with lowest means scores were negotiation 2.4, and agile thinking with mean score 2.4. According to this analysis, the most appreciated as well as demanded soft skills were team work, interpersonal communication and self-management and least in demand were negotiation and agile thinking. The reasons being that as the professionals belong to education sector so the most relevant were these skills in public and private universities in Peshawar, KP.

The hard skills with highest average mean scores were public speaking/ lecture delivering 2.96, I.T skills 2.65, and record keeping 2.6. Whereas, hard skills with lowest mean scores were administrative work 2.05, and curriculum development 2.09. According to this analysis, the most appreciated as well as demanded hard skills were public speaking/lecture delivering, I.T skills and record keeping, reasons being that these most needed to the teaching professionals.

The values in the table showed that as the P-value is set at less than 0.05 i.e. 0.008, there is significant diffrence in the attainment as well as importance given to the hybrid skills set in public and private universities in Peshawar, KPK.

Table 6.2 Paired Samples Statistics for Soft skills and Hard skills in public and private universities

	Mean	N	Std. Deviation	Std. Error Mean
Soft skills	**2.0962**	52	.49545	.06871
Hard skills	**2.3846**	52	.49125	.06812

Source: IBM SPSS, author's calculation

In the above table N= 52 which shows the sample size taken for the present research. By comparing the two means of skills, from the above table 4.2.3, it specifies that attainment of hard skills is more focused by the teaching professionals in public and private universities of Peshawar, KP. The mean value of soft skills (2.09) is less than the mean value of hard skills (2.38), thus giving more weightage to hard skills from the hybrid skills set in public and private universities combine.

However, the table 4.2.4 below showed the paired t-test of public universities of Peshawar, KP.

Table 6.3 Paired Samples t-test for the hybrid skills set in public universities

	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)

soft_skills - Hard_skills	0.03095	0.22150	0.04344	-0.12042	0.05852	-0.712	25	0.483

Source: Author's calculation

In the above table N=26, which is the number total number of respondents taken from the public university using purposive sampling. As in the table 4.2.4, the P-value is greater than 0.05 i.e. 0.483, it specified that in the public sector universities of Peshawar, KP; there is not much significant difference when it came to the attainment of the hybrid skills set.

However, the table 4.2.5 below showed the paired t-test of private universities of Peshawar, KP.

Table 6.4Paired Samples t-test for the hybrid skills set in private universities

	Paired Differences					T	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pairsoft_skils 1 - hard_skils	0.09965	0.20367	0.03994	0.01739	0.18191	2.495	25	0.020

Source: IBM SPSS, author's calculation

In the above table 4.2.5 the paired t-test showed p-value less than 0.05 i.e. 0.02, which showed that there is significant difference when it comes to the attainment of hybrid skills set in the private universities of Peshawar , KP. The professionals are not equipping themselves equally with the soft

skills and hard skills. The following table 4.2.3 (c) shows the mean values of hybrid skills set.

Table 6.5, the means of hybrid skills set in private universities

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Soft skills	**2.3240**	26	0.13573	0.02662
	Hard skills	**2.2244**	26	0.17243	0.03382

Source: IBM SPSS, author's calculation

In the above table N=26 which represents the total respondent/sample size taken from the private universities. The comparison of means showed that from the hybrid skills set, the soft skills are more valued and attainted by the private sector teaching professionals of Peshawar, KP.

The following table 4.2.7 showed the One-way ANOVA results applied to the data of the all universities.

Table 6.6 One-way ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Soft skills	Between Groups	0.031	1	0.031	1.181	0.282
	Within Groups	1.315	50	0.026		

	Total	1.346	51			
Hard skills	Between Groups	0.087	1	0.087	3.028	0.088
	Within Groups	1.434	50	0.029		
	Total	1.521	51			

Source: IBM SPSS, author's calculation

In the above table 4.2.7, the p-value for both the soft skills and hard skills are more than the significance level 0.05, i.e. for soft skills the value is 0.282 and hard skills are 0.088 which more than the significance level set at 0.05.Thus, it means that both skills namely soft skills and hard skills are equally important to the professional in the private as well as the public universities in Peshawar, KP.

It is therefore concluded that both skills namely soft skills and hard skills are equally important to the professional in the private as well as the public universities in Peshawar, KP.

The level of economic/monetary benefits attained upon acquiring soft as well hard skills from the hybrid skills set by the teaching professionals in both private and public universities in the Peshawar, Khyber PakhtunKhwa.

According to Burning Glass, "the first and the most profound finding is that high-paying jobs of the future are more complex as well as multidisciplinary and what Burning Glass calls hybrid" (Sigelman *et al.*, 2018).

The tests run showed the independent t-test applied to know which of the skill contributes more to the monetary upgrading of the teaching professionals.

By looking at the calculations received, it is clear that soft skills have bigger mean value of 2.52 when compared to the hard skills mean of 2.08. It is easily comprehended that teaching faculty has accrued monetary benefits by investing in attainment of the soft skills.

The third objective of the present study was to analyze the level of economic benefits attainted upon acquiring the hybrid skills to the teaching faculty professionals in public and private universities in Peshawar region of KP. This learning could be attainted through various measure like "trainings" (Tahir *et al.*, 2014), upon doing certified courses, "internships"(Patacsil & Tablatin, 2017) and the "higher education" (Sigelman *et al.*, 2018). The present study tends to find the actual benefits upon acquiring the hybrid skills. The frequency table was used to find out the various important sources of the hybrids skills.

a. Descriptive statistics:

The following table shows the frequency table highlighting various important sources

Table Frequency table of soft skills

Soft skills	Frequency	Percent	Cumulative Percent
1. Agile thinking			
training/job	7	11.7	13.5
higher education	43	71.7	96.2
online learning	2	3.3	100.0
2. Interpersonal communication			
training/job	43	71.7	82.7
Internship	8	13.3	98.1
higher education	1	1.7	100.0

Soft skills	Frequency	Percent	Cumulative Percent
3. Critical thinking			
training/job	6	10.0	11.5
higher education	44	73.3	96.2
online learning	2	3.3	100.0
4. Decision making			
training/job	38	63.3	73.1
higher education	14	23.3	100.0
5. Negotiation			
training/job	34	56.7	65.4
Internship	3	5.0	71.2
higher education	15	25.0	100.0
6. Team work			
training/job	36	60.0	69.2
Internship	3	5.0	75.0
higher education	13	21.7	100.0
7. Collaboration			
training/job	36	60.0	69.2
Internship	1	1.7	71.2
higher education	14	23.3	98.1
online learning	1	1.7	100.0
8. self confidence			
training/job	35	58.3	67.3
higher education	15	25.0	96.2

Soft skills	Frequency	Percent	Cumulative Percent
online learning	2	3.3	100.0
9. management			
training/job	12	20.0	23.1
Internship	1	1.7	25.0
higher education	39	65.0	100.0
10. leadership			
training/job	41	68.3	78.8
Internship	4	6.7	86.5
higher education	7	11.7	100.0
11. work ethics			
training/job	38	63.3	73.1
Internship	1	1.7	75.0
higher education	13	21.7	100.0

Source: IBM SPSS

The above table 6.4.1 showed that higher education was the main source of acquiring agile thinking, critical thinking and self-management, whereas the on the job trainings were prominent source when it came to interpersonal communication, decision making, negotiation, team work, collaboration, self-confidence, leadership, and work ethics acquired by the teaching professional in public and private universities in Peshawar, KP.

Table 6.4.1Frequency table of hard skills

Hard skills	Frequency	Percent	Cumulative Percent

Hard skills	Frequency	Percent	Cumulative Percent
1. public speaking			
training/job	38	63.3	73.1
higher education	14	23.3	100.0
2. Record keeping			
training/job	32	53.3	61.5
Internship	3	5.0	67.3
higher education	17	28.3	100.0
3. Curriculum development			
training/job	39	65.0	75.0
Internship	1	1.7	76.9
higher education	9	15.0	94.2
online learning	3	5.0	100.0
4. Administration			
training/job	39	65.0	75.0
Internship	4	6.7	82.7
higher education	9	15.0	100.0
5. Digital operating skills			
training/job	6	10.0	11.5
Internship	1	1.7	13.5
higher education	6	10.0	25.0
6. Technical skills			
training/job	30	50.0	57.7

Hard skills	Frequency	Percent	Cumulative Percent
Internship	2	3.3	61.5
higher education	5	8.3	71.2
online learning	15	25.0	100.0
7. Data analytics			
training/job	9	15.0	17.3
higher education	40	66.7	94.2
online learning	3	5.0	100.0
8. I.T skills			
training/job	4	6.7	7.7
Internship	1	1.7	9.6
higher education	29	48.3	65.4
online learning	18	30.0	100.0

Source: IBM SPSS.

The above table 6.4.2 showed that among the most important hard skills the, higher education was the main source of acquiring digital operating skills, data analytics and I.T by the teaching professionals of public and private universities in Peshawar, KP. Whereas the on-the-job training was the main source of the public speaking, record keeping, curriculum development, administration work, and technical skills.

Thus, from the above statistical analysis it is concluded mainly all the sources namely job trainings, internships, higher education and online learning do contribute to the built up of the hybrid skills pool acquired by

the teaching professionals of public and private universities of Peshawar, KP.

6 Conclusion

The present research result indicated that the most relevant soft skills were team work, interpersonal communication and self-management which mean that these skills are the most needed by the teaching professionals of the private and public universities of Peshawar, KPK for them on job. Other soft skills were also needed for smooth functioning, but they were not as crucial for sustaining on the current job or getting hired to the new job. The most appreciated as well as demanded hard skills were public speaking/lecture delivering, I.T skills and record keeping, reasons being that these most needed to the teaching professionals, as these are crucial skills needed to get hired. It is therefore concluded that both skills namely soft skills and hard skills are equally important to the professional in the private as well as the public universities in Peshawar, KPK.

Based upon the statistical analysis there is difference in economic/monetary benefits attained upon acquiring soft as well hard skills from the hybrid skills set by the teaching professionals. The teaching professionals of both universities have paid much emphasis on acquiring technology driven soft skills. Thus, it is concluded that the teaching professionals are well aware of the technology driven hybrid skills set and they are equipping themselves accordingly.

The current study enables people to comprehend the kinds of hybrid skills that are prevalent in Peshawar and that job seekers need to acquire in order to find employment, as well as enabling those who are already employed to continue in their existing roles. The current study may contribute to closing the knowledge gap between what academic institutions teach and produce and the capabilities that industry will require in the future.

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Family Networks and Social Inclusion: A Study on Welfare and Poverty Eradication in Pakistan

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Abstract: This paper explores the significance of family networks as the most prevalent and impactful social safety net, particularly in traditional South Asian society – Pakistan. It argues that family networks serve as a vital bridge between vulnerable and resilient individuals, facilitating societal welfare through the redistribution of resources. Using empirical data from the Pakistan Bureau of Statistics' "Special Survey for Evaluating Socio-Economic Impact of Covid-19 on Wellbeing of People," this study analyzes data from over 5,500 households and 31,022 individuals across Pakistan. The findings highlight the fundamental role of family networks in social protection, surpassing other public and private programs. Family networks have a substantial impact on the welfare of vulnerable segments, effectively alleviating poverty among connected family members. While this paper presents initial findings based on descriptive statistics, future research will employ advanced econometric techniques to further substantiate these results. The results could be applicable to other developing South Asian countries with traditional societal structures and similar demographic profiles. The study contributes to the existing body of research on welfare and poverty eradication, shedding light on the pivotal role of family networks in promoting societal well-being.

Keywords: Social Inclusion, Vulnerable Populations, Family Networks, Social Safety Net, Social Protection, Poverty Eradication, Social Welfare, Resource Redistribution.

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1. Introduction

Pakistan is not a welfare state; neither the country is in position to become a welfare state in true spirit due to numerous constraints including demographical, cultural, social, and economic constraints (Akram & Hassan, 2017). But the country with population of more than 225 million people has an intense religious, social and cultural penetration rooted in society. Developing countries, like Pakistan, are on course of achieving what developed countries have already achieved. Therefore, policy makers usually make policies that are based on inspirational examples from the developed world but in pursuit of such fancy policies the contextual differences between romanticized developed regions and the developing home country are largely ignored (Dolowitz & Marsh, 2000). This study builds on this niche that if policies are formulated strictly according to the cultural, religious, and other pertinent contextual settings, long-term sustainable and favorable results can be reaped from them.

Welfare maximization of the citizens is the fundamental objective of any government. To achieve this core objective, governments intend to increase economic growth so that employment opportunities and distribution of income increases the circulation of money, and production of new goods and services raise the standard of living for the masses eventually getting closer to the objective of welfare maximization (Lewis, 1954). Despite the continuous governmental efforts, some people remain below poverty line and vulnerable in terms of economic resources, health deficiencies, natural calamity etc. In welfare states, the government can afford to protect such vulnerable citizens and provide them what they need to overcome their deficiencies, especially because of abundant resources and lesser populations (Bulte et al., 2005). But developing countries like Pakistan, having huge chunk of people below poverty line, governments alone have fewer resources to spend on people and take them completely out of their vulnerable positions.

Therefore, to achieve the welfare of citizens, developing countries rely on external resources such as foreign aid, donations, equipment, employment opportunities, and trainings, financial and technical supports. On the other hand, parallel to the governmental support systems, vulnerable segments rely on their networks to get themselves out of any trouble or vulnerability

as it may be. This study intends to unearth the native ways of achieving welfare in the society with the support of family networks including relatives, neighbors, family, and friends in parallel to the governmental institutions intended to do the same for its citizens.

The aim of this paper is to operationalize the debate on significance of family network as the most prevalent, impactful and readily available institution amongst social safety net, especially in traditional South Asian society like Pakistan. It is argued that the family networks act as bridges between vulnerable and invincible, thus paving the way for societal welfare through involuntary re-distribution of resources. Therefore, the prime objective is to examine the impact of prevalent social safety net programs on the welfare of vulnerable segments of the society. Another specific objective of this research is to evaluate the role of family institution in minimizing the poverty of network members.

This study enriches the body of empirical literature on welfare and poverty eradication by operationalizing the debate on welfare through family networks. Results show that institute of family networks are the most fundamental social protections amongst all available in social safety net – comprising a range of public and private Social Protection Programs. Family networks are, by far amongst the largest social protections readily available for vulnerable segments of the society, and casts substantial impact on their welfare by eradicating the poverty of networking family members. Implications from these results can have macro level consequence on country's welfare and social protection expenditures, and may stream them in the better direction –paving the way towards more precipitated welfare for the vulnerable segments.

2. Literature Review

Family is the most fundamental social institution in every society (Chambers, 2013; Coleman, 1987). Habitually, family plays most important role in guiding the individuals (Ginsburg et. al., 2007) and paving their way towards individual identities of what they eventually become in their lives. However, the institution of family gets different treatment in different societies (Kağıtçıbaşı & Kag, 1996; Topor et al., 2006). Today the welfare oriented western states may be considered to be

the most glittering societies in the world, however, these societies are more individual oriented and pay lesser attention towards family as an institution (Dwairy, 2002). Demographic and economic indicators (income, population, education, employment etc.) in most of these states are such that ignorance of family institution gets overshadowed by profoundly focused pro-individual policies, backed by sufficiency of resources and good governance. Therefore, romanticizing these worldly welfare states without duly considering native economic and demographic characteristics (high population, low income, inadequate level of skill/education, underemployment/unemployment, growth trajectory, etc.) may not be a good policy conception for developing states that predominantly consist of traditional societies.

Poverty is the biggest challenge of all problems, not only for individuals but also for economies (Beckford, 1999; Payne, 2005). Although poverty seems like an individual oriented phenomenon, but it may lead to social disorder and economic calamities. Therefore, this issue has been acknowledged by the highest international forums such as the World Bank and United Nations. It affects huge number of people, in fact about 9.2% of the world population is declared living in extreme poverty i.e. on or less than 1.90$ per day (Newhouse et al., 2016).

Considering the huge number of people living under poverty line, the worldly forums have assigned greater importance to this issue. In Millennium Summit of the United Nations, in 2000, Millennium Development Goals (MDGs) were introduced for setting certain targets for the year 2015. Out of 8 goals set in MDGs, First and foremost importance was assigned to the goal of reducing extreme poverty and hunger from the world. Later in 2015, United Nations General Assembly laid out the plan to better and sustainable future for all, announcing 17 interconnected Sustainable Development Goals (SGDs). Again, the first goal in SDGs was “No Poverty” which was targeted for 2030. Henceforth, the global efforts are underway to adopt innovative ways to eradicate extreme poverty from the world (Cagatay, 1998; Embong et al., 2013; Soergel et al., 2021; Watt, 2000).

Poverty is a serious matter for whole world but for developing countries the issue is more severe (Chen et al., 1994). First, the developing

countries have lesser capabilities and greater constraints that leave them unable to eradicate the poverty as effectively as required. Secondly, the matter is augmented by the swelling populations in most of the poor countries. The same sets of constraints prevail in case of Pakistan where about 24.3% of the country's population lives under the national poverty line (UNDP, 2019).

Pakistan is 5th largest country of the world in terms of population having population of 225 million people (World Bank, 2022a). Although the poverty has been on declining trend since many past years, but to eradicate the poverty completely from country with people in such large numbers living under the poverty line requires implementation of thoughtful policies to eradicate this illness (Iqbal et al., 2018; Saleem et al., 2021).

Countries have adopted numerous ways to eradicate this mighty challenge of poverty. Pakistan has not done badly either, reducing the poor population by half since 2000 (Farooq & Ahmad, 2020). But the issue of lack of access to electricity by masses and huge energy shortfall has been lingering on since past decade and has played a big role in hampering the efforts to eradicate poverty (Falak et al., 2014). The pandemic of COVID-19 has added fuel to the fire and fears are that millions of people have gone below poverty line and the resulting consequences are undoubtedly long-term and still unaccounted for (World Bank, 2022b). In such circumstances innovating ways are required to combat poverty and ensure the welfare of the masses.

The idea of welfare state is rooted in the framework where state is responsible for the welfare of its citizens and in case of any vulnerability faced by its citizens, state is responsible for their rescue via institutionalization of social protection systems (Dwyer, 1998; Estevez-Abe et al., 2001). Policies such as national health insurances, social security, unemployment benefits, single-parent support, etc. are all manifestation of welfare states (Myles, 1996).

Evidently there have been states that have successfully protected their vulnerable citizens, efficiently fulfilling the responsibility of being welfare state with the help of numerous protective measures in place (Esping-Andersen et al., 2002; Kwon, 2005). Germany, France,

Netherlands and Nordic countries (Norway, Denmark, Iceland, Sweden and Finland) are some examples of modern welfare states (Arnesen & Lundahl, 2006; Buchardt et al., 2013). But essentially the demographic, religious, economic, cultural and social characteristics of these societies are entirely different than that of Pakistan.

3. Theory

This research is grounded in Social Capital Theory. Literature considers Pierre Bourdieu from France and James Samuel Coleman from US as two major sociologists in the domain of social capital theory (Bourdieu et al., 1991; Gillies & Edwards, 2006; Rogošić & Baranović, 2016). Although the analysis of literature suggests that both of these pioneers of social capital theory put forward their views in slightly innovative ways (Gillies & Edwards, 2006; Rogošić & Baranović, 2016). However, this research adapts these sociologists' view points, and converges them into broader economic circumstances illustrated to fulfill the objectives of this study.

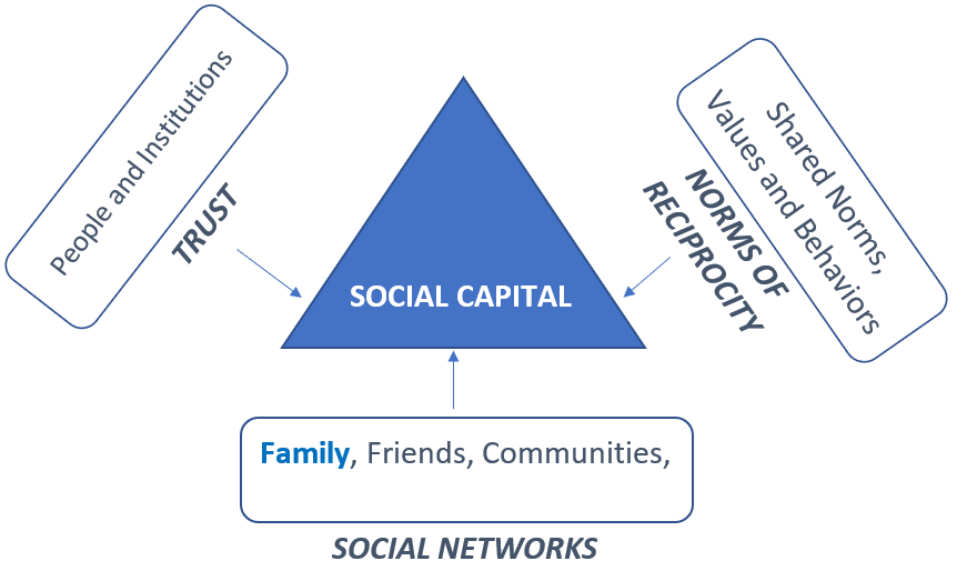
Bringing elements of conflict theory into use, Bourdieu associates more instrumental networking of social capital, considering social capital as exceedingly "class specific" that leads to propagate social inequalities. From Bourdieu's view point, social capital is the aggregate of the resources in possession of durable networks (kinship relations and appropriate social organizations) that can be mutually used to maximize utility and stimulate dynamic benefits (Bourdieu, 1986). Since kinship of an entity will be fitting to one's own social class, subsequently, social divide will likely remain and become more blatant. For instance, the elite class will have more powerful social networks and subsequent abundance of resources available at their disposal, whereas trivial resources will likely be available amongst lower class in accordance with their less influential, marginalized social ties. Thus, the social, economic and cultural resources are interdependent, and largely contingent upon one's "social class".

Whereas, Coleman's work rooting from structural functionalism, mainly centers upon the cohesions amongst working class or socially excluded communities. The physical absence of adults in his work may be described as a structural deficiency in family social capital whereas family

social capital plays role in the creation of human capital in the rising generation (Coleman, 1988). According to Coleman, if the human capital possessed by parents is not complemented by social capital embodied in family relations, it is irrelevant to the child's educational growth that the parent has a great deal, or a small amount, of human capital. Moreover, in presence of some structural deficiency (such as single parent family or both parents working for livelihood), the children are possibly constrained to build intergenerational bonds that socialize them into relationships (characterized by mutual trust and obligation) thus affecting the possession of their social capital.

As far as the comprehension of social capital theory for this study is concerned, the Coleman's structural functionalism elements and the Bourdieu's class specific characteristics both play crucial roles in undermining or augmenting the social capital. Parents' ability to invest in social capital for the advancement of their personal and their children's opportunities must be determined by their access to prevailing economic resources –ingrained in their social class, and their structural perfectionism –for diversified intergenerational relationships (Gillies & Edwards, 2006).

Henceforth, malleable definitions of social capital can be cited from the literature as it has been defined in numerous contextual ways (Bhandari & Yasunobu, 2009; Bourdieu, 1986; Coleman, 1988; Fukuyama, 1995; Lin, 2008). But the common thing amongst most of the definitions of social capital is the ability of involved social relations to stimulate dynamic benefits that substantiate social capital as personal as well as social resource. Thus, as conceptualized in (Bhandari & Yasunobu, 2009), the social capital is jointly maintained capital that augments from the streams of social networks (families, friends, communities, and voluntary associations), norms of reciprocity (shared norms, values, and behaviors), and trust (people and institutions).



Constructs of Social Capital (Bhandari & Yasunobu, 2009)

4. Empirical Method

COVID-19 has impacted every aspect of human life around the globe. The gravity of the crisis can be judged from a report in response to COVID-19 which notes that all of the sustainable development goals (SDGs) are likely to get affected because of this worst global health crisis in the 75-year history of the United Nations (UN, 2020). The crisis is gaged beyond the health and social crisis and termed as a human crisis in the report. COVID-19 altered the world upside down and left it blurry (Holladn & Curran, 2020; Koren, 2020). While all sectors are implicated due to the worst pandemic of the century, health and economy has suffered the most (Chan, 2020; Goodman, 2020; Hess, 2020), consequently increasing the unemployment, food insecurity, and poverty.

This study is based on the survey data that measures the socio-economic impacts of COVID-19 on wellbeing of people. The role of social safety net programs in present of vulnerability is intended to explore in this study. There are numerous vulnerabilities that can be considered to study but this paper will focus on health emergency, unemployment and food

insecurity and the role of public and private social safety net programs in presence of these vulnerabilities.

4.1 Research questions

This research intends to explore the answers of the following questions.

- Which Social Safety Net Programs are prevalent in the country?
- What is the impact of prevalent social support programs on the welfare of the society?
- Does institute of family play any role for the welfare of the vulnerable networking members?

4.2 Hypothesis

> In presence of vulnerability (health emergency, unemployment, food insecurity), private social safety net programs (family, friends relatives/neighbors, deeni welfare trust, other welfare trust, NGO, Others) provide/ensure more impactful social support to the vulnerable/needy segments of the society than the public social safety net programs (BISP, Ehsaas-COVID, Zakat/Baitulmal, Workers Welfare/Social Security/EOBI)

4.3 Objectives

- To examine the impact of prevalent social safety net programs on the welfare of vulnerable segments of the society.
- Another specific objective of this research is to evaluate the role of family institution in minimizing the poverty of network members.

4.4 Data & Methodology

This study is based on empirical survey data from "Special Survey for Evaluating Socio-Economic Impact of Covid-19 on Wellbeing of People" published by Pakistan Bureau of Statistics (PBS), Government of Pakistan.

4.5 Sample Design

Two stage stratified random sampling design was used for the collection of survey data. Selection of Primary Sampling Units (PSUs) using systematic random sampling was done in first stage. While in second stage, systematic random sampling with equal probability in rural and urban vicinities was used for the selection of Secondary Sampling Units (SSUs). 12 households from each PSU were selected as SSUs in this stage.

4.6 Sample Size Estimation & Allocation

The sample size of 500 Primary Sampling Units (PSUs) from all across Pakistan computed based on two indicators from HIES (Household Integrated Economic Survey) 2018-19 i.e. average household consumption and food insecurity. Then 70% of PSUs were allocated to Urban areas while 30% to Rural areas considering that COVID lockdowns adversely affected the highly populated areas or large Urban societies more severely than the less populated rural areas. Furthermore, the Urban sample was divided into two parts i.e. Self-Representative Cities and Other urban areas aiming better accuracy.

The sample size consists of more than 5,500 households encompassing nearly 3% national level representation from the sampling frame of latest population and housing census (2017). It provided details of more than 31,022 individuals from all across Pakistan. Obtained data was supported by statistical software "STATA" and descriptive statistics from it are utilized for this research.

4.7 Estimation of Poverty Line

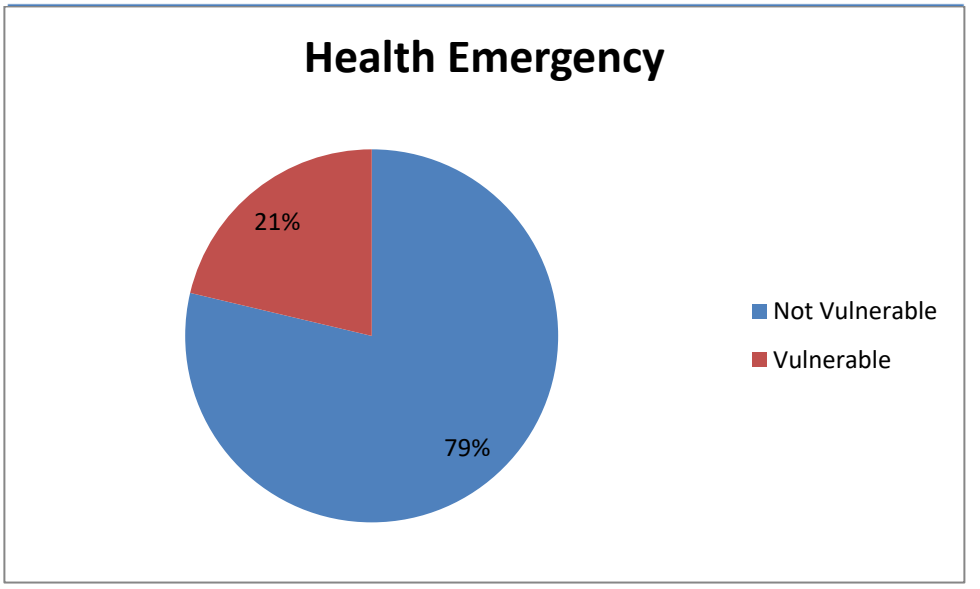
The updated poverty line for 2015-16 was calibrated at Rs. 3,250.28 per adult equivalent per month (Report, 2016). For this study the poverty line has been adjusted in accordance with the inflation i.e. Consumer Price Index (CPI). According to Pakistan Bureau of Statistics 356 items are included in market basket from which CPI is calculated. The Bureau of statistics set the base year for CPI at 2015-16 and from 100 in base year, CPI augmented to 127.3 in 2019-20. On the same lines, the poverty line has been adjusted for this study from Rs. 3,250.28 to Rs. 4,137.61 with an increase of 27.3%, in accordance with the inflationary increase as per CPI.

5. Results

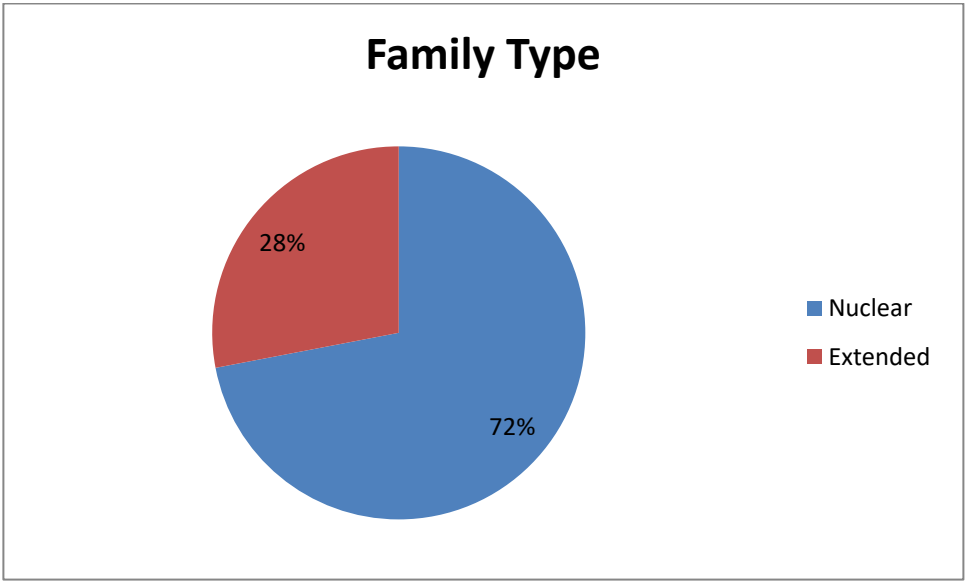
This study relies on the survey data that measures the socio-economic impacts of COVID-19 on wellbeing of people within the framework as illustrated above. This section discusses the results with respect to each vulnerability i.e. health emergency, unemployment and food-insecurity.

5.1 Health emergency

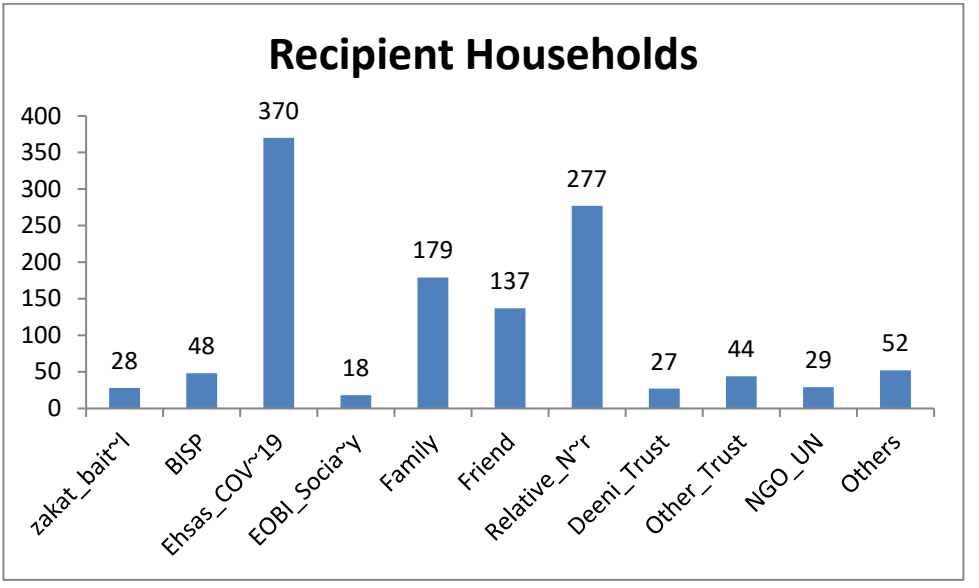
People who consider themselves as highly affected to severely affected by COVID-19 are considered herein as the victims of health emergency. There were 957 such households who rated themselves as highly affected by the COVID-19 and 216 households who rated themselves as severely affected by the COVID-19. Therefore, 1,173 households (21%) out of total of 5,508 households are categorized here as vulnerable due to health emergency as they are highly implicated from the COVID-19 whereas 4,335 (79%) are not vulnerable. These are not the people who got infected from COVID but these are the people who adversely got affected due to implications arising from COVID.



Following graph shows that 72% of the 1173 highly-severely affected households have nuclear family type (children and parents living under one roof and sharing meal). It inflicts that extended families (children, parents and grandparents and/or other relatives living under one roof and sharing meal) have higher capacity to absorb the adverse effects of shocks even in the case of huge shocks such as COVID.

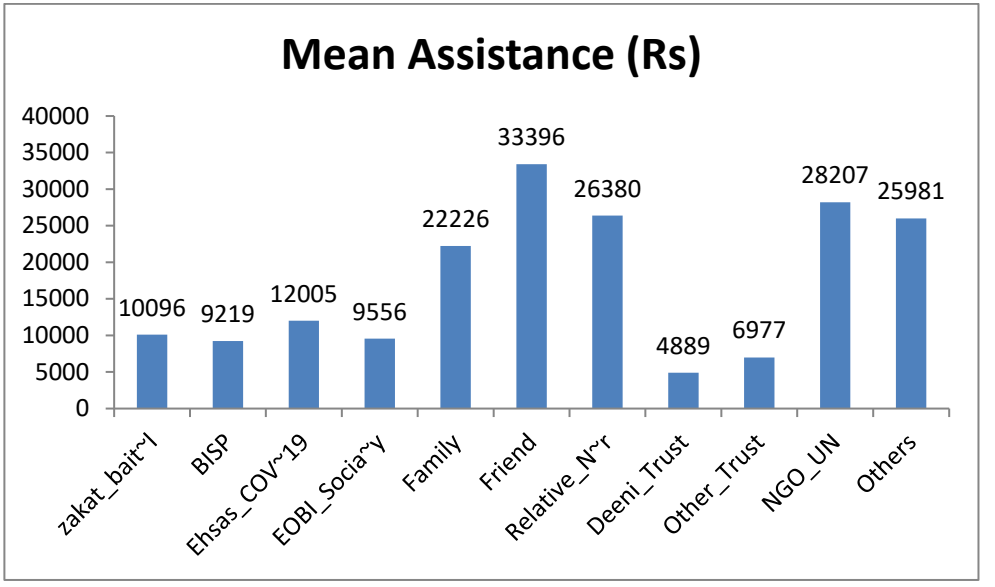


Now let us observe the assistance provided by available social security platforms to these vulnerable families due to this health emergency.



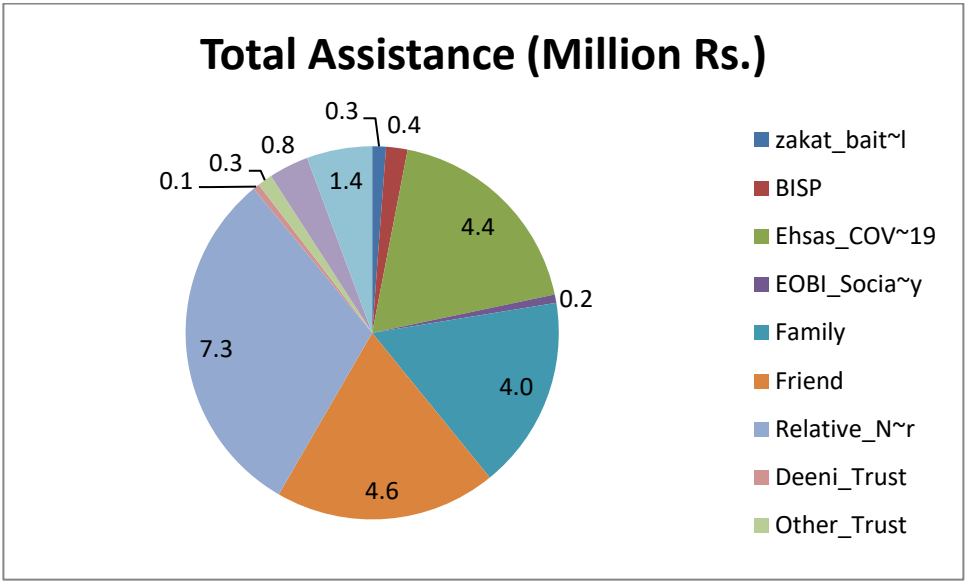
We can see that Ehsas COVID-19 program specifically targeting the COVID-affectees is the most dominant social security program that extended the assistance to 370 households, followed by the assistance provided by relatives/neighbors (277), family (179) and friends (137). Moreover, BISP, Zakat/Bait-ul-mal, Deeni trusts, other trusts, NGOs and others also contributed in their capacity.

If we look at the mean assistance provided by these programs, the highest mean assistance is Rs. 33,396 provided by the friends, as can be seen by the following graph. NGOs and Other platforms have also relatively higher mean assistance providers but their frequency to engage the vulnerable households is relatively less. Dominantly, the highest mean assistance is provided by family, friends, and relative/neighbors.



It is also clarified by the following graph of total assistance provided by all social security programs that out of all 9 categories, “relatives” emerged as the highest contributor of financial assistance (Rs. 7.3 Million) followed by “friends” (Rs. 4.6 Million), “Ehsas COVID-19” (Rs. 4.4 Million), and “family” (Rs. 4.0 Million). It is also evident that out of four major contributors in social safety net, three are Private Social Security Platforms whereas the only Public social security program in top

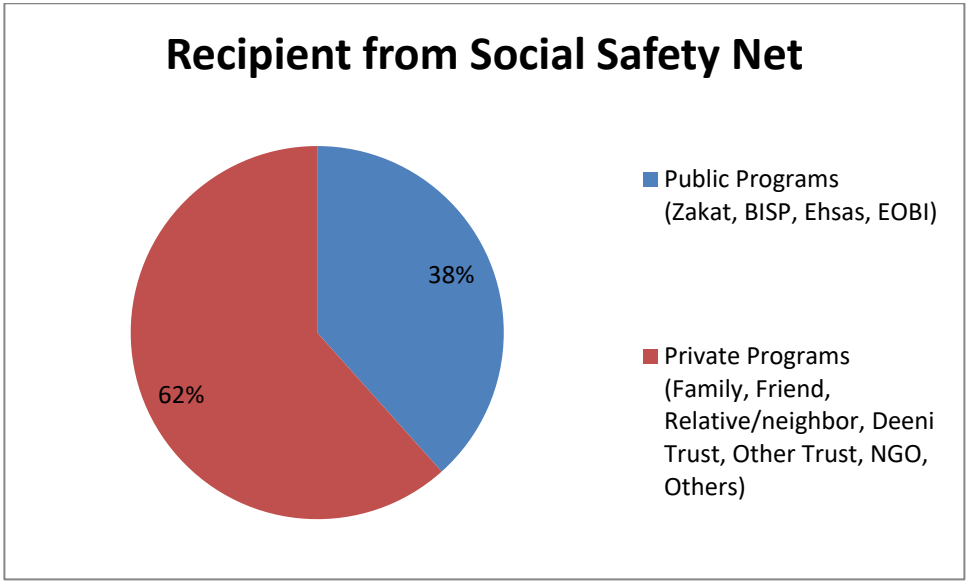
four was Ehsas COVID-19 program that was specifically launched to extend help during COVID era.



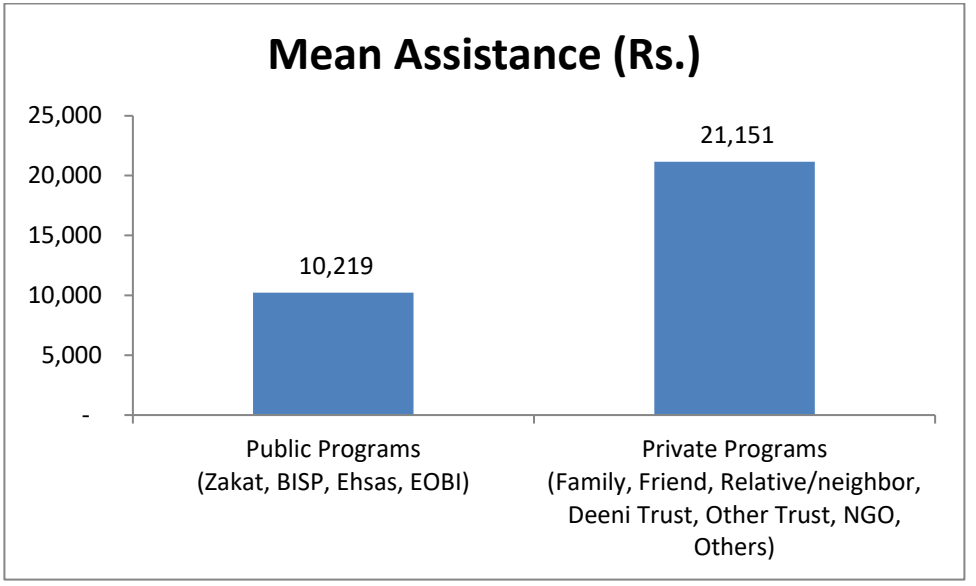
5.1.1 Social Safety Net – Public Programs Vs Private Platforms

One objective of this research was hypothesized that in presence of vulnerability, private social safety net programs provide/ensure more impactful social support to the vulnerable/needy segments of the society than the public social safety net programs. Therefore, private social security platforms become the core base of social safety net available in society. The gaps/loopholes in private social safety platforms are tapped for its strengthening by public social safety programs that keeps evolving as part of the total social safety net available in a society. As in this case, Ehsas COVID-19 evolved as a booster program (public funded program) in augmentation to already prevailing private platforms such as family, friends, relative/neighbors. Once the COVID-19 situation is under control, the Ehsas COVID-19 program is also curtailed whereas alternatively available private social safety platforms are still in place and actively playing their part to overcome the prevailing vulnerabilities.

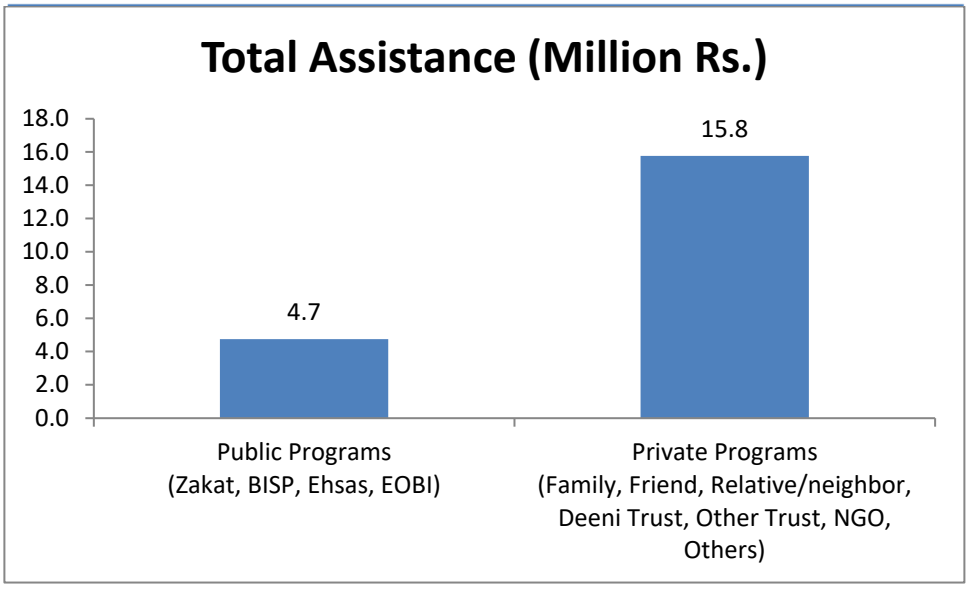
The results show that 62% of the total recipient households received assistance by private programs whereas 38% households received assistance from public programs.



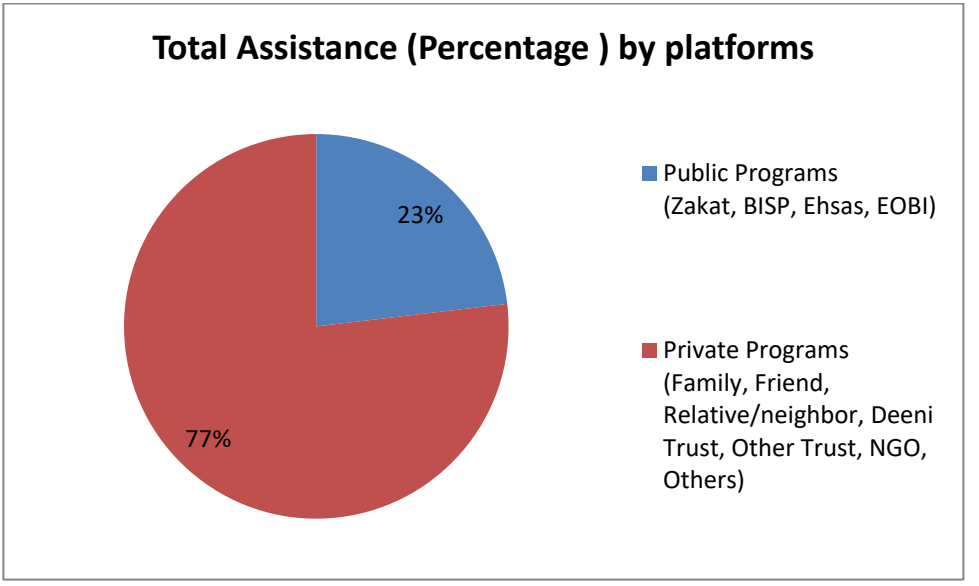
Not only the private programs are more prevalent but also more impactful. It can be inflicted from the following graph that the mean assistance provided to each household under public programs is Rs. 10,219 whereas under private social security platforms this mean assistance provided to given household jumps to Rs. 21,151 which is almost 100% increase from publically provided assistance.



Subsequently, the total assistance of Rs. 15.8 million provided by private programs outclasses the total assistance of Rs. 4.7 million provided by public programs. It reveals under current scenario, private assistance programs almost quadruplicate the amount of assistance provided by public programs as can be seen in following graph.

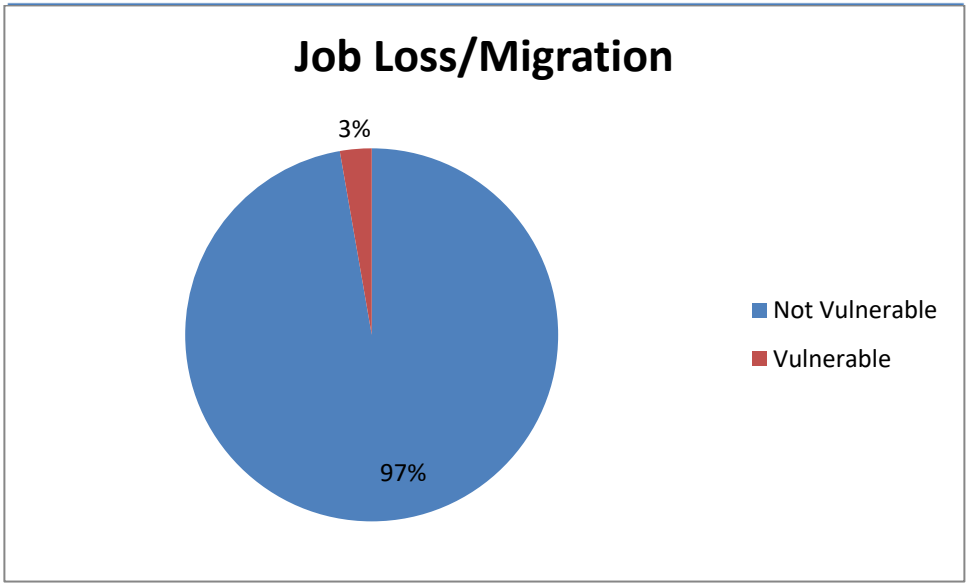


Moreover, if we bifurcate the total assistance injected into the society by total social safety net into Public and Private programs, 23% of the total assistance is provided by the public programs whereas 77% of the total assistance is provided by the private social security platforms which reassures that private social security platforms cast more impact in our society.

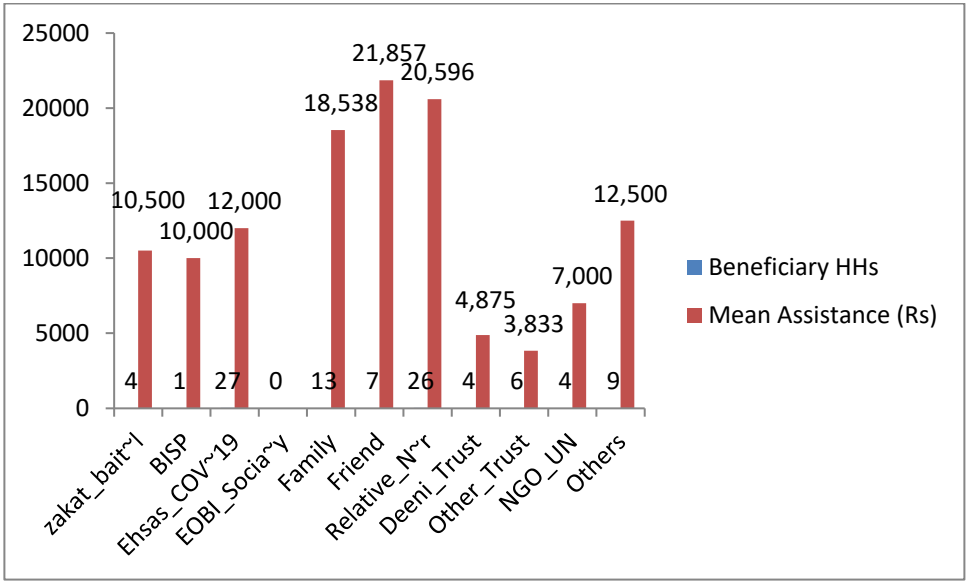


5.2 Unemployment

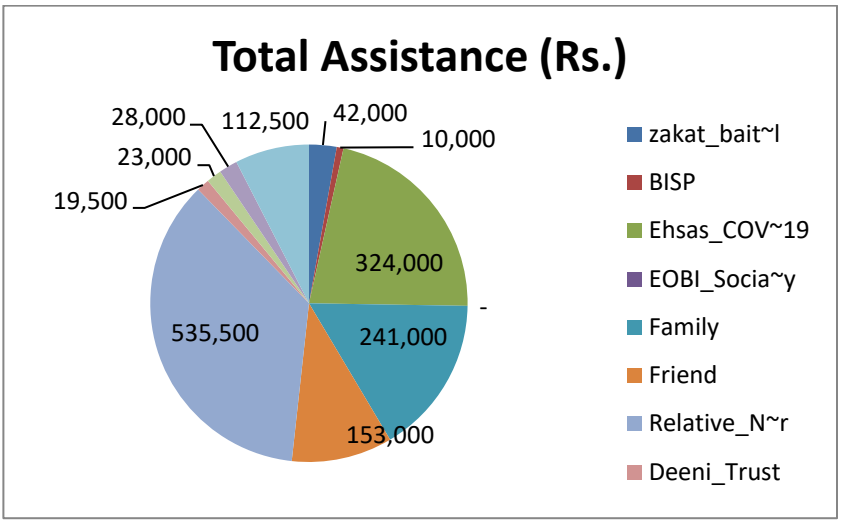
This is the type of vulnerability in which at least one family member of a household working within Pakistan and/or outside Pakistan returned back due to job loss since the appearance of COVID-19. There are 151 households which fall under this type of vulnerability, accounting for 3% of the total sample of 5,514 households. And the results of this sample are reported as under.



Out of these vulnerable households, 74% belonged to Nuclear family while 26% belonged to Extended families. Here again, the Nuclear families were found to be more vulnerable than Extended families. Surprizingly, only 49% of vulnerable households were able to receive any type of assistance as social security while 51% could not get any assistance. Ehsas COVID-19 program and relatives of vulnerable households provided the major relief to households who were able to secure any assistance as can be seen below. Family, friends and other sources also supported the vulnerable families. Whereas, if we look at the mean assistance provided by different forums friends, family and relative/neighbor provided highest mean assistances of around Rs. 20,000.

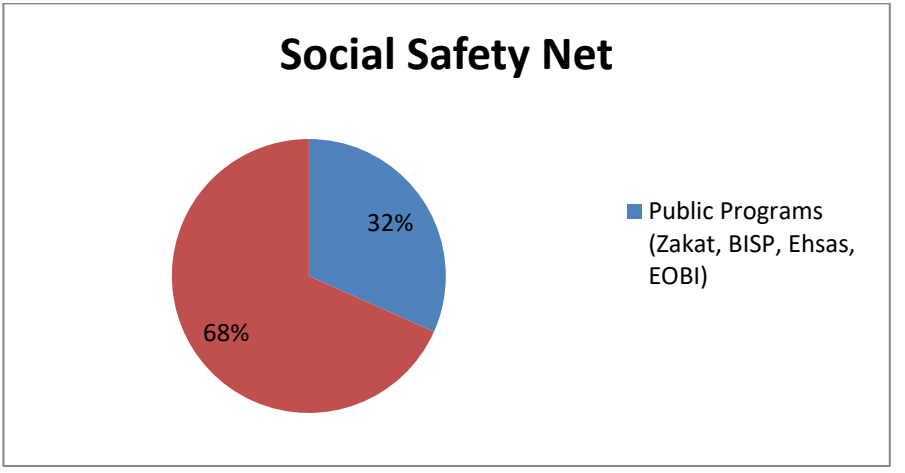


In terms of total assistance provided to vulnerable unemployed households, again the major provider of the assistance were relatives with Rs. 535,500 followed by Ehsas program with Rs. 324,000, family with Rs. 241,000 and friends with Rs. 153,000 assistance.

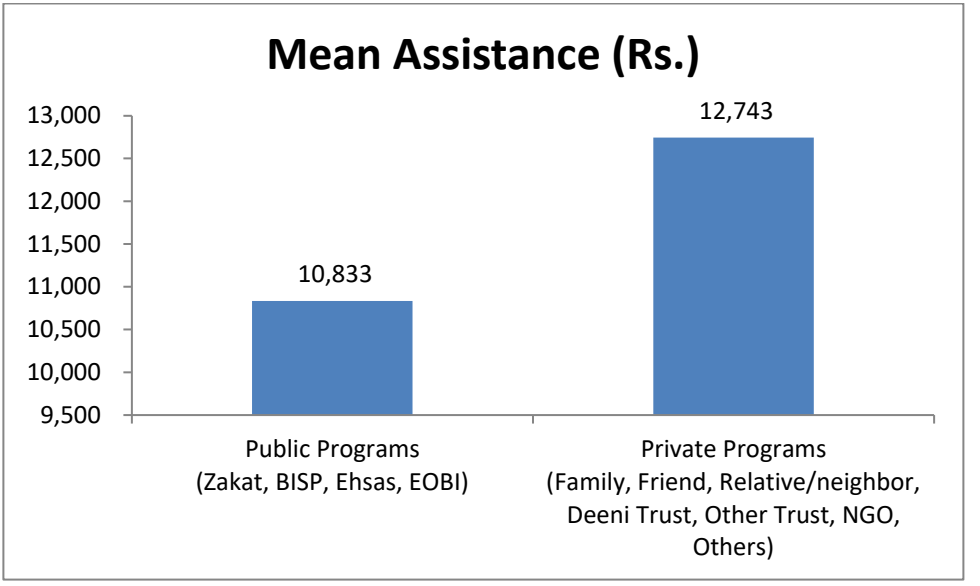


5.2.1 Social Safety Net – Public Programs Vs Private Platforms

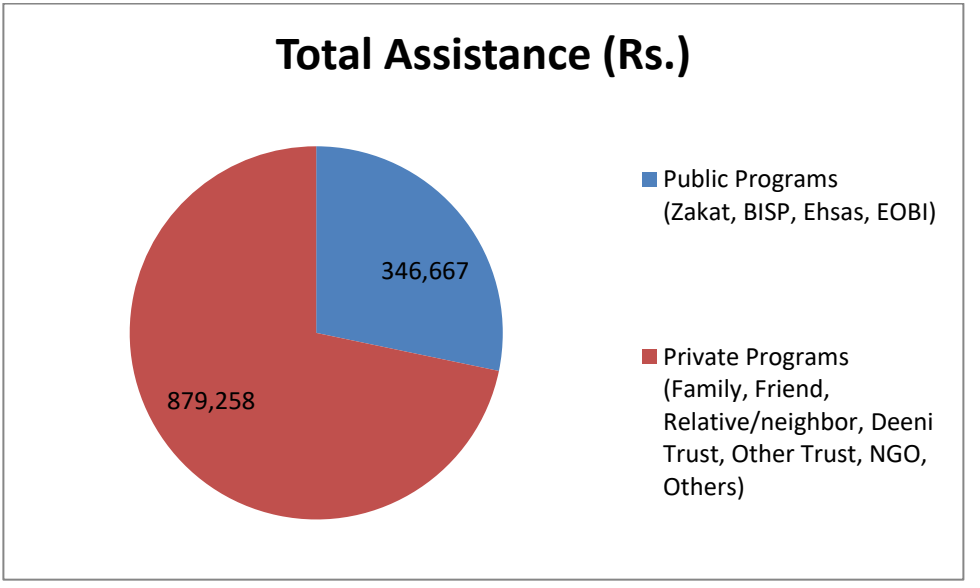
If we look at the social safety net in terms of two broader categories i.e. Public Programs vs Private platforms, the private programs took the lead in providing relief to the vulnerable households. Public programs could reach to 32% of the vulnerable households whereas private programs doubled their reach and extended assistance to 68% of vulnerable households which confirms the dominance of private social security platforms over public programs.



Not only the private programs provided assistance to higher number of families but also they provided them higher assistance relative to public programs as can be seen below.

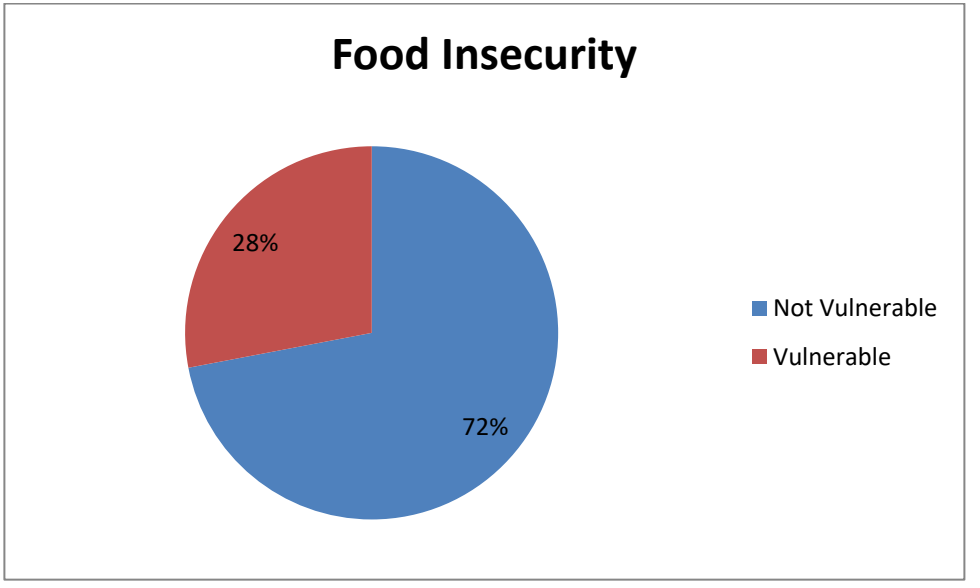


Subsequently, in terms of total assistance, the private platforms of social security provided 72% of the total relief while the public programs provided 28% to the vulnerable households under this category, as visible below.



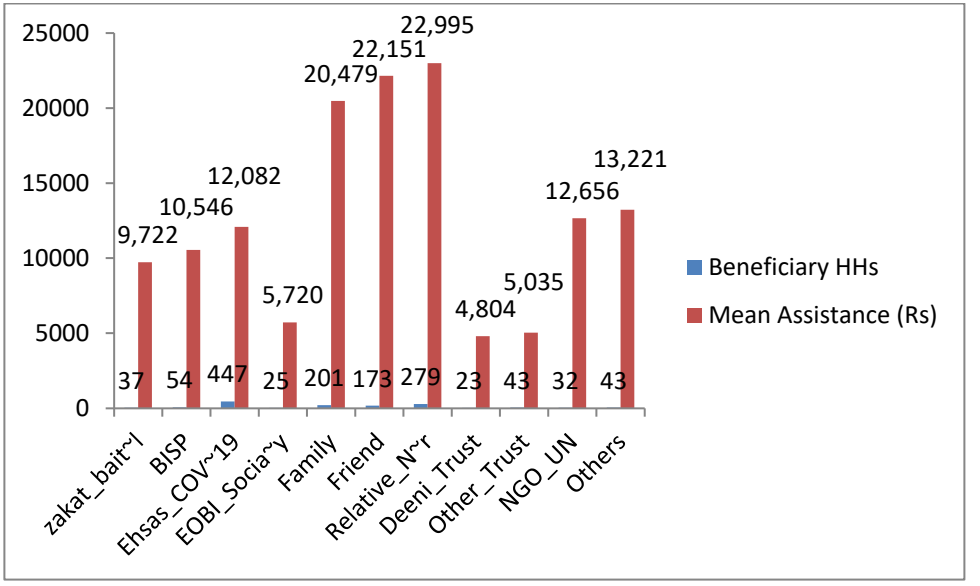
5.3 Food Insecurity

There were households who ran out of food, felt hungry but could not eat, or went without eating for a whole day because of lack of money or other resources. These three types of people are categorized in this study as vulnerable due to food-insecurity. There were total of 1,523 households which fulfill this criterion and are declared as vulnerable due to food insecurity and accounts for 28% of the total sample.

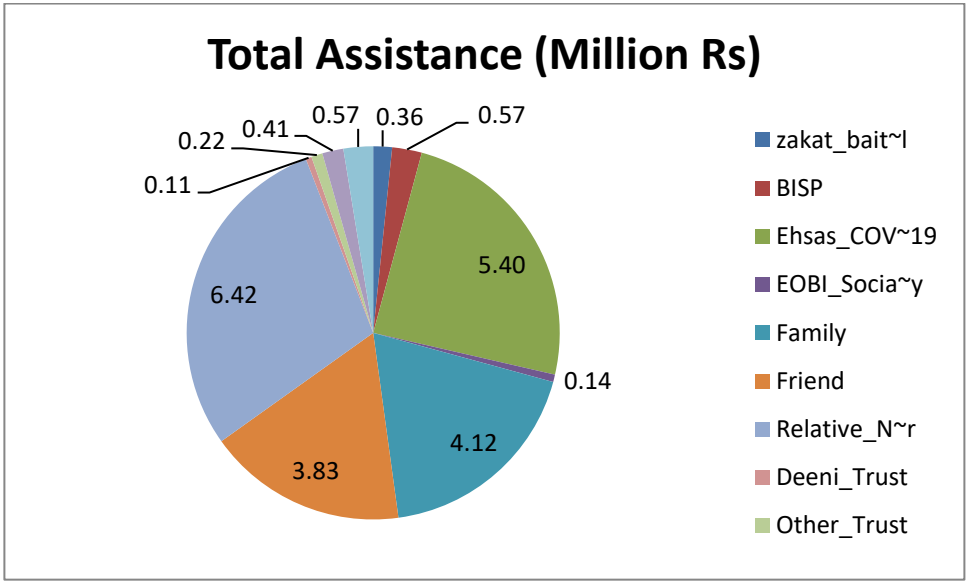


Out of these vulnerable families, 43% did not get any assistance while 57% secured some assistance, either from public or private or from both type of social security platforms. If we analyze the type of families that became vulnerable under this category, there are 22% extended families while 78% nuclear families which became vulnerable due to food insecurity. It implicates that extended families somehow have more food available to them in difficult situations.

The following graph explains number of beneficiaries from social safety net and adjacent mean assistance provided by that specific forum. It explains that highest assistance was provided by the relative/neighbor with mean assistance of Rs. 22,995 while the friends and family stood at second and third highest with average assistance of Rs. 22,151 and Rs. 20,479 respectively.

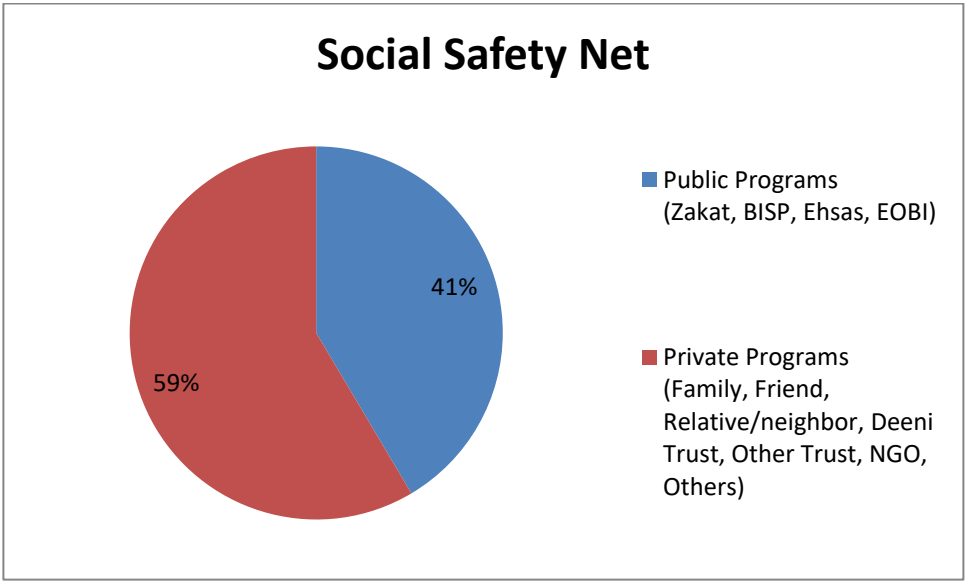


Looking at total assistance provided in social safety net, relative/neighbor contributed the most by providing total assistance of Rs. 6.42 million whereas Ehsas program, family and friends were the successors with Rs. 5.40million, Rs. 4.12 million and Rs. 3.83 million respectively.

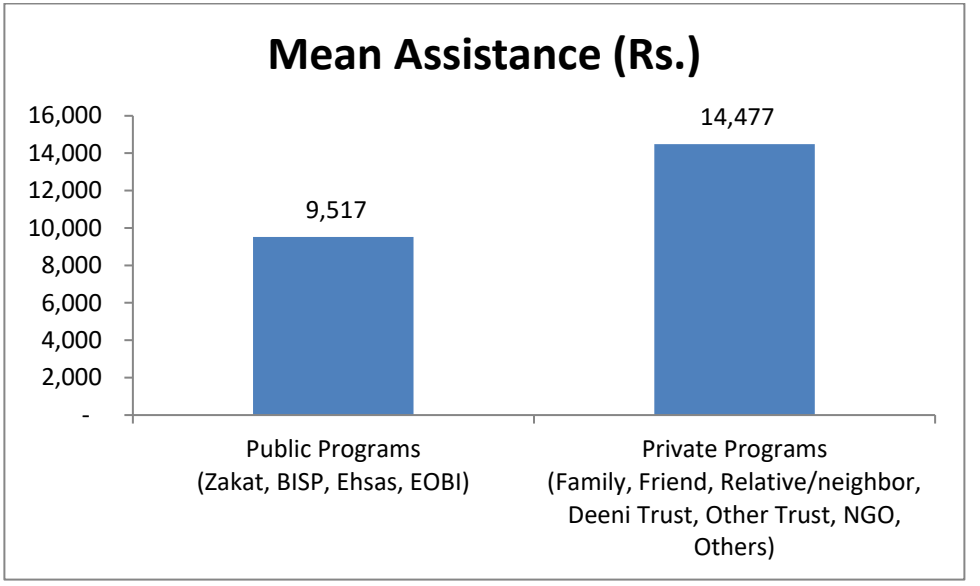


5.3.1 Social Safety Net – Public Programs Vs Private Platforms

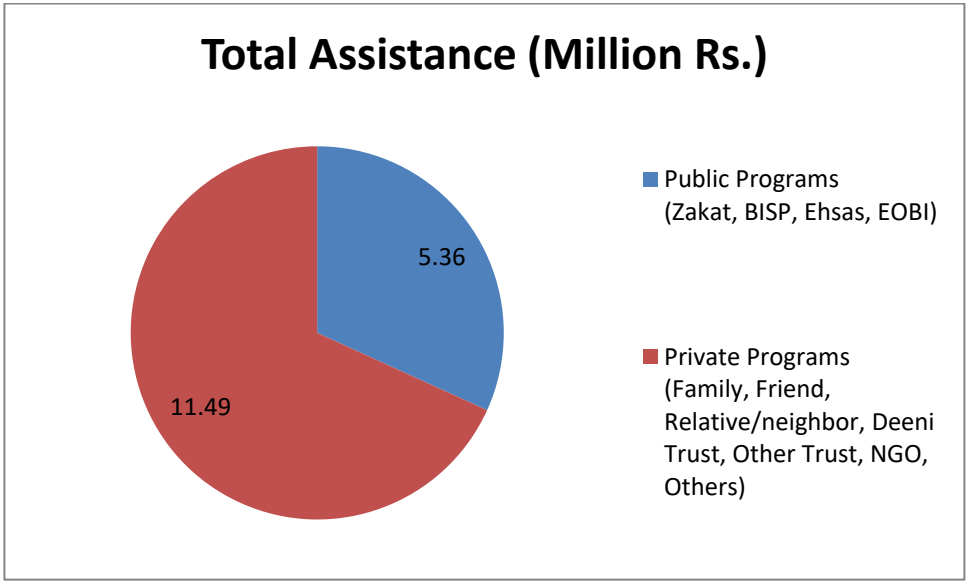
In order to analyze the social safety net as a whole and important platforms providing social security in the society the following graph illustrates that 59% of the vulnerable households are supported by the private platforms such as family, friends, relative/neighbor, trusts, NGOs etc. whereas, 41% of the vulnerable households are supported by public programs that include Zakat/Baitul-mal, BISP, Ehsas COVID-19, and EOBI. Again, it is evident that private programs are more accessible to vulnerable families when need be.



If we consider the mean assistance provided by public programs and private platforms, the later provided little higher mean assistance to each household (Rs. 14,477) than what the former provided (Rs. 9,517).



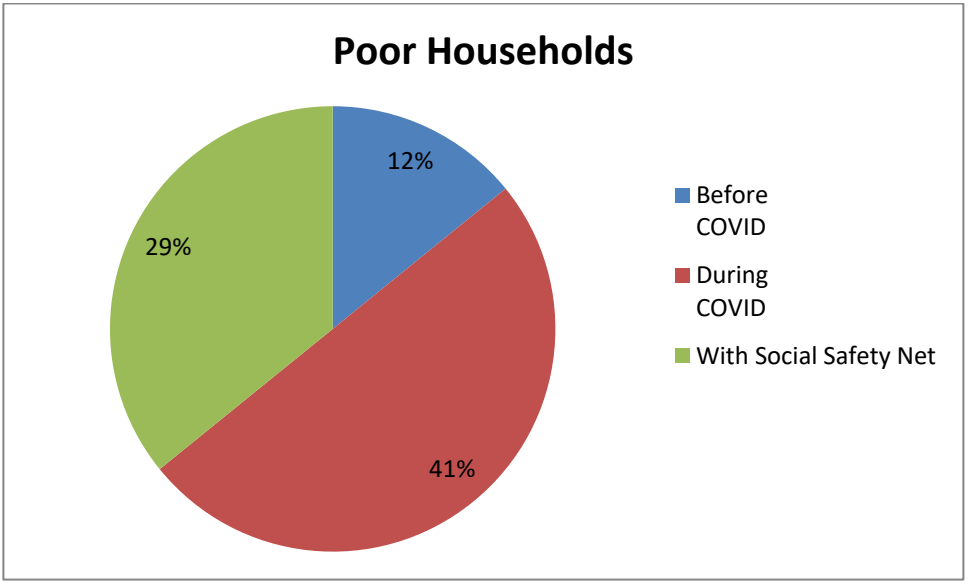
In terms of total assistance provided in social safety net, public programs lagged behind with the provision of Rs. 5.36 million while the private programs provided total assistance of Rs. 11.49 million to the vulnerable household under this category.



5.4 Social Safety Net and Poverty Eradication

In COVID-19 era when there were COVID related restrictions in almost whole world, these restrictions changed the dynamics of labor market across many industries and numerous employees had to face reduced working hours/days and reduced salaries, some had to start the work while some were on paid leaves. Households who were experiencing these sorts of circumstances were separated from the main sample. There was sub-sample of 791 households who fell in either of these categories. Following analysis is based on this sub-sample.

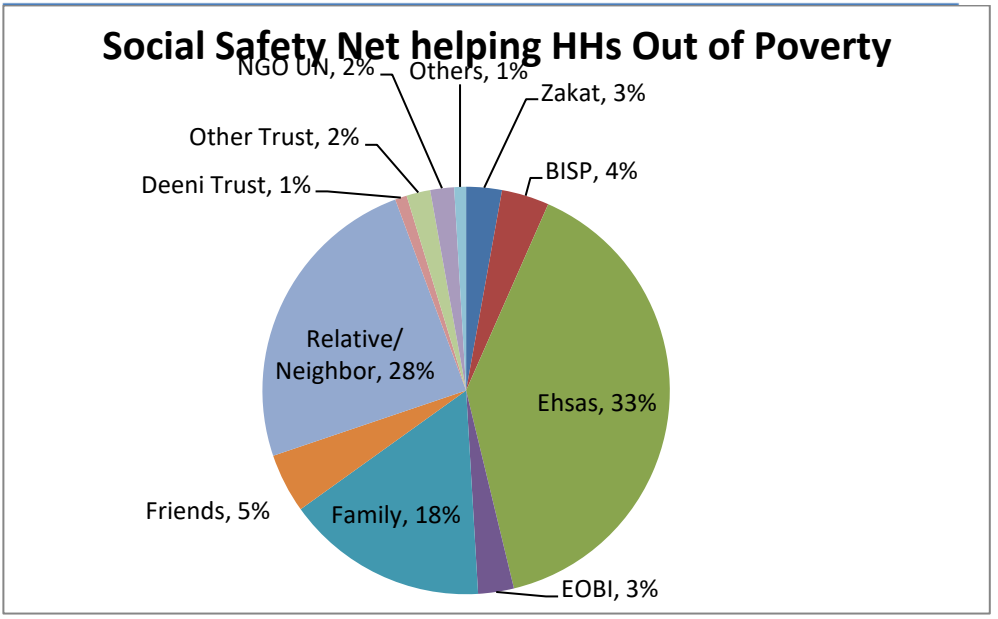
When people were deprived of their usual earnings due to a shock, many people fell under the poverty line. At those times, social safety net present in the society helped the people either to minimize the severity of their poverty or to pull them above the poverty line. In sub-sample selected to analyze the role of social safety net in wake of poverty eradication, there were 92 households out of 791 i.e. 12% who fell under the poverty line of Rs. 4,138/- per adult equivalent per month. These 12% households fall under poverty line before the crisis of COVID-19 begun. Once the crisis began, the number of households who fell under the same poverty line swelled to nearly 41%. There comes the role of social safety net prevalent in the society in the forms of Public and Private platforms. In public platforms, the Ehsas COVID-19 program was specifically crafted to mitigate the adverse impacts of COVID-19, while in private programs predominant role of family, relative/neighbor, friends and other NGOs and trust are notwithstanding. The collected effort from all these platforms uplifted nearly 100 households out of poverty and brought down the poverty rate to 29% as can be seen below.



If the social safety net is bifurcated into two main categories being Public and Private assistance providing platforms, both contributed in minimizing the poverty with nearly the same impact, Private Assistance leading by small margin.

If we further dig deep and analyze the role of social safety net in detail, top three contributors of this poverty reduction are Ehsas program, Relative/neighbors, and Family, followed by other minor contributions from friends, BISP, Zakat, Other trusts, NGOs etc.

It is pertinent to mention here that Ehsas COVID-19 program was a time bound social safety program specifically constructed at that time for the people severely affected by the COVID curse. Otherwise, this program is not essentially available all the time to help the people falling under any vulnerability. If we separate the efforts reaped from Ehsas program, the remaining contributors are all from private platforms available to support the vulnerable segments of the society.



6. Discussions

The family network is the chief welfare institution prevailing in the society that the policy makers can target for effective policy making. Moreover, in Pakistan being the traditional south Asian society where the family institution is deeply penetrated in the society, execution of family oriented and family driven policies may be much easier and associate reduced operational costs as well.

It is worth mentioning that Ehsas Program alone contributed around 89% of the total welfare activities by all Public Sector Programs. Thus, if this program is excluded, the remainder of public sector programs could not show as much significant and impactful welfare orientation for the vulnerable households as desirous. Therefore, heavy reliance of public sector welfare on one particular and time-bound social security program (Ehsas COVID-19) cast serious concerns over the efficiency of remaining public sector welfare initiatives. In case where the scale of calamity is not as large as the COVID-19 and impromptu availability of public sector programs such as Ehsas is not possible, the vulnerable segments have no

major public sector program at their disposal and solely rely on Private social security platforms available in their networks.

On similar lines if we talk about private social security platforms, the most impactful performance is shown by family networks which include family, relative/neighbors and friends. Family networks are by far the largest social protection available for vulnerable segments of the society, and casts substantial impact on their welfare by eradicating the poverty of networking family members.

The results also reveal that in presence of vulnerability (health emergency, unemployment, food insecurity), private social safety net programs (family, friends relatives/neighbors, deeni welfare trust, other welfare trust, NGO, Others) provide/ensure more impactful social support to the vulnerable/needy segments of the society than the public social safety net programs (BISP, Ehsaas-COVID, Zakat/Baitulmal, Workers Welfare/Social Security/EOBI) as illustrated.

7. Conclusion

The study examined the role of prevailing social safety net for the vulnerable segments of the society. Using the survey data from Pakistan Bureau of Statistics (2020), this research particularized the existing social safety net in Pakistan. It operationalized the debate on the role of welfare through family networks through poverty eradication. Public Social Security Programs and Private Social Security Platforms are two broader categories of social safety net which are playing their part for the welfare of the society. Based on the results of this study, it is concluded that family networks (family, relatives/neighbor, friends) are the most prevalent and impactful components of the overall social safety net available for the vulnerable segments of the society. Moreover, in case of any vulnerability, private social security platforms such as family networks are readily available for the welfare of vulnerable segments whereas public social security programs have to be effectively orchestrated in case of COVID like calamity i.e. Ehsas COVID-19 program. In terms of poverty elevation of households, if the contribution of Ehas Program is excluded from Public Sector Social Security Programs, the magnitude of remaining all public sector programs is

reduced to 11% of the total social safety net helping households out of poverty which alarms the bell regarding the effectiveness of public sector programs as a whole.

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Foreign Aid, Governance and Human development Nexus: An empirical analysis from Pakistan

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Abstract: The study analyses the impact of foreign aid on Human development and governance in case of Pakistan by employing ADRL approach, by keeping in view the current debate on effectiveness of foreign aid in the recipient countries. Time series data for a period from 1985 to 2023 is used. To measure the quality of governance an index has been developed with three indices of corruption, bureaucratic quality and the rule of law in Pakistan. After controlling for other factors, the study finds that foreign aid has positive impact on HDI in Pakistan. Conversely, aid has a negative impact on governance in Pakistan which implies that aid dependence is deteriorating the quality of governance in Pakistan, by increasing corruption, less fear of accountability among the ruling elites and government personnel. Findings of the study suggest two lessons for policy makers. First, aid should effectively be used for achieving the higher levels of Human development in Pakistan. Second, aid may be effective in improving the quality the quality of governance in Pakistan.
Key Words: Governance, Human Development, ARDL

1. Introduction

"Foreign aid is one of the most powerful weapons in the war against poverty. Today that weapon is underused and badly targeted. There is too little aid and too much of what is provided is weakly linked to human development" (United Nations Development Program 2005).

Developing countries are heavily dependent on aid because of extreme poverty, all over the world especially, in some regions. Individuals living in extraordinary destitution need to confront some of the unimaginable

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conditions of life-threatening hunger, poor sanitation, epidemic disease, lack of basic education, unclean and contaminated drinking water, with the problem overgrowing population and are in a state of deprivation since ages, resulting from staggering economic growth rates paired with worst rule of law and instable political setup. The developing world is receiving a whopping amount of foreign aid. According to the OECD 2016-17 estimates, Sub-Saharan Africa got the biggest measure of ODA, at $26,297 million. South and central Asia got the second biggest sum at $13,755 million. The top ten gross ODA getting nations all together were India ($3,516 million), Afghanistan ($3,024 million), and Vietnam ($2,308 million), Ethiopia ($2,172 million) Iraq ($2,102 million), Bangladesh ($1,874 million) and Pakistan ($ 1,765 million). Approximately, 147,160.3 million $ ODA in total has been granted in 2017. In spite of receiving heavy aid, the developing countries are at the tail of the world ranking based on Human development indicators. While the state of poverty and human sufferings is also, quite critical in these countries. According to a report of World Bank, in 2015, “Approximately 790 million people in the developing world are constantly undernourished, almost two-thirds of them reside in Asia and the Pacific”. Moreover, 10 % population in the world still live on under US$1.90 every day. The greater part of the outrageous poor live in the Sub-Saharan Africa. Indeed, number of poor in the area has risen by 9 million, while 413 million people living on short of $1.90 every day, in 2015. “Causes of poverty comprise nonexistence of resources, inadequate income distribution in the world and in specific countries, hunger and conflicts

itself" (The World Bank, 2016). The hole among rich and poor countries is getting wider, for instance the world's richest nation, Luxembourg has GDP per capita of $104,103.04 which is found 496 times richer than Burundi, which has per capita income of $292.01 being the poorest nation of the world (World Bank national accounts data, 2017).

Therefore "foreign aid effectiveness" in triumphing its main goals of economic development along with reduced human sufferings, has been called in question.

Actually, the debate over aid effectiveness for economic, social development and welfare of human beings is still inconclusive and gives birth to three divergent hypotheses. The conventional writing on financial development offers accentuation to the positive job of outside guide to quicken the procedure of monetary development and improvement. Aid should be used to accelerate development process and aid has the potential to improve human welfare by increasing the specific public spending, proving community interest predictions (Sen 1999; Sachs 2005; Morrissey et al 2005), The other hypothesis is defined as public choice perspective, argues that aid is ineffective and it may disrupt future growth process (Easterly 2001; Filmer and Pritchett 1999; Brautigam and Knack 2004; Knack 2001; Heckelman and Knack 2005). In these investigations, the creators for the most part focus around the effect of remote guide on financial improvement and locate no significant connection between the two. An alternate body of literature states that aid ineffectiveness owes to the absence of sound and stable governance system in the recipient

country. Moreover, the presence of good governance in aid recipient countries, for effective use of aid has also been identified and endorsed by the international donors as a condition for granting further aid. "Improving good governance in developing countries has turned out to be both an objective and a condition for foreign assistance. Thus uniting these two objectives in aid policies represents a hard challenge for development establishments". (Santiso2001).

2. Literature Review

Burnside & Dollar (2000) argue that aid shall be effective if it is delivered with the condition of good policies, to inspect link among foreign aid, economic policies and per capita growth of GDP. The paper investigates a new hypothesis about aid: that aid does affect growth, but in the presence of good policies. The panel data analysis is conducted by using a panel of 56 countries.

Santiso (2001) states that donor agencies especially the World Bank, have started reviewing policies regarding the aid usefulness among recipient countries. The World Bank has extended its policy boundaries by incorporating the good governance as the central and essential component of its development aid strategies by making it provisional for the developing world to improve its governance so that development aid can be used effectively.

Sharma & Gani (2004) studied that foreign direct investment (FDI) affects the human development. The regression outcomes of the fixed effects

model show that FDI has constructive impact on human welfare in both the set of states. The bidirectional regression results of HDI on FDI suggests a stronger positive and significant impact of HDI on FDI.

Harms & Lutz (2006) examine the question whether foreign aid promotes foreign private investment in the recipient country or depresses it by converting resources towards unproductive dimensions in case of developing countries. The findings reflect that institutional quality also affects the volume of private investment.

Rajan & Subramanian (2007) state that aid may be associated with poor governance in recipient country as it happens to slow down the industrial growth by hampering the manufacturing sector growth.

Chandar (2007) explores the role of institutions and governance in improving the growth rates in the developing countries and examines whether there exists any cross sectional relationship between governance and financial aid and how improved governance affects the usefulness of aid in economic growth promotion.

McGillivray & Noorbakhsh (2007) examine influence of aid on human development Index in the presence of conflict. The results show that HDI has negative association with conflict and positively linked with democracy, governance and investment.

Williamson (2008) inspects the relationship among health and human advancement by empirically testing the hypothesis: whether human development can be improved through health sector engaged foreign aid.

The panel data set is constructed from 1973-2004 for a group of 208 countries. As per the consequences of the study foreign aid is found ineffective to increase the overall health and the human development.

Booth (2008) elaborates that Catholic teachings stress upon the importance of good governance for the effective utilization of aid but the problem is that if recipient country has poor governance structures then how the donor country can meet its obligations in social justice and goals of aids. The paper also discusses the negative association of aid with growth progress of recipient state because aid has tendency to be misused to benefit the ruling elites in developing countries instead of being spent for improved health and education.

Haq & Zia (2009) state that pro-poor choices and good governance are very important for the alleviation of poverty. This study examines the connection among administration and star poor development if there should arise an occurrence of Pakistan for a period, from 1996 to 2005. The findings of the study implies that good governance, poverty alleviation and inequality are strongly linked in case of Pakistan. It concludes that corruption can be reduced by indorsing the pro-poor policies that will ultimately decrease poverty and inequality in long run".

Askarov & Doucouliagos (2013) employ a Meta Regression Analysis to evaluate the aid and institutional quality association. The results reveal that aid has zero, almost negative impact on democracy but this relation turns positive in case of transitional economies of Europe. Moreover, aid

happened to have positive influence on governance during the Cold War but that effect became zero in the Post- Cold War era.

Ndinda (2016) examines the impact of governance on aid allocated to the health sector in Kenya, Africa. This study investigates the correlation between governance in Kenya and foreign aid flow in the country. Key findings suggest that foreign assistance to health sector has been diminishing and due to corruption the donors are advancing aids to the NGOs instead of government.

Sheehan & Young (2014) this paper studies the impact of aid, institutions and growth upon each other altogether. The results show that aid flows are responsible of deteriorating both economic and political institutions in recipient countries by disturbing their legal systems, property right and the trade openness. However, aid flows are absolutely and vigorously related to economic growth, the study reflects. Stevic et al. (2016) test governance with linked with various dimensions of sustainable human improvement. Study explores good governance influence over some specific socio-economic indicators of sustainable human development by conducting panel data analysis. The results show that good governance has important and positive relationship with economic growth and a moderately substantially negative relation with poverty head count ratio. The study further concludes that there is no “one size fits all” model of good governance for all the countries because the results vary with the type of countries.

Mira (2017) studies good governance influence on economic progress. The study uses a group of forty five under developed states chosen by region i.e., “Mena, Latin America, East Asia,” and South to analyze the link between growth rate and good governance through an empirical model. The results do not suggest a strong governance and growth rates associations for these developing states. Staicu & Barbulescu (2017) studies relationship of Human development with foreign aid in Africa with objective to evaluate aid effectiveness in poverty reduction and improvements in living standards in countries of Africa. The final findings show that aid is positively related to life expectancy indicator in comparison of polity score and ILE.

Haider & Qayyum (2012) investigate the link of economic growth with aid and external debt, using a panel of numerous countries which are facing the problem of bad governance for a period from 1984-2010. For the model specification, the study extends the neo-Growth model of Solow and Swan through which the reduced form version of behavioral link among for aid and external debt with a role of governance is developed. The empirical findings show that all the results are significant and matches with the expectation as governance and foreign aid both positively affect output while external debt is found to be significant and negatively related with output.

Carnegie & Marinov (2017) investigate the question whether foreign aid work as an effective incentive or conditionality to promote human privileges and democracy in the recipient states. The study introduces a

novel approach over this debate by analyzing an exogenous factor of aid allocation, that is, the rotating presidency of European Union Council by hypothesizing that if a previous settler holds the presidency of the council in budget making process than that country will get more foreign aid allocation than other than countries. This paper also analyzes the timings, life and effects of the reforms made by the aid receiving country in the area of human rights and democracy. The instrumental variables are used for estimation, the Cingranelli -Richards index (CIRI) is used to measure the overall human rights which is developed by using seven sub indicators. While, for democracy measure used the Polity IV combined score/index and data on official development aid is used as proxy for aid variable. The empirical findings based on the hypothesis suggest that aid has positive relationships with democracy and human rights but these effects are short-term, as soon as the volume of aid drops these effects shall also dissipate. The paper suggest that Donor countries should ensure that aid levels will not fall, then more persistent and irreversible reforms in the recipient countries may take place.

Erbeznik (2011) examines the rule of law link with foreign aid in case of developing countries. The study makes an extensive over view of previous efforts being taken to rebuild the rule of law in the aid recipient developing countries and found that reforms could not succeed because reformers mainly had focused on the general reforms in the rule of law while, completely ignoring the political and cultural factor of rule of law. The paper likewise thinks about the effect of remote guide on the nations in the Africa and presumes that guide isn't the main purpose for the frail

principle of law in these nations. In light of in general discoveries the examination contends that outside guide debilitates the standard of law in beneficiary nation by reducing willingness of the ruling elites and governments to make good reforms in rule of law due to its subsidizing impact on the institutions. It is also suggested true and sustainable reforms cannot be achieved in the absence of social commitment to follow the rule of law particularly by the government and the political elites in recipient countries.

Bussolo et al (2001) test a well-confined hypothesis, whether globalization has impact on governance. The study makes an overview of existing theoretical descriptions of causal link between governance and globalization. The study with the help of microeconomic theory recognizes trade policy, antagonism between overseas manufacturers and the intercontinental financiers, the openness-related variances in building institutions expenses and benefits, being main instruments by which openness affects corruption levels in any country. The empirical model takes corruption as dependent variable while gross domestic output per capita, country score on political rights and economic policy variables, like degree of trade liberalization are selected as explanatory. A cross-section of one hundred and nineteen countries for periods from 1984-88 to 1990-98 is used in the study while multivariate OLS regressions results suggest that an increase in trade openness do strongly reduce corruption,

Emara & Chiu (2016) analyze the governance effect on growth by using cross-sectional data set for years 2009 and 2013 for a sample of 188

countries, mainly, focusing on the twenty-one Middle Eastern and North African countries called MENA. More, specifically, the study seeks to answer two questions, first, how does economic growth changes in response to change in governance index. Second, which of the governance component is more significant in explaining economic growth rates variations among different countries. The econometric model uses log of per capita income and a composite governance index (CGI) that is defined by Worldwide Governance indicators. The Principal Components Analysis (PCA) method is used for analysis and results suggest that 9 countries of the MENA region show positive association between governance and growth of economies which includes, countries that have experienced deterioration accompanied by deterioration and those countries that have experienced an improvement followed by an enhancement in governance index and economic growth.

3. Theoretical Frame work

To study the foreign aid impact on Human development, governance in Pakistan, following models are analyzed.

First conceptual model is following

Human development index = f (Official development assistance, GDP per capita growth rate, population growth rate, life expectancy, primary school enrollment)

In the first model, to measure the human development in Pakistan, Human development index is used as the dependent variable for self-determining

variables, aid as % of GNP as most of the previous studies have used aid as a percentage of GDP/GNP/GNI to study the effect of aid on human development (Boone, (1996), Burnside and Dollar, (2000), Haider & Qayyum (2012). The studies, (Williamson, (2008), Feeny, (2003), Staicu & Barbulescu, (2017) McGillivray & Noorbakhsh, (2007)) have found that GDP per capita growth rate, population growth rate, life expectancy and primary school enrollment which is taken as proxy for literacy rate have effects on human development.

Second model seeks to examine the effect of "foreign aid on Governance in Pakistan."

Governance= f (Official development assistance, GDP per capita growth rate, population growth rate, political right, government stability).

Governance is taken as dependent variable, which is an index created by using three sub governance measures i.e., corruption, bureaucratic quality and rule of law. There are studies which have used the same index as a proxy of governance quality (Mahmood et al, (2015), Brautigam & Knack, (2004)). The independent variables in the model are selected on the literature that have found that GDP growth rate, population growth rate, political right and political stability can affect the quality of governance (Mahmood et al, (2015), Mohamed,(2015), Cheang, (2009)).

4. Data and Methodology

4.1 Description of Variables

It is given in table 1.

Name	Description	Source and Definintion
Human Development	HDI	The present study utilizes the Human Development Index (HDI) calculated annually by UNDP to capture the levels of Human Development. It is the most widely used and accepted, approach to assessing progress in Human Development (Seth & Villar, 2017). The index is based on the dimensions of health, education, and standard of living. The HDI scores range between zero and one reflecting the lowest and highest levels of human development respectively.
Governance	GOV	A composite index of governance index), ranges from 0 to 16, is generated by adding up the three measures: corruption (6-points), bureaucratic quality (4- points) and rule of law (6-points). The upper value indicates good governance, a value closer to zero indicates poor governance. (International Country Risk Guide)
Official Development Assistance	ODA	Official development assistance (ODA) comprises of loans distribution at discounted footings and donations by official agencies of Development Assistance Committee (DAC) members, by multilateral organizations, and by non-DAC countries for promoting development and welfare in countries and regions on DAC list of ODA beneficiaries. Loans with a grant factor of not less than

		25 % are included. (World Bank)
Gross Domestic Product	GDP	Per capita gross domestic product is attained by dividing gross domestic product by total population of a country. (World Bank)
Political Rights	PR	This is an index, ranging from 1-7. Its highest value means absence of political rights in a country while lower value reflects good condition of political rights in a country. (Freedom House)

4.2 Data sources.

For empirical analysis of the economic variables time series data for 32 years is gathered ranging from 1985-2023. Software E-views 9 has been used for empirical testation. Data is collected from the "World Bank, OECD site", from the several issues of "Economic Survey of Pakistan", the "International country Risk Guide (ICRG) and Freedom House".

4.3 Econometric Model

In the study, two separate models are estimated using Human Development Index and Governance Index as dependent variables. The econometric form of models is following.

$$\mathbf{HDI = \alpha 0 + \alpha 1 ODA\_GNI + \alpha 2\ GDPPCG + \alpha 3 PPGR + \alpha 4 LE + \alpha 5 PSENR + \mu 1t \quad \_\_\_\_\_ Eq\ (i)}$$

Gov = α5+ α7 ODA_GNI + α8 GDPPCG + α9 PPGR + α10 PR + α11G Stab + μ2t ___ Eq (ii)

Abbrevation of Variable

HDI	Human Development Index.	**G Stab**	Governmen
ODA	official development assistance is taken as percentage of GNI	**PPGR**	Population
GOV	Governance index	**PSENR**	Primary sch
R	Political rights	**GDPPCG**	GDP per Ca

4.4 Hypothesis

H0: there is no impact of foreign aid on human development in Pakistan

H1: there is impact of foreign aid on human development in Pakistan.

H0: there is no impact of governance on human development in Pakista

H1: there is impact of governance on human development in Pakistan.

4.5 Research Methodology

we shall decide the econometric technique that should be applied after checking the stationarity, if data is stationary at level simple OLS will be applicable or else other econometric technique e.g. autoregressive distributed lag may be used that was established by Pesaran et.al in 2001. "By Cointegration means there exists of long run equilibrium association among two or more time series variables which are non-stationary at their level, independently." (Gujrati, 1995).

4.6 Autoregressive Distributed Lag (ARDL) Approach

In the present study, ARDL approach is employed for its general applicability and robustness. The ARDL approach is comprised of two steps, at first step, the long run relationship between variables is verified using f-statistics to decide the significance of the lagged levels of variables in the unrestricted error correction model. While, at the second step, the coefficient of short and long run relationships are inspected. The bounds test approach is utilized to decide the presence of long run relationship among factors. “Akaike Information Criterion (AIC) or Schwarz Information Criterion (SIC) is connected for long run coefficients estimation in ARDL method. The Schwarz Information Criterion (SIC) is thought to be predominant and steady than the Akaike Information Criterion” (Pesaran and Shin, 1997).

4.7 Diagnostic tests.

To check the validity of the models some post estimation tests will be run. The Cumulative sum of recursive residuals (CUSUM) and cumulative sum of recursive residuals of square (CUSUMS) will be conducted for checking stability of the models. Afterwards, other diagnostic tests like the serial correlation LM test for checking the autocorrelation problem in the model and BreuschPagan Godfrey to check the heteroscedasticity problem, will be conducted.

5 Results

5.1 Unit root test.

For checking the order of integration of all series used in study, the "Augmented Dickey Fuller (ADF)" test of unit root problem is applied

Table 2

Variable	Integration order
HDI	**I (1)***
ODA_GNI	**I (1)*****
Gov	**I (1)***
GDPPCG	**I (0)****
LE	**I (1)****
PPGR	**I (1)***
PSENR	**I (1)*****
PR	**I (1)***
GStab	**I (1)***

The *, **, and *** depicts the significance levels i.e., 1%, 5% and 10%, respectively

According to the reported results of the above table, the variables have mixed integration orders i.e., some are stationary at level while some are integrated at first difference and no variable is stationary at second difference. We can apply ARDL approach for estimation.

Results and Interpretation of Models:

The models to be estimated in the study are following

(1)- HDI= $\alpha 0$ +$\alpha 1$ODA_GNI+$\alpha 2$ GDPPCG+$\alpha 3$LE+$\alpha 4$ PPGR+ $\alpha 5$PRENR + $\mu 1t$

(2)- Gov = α6 + α7 ODA_GNI + α8 GDPPCG+ α9PPGR+ α10 PR + α11 GStab + μ2t

Variables	Calculated values	
R2	0.96	0.90
Adjusted R2	0.91	0.87

The value of R-square for model-1 implies that 96% of variations in human development index are described by the dependent variables, selected. R-square value for model-2 implies that 90 % of variations in the governance index are explained by the dependent variables**.**

4.3 Bound Test

After performing the stationarity test, the presence of long run association between variables, can be explored and Bounds test use F- statistic to observe the co-integration among variables.

For Bound test the hypothesis will be

Ho: there exist no long run relationship (no co-integration)

H1: there is long run relationship (co-integration)

Table-3 Bounds Test Results

Model	F-Statistics	Confidence level 95%		Confidence level 90%	
		LB	UB	LB	UB
Model-1	14.23648	2.62	3.79	2.26	3.35
Model-2	3.944787	2.52	3.89	2.36	3.75

.* (Appendix-C)

In the event that the estimation of determined F-insights is greater than upper bound farthest point, either at 5 % or 10% importance levels, the H0

will be rejected and it will be inferred that there is co-mix among factors. The calculated F-test values for the models 1and 2 are greater than upper bound limit at both 5 % and 10% level of significance. That shows, there is co-integration among variables of both the models.

5.2 Long-run Coefficients

After testing the existence of long run association among the variables through Bounds test, the long keep running just as the short run relapses on every condition in the examination, can be run.

Table 4

Independent Variables	**Model-1 HDI (Dependent)**	**Model-2 Governance (Dependent)**
	Coefficients (P-values)	Coefficients (P-values)
ODA_GNI	0.062961* (0.0039)	-1.391362*** (0.0743)
GDPPGR	0.042132* (0.000)	-0.199923** (0.0229)
LE	0.248022* (0.000)	---
PPGR	-0.014838*** (0.0941)	-0.056355 (0.1969)

PENR	0.027829** (0.0592)	---
PR	---	-0.827098* (0.0028)
GStab	---	0.412721* (0.0004)

The *, * * and *** depicts 1%, 5% and 10% significance levels respectively

The above table summarizes long run results for both the models. The first column of the table presents the long run estimates of model-1 that shows. If ODA increases by one percent HDI increases by .06 percent and it has t probability 0.0039, which is significant. If life expectancy rises by 1 year at the time of birth, HDI increases by .025 % and it has t probability 0.000 which is significant. If GDP per capita growth increases by 1% then HDI increases by .003 %. If the population growth rate increases by 1 % the HDI will decrease by 0.0147 %, and it has t probability 0.0941 which is significant. If primary school enrollment increases by 1 %, HDI will increase by .02 percent, it has probability 0.0592 and which is significant.

The second column presents the long run estimates of model-2 that shows. If ODA increases by 1 % governance index decreases by 1.39 points on a scale of 16 points and it has t probability 0.0783 which is significant. When, GDP per capita growth rate increases by one 1 %, the governance index declines by 0.19 points and it has significant t probability value, 0.0229. If government stability increases by 1 point governance increases by 0.41 points and it has significant t probability value, 0.0004. If absence

of political rights increases by 1% then governance index decreases by 0.82 points on the scale. The population growth has a negative coefficient but insignificant impact on governance.

5.3 Vector error correction term result

Table 5

Independent Variables	**Model-1 HDI(Dependent)**	**Model-2 Governance (Dependent)**
	Coefficients (p-values)	Coefficients (p-values)
D(ODA_GNI)	0.003072* (0.0144)	-0.211201*** (0.0476)
D(PPGR)	0.081620** (0.0215)	-0.038756 (0.225)
D(GDPPCG)	0.001561* (0.0011)	-0.040673 (0.3059)
D(LE)	0.121996* (0.0033)	---
D(PR)	---	-0.296051* (0.0091)
D(GStab)	---	0.222727* (0.000)
Coint(-1)	-0.795887* (0.000)	-0.539656* (0.0001)

:The vector error correction term in fact portrays the speed of modification towards harmony in long pursued having stuns. The outcomes exhibit that coefficient esteem of ECM for model-1 is -0.795887 with 1 % level of significance that means model reverts back by 79% per year towards the equilibrium from short run to long run if the model faces external shock. While for model-2 the value of ECM is -0.539656 that means the model reverts back by 53% per year towards the equilibrium from short run to long run if the model faces external shock.

5.4 Diagnostic tests

Diagnostic tests are performed for inspecting the robustness and strength of the models. The regression parameters will be assumed unreliable for any policy recommendation until they pass through certain diagnostic tests. The Breusch-Pagan Godfrey test is used to diagnose whether there is a problem of heteroscedasticity and the Lagrange Multiplier (LM) diagnostic test is used for detecting Autocorrelation.

5.4.1 Diagnostic test result

Table 6

Problems	**Model-1**	**Model-2**
	F-stats	F-stats
(Heteroscedasticity) **H0:** There is no heteroscedasticity.	0.5032	0.852
Serial correlation	0.5013	0.8317

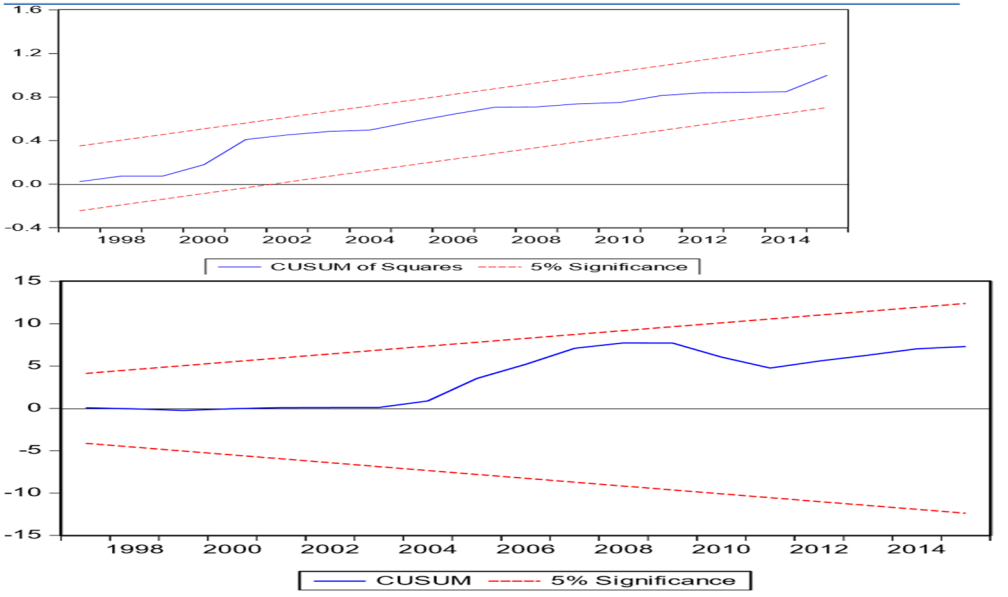
H0: There is no serial-correlation.		

If calculated value of Breusch-Pagan Godfrey test is more than critical value 0.05 we shall accept the H0 i.e., there is no heteroscedasticity.Similarly, if the calculated p-value of Lagrange Multiplier (LM) test exceeds the critical value of 0.05, we shall accept the null hypothesis of no serial correlation. As per results reported in the above table, there is no heteroscedasticity and serial-correlation problem in both of the models since all the calculated values are greater than the 0.05.

5.4.2 Stability Test

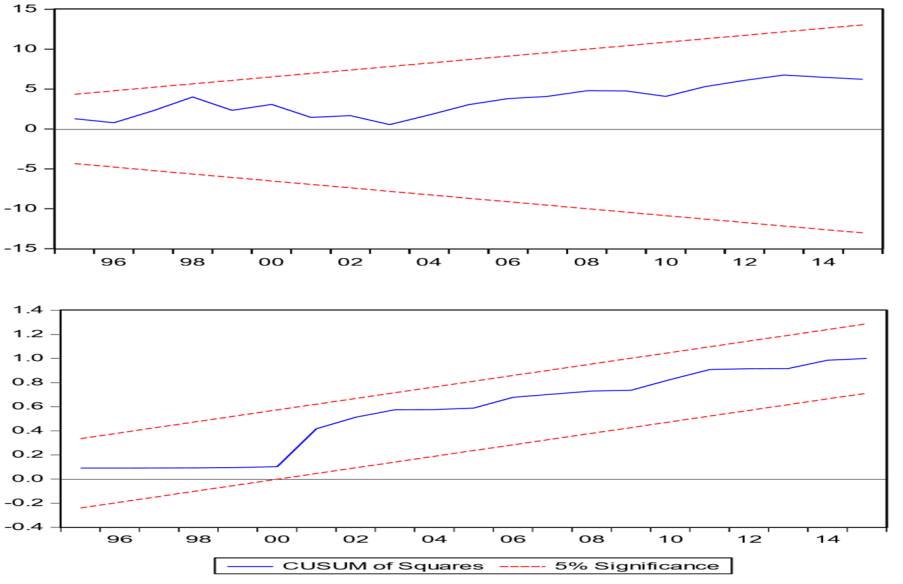
Finally, security test is utilized to break down the steadiness of the assessed models. CUSUM and CUSUM square plots are drawn for checking the stability of each model.

CUSUM plots CUSUM square plots



Model-2

CUSUM



The CUSUM and CUSUMS are plotted for checking coefficients stability. So, if the estimated plots remain between the critical boundaries being created at 5 percent level of significance the model and coefficients are said to be stable and cannot reject the null hypothesis. The above figures show that both CUSUM and CUSUM Square plots, for both the estimated models, fall within the critical bounds through the period under deliberation. This would confirm that the models are steady.

5.5 Discussion

The empirical outcomes of model-1 show that ODA is having a positive and substantial long run impact on HDI in Pakistan. This result support the economic theory about aid and human development relationship that implies, foreign aid mainly aims at promoting the monetary and human improvement in the beneficiary nations directly through increased government spending in the social projects which in turn increases the non-monetary welfare, in the form of better health, education, basic infrastructure and poverty alleviation. Through saving –investment gap, BOP gap and institutional capacity building that ensure effective aid utilization of aid and produce growth of economy and welfare of human, ultimately. The results of model-1further, show that expectancy of life and per capita income growth rate and enrollment at primary school have significant and positive effect on HDI as expected because when per capita incomes increase, people tend to seek more education and education in turn equipped them with the tools of modern technology and progress which improves the human development. While higher life

expectancy reflects the improved health facilities along with better control over fatal diseases and epidemics which directly affect the quality of life and HDI levels in state. population growth rate is happened to have adverse and significant influence on the HDI in Pakistan, as expected because high population growth in a third world countries like Pakistan shall put pressure on the existing weak basic infrastructure with limited resources, for instance, when a piece of cake is to be shared by too many people instead of few, no one will get the enough share. Therefore, the HDI shall decrease when population increases. These empirical results of the study matches with research findings of Smit Shah (2016), Tamer (2013), Abbas et al (2017).

The results of the second model show that aid has substantial but adverse long run influence on governance in Pakistan, as explored that aid dependence may lead to public sector institutions and governance quality deterioration through several means. The heavy dependence on foreign aid may weaken the sense of accountability among the government personnel and promotes corruption. Foreign aid may prevent governments from devising effective economic and development policies and restructuring institutions for the sake of sustainable growth, since foreign aid provides an instant and solution to all the problems of recipient country. Nonattendance of Political rights has a negative and noteworthy association with administration in Pakistan.

The Gross domestic product per capita development rate has a huge however negative association with administration quality, unlike the

expected, conventional positive relationship. While the government stability variable has strong and positive long run association with governance quality in Pakistan. The term stability means the ruling civil governments are not changing frequently and complete their official tenure and are not dismissed by the military regimes. This positive relation is obvious because a more stable civil government shall demonstrate more sound governance setup and policies.

6. Conclusion and Policy Implications

Keeping in view the most recent discussion over the inadequacy of remote guide in the guide beneficiary nations, alongside the developing worries of worldwide benefactors over the administration issues in the beneficiary nations. The present examination researches the effect of foreign aid on human advancement and administration in Pakistan.

This study yields two main findings, first, aid has a positive impact on human development in Pakistan; and second, aid has negative impact on governance in Pakistan.

The first finding implies that aid has a positive and significant impact on human development in Pakistan as expected but magnitude of this impact is very small, which may rise question on effectiveness of the foreign aid, as Pakistan has been receiving hefty amounts of foreign aid since inception. The main reason behind the limited impact of aid on human development in Pakistan, can, possibly be bad governance because t0he corrupt government personnel and ruling elites divert and misuse the

allocated aid funds and the masses remain deprived of the true benefits of foreign aid which is received on the grounds of poverty for the betterment of the poor.

This result of the study is consistent with the findings of some previous studies explaining that aid is not a growth promoter unless it is supplemented by the good governance environment. “Developing states cannot help the poor without better governance, it does not matter how much aid they get” (Werlin, 2005). Mesquita and Root (2002) Keeping in view the most recent discussion over the inadequacy of remote guide in the guide beneficiary nations, alongside the developing worries of worldwide benefactors over the administration issues in the beneficiary nations. The present examination researches the effect of foreign aid on human advancement and administration in Pakistan.

The second finding shows that outside guide is negatively affecting administration in Pakistan. That means Foreign aid is deteriorating the governance quality in Pakistan. There can be a number of possible reasons behind this, for instance, foreign aid stimulates corruption among the government officers being a part of executing agency. Rising corruption weakens the governance.

Governments of recipient countries are not held accountable to the international loaning agencies if they do not reform the structure of rule of law. A frail sense of accountability is a major reason for promotion of poor governance resulting from foreign aid inflows in Pakistan. In return,

bad and corrupt governance may negatively influence the foreign aid allocation towards Pakistan.

The findings of study suggest that givers just as the beneficiary nations need to assume a more noteworthy job, in cooperation with each other, for aid to be used effectively and efficiently, so that, true benefits of aid can be yield. There are some important policy suggestions that the donors and aid receivers must deliberate to make aid more effective in enlightening human development and governance quality.

6.2 Recommendations

1. The foreign aid programs must clearly be assumed as a temporary tool for development. The idea of achieving sustained economic progress and human welfare through foreign aid is not a practical strategy.

2. There is a dire need for coordination between the recipient governments and the donor community to ensure harmonization and avoid mismanagement of aid funded projects with a strong system of accountability.

3. The donor countries should give sector wise tied aid i.e., health, education and provision of the basic facilities, allocated amounts and targets should be decided before advancing aid to recipient country. Moreover, a strong evaluation system should developed and implemented, strictly.

4. In Pakistan, the policy makers should design such policies that improve governance by reducing corruption, attaining political stability, and improved governing quality, government usefulness and supremacy of law. So, that real goals of foreign aid i.e., economic growth paired with sustained human development levels can be materialized.

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Exploring the Impact of Population Aging on Economic Growth: Evidence from Selected Developed and Developing Countries

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Abstract: Population age structure is mainly impacted by economic changes, living standards and quality of life, pro-family policies, and advances in medical treatment. The present study investigates how population aging affects economic growth in selected developed and developing countries, specifically focusing on the impact of the aged dependency ratio, labor force participation rate, domestic savings and gross fixed capital formation (GFCF) on the GDP growth rate. The study utilizes panel data taken from the World Development Indicators (WDI), covering the period from 1971 to 2022. The estimation technique used is PMG (Pooled Mean Group) Panel ARDL (Autoregressive Distributed Lag) because the variables are integrated at different orders: some at level and others at first difference. The findings demonstrate that population ageing significantly slows growth process. However, the labor force participation rate, GFCF, and domestic savings positively contribute to economic progress.

Keywords: Population, Aging, Economic Growth, Panel ARDL

1. Introduction

Since the 1970s, increasing access to medical and reproductive health services has led to a higher life expectancy and an older population, but decreased reproductive capability. As a result, the population structure of most countries began to shift to a stage where the share of elderly people increased, leading to a new trend known as 'population aging' (Trong et al., 2024). Population aging is a major social transition that has become increasingly significant in the twenty-first century (United Nations, 2013). The term "population aging" refers to the phenomenon in which a

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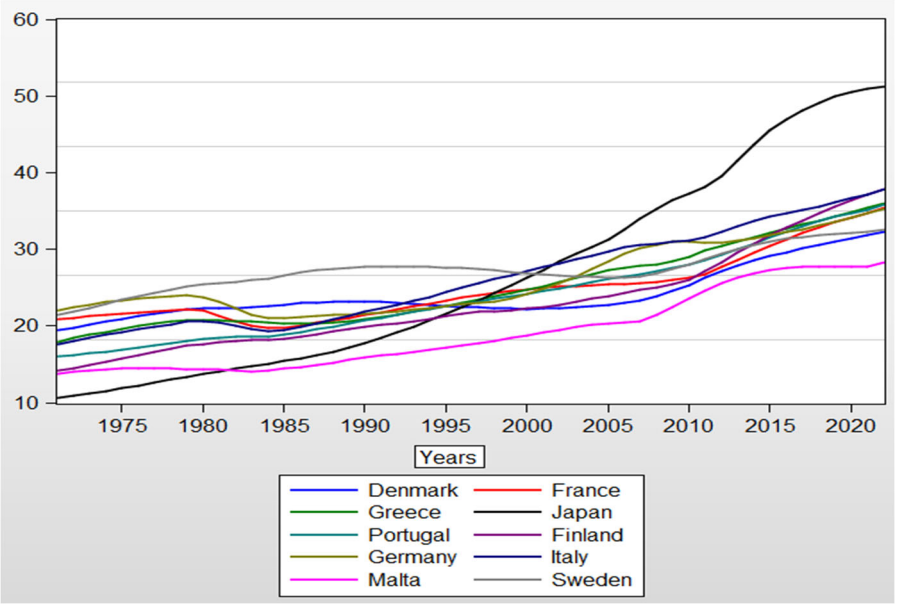
significant part of a country's population is comprised of elderly people (Yue, 2023). In other words, it is a shift in population towards older ages (Gavrilov & Heuveline, 2003). The structure of ageing population for most countries around the globe has seen a considerable transformation due to decreasing fertility rates, higher life expectancy at birth, and increased conditional life expectancy in the later stages of life. Therefore, many nations are experiencing a rise in the share of elderly persons in their populations (Lee et al., 2011) but in 2050 more of the aging population will be in developing countries (Shetty, 2012). Two-thirds of the world's aging population lives in developing nations, and their proportion is increasing more rapidly than in developed countries (United Nations, 2015). Many studies have demonstrated that the population aging can hinder economic progress. The rise in the older population results in a reduction in the proportion of young individuals, potentially lowering labor force participation. However, certain studies depict that older individuals do not inherently impede economic progress (Fougère et al., 2009). The media typically exaggerates concerns about population aging, which are frequently based on incomplete facts (Herrmann, 2012).

According to the United Nations (2017), in 1950, just 5.1 percent of the world population was 65 years of age or older; by 2000, this number had risen to 6.9 percent. Experts predicted that the proportion of elderly people in the global population will rise to 1.4 billion by 2030 and further to 2.1 billion by 2050. Further, it might potentially reach 3.1 billion by the year 2100. The net influence of these shifts is that by 2050, there will be a greater number of older individuals compared to adolescents and young adults, and the number of children under five will be more than doubled (United Nations 2019). Population ageing is often viewed as a fiscal and economic challenge for the near future (Yue, 2023). The issue of population aging is included in Sustainable Development Goals 2030 to ensure healthy lives, poverty eradication, provide productive employment, decent work for everyone, and the well-being of people of all ages (Sachs, 2012). As the population aging rapidly, the government needs to design innovative policies for older persons and give them healthcare, employment, housing, infrastructure, and social protection (Obi et al., 2013).

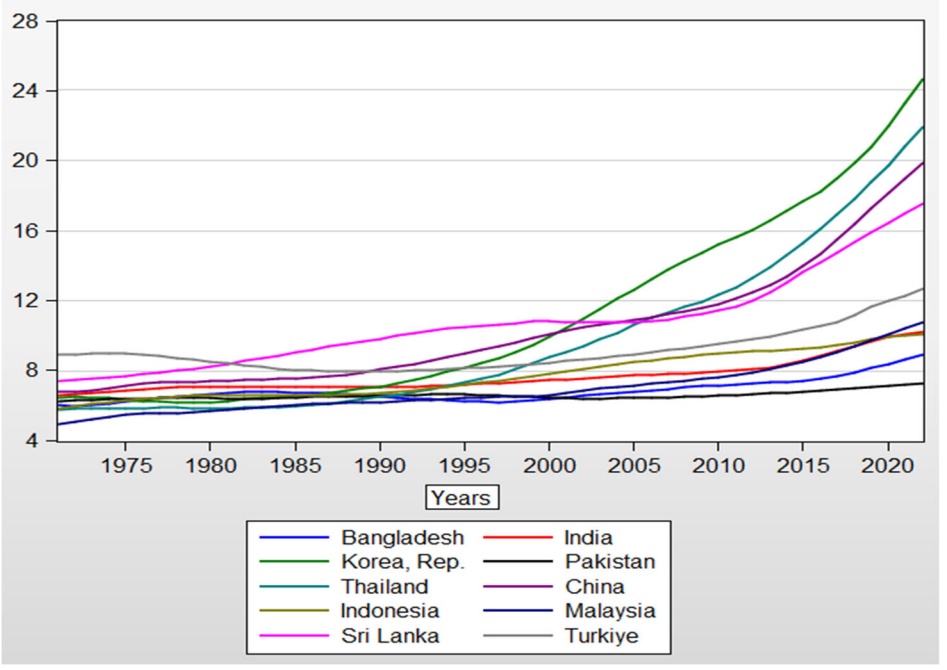
In Figure 1, the age dependency ratio of ten selected developed economies is given from 1971-2022. It is evident from the figure that, over time, there has been an increasing trend in the dependency ratio. In 1980 it ranged from 5 to 25 in all the countries while at the end of 2022, all had an age dependency ratio of more than 30 percent and in one country it was more than 50 percent. Figure 2 depicts a somewhat different story for developing economies over the same period. In 1980 the dependency ratio of all the selected countries was less than 10 percent and over time in some countries it showed a very sharp rise while in some countries it showed a very modest rise. At the end of 2022, four countries have an age dependency ratio of less than 10 while the remaining have higher than 10 and lower than 25 percent. The majority of developing countries have a sharply increasing trend. Therefore, it is significantly important to study the effect of the aging population on economic performance. Considering this fact, the present study is an attempt to investigate this phenomenon.

Figure 1: Age Dependency Ratio in Developed Economies (1971-2022)



Source: Author's rendering using data from World Bank, WDI

Figure 2: Age Dependency Ratio in Developing Economies (1971-2022)



Source: Author's presentation using data from World Bank, WDI

The structure of this paper is as follows: Section 2 presents an overview of the most recent scholarly works on the effect of population ageing on economic growth. Section 3 focuses on data, variable description and model specification. Section 4 describes the methodology and interpretation of results. Section 5 summarizes the study and suggests recommendations.

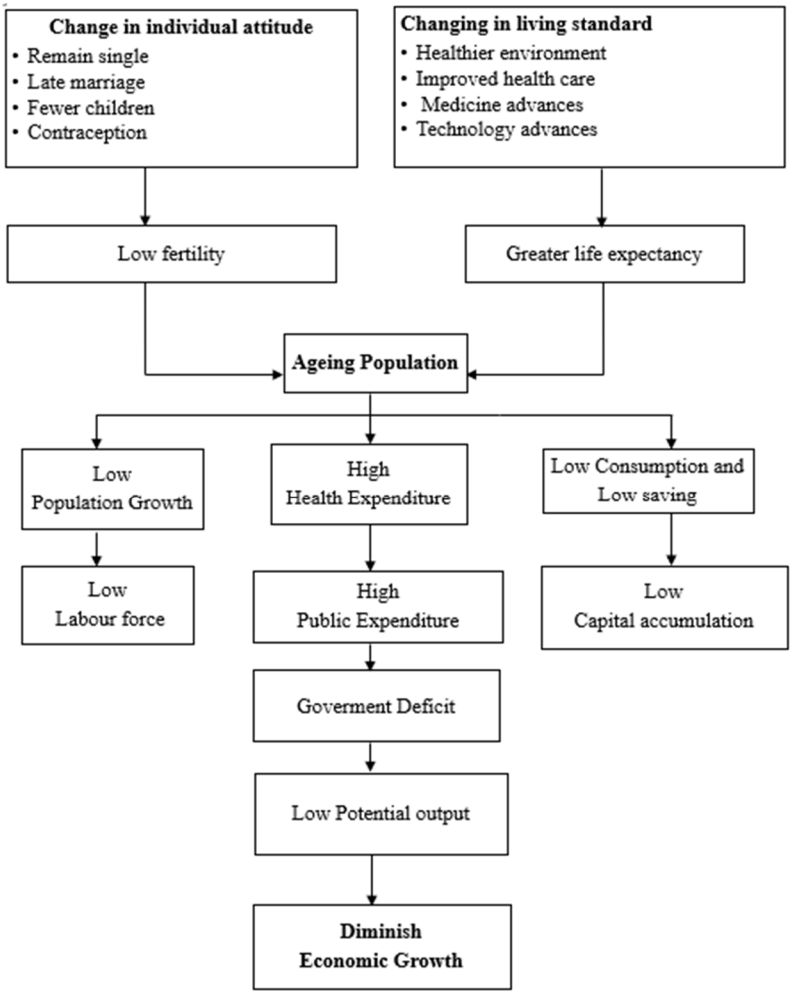
2. Review of Literature

The existing literature provides no consensus on the debate about the association between economic growth and ageing population. Two main theories exist on whether the population ageing promotes economic growth or not. One perspective suggests that the age structure of a country's population, particularly the proportion of elderly individuals,

can have a negative impact on the nation's productivity. This view is often referred to as the pessimistic theory (see

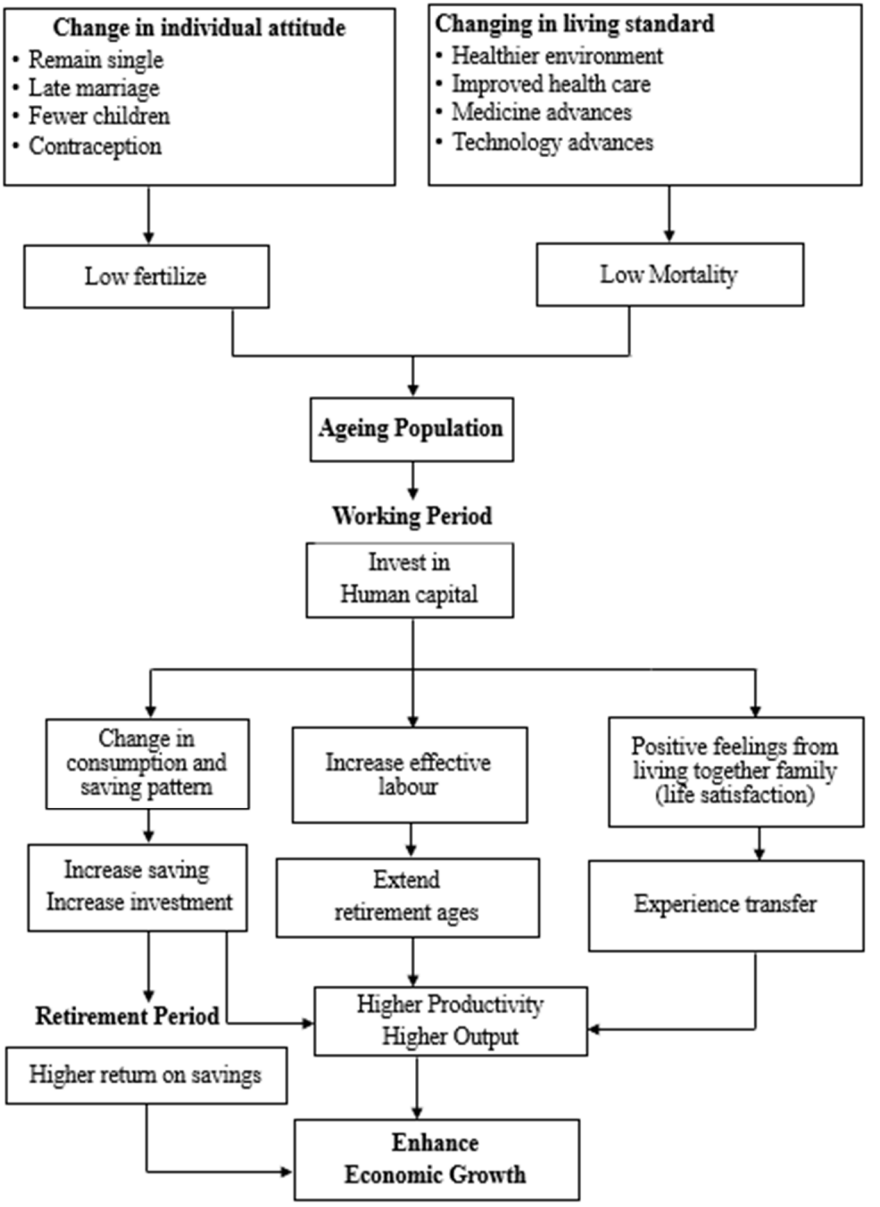
Figure 3). It is important to mention that in an aging society, several factors can have a significant impact on the economy. These include a reduction in savings rates and labor force participation, which can lead to reduced investments and real output. Additionally, fiscal problems are likely to arise, further affecting the overall economic situation (Young, 2018). As the number of elderly individuals increases, there will be a corresponding rise in healthcare demands and pension costs. This, in turn, will limit the amount of public funds available for investing in infrastructure. Unfortunately, this will negatively affect the accumulation of and productivity growth. Figure 4 shows the second perspective, which is the optimistic theory that there is a positive connection between economic growth and an aging population. Based on extensive research in the field, it has been observed that as individuals grow older, they tend to exhibit a greater inclination toward saving. This can be attributed to the fact that a longer lifespan often necessitates higher savings to adequately prepare for retirement. Consequently, the rise in life expectancy will result in a greater accumulation of savings and a surplus of resources available for investment.

Figure 3: The pessimist's perspective on the effect of the elderly population on economic progress



Source: Taken from Sukpaiboonwat, Plyngam, & Jaroensathapornkul (2014)

Figure 4: The optimist's perspective on the effect of an older population on economic progress



Source: Taken from Sukpaiboonwat, Plyngam, & Jaroensathapornkul (2014)

Extensive studies have been conducted on the association between an aging population and economic progress. Recent empirical research has identified a negative association. These impacts may arise from a decline in labor force participation, i.e., a decrease in the number of older people who are working but are not productive, or the gap between savings and investment due to aging, which can lead to a situation of secular stagnation. For instance, Trong et al. (2024) investigated the effects of ageing population on economic development in ASEAN countries. They utilized a dataset from 2001 to 2021 and employed the fixed effect model (FEM). The findings revealed that a high old-age dependency ratio negatively impacts the growth of GDP per capita. Conversely, in the ASEAN region, the productive workforce, or young labour, is a crucial asset for per capita growth and overall economic development. Besides demographic factors, trade openness, investment rates, and institutions are key drivers of the increase in GDP per capita. Furthermore, the study showed that countries with higher levels of development will experience faster population ageing. In contrast, Gao et al. (2023) highlighted that the ageing population has a mixed effect on economic progress. The study employed a spatial econometric model and an intermediary effect model, examining 31 provinces in China using data from 2013 to 2020. The findings indicated that population aging significantly affects technological innovation and ultimately economic development in eastern and central regions while it impedes technical advancements and economic progress in the western region.

Ferede and Dahlby (2023) studied the effects of population aging on per-capita output and labor productivity growth in Canada, using provincial information from 1981 to 2020. They found that a 10 percent increase in the proportion of elderly persons aged 65 and older correlates with a 0.23 percentage point decline in the growth rate of real GDP per capita. Liu et al. (2023) investigated the association between population aging and growth in 30 provinces of China from 2000 to 2019. The study employed panel data models and mediating effect model to estimate the results.

Their analysis concluded that population aging impedes economic growth by affecting the overall advancement of the industrial structure. Maestas et al. (2023) estimated the influence of an aging population on economic expansion for U.S. from 1980 to 2010. They discovered that a 10 percent increase in the population of people aged sixty years or older resulted in a 5.5 percent reduction in per capita GDP. One-third of this reduction was due to lower employment, while the other two-thirds were because of lower labour productivity.

Park and Shin (2023) examined the channels to link population aging with economic progress and found that reduced total factor productivity growth is the primary way population aging negatively impacts economic growth. Temsumrit (2023) investigated the influence of aging populations on government spending across eighty-seven nations from 1996 to 2017. They also explored how this demographic shift affects the allocation of government funds and changes in economic growth. Employing the generalized method, their results indicated that an aging population leads to increased government spending but only in developed countries, particularly in social protection and environmental categories. However, it also results in reduced expenditure on education. Additionally, reallocating government spending towards cultural expenditures contributes to economic growth slowdown, while directing funds towards education positively impacts economic growth.

Bodnár and Nerlich (2022) investigated the macroeconomic and fiscal implications of population aging in the euro area. Their research revealed that demographic shifts are constraining potential growth, primarily due to impacts on labor supply and productivity growth. Population aging is also creating fiscal challenges by raising pension expenditures and negatively affecting tax bases and public revenue structures. Consequently, it presents significant hurdles to fiscal sustainability, constraining fiscal policy space and effectiveness. Chen et al. (2022) investigated how ageing population influence economic performance in China. They used the entropy approach to assess provincial ageing population indexes from 2008 to 2019 and built an intermediary effect model with this index as the main explanatory factor. Their findings showed that population aging

positively influences economic growth, particularly in more developed regions. Additionally, it positively impacts spending on endowment insurance and medical and health expenditures. Williams et al. (2022) investigated how population aging affects economic growth and health expenditure in Mongolia by utilizing Fixed-effects models. They analyzed the relationship between older working-age population (aged 55–69) and economic progress from 2020 to 2100. Their findings indicated that the anticipated rise in individuals aged between 55 and 69 is linked to a 4.1 percent decrease in per-capita GDP growth from 2020 to 2050 and a 5.2 percent decrease from 2020 to 2100.

Lee and Shin (2021) investigated the impact of population aging on output growth per capita in 35 OECD countries with already high old dependency ratios. They examined six channels through which population aging impacts economic progress: changes in physical capital, human capital, labor participation rate, average working hours, age composition of the population aged between 15 and 64 years, and total factor productivity (TFP). Their study confirmed previous findings that aging in OECD countries negatively affects GDP growth per capita. They identified lowered TFP growth as the most significant channel through which aging impacts economic progress.

Mohd et al. (2021) assessed the association between aging population and economic growth in Malaysia for the period from 1981 to 2019. They employed the ARDL method to estimate the results. Their findings revealed that the age dependency ratio, serving as a proxy for the aging population, had a notably adverse effect on economic growth. However, factors such as physical capital, labor participation, and human capital were positively correlated with economic growth. Park and Son (2021) explored the threshold impacts of population aging on economic growth using panel data from 98 countries spanning from 1970 to 2015. Their analysis revealed significant nonlinear effects on economic progress concerning the percentage of aged individuals, with a threshold ranging between 10.1 percent and 10.9 percent. Beyond this threshold, population aging was found to have adverse effects on economic growth. Yang et al. (2021) analyzed the correlation between aging, health investment, and

economic prosperity using an extended Mankiw–Romer–Weil model (MRW). Their empirical analysis utilized cross-country panel data spanning from 2000 to 2016. The findings indicated that there is an inverted U-shaped association between ageing and economic growth, and health investment significantly contributes to economic progress. Furthermore, Investments in health and population aging can mutually mitigate their effects on economic growth.

Aksoy et al. (2019) utilized a panel-based vector autoregressive (VAR) model to assess how changes in population composition affected the long-term trends of major macroeconomic indicators across 21 OECD nations from 1970 to 2014. Their findings indicated that the ongoing trends of the elderly population and declining fertility rates are projected to diminish output growth, investment levels, and real interest rates across OECD member states. This suggests that demographic shifts, particularly population aging, act as a hindrance to sustained economic growth over the long term. Lee and Shin (2019) assessed the effect of the elderly population on economic growth, utilizing a panel dataset for 142 economies from 1960 to 2014. They discovered that population aging negatively contributes to economic growth only at high levels, with its adverse effects intensifying as aging deepens. This effect has been especially pronounced in recent years, especially in countries with higher levels of aging, primarily developed nations. Emerson et al. (2019) examined the influence of ageing on economic progress using a panel dataset encompassing OECD nations from 1975 to 2014. They found that households tend to save more in response to extended retirement periods, which is linked to an increased growth rate per worker. However, population aging leads to reduced investment in children or other productive ventures, thereby impeding overall economic growth.

Yoshino et al. (2019) investigated the phenomenon of population aging across G20 countries. They noted that the effects of population aging are significant and varied, encompassing challenges such as worsening fiscal balances, shifts in saving and investment patterns, labor supply shortages, substandard welfare systems, particularly prevalent in developing economies, potential declines in productivity and economic prosperity,

and limitations in the effectiveness of macroeconomic policies. Uddin et al. (2016) assessed the connection between Australia's savings rate, dependency ratio, and real GDP from 1971 to 2014. Their findings suggested that a rise in dependency ratio correlates with a decline in GDP per capita, while the savings rate exhibits a positive association with GDP per capita. Specifically, there is a negative association between age dependency ratio and GDP per capita. Muto et al. (2016) conducted a study on the macroeconomic impact of population aging in Japan from the period of 1980 to 2000 by using an overlapping generation model. It was found that due to a decrease in fertility and a faster increase in longevity, Japan's aging population rose rapidly. The decline in the working-age population impacts negatively on per capita GNP and fiscal variables.

The aging population affects economic growth by different channels (Bloom et al., 2010). Due to growth in the population aged 60 or over, growth in per capita GDP decreases. Reduction in GDP growth occurs due to a decrease in labor productivity and slow labor force growth (Powell, 2016). Neo-classical modeling primarily presumes that the growth rates of labor force participation and population growth are equal. In the long term, this assumption is true when both the size of the population and the population distribution in distinct age groups remain the same. However, it is less important in the period of demographic transition, where mortality and birth rates change from high to low levels. So, economic growth will rise when working-age adults grow more than the dependent population while growth will slow down when the population aging rapidly (Choudhry & Elhorst, 2010). According to Tamiya et al. (2011), older people are net providers at least till the age of seventy-five years. They provide financial, emotional, childcare, and practical assistance to family members and help the people outside the family. Such unpaid and volunteer work adds up to around 7 percent of GDP (Warburton, 2010). Li et al. (2012) suggest that China is currently undergoing a demographic transition, where economic progress is being driven by rising savings and investment rates among its aged individuals.

On the other hand, Irmen (2017) argued that neither increased life expectancy nor decreased fertility rates affect long-term economic growth,

and that an economy's population age structure does not influence its steady-state growth rate in the long-run. Similarly, Hsu et al. (2018) conclude that aging population does not eventually hinder economic growth in China. Huang et al. (2019) analyzed the association between aging of the workforce and economic progress for the period from 1981 to 2017 in Taiwan. They found that workforce aging positively contributes to economic progress, while old-age dependency has a negative impact.

Most of the empirical literature concludes that there exists a negative association between economic growth and population aging (Trong et al., 2024; Ferede & Dahlby, 2023; Lee et al., 2013; Aigner-Walder & Döring, 2012; Lisenkova et al., 2012; Bloom et al., 2010; Narciso, 2010). Due to the elderly population, labor force participation and saving rate will decrease; as a result, economic growth will slow down. The relative size of the aging population to the total population has a more negative effect on the growth of the economy than the increase in number of children. In an emerging economy, the elderly dependency ratio and the ageing index can hinder growth. However, there are still some studies that show positive, mixed or no impact of population aging on economic growth (Gao et al., 2023; Huang et al., 2019; Hsu et al., 2018; Irmen, 2017; Li et al., 2012; Tamiya et al., 2011). The empirical literature on the aging population-economic growth nexus shows no clear consensus. Therefore, further research is necessary to predict the effect of an aging population on economic progress.

2. Model Specification and Data

The study employs the neoclassical production function, which originated from the research conducted by Ramsey (1928), to examine how population ageing affects economic progress. Solow (1956) developed the neoclassical model. This model presumes that returns to scale are constant and that technological change is regarded as exogenous. The model proposes that capital and labor can be interchanged and their marginal products are assumed to be decreasing. The fundamental neoclassical production function can be written as:

$$Y = f(K, L)$$

Here, Y represents the level of output, K depicts capital formation and L denotes labor force. Introducing the population aging (PA) and domestic savings (DS) as independent variables in the above given aggregate production function, it can be written as:

$$Y = f(K, L, PA, DS)$$

For our analysis, the GDP growth rate has been used as a proxy for economic progress. Bloom et al. (1998) and Akintunde et al. (2013) used the same dependent variable as a proxy of economic growth. Explanatory variables, which we include in the model, are explained as follows:

Table 1: Variables Description

Variable name	**Description**
Age Dependency Ratio	Age dependency means the population is 65 years of age or older. The aged dependency ratio is calculated by dividing the working-age population (15-64 years of age) by population of age 65 and above.
Labor force participation rate	It is the percentage of people in the working age group who are engaged in the economy. It is calculated by taking the number employed, divided by the total working-age population, and multiplying by 100 to get the percentage.
Gross fixed capital formation	Gross fixed capital formation is basically a net investment. In simple words, GFCF measures the net rise in fixed capital.
Domestic Saving	The amount of money that people save over a period of time is called saving. The saving rate used in the model is calculated by dividing savings to GDP.

Source: Own elaboration (2024)

To analyze the effect of population aging and other explanatory variables on economic growth, the econometric form of the model is as follows:

$$GDP_{it} = \beta_0 + \beta_1 ADR_{it} + \beta_2 LFPR_{it} + \beta_3 GFCF_{it} + \beta_4 DS_{it} + \mu_{it}$$

Where:

GDP_{it} = Growth rate of gross domestic product

ADR_{it} = Aged dependency ratio

$LFPR_{it}$ = Labor force participation rate

$GFCF_{it}$ =Gross fixed capital formation

DS_{it} = Domestic saving

μ_{it} = Error term

i = Number of cross sections i.e. $i = 1,2,3, \ldots\ldots, N$

t = Number of time periods i.e., $t = 1,2,3, \ldots\ldots, N$

Macro panel data has been used for this study. The dataset is extracted from the World Development Indicators (WDI) from 1971 to 2022. Ten selected developed countries i.e. Japan, Italy, Germany, Finland, Portugal, Greece, Malta, Sweden, France, and Denmark are taken for analysis. These countries are taken on the base of the highest ratio of aging population. Ten selected developing countries i.e. Korea Republic, Thailand, China, Sri Lanka, Turkey, Malaysia, India, Indonesia, Bangladesh, and Pakistan are taken. These countries are moving towards an aging population rapidly. However, the collection of panel data involved various issues, particularly missing values, which may impact the reliability and validity of the dataset. Addressing this issue requires significant consideration and the use of appropriate handling techniques

for missing data. To handle missing values, this study used the interpolation technique. And, for China, where the data on gross fixed capital formation (GFCF) is not available, we substitute it with a proxy variable, i.e., gross capital formation.

3. Estimation Technique and Results

The economic literature outlines various methods for estimating panel data models. Recent studies include models with both large cross-sections (N) and large time periods (T), as data for extended periods is now more readily available. Small T panel estimation typically employs the generalized method of moments, or fixed and random effect estimators. For large T panel estimation, nonstationarity must be considered since large panels often include nonstationary series. Pesaran et al. (1999) introduced an innovative technique called the Pooled Mean Group (PMG) to estimate nonstationary dynamic panels. This method combines and averages panel coefficients, allowing short-run parameters, intercept terms, and error variance to differ across groups while constraining long-run coefficients to be equal. From the initial estimation of long-run parameters, short-run coefficients and error correction terms can then be derived.

This study utilizes the IPS (Im, Pesaran, and Shin) panel unit root tests to assess the stationarity of the time series variables being examined. Table 2 illustrates the results. The null hypothesis is that the panel has a unit root or the panel is non-stationary. If we reject the null hypothesis at level, it means that the variable is stationary at level or it is I(0), if we reject it at first difference, the variable is called stationary at first difference or I(1). To reject the null hypothesis the value of probability (P-value) must be less than 0.05. The outcomes indicate that the variables are integrated at order I(1) and I(0). As the variables included in the study are a mixture of I(1) and I(0) so, the relevant regression technique is the Pooled Mean Group (PMG) which is also known as Panel ARDL model. This method is advantageous because it handles variables with different levels of stationarity and provides both long-run and short-run estimates. The return to any divergence from long-term equilibrium is one of the basic properties of a co-integrated variable. This characteristic predicts the

dynamics of error correction that occur as a result of the variables in the model deviating from equilibrium. Hence, it is crucial to redefine the aforementioned model in the error-correcting format.

$$\Delta Y_{it} = \emptyset Y_{t-j} + \theta_i X_{i,t-j} \sum_{j=1}^{p-1} y_{ij} \Delta Y_{i,t-j} + \sum_{j=0}^{q-1} \delta_{ij} \Delta X_{i,t-j} + \mu_t + \varepsilon_{it}$$

Here θ = error correction term shows how fast the adjustment is made. When $\emptyset$ = 0 long run association does not exist. Therefore, for a long-run connection among dependent variables and regressors it is essential for $\emptyset i$ to be significant with the negative sign and its value must be within that range of 0 and 1. Because in that case, it will show the convergence tendency.

Table 2: Results of (IPS) Panel Unit Root Test

Variables	Developed Economies			Developing Economies		
	Level	**First difference**		**Level**	**First difference**	
GDP	-10.830*** (0.000)	-	I(0)	-10.223*** (0.000)	-	I(0)
ADR	5.206 (1.000)	-3.703*** (0.000)	I(1)	16.036 (1.000)	-1.720** (0.042)	I(1)
LFPR	-0.292 (0.385)	-12.042*** (0.000)	I(1)	0.392 (0.652)	-11.767*** (0.000)	I(1)
GFCF	-10.349*** (0.000)	-	I(0)	-7.947*** (0.000)	-	I(0)

DS	-1.988** (0.023)	-	I(0)	-1.156 (0.124)	-15.245*** (0.000)	I(1)

Source: Author's estimations

Note: Figures in parenthesis are P-values, i.e., ***p<0.01, **p<0.05, *p<0.10

The long-run results are reported in Table 3 for both developed and developing countries. The age dependency ratio is the variable of main interest. It is clear from the results that the variable has a negative sign and it is statistically significant for developed as well as in developing countries. If there is an increase in the age dependency ratio it will lead to a decrease in GDP growth. Such finding is in line with recent literature (Trong et al., 2024; Park & Shin, 2023; Maestas et al., 2023; Bodnár & Nerlich, 2022; Mohd et al., 2021; Yoshino et al., 2019; Aksoy et al., 2019). The primary reason for this decline in GDP growth is lowered labor force participation rate (Lee & Shin, 2021). Additionally, aging reduces the capacity of the government to fund public services and raises healthcare spending (Ferede & Dahlby, 2023).

The coefficient of labour force participation of the working-age population is positive for both developed and developing countries. When more individuals enter the labor market, the overall output of goods and services rises. Additionally, higher participation can stimulate economic growth by improving the utilization of human resources. However, it is statistically significant in the case of developing countries only, it may be due to the reason that in developed economies the labor force participation rate is already quite high and there is very little space for any addition in it to contribute significantly. On the other hand, the labor force participation rate is quite low in developing economies, and there is great potential to increase the aggregate output level by increasing the labor force participation rate, so it contributes significantly.

Goss fixed capital formation has a positive coefficient and is statistically significant for both developed and developing economies. It indicates that if there is an increase in the growth rate of gross fixed capital formation it

will lead to an increase in economic growth. It is very much in line with the economic growth theory. The parameter of domestic savings is also positive and statistically significant for both types of economies. It indicates that savings are positively associated with economic growth. An increase in domestic saving enhances economic growth. Uddin et al. (2016) and Bloom et al. (2010) explained the same results in their studies.

Table 3: Panel ARDL Regression Results

	Developed economies			**Developing economies**		
	Coefficient	**t-value**	**Prob**	**Coefficient**	**t-value**	**Prob**
Long run results						
ADR	-0.067	-4.220	0.000***	-0.469	-9.108	0.000***
LFPR	0.011	1.024	0.306	0.070	3.795	0.000***
GFCF	0.251	13.648	0.000***	0.123	6.512	0.000***
DS	0.114	3.806	0.000***	0.114	7.128	0.000*
Short run results						
ECT	-0.886	-9.096	0.000***	-0.866	-2.905	0.003***
D(Age dependenc	-1.431	-	0.099*	1.678	1.04	0.294

y)		1.652			9	
D(Labor)	0.088	1.454	0.146	0.005	0.074	0.940
D(Capital)	0.029	1.047	0.295	0.094	2.076	0.038**
D(Saving)	0.571	6.523	0.000***	0.198	1.380	0.168
C	-0.091	-0.299	0.764	2.318	2.694	0.007***

Source: Author's

Significance levels: ***p<0.01, **p<0.05, *p<0.10

After the long run results, the short run estimates are given. Error Correction Term (ECT) offers valuable insights in understanding how variables adjust in response to deviations from equilibrium. Its coefficient represents the speed at which the system returns to equilibrium following a shock in the previous year. The ECM coefficient in our study is negative and statistically significant, underscoring both convergence and a long-term association among the variables. Specifically, the coefficient is -0.886 and -0.866 for developed and developing economies, respectively. This indicates that, in the event of a shock, the model will converge at a rate of 88.6 percent per year in developed countries and 86.6 percent per year in developing countries. The majority of the variables are not significant in the short run. As there exists a long-run association between the variables and same is not true for the short run which may be due to the reason that the growth of an economy is a long-run process.

4. Conclusion and Policy Implications

This study uses panel data from 1971 to 2022 to explore the effect of population aging on economic growth in selected developed and developing countries. We used the PMG (Pooled Mean Group) Panel ARDL (Autoregressive Distributed Lag) technique to check the short-run

and long-run relations among the variables. The main findings of the study indicate that the aging population negatively affects economic progress. In the coming decades, as the number of elderly people, i.e., those aged 65 and over, increases, there will be more negative effects on economic growth in the future. There is a dire need to make appropriate policies to handle this issue. To increase the participation rate of older people, make it easier for them to do work, and lower their working hours. Older people should also pay taxes until a later age. In this way, the burden of pensions will also be reduced on the economy. In developing countries, the labor force participation rate is lower. Therefore, it is necessary to ensure a rise in labor force participation in developing countries. Pension should be given to those persons who had low income in their working life and those who do not have any private pension. In this way, social and income inequality will be reduced. The cost of pensions for the government will also decrease. Private sectors should provide pensions and health care facilities so that the dependency ratio can be reduced. Gradual retirement may be opted for as it will be beneficial for employers, workers, and societies as it maintains tax revenues and reduces pension costs. It also contributes to fiscal and macroeconomic stability because older workers are valuable to younger colleagues and the organization because of their experience and knowledge. Finally, working into later life has a positive influence on older workers' health and well-being because early retirement typically causes stress and tension.

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A study to investigate the factors that influence the online shopping behavior of customers in the digital world: A case study of Pakistan's market

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Abstract People are living in technological advanced world. Primitively, internet was only used for searching and transmitting of information but currently everything is linked with the Web browser and internet. People using internet for social interaction, business or online purchasing. Online shopping is a process that uses emerging techniques such as web browser and internet that has altered way to perform online shopping in the digital world. The act of purchasing and selling goods or services using the internet is known as online shopping. The intention of this research is to investigate different factors that influence online shopping and to grasp customer behavior with reference to online purchases. The study aims to determine the problems that consumers have when making purchases from internet. It is affected by multiple variables such as Product Risk, Time Risk, Delivery Risk, Social Risk, Information Security Risk and Financial Risk they act as barriers to internet shopping and keep Pakistani customers from making Internet shopping as prime mode of shopping. In this research, data was randomly collected from various online shoppers, colleagues, friends, class mates, family members and students. This study employed a statistical method includes SPSS 23 version and AMOS and the tests that have been applied includes regression, correlation and reliability testing analysis. This research is limited to the context of Pakistan because the market's demographics and economic circumstances were taken into consideration when conducting the study. There's a chance that not every individual of the Pakistani community is included in the sample size. The result might not be the same. The study's conclusions imply that the hypotheses are accepted and the literature review offered in accordance with previous research supports the study's hypothesis, which states that product, information security and financial risks are directly and significantly impacted on online purchasing behavior whereas time, delivery and social risks have no effect. Since the new digital world will be the cornerstone of future, this study is also helpful to online retailers. The marketers may ignite customers' interest in online buying by

implementing different marketing tactics and eliminating of associated risks.

Key Words: Consumer behavior, Online purchasing, Perceived Risks, Digital world, Technological advancement, Future scope of online shopping in Pakistan

1. Introduction

We live in a highly technologically evolved world today. The internet was a tool for information sharing in last few decades, but in the modern era, life would be quite tough without it. The internet connects everything i.e. including commerce, social media, and shopping. As more individuals switch from traditional to digital lifestyles, online shopping is becoming more and more popular. Another name for online shopping is internet based purchasing and selling. It is an activity of buying something directly from a vendor without the requirement of an intermediary Singh, N., Srivastava, S., & Sinha, N. (2017). The world's online purchasing market is expanding quickly because technology is advancing so quickly. It surged to the third most common activity. Online shopping makes it possible for consumers to purchase anything, around-the-clock (Izogo and Jayawardhena, 2018). Using an online browser, customers can purchase products directly from sellers without the involvement of a middleman. During the past two decades, internet shopping has become increasingly popular; over 1.6 billion individuals worldwide buy things online via various shopping websites (Rehman, Bhatti, Mohamed, & Ayoup, 2019). The increasing popularity of internet shopping can be attributed to people's perception that it is more convenient to shop from home. When individuals or organizations select, purchase, assess and make use of goods and services, consumer behavior matters. The Internet has undoubtedly helped customers when needed. Notwithstanding these advantages, customers may perceive threats that stand in the way of their intentions and behavior. This is the primary cause of Pakistan's extremely low level of online purchasing and getting customers to accept online sellers is the hardest thing they can accomplish (Bhatti Anam, 2018). Furthermore, as the number of online shoppers increased, internet shopping gained demand because of its convenience and time saving.

Three key factors such as convenience, fun and speed have increased customer interest in internet shopping. Consumers can purchase conveniently from home, saving money, save time on travel and using straightforward payment options (Huseynov, F., & Yıldırım, S. Ö. 2016). Different surveys indicate that availability, affordability, rebates, contrasts, customer service, ease of consumption, time, and range of selections are the key factors affecting online shopping. Additionally, a range of deals are offered by online retailers, which has greatly enhanced online traffic (Selvaraju, K., & Karthikeyan, P. 2016). The earlier studies and researches scrutinize a lot of factors that effects consumer behavior and attitude towards online shopping. Undoubtedly, internet shopping offers many benefits but it also has a number of concerns that are negatively impacted by the intangibility and unsightliness of the products (Bhatti, Saad, & Gbadebo, 2019).

Furthermore, consumers deal with issues related to products, including product damage during delivery, incorrect product delivery, shipping delays, inaccuracy, personal information robbery, and technological malfunctions once they lead to internet shopping have a detrimental impact on consumer behavior (Aijaz, Qureshi, Fatima, & Sarwar, 2014). Online shopping behavior is influenced by a variety of factors, some of which are perceived benefits and hazards. One important indicator of consumer behavior is their intention to buy (Bhatti Anam, 2018). E-commerce in Pakistan is still in its infancy and is quite little when compared to developed and other emerging nations (Sarwar, Altaf, Shah, & Usman, 2012).

Online shopping in Pakistan began in 2000’s and is still in its infancy. The cost of seeking, evaluating, transaction, coverage, delivering goods and after-sale services has decreased for both businesses and consumers by using internet (Salam, Rao, & Pegel, 2003). Due to wide selection of goods available online, online shopping clearly poses a challenge to traditional retail outlets. Because of this, society is gradually becoming into digitalization. Online customer reviews are simple to get for almost any product you can imagine, which helps you make wise decisions. Check out user reviews to do some study if you're not sure if you want to

buy something. This one is dependent upon your purchasing patterns. Online shopping can help you save money and make healthier decisions if you find it easier to purchase items you see in passing when browsing the corridors of a physical store.

A survey indicates that Pakistani consumers are hesitant to shop online because of a number of risks, the Internet's unavailability, their inadequate education and their lack of consciousness (Zhang, G. Q., Zhang, G. Q., Yang, Q. F., Cheng, S. Q., & Zhou, T. 2008).
Although online purchasing has been recommended by numerous studies, it remains a huge problem and research on this topic is particularly needed in Pakistan (Qureshi, Fatima, & Sarwar, 2014).

Online shopping is popular for a variety of reasons. For example, without physically visiting the store, individuals can buy whatever at any moment and compare costs on several websites at the same time to find the same product at a lower cost; occasionally, they wish to avoid pressure when interacting with salespeople face-to-face etc. Earlier, researches have discussed many kinds of hazards that are usually present while making purchases. Risks related to products, finances, intangible nature, convenience, quality, time, delivery, after-sale, performance, psychology, social risks, privacy risks, website design components, and confidence in websites all have significant effects on consumers' online buying behavior (San Martin, S., & Camarero, C. 2009; Almousa, M. 2011). By reading reviews and comparing products, you can ensure that you are receiving the most value for your money before making a purchase without having to spend as much time or effort. The Internet changed earlier trading habits, which led to the emergence of technological advancement. It is essential to the flow of products, information and capital. Utilizing e-commerce technologies gives businesses a competitive edge and lowers production costs. This implies that traditional companies can increase productivity and maximize profits as well. E-commerce will transform commercial practices in the future, however, it will affect all edges i.e. human civilization, learning, employment and production (Dr Zheng Qin, 2009).

Furthermore, the movement of businesses onto the Internet is known as e-commerce. More specifically, it is the paperless exchange of information between businesses, consumers and nations through a range of technologies or processes, such as electronic mail, electronic fund transfers, electronic data interchange, World Wide Web, and other Internet based applications. The core business operations of electronic commerce are the purchasing and trading of products, services and knowledge. Online shopping eliminates the need for middlemen by allowing customers and businesses to transact directly via the internet for goods and services from sellers (Bajaj & Nag, 2005).

2. Literature Review

2.1 Online Shopping Behavior

An online platform is a place where goods and services can be purchased. People are now extremely familiar with the internet and online buying but only a few years ago they were unaware of the development of online shopping. The Internet is essential for product evaluation, comparison shopping, and searching. An individual's perspective and assessment of the things they buy online might have a positive or negative impinge on their online shopping habit (Fatin Alia, 2016).

The act of purchasing things using the internet is known as online shopping. When making an online purchase, the customer browses the seller's inventory and chooses the item they want to purchase. Another choice is to pay online by the customer or with cash on delivery. You may quickly order items and have them delivered right to your door with a few taps and no moving parts. The primary benefit is convenience. Without having to stand in long lineups or look for cashiers to help you with your items, you could finish your shopping in a few minutes. In addition to the 24/7 online buying option, we also enjoy the convenience of "no pollution" purchasing. When it comes to getting educational items, like ebooks, which are instantly available to you as soon as the money is processed, there is no better way. The environment also benefits from the fact that downloading goods over the internet completely removes the need for any kind of physical materials. Online shopping is quick, easy

and requires no traveling or standing in line. The five components of online purchasing behavior are the website, logistic assistance, product features, technical features, and e-store (Bashir, 2013). Similar to traditional purchasing, online shopping involves five stages: the consumer determines what they need, begins researching the goods, looks for alternatives, evaluates the product, and purchases the item that best satisfies their needs (Astuti, R. D., & Fazira, N. 2015).

E-commerce has become the preferred means to sell goods and services in the modern marketplace, marketers must ponder a bunch of strategies while trying to do so. Every single thing is accessible online from A to Z, whether it is durable or not. Various websites sell anything that we need, while others focus only on selling a specific category of goods. Customers are encouraged to shop online due to numerous benefits like extensive details, ease of use, hassle free, secure purchasing, low time commitment and simple pricing comparisons (Agift, Rekha, & Nisha, 2014). Additionally, to increase virtual traffic during festival and holiday seasons, online sellers offer a range of deals and discounts, such as free shipping, cash on delivery, a large selection, rapid service, rebate on products and testimonials encourage customers to prefer digital shopping rather bricks and mortar type ancient shopping (Jayasubramanian, Sivaskhati, & K, 2015). Because it's more convenient and comfortable, individuals are choosing to shop online rather than in physical stores. When making a purchase online, a customer could have both favorable and unfavorable experiences. Despite all of the benefits, some consumers do not think of internet shopping as their main way to shop, according to some earlier studies (Karthikeyan, 2016).

2.2 Product Risk

Individuals are reportedly reluctant to make purchases online because they don't trust internet businesses and have a bad impression of them. Online shopping has experienced significant development and is expected to continue growing in the future, however there are drawbacks to this alternate form of shopping that are frequently mentioned. Compared to a physical setting an online one is expected to be less trustworthy and to

carry more risk because with no tangible or visual indications evaluating a product or service is exceedingly challenging about its quality or in-person interactions with salespeople (Laroche, Z., McDougall, M., Yang, G. H., & Bergeron, J. 2005). As a result, it is acknowledged that purchasing a goods online may make some consumers feel somewhat risky. Customers worry, for instance, that using their bank cards and sharing private details when making an online purchase without physically verifying the products is still quite unsafe over the Internet (Pallab Paul, 1996). It is difficult for them to check and make decisions, customers who shop online are unable to view, sense, smell, or try the products they intend to buy. Furthermore, a few items, such as apparel and footwear, must be tried on before being bought. However, purchasers are hesitant to buy when they shop online because it is impossible to inspect and assess the worth of the items in question before making a purchase. For certain individuals, there is inadequate data on what is being sold on the site to form a conclusion. If their expectations are not met or they do not get what they wanted, online buyers could become unhappy (Katawetawaraks and Wang, 2011). Online purchasing is undoubtedly helpful in many ways, but it is adversely affected by the product's intangibility or unsightliness because they cannot physically inspect products when making an online purchase, buyers find it difficult to evaluate them and so perceive larger risks, particularly for experiential goods like clothes (Sautter, P., Hyman, M. R., & Lukosius, V. 2004).

In the past, attempts have been made to help customers get over this intangibility of the goods by enhancing online product presentation. Adding zoom, video, and alternate views to improve product visualization is one of these techniques. Customers who are afraid they won't get what they want when they shop online may be more vulnerable, especially if the site doesn't provide any real or visual clues. Due to the inability to view the products before purchasing and the challenges associated with returning an undesirable item, online ordering services carry a higher risk (Forsythe, S. M., & Shi, B. 2003).

Online shopping may have unfavorable effects that may not arise from traditional retail, such as the incapacity of the customer to assess the

product's quality (Salo, J., & Karjaluoto, H. 2007). Also, while shopping online, a thing cannot work out as it was expected (Ferrin, D. Kim, D. J. & Rao, H. R. 2008). When a product fails to live up to expectations because the customer was unable to appropriately assess the product's quality, it could be deemed a loss for the brand (Misra, S., Rao, H. R. Bhatnagar, A., & 2000). It is challenging to inspect tangible things when making purchases online because websites only provide limited information and photographs, customers may be hesitant to make purchases (Tractinsky, N., Jarvenpaa, S. L., & Saarinen, L. 1999). Furthermore, website elements like efficient service quality, timely delivery, smooth transaction processes, and high-quality product information can teach customers about the worth of products. However, buying intention is negatively impacted if these details are not properly disclosed online. A small number of researches have noted that consumers' online buying behavior and willingness to embrace e-commerce are negatively impacted by their perception of e-commerce risk (Zhang, H., Luo, J., Ba, S., & 2012).

According to earlier research, consumers' acceptance of online purchasing is more persuaded by product risk particularly in product classes where touch and feel are crucial. When a consumer shops online, their decision is greatly influenced by their perception of the product's risk, such as their incapability to evaluate the product's worth online (Bhatti, A., Mohamed, R., Rehman, S. U., & Ayoup, H. 2019).

Numerous issues are also related to product risk, including low product inventory, incomplete product information, and incorrect product transportation, product delays in transit and product mismatches with picture (Saprikis, V., Chouliara, A., & Vlachopoulou, M. 2010).

The worry of online fraud and untrustworthiness is another reason to steer clear of online shopping (Selvaraju, K., & Karthikeyan, P. 2016). Similar to this, there is a risk that inaccurate information on websites could mislead customers and cause them to make the incorrect buying or in other cases there might not be sufficient material to decide what to buy (Limbu, Y. B., Wolf, M., & Lunsford, D. L. 2011) shown that a small

number of websites that cater to online shoppers only offer extremely limited company information, making customers uncomfortable making purchases from these sites.

H1: Product risk has a negative effect on online shopping behavior.

2.3 Time Risk

Time risk is a type of risk which arises when online order is placed via inadequate Internet sites when the product is being researched, a consumer registration and making payment may consume more time. Today's consumers noted that time is a more unique resource, as lost time cannot be regained. Time risk also refers to the long customer service process, time spent learning how to use the online sales channel, product complaints or handling product returns. Reducing this risk can lead to shorter delivery times, a smoother purchasing process and customer satisfaction. When a product doesn't work as promised, customers become fearful and ultimately longer wait times for the delivery and return of the merchandise. On the other hand, because online websites are optimized and login times are shortened, there may be less time risk online than in physical stores. Additionally, while some vendors make the process straightforward, many make it very difficult for you to exchange their products for a refund or return them. You frequently won't be compensated for any shipping expenses. Purchasing in person will save you the trouble of labeling, packing, shipping, tracking, and completing out all the necessary paperwork.

Though customers are increasingly aware of the dangers of defective delivery, this scenario is consistent with the time-gain and convenience benefits unique to the Internet (Zhang, G. Q., Zhang, G. Q., Yang, Q. F., Cheng, S. Q., & Zhou, T. 2008).

Time risk describes the potential for time loss, convenience, or energy when a product needs to be restored or substituted after purchase. Customers may discover that a product or service is not worth the money after making an online purchase. An action of creating an internet based procurement of products or services is called online shopping. There are

five steps in the process, which are parallel to those in customary shopping behavior (Liang and Lai, 2000). When shopping online, prospective customers who are aware of their needs for products or services using online resources to find the necessary information as per their desired. Sometimes, though, information about goods or services related to the intended demand draws in potential customers instead of them actively looking. After considering the possibilities, they choice that best satisfies their requirements to fulfill the required demand. Ultimately, a sale is made and post-purchase services are rendered. When a consumer shops online, it refers to their mental state at the time of the transaction (Li and Zhang, 2002). The opportunity to shop whenever you want, avoid crowds, and save time are some of the primary benefits of internet shopping (Karayanni, 2003).

Online retailers have numerous benefits over traditional ones, including reduced wait times, convenience and no need for line waiting. They are always accessible and available. These internet retailers provide customers with extensive product and service details. Online retailers offer a few helpful tools to assist customers in comparing the costs of various products and making decisions.

Nazir, S., Tayyab, A., Sajid, A., ur Rashid, H., & Javed, I. (2012) declared because online shopping delivers numerous advantages than conventional stores and it is more convenient and becoming more and more popular. In online shopping, we can easily customize the time and location of delivery by just a click or tap on screen. However, according to Javadi (2012), the perceived hazards linked to shopping online consumers who shop online are becoming more nervous and distrustful. Therefore, we will talk about the elements that stimulus customers to make online purchases in order to better understand this instance and assist e-commerce companies and websites in increasing sales.

On the contrary, from the perspective of the customer, time risk is the likelihood that a purchase will cause them to lose time in deciding whether or not to acquire the goods. Time risk also includes the possible erosion of time, annoyance or exertion that comes with creating a

depraved purchase, as well as the prospect that a product may require to be changed or fixed after it is acquired (Bauer, R. A. 1967). Consumers risk missing out on time in order to choose a trustworthy website, placing their order, and may be experiencing delivery delays. Because it is quicker and easier, customers consider and are interested in making purchases from the physical location (Forsythe & Shi, 2003). Time risk is distinct as the amount of time lost while transacting online, choosing an appropriate website, placing an order, and waiting for the order to come Dai, W., Arnulf, J. K., Iao, L., Wan, P., & Dai, H. (2019).

Customers worry that their orders won't be filled in good time, they will have to hold out for the delivery of the products or if it arrives earlier than expected, they won't be at their designated address (Hsiao, 2009). Time risk is one important element that affects how consumers behave when they shop online. It encompasses the troublesome online transaction experience brought on by order submission difficulties and delays of product delivery (Ariffin, S. K., Mohan, T., & Goh, Y. N. 2018). It is sometimes known as the period of time purchasers must wait for their item to arrive before deciding whether to purchase it (Gerber, C., Ward, S., & Goedhals-Gerber, L. 2014). People have to search for things, browse, make purchases and then wait for them to arrive, customers believe that online shopping takes a bunch of time (Hsiao, 2009; Popli & Dr. Mishra, 2015). Many people don't know how to purchase the right products online and customers feel impatient when they have to spend time for searching product or visiting websites to match it to others (Gerber, C., Ward, S., & Goedhals-Gerber, L. 2014). Internet shoppers are reluctant to make purchases because of the issue of in-depth indulgence and the time it takes to search for, learn about, order, and wait for a thing to be delivered. With clothing, there is a significant time risk because it takes a long time for customers to find what they need and evaluate it against rivals prior to completing a transaction (Hsu, 2012; Kamalul, Ariffin, 2018). Customers find it challenging to decide whether to buy a product online due to the lengthy process involved. It deters customers from initiating an online purchase since it takes a while to identify a reliable source or product (Gerber, 2014; Masoud, 2013).

H2: Time risk has a negative effect on online shopping behavior.

2.4 Delivery Risk

Over the preceding two decades, the Internet has expanded into an enormous digital marketplace for the transmission of goods and services. The internet has evolved into a popular way to shop in many industrialized nations since it provides a large selection of goods with 24/7 obtainability and extensive exposure. Previous studies have noted that a major issue for customers interested in making an online purchase is non-delivery risk (Dan, Y., Taihai, D., & Ruiming, L. 2007). Another way to purchase online and save money is to sign up for discount and deal alerts either text or email. With these kinds of services, you can easily take opportunity of these sales as they appear at the best time for you to do so, and you are able to buy anytime and whatever you choose.

Although it is less expensive, not have to drive to and from places, the total cost of your online purchase may increase due to delivery charges and other expenditures. For example, if you choose to return an item to the vendor, you can occasionally have to pay restocking fees or other associated costs. One more obvious disadvantage of online buying is the delay that occurs between placing an order and actually receiving the merchandise. Overnight shipping is sometimes more expensive, even though many internet companies are improving their speed of delivery. Shipping schedules may also be further delayed by the weather and other factors.

Three components were created by (Zhang 2012) to measure delivery risks: 1) Product loss due to service delivery; 2) Perishable product loss due to service delivery; and 3) Service delivery resulting in incorrect address delivery. Delivery of goods to incorrect recipients at wrong addresses is a core issues in online shopping. The vendors do not meet their promise of time commitment due to delay of delivery. The products may be harmed or damaged due to its inappropriate packaging during transit (Claudia, I. 2012). Online shopping does not offer instant fulfillment as it is a gap amidst ordering goods or services till its actual consumption (Suki, N. M., & Suki, N. M. 2007). This does not apply to digital goods and services, which can be utilized immediately once it's

downloaded but it does apply to other goods and services where customers must wait for the delivery of their purchases (Jiang, P., & Rosenbloom, B. 2005). Another issue is highlighted in online buying that logistic companies won't deliver the purchased items within framed time as mentioned on the websites. Customers may face difficulties while replacing an item they bought online since certain retailers allow them to select the delivery location whereas few do not allow them. As a result, the customer may carrier the items himself which is inconvenient. Moreover, buyers had experienced difficulties with unnecessary delays in delivery of product (Rajayogan, K., & Muthumani, S. (2018). Additionally, the website's return and exchange procedures may not always be obvious in certain circumstances. According to (Ozok, A. A., & Wei, J. 2010). The credibility and dependability of online shoppers has a direct impact on consumer decisions regarding their online buying.

H3: Delivery risk has a negative effect on online shopping behavior.

2.5 Social Risk

Due to the collectivist nature of Pakistani society, People care about what other people, including their friends, family, and coworkers, think of them. Additionally, they are concerned with the reactions of others to their decisions, preferences and actions.

Social risk is the belief that a customer who buys a product will face criticism from friends and family and will lose their standing in the community as a result of selecting the wrong product through the wrong channel (Popli, A., & Mishra, S. 2015). People lose confidence and self-esteem in products when there is a social danger. Furthermore, inside a social family, friends are typically quite important when it comes to internet buying, and on occasion, a family will have a major impact on other families in our society (Kotler, P., & Armstrong, G. M. 2010).

The social risk element was chosen since it is believed to be an essential component that society influences a consumer's decision (Beneke, J., Greene, A., Lok, I., & Mallett, K. 2012).

People typically follow certain standards, such as worrying about what their friends, family and coworkers would think of their decisions and

whether or not those around them will approve or disapprove of them (Nasir, M. A., Wu, J., Yago, M., & Li, H. 2015).
These believed customs give rise to the perception of social risk which is founded on the thoughts of family and friends regarding the inappropriate decision made by the customer (Bazgosha, 2012) Hence, when a consumer makes a poor retail choice, social risk imitates their friends' and family's dissatisfaction (Ueltschy, L. C., Krampf, R. F., & Yannopoulos, P. 2004).

Faarup, P. K. (2010) indicated that a small number of population categories, particularly young people including girls are generally at high social risk. According to Faarup, P.K. (2010), social risk refers to the notch to which an individual's peer group will outlook the choice of retail location and transaction. For example, if an individual had bought an especially stylish dress from that store that will result in criticism from peer group then the social risk will be viewed as ridiculous and the costume will not be purchased from that specific retail location.

Zhao, A. L., Hanmer-Lloyd, S., Ward, P., & Goode, M. M. (2008) advises customers to compare the attributes of many brands of products at different locations in a struggle to diminish social risk associated with a certain purchase. According to Mitchell and Boustani (1992), shopping is a risk elimination tactic that entails visiting multiple stores to evaluate brands before choosing one. Laroche, M., Vinhal Nepomuceno, M., & Richard, M. O. (2010) stated that people frequently compare options when there is a higher risk involved. In relation to this study, customers might search websites for the top online retailer of clothes. You won't ever need to leave your house if you conduct all of your business online. For a while, this might be fantastic, but occasionally you might want to march outdoor and enjoy some healthy air, a change of environment, genuine conversation, community involvement and just being among people. A genuine human connection can sometimes outperform a computer monitor.

H4: Social risk has a negative effect on online shopping behavior.

2.6 Information Security Risk

Previous studies have shown that consumers are worry of making purchases online because they are afraid of frauds and are unwilling to give internet sellers their personal details (Limbu, Y. B., Wolf, M., & Lunsford, D. L. 2011). Individual to avoid online buying due to various risks associated with it and so they feel insecurity to do online shopping (Cheung, C. M., Lee, M. K., & Lee, Z. W. 2013). Due to the peril of information being distorted by merchants or other third parties, consumers realize the internet as an unsafe place to disclose private material such as cell numbers, email address, mailing address, debit card or credit card number concealment etc.(Ling, L. P., & Yazdanifard, R. 2014).

Because of the massive increase in online purchasing in the digital age, there is a greater risk to privacy due to identity theft through frauds (Del Bosque, I. R., Crespo, A. H., & de los Salmones Sanchez, M. G. 2009).

Online shoppers have several challenges as a result of unethically misused personal information and privacy are major risks since they can be unpredictable and have a big impression on their online buying behavior (Forsythe, S. M., & Shi, B. 2003). For many online shoppers, security and privacy are real concerns. The website may experience a hack or an employee may take your bank account information and use it for their own transactions in the future.

According to earlier research, 8% of individuals worldwide stopped buying online because they were concerned about their privacy and 54% customers have never attempted to make purchase as to their perception online purchasing is perilous. Youn, S. (2009) shown how concerned people are about information security and privacy due to the unknown and alarming ways in which online businesses take personal data. (Kayworth, T., & Whitten, D. 2010) mentioned that customers avoid online retailers who request personal information during registration which encourages people to give false or inaccurate information. Many researchers emphasized that consumers are reluctant in online shopping due to leakage of confidentiality and integrity of information (Chung, K. H., & Shin, J. I. 2010).

Furthermore, as per study done by (Nikhashemi, S. R., Yasmin, F., Haque, A., & Khatibi, A. 2011) Many people would rather use traditional

methods of shopping, which provide a wider range of outgoing activities, than the internet.

H5: Information security risk has a negative effect on online shopping behavior.

2.7 Financial Risk

Another significant danger associated with online shopping is financial risk (Singh & Sinha, 2017). The primary issue is financial insecurity which leads to a very adverse perspective on online shopping (S. J., Bauer, H. H., Neumann, M. M., & Huber, F. 2007).

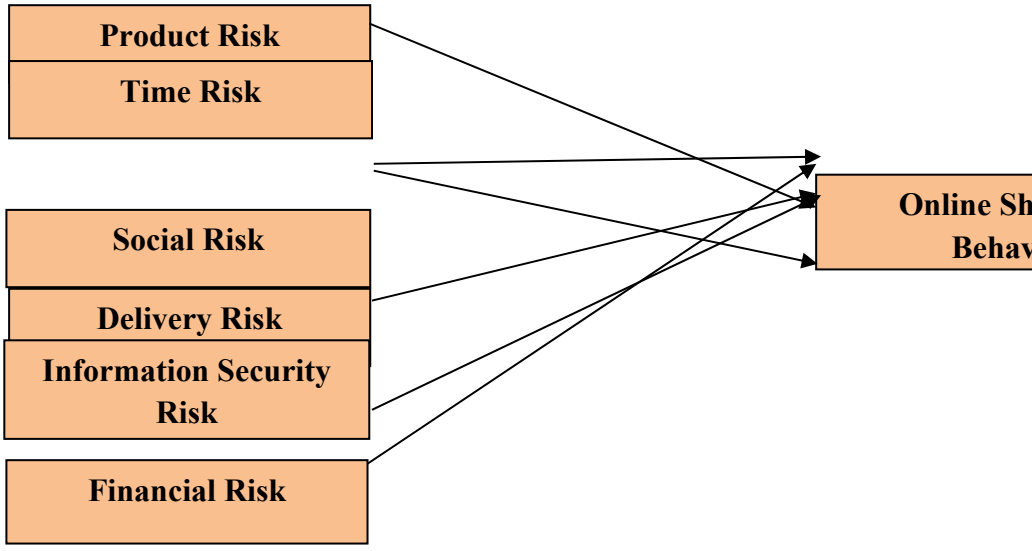
Order placement is the first stage in online buying process where consumers are exposed to financial risk. There is no denying that financial risk has a greater influence on the decision to shop online. When something goes wrong with a purchase, there could be a significant financial loss. This is referred to as financial risk (Sinha, P., & Singh, S. 2017). When making an online purchase, consumers consider a number of factors, including financial risk (Haider, A., & Nasir, N. 2016). Consumers are cautious to pay for purchases online according to researchers, because they fear losing money as a result of possible fraud or concealment involving debit or credit card information (Masoud, E. Y. 2013). Customers take into account the risk of overpaying or experiencing financial loss through an online purchase on the web. Financial risk is characterized by cost of acquisition plus any subsequent maintenance expenses (Brosdahl, D. J., & Almousa, M. 2013).

Prior research revealed that one of the main worries amidst making an online purchase was the possibility of stealing your credit card information (Saprikis, V., Chouliara, A., & Vlachopoulou, M. 2010). Financial risk is also regarded as economic risk. It is imparted as the "likelihood of suffering a monetary loss as a result of unintentional or replacement costs as a result of a defective product or lack of warranty" (Hao, Y., Chen, M., Kiang, M. Y., Ye, Q., & Li, Y. 2011).

When consumers shop online, financial risk is regarded as the main danger. Moreover, financial risk is imparted as prospective loss of legal tender as a consequence of a password hack or credit card information obtained through online buying. Consumer decision-making and online shopping are heavily influenced by financial risk. Previous studies show that customers' online shopping behaviors are negatively impacted by financial risk (Almousa, M. 2011).

H6: Financial risk has a negative effect on online shopping behavior.

2.8 Conceptual Model



The **Independent variables** are (Product Risk, Time Risk, Delivery Risk, Social Risk, Information Security Risk and Financial Risk) whereas, Online Shopping Behavior is **dependent variable**.

3. Methodology

3.1 Measurement

To test the main hypothesis of this research, the convenient sampling strategy has been used to choose the respondents. Independently administered questionnaires were applied to help obtain primary data from surveys. To lower the non-response rate and mistakes, a closed-ended questionnaire technique was employed for data collecting. The questionnaire is formed into two breakup: the demographic questions in the first section provide particulars about the socioeconomic profile of the customers whereas second section includes a list of six risk components was used to measure the degree of perceived risk when purchasing a product through online channel: product, time, delivery, social, information security and financial risks. To look at the elements influencing consumers' internet purchasing habits five-point Likert scale with response range from "Strongly Disagree" to "Strongly Agree", with following equivalencies, "Strongly Disagree" = 1, "Disagree"= 2, "Neutral" = 3, "Agree" = 4, "Strongly Agree" = 5 have been used in the questionnaire.

3.2 Sampling and Data Collection

Data was collected from online shopping users, 300 questionnaires were randomly distributed for analyzing the response rate. 60.7% were male and 39.3 were female (see table 1).

Table 1. Demographic Profile of participants (n=300)

Variable	Description	Frequency	Percentage
Gender			
	Male	182	60.7
	Female	118	39.3
Marital Status			
	Married	215	71.7
	Unmarried	85	28.3
Age			
	Under 18	21	7.0

	19-30	81	27.0
	31-40	110	36.7
	41-50	64	21.3
	51-60	19	6.3
	Above 60	5	1.7
Education Level			
	Matric	13	4.3
	Intermediate	39	13.0
	Bachelor	56	18.7
	Master	92	30.7
	MS/M.Phil	91	30.3
	Phd	7	2.3
	Other	2	0.7
Occupation			
	Student	39	13.0
	Working Professional	175	58.3
	Self employed	47	15.7
	Other	39	13.0
Monthly Income (PKR)			
	Less than 25,000	57	19.0
	25,001 to 50,000	24	8.0
	50,001 to 80,000	44	14.7
	80,001 to 100,000	105	35.0
	Above 100,000	70	23.3

3.3 Instrument Reliability

The Cronbach's alpha reliability test was carried to assess and evaluate the consistency of adapted scales by using the following variables such as online shopping behavior, product risk, time risk, delivery risk, social risk, information security risk and financial risk. In this study, the researcher runs the reliability testing i.e. Cronbach's Alpha and get score of 0.700, offering a good reliability.
Cronbach's alpha reliability coefficients of the variables are superior to cutoff score i.e. 0.6 providing a high level of questionnaire dependability.

3.4 Model Fit Analysis

Goodness of fit can be tested using numerous metrics that can be determined. The following list of metrics, along with the appropriate thresholds for each, should be reported. Table 2 shows the results of the study of the SEM model, which tested the hypothesis for the path analysis. The overall fit measures indicated that the hypothesized model is a good representation of the structures underlying the observed data. The following levels are therefore recommended by the Hu and Bentler (1999), the minimums values along with observed values are shown in the table below.

Table 2. Model fit analysis

Measurement for Model Fitness	Good Value for CFA	Observed Value
(CMIN/df)	< 3 good; < 5 permissible for some cases	**1.557**
P-Value for the model	< 0.05	**0.000**
CFI	> 0.95 great; > 0.90 traditional; > 0.80 permissible in some cases	**0.977**
GFI	> 0.95	**0.951**
AGFI	> 0.80	**0.910**
RMR	< 0.09	**0.023**
RMSEA	< 0.05 good; 0.05-0.10 moderate; > 0.10 bad value	**0.043**
PCLOSE	> 0.05	**0.792**

4. Data Analysis and Results

4.1 Correlation

According to Clark, T., & Bryman, A. (2019), for correlation analysis, a trial was executed to analyze the relationship and strength of the under studied constructs by using the Pearson correlation test which is indicated by (r). The normal values of r range between "-1 to +1". Positive values shows that there is a positive connection between the variables; when it is negative, it indicates that there is a negative relationship between the variables; however, when the coefficient value is zero, there is no association at all (see table 3).

Table 3.

Correlations							
	OSB	PR	TR	DR	SR	IR	FR
Online Shopping Behavior	1						
Product Risk	-.177**	1					
Time Risk	-.043	.272**	1				
Delivery Risk	-.124*	.337**	.529**	1			
Social Risk	-.043	.373**	.476**	.356**	1		
Information Security Risk	.408**	-.401**	-.053	-.198**	-.140*	1	
Financial Risk	-.105	.318**	.502**	.545**	.466**	-.121*	1
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

4.2 Path Analysis and Hypothesis Testing

In order to test the study's hypothesis, path analysis was used to analyze the relationships between perceived risks (independent variables) and

online shopping behavior (dependent variable). Table 4 shows the results of the SEM model, which tested the hypothesis for the path analysis. At a significant level of 0.05, the following risks have adversely effected on online shopping behavior i.e. product risk, information security risk and financial risks. Thus, H1, H5, and H6 are fully supported. However H2, H3, and H4 are not supported because time Risk, delivery Risk, and Social Risk have no effect on online shopping behavior at a significant level of 0.05.

Table 4

Path	Hypothesis	Estimate	S.E.	C.R.	P	Results
OSB<--- PR	H1	.189	.057	3.310	***	Supported
OSB<--- TR	H2	.118	.070	1.689	.091	Not Supported
OSB<--- DR	H3	-.030	.086	-.348	.728	Not Supported
OSB<--- SR	H4	.089	.067	1.323	.186	Not Supported
OSB<--- IR	H5	.276	.073	3.797	***	Supported
OSB<--- FR	H6	-.238	.093	-2.557	.011	Supported

5. Discussion

Because of this variable's statistical significance, the H1 hypothesis is accepted. Results showed that product risk significantly influences online shopping, supporting H1 and aligning study's findings with prior research. This study clarified further that the outcomes of product risk, such as the product's invisibility and the difficulty of detecting and evaluating its quality online, are marked with the outcomes of prior studies (Javadi, 2012).

The H2 hypothesis is not supported because this variable is statistically insignificant. Unlike the ruling of former studies, the study's results

revealed that time risk has no occupy on consumers' decisions to shop online (e.g. Zhang et al., 2012; Hanjun et al., 2004 and Forsthe et al., 2006).

Because of the statistical insignificance of this variable, the H3 hypothesis is not supported. The study's findings contradicted earlier research and showed that delivery risk had no bearing on consumers' online purchasing decisions, so H3 is not supported (Zhang 2011, Kumar 2012). The respondent have no issue regarding the delivery of the order, they have no issue of time and might be there are more possibility such as education, respondents unawareness of the time importance and same like.

Social risk variable is statistically insignificant which means that the H4 hypothesis is not supported. The findings indicate that social risk does not significantly impact the behavior of online shoppers, which contradicts the ruling of preceding research (e.g. Forsthe et al., 2006; Zhang et al., 2012 and Hanjun et al., 2004). Social risk is treated utmost important risk factor for internet shopping. It was hypothesize that in social risk customers have faces criticism from friends and family and will lose their standing in the community as a result of selecting the wrong product through the wrong channel (Popli, A., & Mishra, S. 2015) but this study founds no connection of social risk on internet shopping.

Information security risk variable is statistically significant which means that H5 hypothesis is supported. H5 is endured by the research results, which presented that information security risk significantly affects online shopping. In present study results are same with previous studies. Prior studies have shown that consumers are hesitant of making purchases online because they have heard of scams and are unwilling to give their personal information to internet sellers.

Financial risk variable statistical significance, so H6 hypothesis is accepted. H6 is backed by the results, which exposed that financial risk significantly influences consumers' online shopping behavior. The study's conclusions are consistent with earlier studies. Customers who purchase products online take into account the risk of trailing money owing to scam

or overspending (Shi and Forsythe, 2003). Online shopping attitudes are negatively impacted by credit card information disclosure and loss apprehension, which is consistent with data from (Javadi, 2012; Almousa, 2011)

6. Conclusion

The research's conclusions about the obstacles to Pakistan's adoption of internet shopping are highly beneficial and encouraging. The majority of respondents had both positive and negative experiences with internet shopping, according to the results. Online retailers may find the research useful in developing effective strategies to meet the needs of their clients and foster consumer loyalty through product quality, variety, design, and trust, among other factors. Online retailers should also use a few marketing techniques, such as offering a user-friendly and secure website to protect themselves from scammers, as well as a very feature-rich navigation system for customers, cash on delivery, forgiving return and exchange policies, etc. The marketer may ignite customers' interest in online buying by implementing such tactics. Studies conducted in the past may have included populations with distinct demographics and situations. As the years went by, technology continued to advance and evolve. It indicates that people's trust in internet buying has grown and is now growing in popularity. We can observe that even those with the lowest incomes in Pakistan shop online and place their trust in this method.

7. Limitations and Future Direction

Since these elements are not the only ones that influence online buying behavior, future research may take into account additional variables that could have an impact. This study has some limitations that should be considered, as not all variables that may be related with the internet were included due to time constraints. Six risk dimensions such as product, time, delivery, social, information security, and financial risks are included in this investigation. So, it is suggested that more variables can be included in future research, including social media's ability to act as a moderator or mediator, convenience, quality risk, product invisibility,

internet danger, and website risk. Future research must include a mediator or moderator because the current study demonstrates the direct links between various perceived risks and online buying behavior. The study's sample size was only 300. More regions and a greater sample size may be included in future studies. However given Pakistan's diversified technological context, a larger sample size is required to draw broad conclusions. Moreover, this study's sample is restricted to Pakistani contexts. The study discovered that people are beginning to trust and believe in websites; therefore, e-commerce websites ought to put more emphasis on risk protection and work to build a reliable rapport with their customers.

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From Training to Transformation: Examining the Impact of DAMEN's Vocational Programs on the Socioeconomic Dynamics of Women

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Abstract: To improve the socioeconomic status of households, especially, in the rural areas of Punjab in Pakistan, there have been numerous attempts by various non-profit organizations. The outreach of these programs has been restricted to some of the renowned locations. However, Damen has intervened by introducing vocational trainings in 2015 to develop skill sets in women residing in the remote areas of Lahore, Kasur and Sheikhupura (in Punjab, Pakistan). This study is an attempt to examine the impact of these vocational training for women on the socio-economic status of their households. For in-depth insights, Multidimensional Poverty Index (MPI) has been computed and used as an impact evaluation tool. Results of the study show that the incidence of multidimensional poverty is 36.6% for the sample of households from which the females have undergone the vocational trainings and 75.7% for other nearest-neighbor households without trainings. We have also explored the impact evaluation through Propensity Scoring Method (PSM). According to PSM, the results indicate a decline of 25% in the multidimensional poverty for the households whose women participated in the vocational training programs. Unlike micro credit programmes, women are most likely to increase the socioeconomic status of the household by acquiring proper vocational trainings.

Keywords: Impact Evaluation; Vocational Trainings; Women Empowerment; Multidimensional Poverty Index (MPI); Propensity Score Model (PSM)

1. Introduction

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Improving the socioeconomic status of a locality requires tremendous efforts to design a project and experiment with it in order to find the outcome of that project. In Pakistan, we find few projects including transfer payments from private and public sectors which merely increases the income or proceeding micro credits to initiate businesses on small scale. However, among the stated projects, providing education or vocational trainings has been considered as the most viable projects which not only increases human capital but is also a source of overall character building (Nilsson, 2010). For an adult, when seeking education is not beneficial, vocational trainings are evident to provide reasonable opportunities (Tukundane et al., 2015). In this study we are focused to examine the effect of vocational trainings being provided to women in the rural areas of Lahore, Kasur and Sheikhupura. As in these regions women are already employed in agricultural sector in which their physical and mental healths are compromised and the work either does not compensate because of family business or may compensate negligibly. Therefore, different vocational trainings can be a source to help them as an additional source of income (Aldashev et al., 2010). Globally, such vocational skill development trainings act as twofold. Firstly, a positive improvement in their quality of life in terms of diet patterns, health status, children education, household assets and income level (Selvamani & Singh, 2018). Secondly, such trainings act as a backbone in the social and economic development process of the country (Blakely & Leigh, 2013). Vocational trainings help to boost the morale of women by putting a positive impact on career progression, an increase in monthly income and employability of individuals (Awang et al., 2011). More than half of the world's adult population comprises women who have a significant and positive contribution in the society. According to Karl (1995), it is not possible to achieve goals of development without accomplishing the involvement of women, as development can last for generations if women are educated. Successful completion of women vocational training and capacity building particularly in rural areas are a key ingredient in uplifting skill knowledge and vocational skills of women groups. As a result of hard work and dedication toward their vocational trainings, it helps to change

their daily life routine from household chores to social, independent and headship role in the society (Rai & Waylen, 2013).

In recent years, Vocational Education and Training (VET) have experienced a renaissance in both academic research and political ground. With connection to developing countries, bilateral aid agencies, World Bank and United Nations Educational, Scientific and Cultural Organization (UNESO) have promoted vocational training programs in order to reduce poverty and thereby boost a country's economic growth and increase competitiveness (Popescu & Roman, 2018). Nilsson (2010) argued that "*It might be more fruitful to encourage small-scale vocational training schemes closely associated with the actual ongoing developments and quite divorced from the formal educational system*".

In Punjab, the TVET[1] system is jointly operated by various agencies such as Technical Education and Vocational Training Authority (TEVTA[2]), Punjab Skill Development Foundation (PSDF[3]), Punjab Vocational and Training Council (PVTC[4]) and numerous private institutions. There are numerous public as well as private institutions that provide vocational training and education to both the genders i.e. male and female. Vocational training for financial stability started in 2015 to empower women in fashion design course that includes tailoring, embroidery, and entrepreneurship within their school premises. There are almost twelve training centers spread across eleven districts. Hashoo Foundation also offers various vocational trainings such as baking and pastry, hotel management, Montessori teaching etc.

A renowned private sector non-profit organization, Development Action for Mobilization and Emancipation (DAMEN) is another renowned institution that offers trainings exclusively to women. These support programmes motivate women by providing these vocational trainings without any financial obligations. However, the effects of these vocational

[1] Technical Vocational Education and Training
[2] http://www.tevta.gop.pk/
[3] https://www.psdf.org.pk/
[4] https://www.pvtc.gop.pk/

trainings have not been evaluated yet. Based on these facts, the primary objective of the study is to assess the extent to which vocational training programs improve the households with women. We have not found considerable literature identifying the potentials of Damen in the rural areas of Lahore, Sheikhupura and Kasur. This study is also unique in a sense that it computes Multidimensional Poverty Index (MPI) to assess the socioeconomic status of households. This study does not only employ propensity score matching (PSM) for impact evaluation but also uses Multidimensional Poverty Index (MPI) to serve the purpose effectively with in-depth insights. The Multidimensional Poverty Index (MPI) is a robust tool for evaluating poverty beyond income measures. It captures various dimensions such as health, education, and living standards, offering a comprehensive understanding of the socioeconomic effects of vocational training. By using MPI, this study aims to quantify how these programs influence multiple aspects of household welfare. On the other hand, Propensity Score Matching (PSM) helps establish causal relationships in impact evaluation by addressing selection bias. By matching participants of DAMEN's vocational training programs with non-participants who share similar observable characteristics, this study ensures that the differences in outcomes are attributable to the training programs rather than other factors. Together, MPI and PSM provide an in-depth and rigorous analysis of the impact of vocational training initiatives.

The remaining structure of this paper includes literature review after introduction; Section 3 briefly discusses about the projects of Damen, Section 4 will present the methodology adopted to collect data and the methodology of analyzing the impact of vocational training for women on the socioeconomic status of their households, whereas Section 5 includes descriptive analysis of respondents. Section 5 provides the estimated results and discusses the results and, finally Section 6 concludes the study.

2. Literature Review

Socioeconomic status (SES) is characterized as a measure of two combined components, that is, economic and social status (House 2002; Galobardes et al. 2006). According to Mirowsky & Ross (2017), SES can be widely described as access to political, social, cultural and human capital resources for individuals and communities. SES acts as a significant determinant for evaluating the quality of life at personal, household and regional level (Cowan, 2013). It is a dynamic evaluation calculated in several ways that take into account the job experience of an individual and their economic and social status in relation to others, based on income, education and jobs. It also helps to sustain and establish their own human and financial resources in order to improve their social services and institutions in the form of its own community and political system. Most of the authors have included following traditional indicators of SES which are as described below.

The household income in the gross terms is the most common indicator used in SES calculations. Instead of reporting an individual's salary as a continuous variable, most researchers identify small, medium and high-income groups, mostly using the official Federal poverty line as a benchmark (McLaughlin et al., 2012). It can be calculated at the individual level, but in literature most of the studies generally prefer to measure at the household or family level, which include total income of all members of the household or family. Income may also be extended to include various sources of income such as earnings from investment, family and friend monetary transfers or money earned from social programs (Herd et al, 2007).

Education is an important variable in measuring SES and has its roots in Weberian theory (Galobardes et al. 2006). As education is a chief indicator of SES, it is being regarded as the first marker of social status that is the primary avenue of upward mobility and precedes and significantly affects other SES variables such as career, wealth and income (Mirowsky and Ross, 2003).

Occupation, regardless of an individual's salary, is a conventional SES indicator because it is believed to convey knowledge about the capacity, income and educational requirements of a person in relation to different

positions in the occupational structure (Mirowsky & Ross, 2017). Higher social status is correlated with occupations as it gives a maximum sense of control and flexibility and ingenuity. During adulthood time period, one often tends to change employment opportunities thus making it difficult to decide which occupation should be taken for the measurement of SES (Galobardes et al. 2006).

Education also plays an important role in measuring socioeconomic status. Education was used as a single socioeconomic status indicator as it is often easier to quantify than income or occupation in a survey (Shavers, 2007). Javed et. al (2008) and Chesters and Daly (2016) highlighted the importance of education on socioeconomic status. Primary education play an insignificant role on rural's life because educational system in Pakistan is inadequate to reach its goals. It has, however, some significance in the agricultural sector. Basic education till primary level helps to increase the income of the farmer which reduces poverty. An important conclusion drawn from this research is that only ten years of education have a positive and meaningful effect on variables such as daily diet, sanitation facilities, source of communication, income and size of family. On the other hand, the socioeconomic status, neighborhood surroundings, society's environment and school attended is positively related with higher academic grades and attainment. Children who have highly educated and skilled parents tend to reach high levels of achievement at schools than their class fellows with less educated parents. Students with lower grades are less likely to complete year 12 than their high peers and are more likely to encounter adverse post-school outcomes. Educated women and income are directly related to each other as explained by Karl (1995). Education helps to empower women by enhancing their skills and abilities in order to earn an independent income, raise their status in society or neighborhood, make them aware about their basic rights and increases their involvement into family and group decision-making.

Multidimensional Poverty Index (MPI) aims to determine the non-income variables that measure poverty in different aspects, in order to provide a more detailed measurement of poverty and deprivation (Wang, 2016). MPI is issued by the Human Development Study Office of the United

Nations Development Program (UNDP) and Oxford Poverty and Human Development Initiative (OPHI) which monitors three-dimensional inequality and ten indicators that are health (nourishment, child mortality), education (child enrolment, number of years of schooling) and living standards (main source of drinking and non-drinking water, sanitation facility, electricity supplied, fuel used for cooking, household assets, present status of house) (UNDP, 2013). Such indicators help to determine the socioeconomic status of households and label households as disadvantaged if they suffer poverty across one-third. The definition of poverty has expanded beyond monetary characteristics that have a direct impact on the socioeconomic status of individuals. Based on this methodological advancement, Robson (2002) and Niazi (2012) examined the incidence of MPI not just on income but taking into account three other dimensions, that is. education, health and housing facilities. Findings of both studies from Punjab as well as Sindh revealed that the frequency of MPI was higher in rural areas in comparison to urban areas. The occurrence of multidimensional poverty and less schooling is mainly due to poor quality and quantity of education, inadequate facilities of clean drinking water and toiletry and lack of poor housing environment especially in rural areas (Preece, 2006; Naveed and Islam, 2010). Similar findings were depicted in research done by Padda and Hameed (2018). It was concluded that 44 percent of rural Pakistan's households live at the lowest and poor levels, experiencing a safe drinking water, insufficient sanitation facilities, worst housing conditions and energy sources resulting in pollution. Thatta, Sangher and Hyderabad were being regarded as poorest according to district level analysis.

The MPI is an interesting and important attempt to provide a multidimensional measure of poverty that competes in depth and scope with the commonly used $ 1.25 a day predictor of income poverty (Dotter and Klasen, 2014). From the above studies reviewed, it can be concluded that MPI is a far more actionable and policy-relevant predictor for countries and agencies through its household survey data base than Human Development Index (HDI). While using MPI, it can be split by region, various groups and by indicators that allow countries to determine which groups are lacking the most and their deprivation level in different proportions. MPI is a useful tool to measure socioeconomic status because

MPI looks beyond income to consider how people encounter deprivation or poverty in many ways at same time. It discusses how people are left behind in three main dimensions i.e. health, employment and living standards. Individuals who suffer poverty in at least one third of these weighted metrics fall into the multidimensional disadvantaged group.

In order to assess impact evaluation of any project, several studies in literature have focused on evaluating the impact of vocational training programs on individual's income and employment, however vast number of studies depends on non-randomized cases. Propensity Score Matching (PSM) method as introduced by Rosenbaum and Rubin (1983) was proposed in the evaluation problems, that is, a bias reduction method for estimating the effects of treatment with observational data sets. Roman and Popescu (2015) focused on assessing the effects of training on the income of Romanian migrants through a matching approach to the propensity score. This method helps to define the treated and controlled migrants along with some observable characteristics that affect both the groups. The PSM approach requires a reasonable difference between the distribution of the propensity scores for the treated and untreated migrants which implies overlapping in the allocation of examined characteristics. Thus, attending vocational training programs lead to higher incomes which in result help to raise the living standards of migrants. Benus, et al. (2004) showed similar findings related to Romanian economy in comparison to Russia. Treated Labor Market Programs (ALMP). By using the propensity scoring method approach, it became easier to generate a sample from control group that is closely being matched with treatment group. In general, PSM produced a comparison sample that closely resembles the demographic and other characteristics of the participant group. Aldashev et al. (2010) made a comparison by using PSM model in his study for citizens and immigrants in Germany for participants who took training for aptitude test and skill provision by the government. It was concluded that immigrants took benefit of training more than natives. Schreinemachers et al. (2016) in his study examined trainings that are given to farmers during off-season in Bangladesh for vegetables production methods. Vocational training programs tend to achieve a

positive and significant long- and medium-term impact than in the short run (Arellano, 2010). Similar results were found by McGuinness et al. (2014) using PSM method. This methodology has been utilized in various empirical studies to compare two groups in case of non-random observations.

In this study, we aim to address the impact of vocational training programs on socioeconomic status of women in Lahore. Be sufficient to note, none of the studies examined the above for Damen in Lahore, Kasur and Sheikhupura, hence the study intends to target the women who took vocational training program from Damen considering as a target group by comparing these with the control group women with observable characteristics. To make this study more authentic and informative, we have computed MPI and evaluated the impact of vocational training provided by Damen on various poverty indicators. We have also evaluated this impact through Propensity Score Matching (PSM).

3. Data and Methodology

3.1 Sample

The objective of this study is to analyze the impact of vocational training provided to women in the rural areas of Lahore, Kasur, and Sheikhupura. The data for the treated group, comprising women who successfully completed vocational training in 2017/2018, was obtained from DAMEN. Households of these women were identified, and data was collected from them. For the control group, households with similar socioeconomic characteristics were identified using the nearest-neighbour sampling technique, as recommended by Borg and Gall (1989). This allowed for meaningful comparisons between the two groups.

3.2 Sampling Technique

During the pilot phase, random sampling was tested but proved ineffective due to issues such as incomplete information and biased responses from participants. To ensure complete and accurate data collection, a strategy based on building references, links, and recommendations was adopted. This led to the use of non-probability sampling, which is better suited for reaching specific populations under similar socioeconomic conditions.

Two methods of non-probability sampling were employed:

1. Snowball Sampling: This approach relies on referrals from initial respondents to identify additional participants. Snowball sampling was chosen because it is particularly effective in reaching women in rural areas who may not be easily accessible or willing to participate without prior recommendations.
2. Convenience Sampling: This method involves selecting participants who are readily available and willing to provide the necessary data. Convenience sampling was used to ensure timely data collection in areas where building a network was feasible.

These methods were chosen due to logistical constraints and the sensitive nature of collecting data in rural settings. However, the limitations of non-probability sampling must be acknowledged. These include potential selection bias, reduced generalizability of findings, and overrepresentation of specific subgroups within the sample. Despite these limitations, this approach was deemed the most practical for achieving the study's objectives.

3.3 Questionnaire Design

Given the study's aim of examining the impact of vocational training on the socioeconomic status of households, a quantitative research design was selected as the most appropriate methodology. A structured, self-administered questionnaire was developed to collect data on key variables such as education, health facilities, household expenditure, sanitation facilities, household assets, and vocational training experience (for treated females). The process of constructing the instruments in the questionnaire was based on the dimensions, indicators and the cutoffs identified from the global MPI measure. The questionnaire ensured participant anonymity, encouraging respondents to provide honest and adequate responses.

The questionnaire design process involved several steps to enhance validity and reliability:

1. Pretesting: A pilot study was conducted to test the clarity and relevance of questions. Based on feedback, adjustments were made to simplify language and improve question flow.
2. Expert Consultation: Inputs from field experts and researchers familiar with rural contexts were incorporated to ensure comprehensiveness and cultural appropriateness.
3. Variable Selection: Variables were chosen based on their relevance to measuring multidimensional poverty and the socioeconomic impact of vocational training.
4. Final Review and Translation: The questionnaire was finalized and translated into local languages to ensure accessibility for respondents in rural areas.

To increase reproducibility, the questionnaire has been included in Appendix-1. The sample consists of 124 households of treated females and 106 households of controlled females from three districts. The controlled group was selected to closely match the treated group in terms of socioeconomic characteristics, allowing for robust comparative analysis.

By combining structured questionnaire design with tailored sampling methods, this study aims to provide reliable insights into the impact of vocational training on women's socioeconomic status. The number of participants according to the district and vocational center are presented in Table 1.

Table 1 Number of Participants - district wise

	Location	**No. of Respondents**	**Total**
Treated Females	Lahore	34	
	Sheikhupura	55	
	Kasur	35	
			124
Controlled Females	Lahore	39	
	Sheikhupura	27	
	Kasur	40	
			106
			230

Source: Author's own collected data

3.4 Descriptive Analysis

The total number of respondents interviewed were 230.The distribution of respondents in Table 2 reveals that out of this 124 are treated females who took vocational training from DAMEN and 106 are controlled females who did not participate in any vocational training. Of the total sample size, more than 95% of females either treated or controlled were helpful and co-operative in providing accurate and useful information. However, 5% of the females especially in Sheikhupura refused and were hesitated to fill in the questionnaire. 27% of the treated females are Lahore dwellers, 44% are Sheikhupura residents and 29% of females are residing in Kasur. On the other hand, 37% of controlled females are currently living in Lahore, 25% are Sheikhupura dwellers and 38% of controlled females reside in Kasur.

Table 2 Respondents' location

Location	Treated Females (Treatment Group)	Controlled Females (Control Group)	Total
Lahore	34	39	73
Sheikhupura	55	27	82
Kasur	35	40	75
Total	**124**	**106**	**230**

Source: Author's own collected data

Table 3 gives in-depth detail profiles of the treated and control female respondents in the study. Majority of the households of treated as well as controlled females had male members as being head of the household. About 2.4% of females that took vocational training and 1.9% of controlled females who filled the questionnaire are household heads. 60% of females are single, 39% are married and 1% of females are separated/divorced who actively participated in vocational training and education as provided by Damen Support Programme. A major chunk of controlled females is married i.e., 60% who did not take vocational training program.

Table 3 Profiles of Treated and Controlled females

Description	Category	Treated Females	Controlled

		(Treatment Group)	Females (Control Group)
Gender	Male	-	-
	Female	124	106
Household head	Male	100	81
	Female	24	25
Respondents' relation to the household	Sister	10	8
	Daughter	68	17
	Daughter in law	8	31
	Wife	35	48
	Self	3	2
Marital Status	Single	74	13
	Married	48	74
	Separated/Divorced	2	5
	Widowed	-	14

Source: Author's own collected data

The educational profile of respondents can be seen in Table 4. From the total sample of females either treated or controlled, 18 (7.8%) are illiterate, 144 (62.6%) of females have done proper schooling till matric and 45 (19.6%) are intermediate passed. Most of the females that actively participated in vocational training have minimum education till secondary school i.e., 45 (36.3%), 26 (20.97%) have passed intermediate and same number of females have done schooling till middle. A small proportionate percentage of treated females i.e., 4 (3.2%) are highly educated as they have done baccalaureate or masters. Out of the total sample in controlled females, 10 (9.4%) are illiterate, 38 (35.9%) are matric passed, 30 (28.3%) are in the range of middle i.e., grade 6 – 8, 19 (17.9%) have successfully passed intermediate and 6 (5.7%) have passed baccalaureate.

Table 4 Educational Profile of females

Educational Level	Type of respondents		Total
	Treated Females	Controlled Females	
Illiterate	8	10	18
Primary	2	3	5
Middle	26	30	56
Secondary	45	38	83
Intermediate	26	19	45
Baccalaureate	13	6	19
Masters	4	0	4

Source: Author's own collected data

A major chunk of respondents lies in the range of 21 and 40. From the total number of respondents, 97 (42.2%) are in the range of 21 – 30 while 74 (32.2%) are in the age bracket of 31 – 40. The distribution can be seen in below given Table 5.

Table 5 Sample Respondents by Age

Age Bracket	Type of respondents		Total
	Treated Females	Controlled Females	
15-20	42	9	51
21-30	58	39	97
31-40	21	53	74
41-50	3	5	8

Source: Author's own collected data

4. Results

4.1 Results of Multidimensional Poverty Index for Treated and Controlled Groups

MPI monitors three-dimensional inequality and ten indicators that are health (nourishment, child mortality), education (child enrolment, number of years of schooling) and living standards (main source of drinking and non-drinking water, sanitation facility, electricity supplied, fuel used for cooking, household assets, present status of house) as per the global MPI (UNDP, 2013). Such indicators help to determine the socioeconomic status of households and label households as MPI poor if they suffer poverty across one-third.

The identification unit refers to the person or household classified as poor or non-poor. The unit of identification for this study is household. Information on household members, all of whom earn the same deprivation score, are considered equally deprived. The structure of Pakistan's MPI maintains the same three core dimensions as of global MPI i.e. education, health and living standards. In this study we have used

14 indicators of which 7 indicators are same as being used in global MPI. After assigning equal weights to the three dimensions and all the indicators, below Table 6 gives an in-depth detail of dimensions and indicators.

Table 6 Dimensions, Indicators, Deprivation Cut-offs and Percentage Deprivation

Dimension	Indicator	Deprivation Cutoff	Deprived % (Treatment Group)	Deprived % (Control Group)
Education	Out of School	Household is deprived if children are not currently attending school	12.195%	54.054%
	Education level	Household is deprived off in schooling if no member has completed 5+ years of schooling	36.585%	54.054%
Health	Health Facility	Household deprived in Health/Not going hospital because of a reason	7.317%	18.919%
	Childbirth	Household deprived in assisted delivery	48.780%	72.973%
	Antenatal Care	Household deprived in Antenatal care	36.585%	64.865%
	Vaccination	Household deprived in vaccination	7.317%	5.405%
Standard of Living	Electricity	Household deprived in electricity	29.268%	43.243%
	Cooking	Household deprived in cooking fuel	34.146%	56.757%
	Over-crowding	Household deprived in over-crowding	58.537%	75.676%
	Small Assets	Household deprived in small assets	0.000%	0.000%
	Large Assets	Household deprived in large	0.000%	

	Land	assets	0.000%
	Water	Household deprived as no productive land	14.634% 59.459%
	Sanitation		
		Household deprived in safe water	7.317% 2.703%
		Household deprived in toilet/sanitation facility	80.488% 64.865%

Source: Author's own computation

The above table shows that households who did not attend vocational training were deprived in education sector. In health sector, treated and controlled females both were deprived during childbirth and antenatal care. Most of the controlled females were deprived with basic infrastructure facilities such as electricity, cooking fuel and toilet/sanitation facility.

Table 7 Multidimensional Poverty by Treated/Controlled females

Index	Value	Confidence Interval (95%)	
Households of Treated Females			
MPI	0.157	0.090	0.223
Incidence (H)	36.6%	21.7%	51.5%
Intensity (A)	42.8%	37.9%	47.7%
Households of Controlled Females			
MPI	0.385	0.308	0.462
Incidence (H)	75.7%	61.7%	89.7%
Intensity (A)	50.9%	47.1%	54.7%

Source: Authors' own collected data

Table 7 shows MPI for households of treated and controlled females, as well as its partial indices: the frequency of poverty (or poverty percentage: the number of people listed as poor multi-dimensionally, H) and the strength of poverty (or average percentage of weighted indicators where poor people are deprived, A). The occurrence of multidimensional poverty is 36.6% for treated females and 75.7% for controlled females. As the 95% confidence level can be clearly seen in the table. One can conclude

that, with 95% confidence the true multidimensional poverty headcount ratio range between 21.7% and 51.5% of the households that participated in vocational training whereas for controlled females the real headcount set for multidimensional deprivation is between 61.7% and 89.7%.

The estimated poverty rate, representing the total share of deprivations faced by each poor person, is 42.8% for treated females and 50.9% for controlled females. This means that each underprivileged individual on average, deprived in 43% of the weighted indicators as of treated females. The MPI, which is calculated by multiplying H and A is 0.157 for treated females and 0.385 for controlled females. This means that in Lahore, Sheikhupura and Kasur; multidimensionally disadvantaged treated as well as controlled females face 15.7% and 38.5% of the overall deprivations that would be endured if all people were deprived in all indicators. The MPI is used as the official national statistics to determine whether poverty has dropped or increased overtime in Lahore, Sheikhupura and Kasur, as it takes into consideration the progress of both H and A.

Next we disaggregate our data by district level i.e. Lahore, Sheikhupura and Kasur. In Table 8, the MPI, incidence and intensity of poverty are shown for treated and controlled females of all three districts. From the table, one can conclude that poverty headcount ratio of households for controlled females is much higher than for treated females – 75.0% and 30.8% for Lahore, 62.5% and 37.5% for Sheikhupura and 84.6% and 41.7% for Kasur. Kasur has the highest level of multidimensional poverty as well as incidence of poverty with roughly half of their population as under privileged for both households' i.e. treated and controlled females. Sheikhupura has lowest MPI for controlled females whereas Lahore has lowest MPI for treated females.

Table 8 Multidimensional Poverty by Districts, 2019/2020

District	Value (Treated Females)			Value (Controlled Females)		
	MPI	Incidence(H)	Intensity(A)	MPI	Incidence(H)	Intensity(A)
Lahore	0.135	0.308	0.438	0.388	0.750	0.517
Sheikhupura	0.159	0.375	0.424	0.292	0.625	0.467
Kasur	0.17	0.417	0.424	0.43	0.846	0.518

	7			9		

Source: Author's own collected data

4.2 Results from Propensity Scoring for Treated and Controlled Groups

In order to estimate the propensity score, researchers use matching as a tool for evaluation which is the most important step. Different approaches were adopted to choose an acceptable specification of the equation for participation (Dehejia and Wahba 1998; Heckman et al. 1998). A probit function is being used for estimation of propensity scores given that the treatment variable i.e., Damen is dichotomous (i.e., D=1 for the females who took vocational training programs and D=0 for controlled females). The population of interest in this research study is defined by those females who took various vocational training programs given by Damen while living in their surrounding and they were constituted as the treatment group. Once the treatment group, control group and outcome variable are defined, the propensity of receiving treatment or the propensity of taking different vocational training programs is estimated based on various observable characteristics that will affect both the groups i.e.,treated as well as controlled females (Caliendo and Kopeing, 2008). While developing the model, the main challenge researcher's face was to find those observable characteristics.

The first step in PSM is to select the variables that will be used to estimate propensity score and assure the balancing property. Table 9 presents the result of probit regression output, propensity scores, number of blocks and stratification using propensity scores and balancing property experiment. These propensity scores within the spectrum of the lowest and highest predicted values for households in the treatment group are in the region of common support.

Table 9 The results of the Probit regression model

DAMEN	Coef.	Std. Err.	Z	P>|z|
D_OutofSchool	-1.068413*	.5115021	-2.09	0.037

D_AdultEducation	-.0769705	.4067047	-0.19	0.850
D_HealthFacility	-.9161821	.7967536	-1.15	0.250
D_Childbirth	-.864021*	.4383645	-1.97	0.049
D_AntenatalCare	-.6765691	.3882344	-1.74	0.081
D_Vaccination	-.0247144	.860348	-0.03	0.977
D_Electricity	-.0105049	.4085591	-0.03	0.979
D_CookingFuel	-.8173723*	.4063079	-2.01	0.044
D_Overcrowding	.7144663	.4740104	1.51	0.132
D_Land	-1.315363**	.4559218	-2.89	0.004
D_SafeWater	.3086529	.8887445	0.35	0.728
D_SafeSanitation	.5709549	.422517	1.35	0.177
_cons	1.331125	.5663959	2.35	0.019
Number of obs. 78 Log likelihood = -32.527814 Pseudo R2 = 0.3972 LR chi2(12)= 42.87Prob>chi2= 0.0000				

Source: Author's own collected data

*, **, *** denotes statistical significance at 0.05, 0.01 and 0.001 levels

Table 9 shows the probit regression results that are used to estimate the propensity scores. The variable D_OutofSchool is described as 'household is deprived if children are not currently attending school' which shows that deprivation in out of school is negatively related with treatment group. D_AdultEducation has been defined as "Household is deprived off in schooling if no member has completed 5+ years of schooling which tells us that deprivation is negatively related with those households that took vocational training from DAMEN. Variable tagged as D_HealthFacility is defined as "Household deprived in Health/Not going hospital because of a reason". This variable is negatively related with the treatment group. The variable labeled as D_Childbirthis defined as "Household deprived in assisted delivery" which explains that deprivation has a negative relationship with households that undertook vocational training through DAMEN. Another variable of health i.e. D_AntenatalCare labeled as "Household deprived in Antenatal care" which tells us that deprivation in

antenatal care is negatively related with treatment group. Variable labeled as D_Vaccination is described as 'household is deprived if children did not receive vaccination' which tell us that deprivation in vaccination is negatively related with treatment group i.e. DAMEN. The variable D_Electricity is described as "Household deprived in electricity". This variable shows that deprivation is negatively related with those households that took vocational training from DAMEN. Another variable that comes under the domain of standard of living is D_CookingFuel which is defined as "Household deprived in cooking fuel". This variable is negatively related with treatment group. Another important variable D_Land labeled as "Household deprived as no productive land" which shows us that deprivation is negatively related with the households that took vocational training from DAMEN.

Rest of the three variables i.e. D_Overcrowd, D_SafeWater and D_SafeSanitation is positively related. One of the most important variable D_SafeWater is described as 'Household is deprived if drinking and non-drinking water is same' which indicates that deprivation in drinking water is positively related to the treatment group. Another variable D_SafeSanitation defined as "Household deprived in toilet/sanitation facility" is also positively related with households that took vocational training from Damen. According to the World Bank report (2018[5]) it suggests that focus must be moved from improving access to sanitation to improving the quality and protection of wash facilities and the safe management of human waste. The last variable i.e. D_Overcrowd is defined as "Household deprived in over-crowding" which shows that deprivation in overcrowding is positively related to our treatment group. All the covariates properly contribute to /construct the counterfactual group of units that have been matched with the observed units by means of the PSM estimator.

Prior to the implementation of matching algorithms, balancing property of the model was satisfied. (Becker and Ichino, 2002). To evaluate the set of

[5] https://documents1.worldbank.org/curated/en/630671538158537244/pdf/The-World-Bank-Annual-Report-2018.pdf

possibilities containing the findings with the most common features to be considered, the region of common support computed was [.08305823, .99555878] and observations beyond interval were not included in the study. Table 10 gives a detail description in percentile form of the estimated propensity score that lie in the range of common support.

Table 10 Estimated propensity score

	Percentiles	**Smallest**
1%	.0830582	.0830582
5%	.145306	.0830582
10%	.1595973	.0917527
25%	.4053948	.145306
50%	.665047	
		Largest
75%	.8738945	.9714196
90%	.969766	.9714196
95%	.9714196	.9850593
99%	.9955588	.9955588

Source: Author's own collected data

In order to calculate the PS estimation, a total number of 65 valid units were identified and selected as valid observations to see the impact of vocational training on households. All these 65 units lie within common support region while 165 are discarded due to the fact that they do not help in ensuring the mandatory balancing property which guarantees the balance among PS blocks. The final number of blocks for propensity score is 5, which ensures that the mean propensity score is similar for treatment as well as control group in each block. The balancing property is satisfied and Table 11 shows the inferior bound, the number of treated and the number of controls for each block.

Table 11 Propensity score by blocks

Inferior of block of pscore	**DAMEN 0**	**DAMEN 1**	**Total**
.0830582	6	1	7
.2	6	1	7
.4	5	9	14
.6	4	9	13
.8	3	21	24
Total	**24**	**41**	**65**

Source: Author's own collected data

Different matching algorithms were tested in order to ensure that the most appropriate identification strategy between the treated and control groups is applied. The estimated average treatment effect of the vocational training programs provided by DAMEN upon the treated (ATT), three and a half year after the training had taken place, are summarized in Table 12, along with their statistical significance and the number of units chosen for both the groups. The differences in the estimated average income of treated as well as controlled females are statistically significant, as it is shown by the t-statistics values in the below table. The results derived with nearest neighbor matching method shows the highest significance and also provide the highest magnitude of the effect.

Table 12 Average treatment effects on the treated

Matching Method	n. treat.	n. contr.	ATT	Std Err.	T
ATT estimation with Nearest Matching method	41	12	0.049	0.227	0.215
ATT estimation with the Stratification method	41	24	0.073	-	-

Source: Author's own collected data

The above table shows that women vocational training provided by DAMEN has a significant impact on socioeconomic status of households with the nearest matching method (t=0.215). The average treatment of the treated (ATT) on the socioeconomic status of households for vocational training program is 4.9 percent. Under the stratification matching method, results show that multidimensional poverty have declined by 7.3% due to the participation in vocational training programs given by DAMEN.

4.3 Important Insights from MPI and PSM

The impact of women vocational training on socioeconomic status of households has been investigated in this study. This research aims to find the impact of vocational training provided by DAMEN on socioeconomic status of households. This study has used descriptive analysis, impact evaluation approach using MPI and PSM to carry out results. The important results of the study are as follows

- Vocational training helps to alleviate poverty as discussed in literature review. DAMEN aims to uplift the socioeconomic steps for under-privileged individuals especially focusing women. Results of the study show that the occurrence of multidimensional poverty is 36.6% for treated females and 75.7% for controlled females.
- With 95% confidence the true multidimensional poverty headcount ratio range between 21.7% and 51.5% of the households that participated in vocational training whereas for controlled females the real headcount set for multidimensional deprivation is between 61.7% and 89.7%.
- The estimated poverty rate, representing the total share of deprivations faced by each poor person, is 42.8% for treated females and 50.9% for controlled females. This means that each underprivileged individual on average, deprived in 43% of the weighted indicators as of treated females.
- The MPI, which is calculated by multiplying H and A is 0.157 for treated females and 0.385 for controlled females. This means that in Lahore, Sheikhupura and Kasur; multidimensionally disadvantaged treated as well as controlled females face 15.7% and 38.5% of the overall deprivations that would be endured if all people were deprived in all indicators.
- Kasur has the highest level of multidimensional poverty as well as incidence of poverty with roughly half of their population is being regarded as underprivileged for both the households' i.e. treated as well as controlled females. Lahore has the lowest MPI and incidence of poverty at a rough estimate of 13.5% and 30.8% of households that actively participated in vocational training and education. On the other hand, Sheikhupura has the lowest MPI and incidence of poverty for controlled females.

As a result of the vocational training provided by DAMEN, women feel that they are more valuable and worthy stakeholders in development and are becoming socially and economically empowered in changing their social and economic setup. Women are now willing to invest in their child education and playing a good parenting role. In

general, results are consistent with the theory of human capital as discussed above which argues that vocational training leads to a positive impact on employment especially in long term.

5 Limitations and Future Prospects

- Vocational trainings provided by DAMEN are geographically dispersed and it entails heavy expenses when visiting them. Even if females reside in the same neighborhood or locality, still the distance between the clients approximately takes to 1-5 kilometers. As a result, the cost of carrying out interviews is very high in rural areas in comparison to urban areas. The cost includes visiting the field, transportation cost, photocopying the survey forms etc.

- While conducting interviews, representatives of DAMEN were present at certain localities, which can make the filling out questionnaires bias.
- Vocational training centers are available nationwide i.e. public as well as private training institutions. Data collected for this current study was based on Lahore, Sheikhupura and Kasur due to time as well as resource constraint. Other researchers can extend the study by taking samples from other cities.
- Vocational training females recommended that the duration and time period of training was too less. Thus, better opportunities could have been arise if trainees have more time to explore and learn.

5.1 Future Research

- Results of the current study will be helpful in determining future research regarding people, cultures and time. This research can widen into cross cultural settings. The findings may vary because there is a difference in the macroeconomic environment and the entrepreneurial spirit of people.

- Differences among different vocational training centers can be extensively studied and compared.

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Annexture A1

Questionnaire

ENTIAL information collected in this survey trictly confidential and will be used for academic purpose only.		Household ID: **1.1)** Year of Course _____ **1.2)** Age of the Respondent_____

IMPACT OF WOMEN VOCATIONAL TRAINING ON SOCIO-ECONOMIC STATUS OF HOUSEHOLDS: A CASE STUDY OF DAMEN (LAHORE)

GENERAL INFORMATION			
1.3) District		**1.9)** Vocational Training Course Taken (Stitching/Embroidery = 1, Beautician = 2 Handicraft = 3, Cooking = 4 & Financial Literacy = 5)	
1.4) Educatio respondent		**1.10)** Are you currently practicing your Vocational training course? (No =0, Yes =	
1.5) Gender of the Head of Hous (Female=0, Male=1)		**1.11)** If "No" can you tell me the reason	
1.6) Age of the Head of Househo		**1.12)** Household Size	
1.7) Relationship with Househol (Sister = 1, Daughter = 2, Daughter in law = Wife = 4)		**1.13)** Number of Children below age 5	

1.8) Marital Status (Single =1, M = 2, Separated/Divorced = 3, Widow		**1.14)** Number of Dependents	
		1.15) Number of Employed or Businessm	
EDUCATION			
2.1) Any child between (6 – 11 years) not going to school? (No = 0, Yes N/A = 2)			
2.2) Any adult (below 30) not attended school/institution? (No = 0, Yes = N/A = 2)			
2.3) After receiving vocational training, the number of children or sibling attending school (Increased = 0, Decreased = 1, Did not change = 2 and N/A = 3)			
HEALTH STATUS			
3.1) Have the household membe suffered from any the of the following disease? (Ph disability =1, Hyper tension = 2, Diabetes Heart Problem = 4 & Other = 5)		**3.4)** In the last 3 years, where do women usua give birth? (Home = 1, private clinic/hospital government BSU/clinic/hospital = 4, Homeopathic = 5, Hakim=6, Dai = 7 and Oth	
3.2) If "YES", what kind of heal facility was availed (Government Basic Health Unit/Clinic/Hospital = 1, Private Clinic/ Hospital = 2, & N availed any health facility = 3)		**3.5)** Is there any women in the household who given birth in the last 3 years and did not rece antenatal check-up? (No = 0, Yes = 1 and N/A	
3.3) If "NO", why did they not s medical help when Sick? (Costly = 1, Far away/Dist 2, Not		**3.6)** Have the children (under 5 years of age) household are receiving or had received any vaccination/drops according to a standard cale	

Suitable = 3, Lack of tools/staff = Not enough Facilities = 5)		(No = 0, Yes = 1)	
HOUSEHOLD CHARACTERISTICS & EXPENDITURES			
4.1) What was the monthly total household income before doing course?	_____ Rs.	**4.5)** How many rooms you have in your house?	
4.2) What is the current household income?	_____ Rs.	**4.6)** How is electricity supplied? (Interconnected to grid = 1, Off-grid/met Sharing = 2, Electricity producing device = 3 & No facility at all = 4)	
4.3) What is the current household expenditure?	_____ Rs.	**4.7)** What is the main fuel used for cooki (Firewood = 1, piped gas = 2, electricity gas cylinder = 4 & Other = 5)	
4.4) What is the present status o house? (Owner occupied/self-hired= 1, 2, Others = 3)			
ASSETS IN POSSESSION			
5.1) Does the household possess any productive/agricultural land? (No = 0, Yes = 1)		**5.2)** If "YES" do they receive rent? (No = 0, Yes = 1)	
5.3) Does the household own any two of the following ***small assets***		**5.4)** Does the household own any of the following ***large assets***	
TV (1)		Air Cooler		Refrigerator (1)		Tractor trolley (5)	

		(6)					
Radio (2)		Fan (7)		Air conditioner (2)		Autorickshaw/ chingchi/ loader (6)	
Sewing Machine (3)		Iron (8)		Motorcycle/scooter (3)		Desktop/laptop/tablet (7)	
Chair (4)		Video cassette Player (9)		Car/truck/bus/van (4)		Mobile phone (8)	
Watch (5)		Bicycle (10)					

6) WATER AND SANITATION	
6.1) Is the main source of drinking and non-drinking water same? (No = 0, Yes = 1)	
6.2) If "NO", then what is the main source of drinking Water? (Piped water = 1, hand p 2, bore hole = 3, protected dug well = 4, filtration plant = 5, Protected spring = 6, rain water collection = Unprotected well/spring/river/pond = 8, Vendor provided water/Tanker = 9 & Other =	
6.3) If "YES", then do they usually do something to make water safe to drink? (Boil = strain it through a cloth = 2, water filter = 3, let it stand and settle = 4, add bleach/chlorine or any other = 5 & other	
6.4) What kind of toilet facility does their household use? (Connected to public sewera connection to septic System = 2, pour-flush latrine = 3, simple pit latrine = 4, ventilated pit latrine = 5, public/shared latrine = 6, Open pit latrine = 7 & bucket latrine = 8)	

VOCATIONAL TRAINING
7.1) Apart from above mentioned vocational training courses, which other courses you would like to be offered by DAMEN? _____

7.2) To what extent do you agree or disagree with each of the following statements? (Please tick one)

	Strongly Disagree	Disagree	Neutral	Agree	Stron
Vocational training offers high quality learning	1	2	3	4	
The level of satisfaction with the content of vocational training	1	2	3	4	
Access to usage of modern equipments (sewing machine, laptop)	1	2	3	4	
The vocational training provided by DAMEN was helpful	1	2	3	4	
Training was shorter than expected.	1	2	3	4	
Training was technical than I expected.	1	2	3	4	
Trainer was helpful during the course of training	1	2	3	4	
Overall, I am satisfied with training provided	1	2	3	4	

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Human Capital Development and Inclusive Growth: Exploring the Role of Income through Heterogeneous Income Groups

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Abstract: This study examines two things. First, the confirmation of achieving inclusive growth through human capital development i.e. government expenditures on education and health. Second, the existence of a threshold effect between government expenditures on human capital development and income level, for growth inclusiveness. This study uses secondary panel data of 125 countries for the period of 20 years from 2000-2019 obtained from World Development Indicators (WDI) of the World Bank. The countries are grouped into four categories based on World Bank classification of countries according to their income levels, namely, low-income, lower-middle income, upper-middle-income, and high-income. The outcomes of this study reveal that human capital development has increasing effects on inclusive growth across all income levels. Therefore, there is a need to enhance human capital development to achieve the target of inclusive growth regardless of the income level of the economy. The empirical results show the existence of a statistically significant threshold effect between government expenditure on human capital development and income level for growth inclusiveness. Low-income and lower-middle-income countries need to raise the national income level to ensure achieving the growth through government's investment on human capital development.

Keywords: Inclusive Growth, Human Capital Development

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1. Introduction

This chapter introduces the topic of this study starting with a brief description of background of this research, rationale and a discussion of research gap. It also delineates objectives of the research and describes research questions.

1.2 Background of the Study

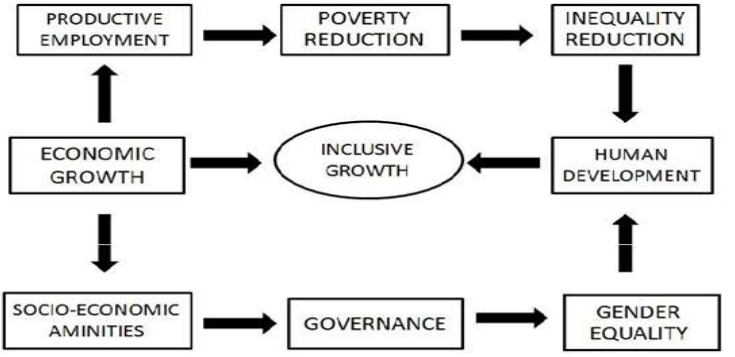
Economic progress of any country is typically measured through conventional parameters such as Gross Domestic products hereinafter referred to as GDP. On one hand, it does give an indication of how an economy is performing overall, but on the other hand it fails to provide an insight on how the specific segments of the economy are doing in terms of their contribution to the GDP (Ehigiamusoe & Lean, 2019). This leaves room not only for identifying the most significant contributing sectors but also the ones which should have been significant contributors in the overall economic growth. Building on this, the aspect of Inclusive Growth (ING, hereafter) needs to be focused on to identify its role in defining the economic progression (Horizons, 2020).

The ability of an economy to produce an increased amount of goods and services over a period of time is economic growth. Gross Domestic Product (GDP) growth indicates growth in economy and primarily used as an indicative measure of economic growth. A 3% increase in GDP growth would be interpreted as 3% more goods were produced by economy during the year and hence 3% is the rate of economic growth. However, contrary to economic growth, Inclusive Growth is the notion of providing equitable distribution of resources and opportunities over the course of economic growth to economic participants so that all sections of society can reap the fruits of this economic growth (Rafael and Almeida, 2013). This definition implies that there exists direct linkages between economic growth and the various dimensions of economic determinants, including

micro and macroeconomic determinants (Anand, Rahul; et al., 2013). As there are two dimensions of economic growth i.e. microeconomic dimension and macroeconomic dimension. As microeconomic dimension emphasizes structural reforms to promote competition and bring about and diversification in economy. On the other hand macroeconomic dimension focuses on economic aggregates such as changes in Gross National Product (GNP) of the country, Variations in Total Factor Productivity, Changes in Gross Domestic Product (GDP) and fluctuations in Aggregate Factor Inputs (Ianchovichina & Lundstrom, 2009).

For economic growth to be sustainable, inclusiveness is a prerequisite. Sometimes it is very difficult to maintain economic growth, partly because there are many negative externalities involved which increase with increased economic growth e.g., increased corruption as is usually the case in developing countries where corruption is a significant problem. However, for successful growth inclusiveness is essential because the main ingredients of growth include an unrestricted access to markets, equitable distribution of resources and an unbiased and robust regulatory environment (Grömling & Klös, 2019). The focus of inclusive growth is to support the poor in raising its status and standard of living, thereby including those who were previously excluded, into growth trajectory through increase in income and productive employment. Hence, the perspective of inclusiveness is long-term (Ianchovichina & Lundstrom, 2009).

The following figure provides an overall idea about main determinants of inclusive economic growth in an economy;



Source: Adapted from Paramasivan et al. (2014)

Figure 1.1: Theoretical model of the drivers of the inclusive growth

Over the past years, many organizations and government institutions have been working on inclusive growth in different countries. Importance of IG has been well manifested on regional as well as national and global level through a multitude of precedents (Heshmati et al., 2019). For example hosting of The World Economic Forum in Nigeria, was tagged creating jobs, promoting Inclusive Growth in its wake. The United Kingdom's Department for International Development (hereinafter referred to as DFID) of UK noted this in February 2014. As part of work goals and strategies, include inclusive growth. In addition, in May of 2014, The European Commission stressed the importance of private sector-led initiatives (Lee, 2019).

Furthermore, in some regions, rapid economic expansion is accompanied by unemployment, which is referred to as "futureless" or "jobless" growth. Such robust evidence suggested by studies has change the development motto of countries to Inclusive Growth and not just economic growth (Tilak, 2007). However, despite drawing the attention of notable researchers and politicians, this concept has not garnered an agreement on its aspects. Inclusive growth ensures poverty eradication, reduction in

income disparity and increase in per capita growth (Rauniyar & Kanbur, 2009).

Although Inclusive Growth has no universally accepted definition, which is general condition regarding dearth of agreement on a common definition of a term across all areas of economics, yet there is near unanimity on what inclusive growth means in general. As the term "inclusive" denotes "all," "complete," "whole," therefore we may define inclusive growth as the goal of ensuring that every economic agent i.e. every social, economic and income group is contributing its fair share to the economic growth process of the economy (Chand et al., 2019). On the basis of aforementioned concept, we may safely deduce that Inclusive Growth primarily addresses socio-economic/developmental issues including Unemployment, inequality and poverty (Klasen, 2017).

However, it is worth noting that merely solving these problems doesn't make economic growth inherently inclusive. As an example, in the instance when the wage rate exceeds GDP per capita (per capita income) and/or the instance when economic growth coupled with reduction in unemployment, poverty and a narrowing gap between rich and poor. It should be stressed, however, that inclusive progress is contingent on continuity and durability (Grömling & Klös, 2019). That is, the rate of growth must be consistent and reasonably stable.

In order to achieve inclusive growth, a strategy is required. Federal Government Budget of Nigeria for the year 2013 was themed "Fiscal Consolidation with Inclusive Growth," and this lead to importance of Inclusive growth being realized and adopted as a priority research topic by the International Monetary Fund (IMF) in November 2013 (De Haan, 2015).

Likewise other prominent institutions have actively engaged in research on the topic of inclusive growth, developed policy papers that highlighted

the importance of inclusive growth. These include United Nations Development Program (UNDP) and The Organization for Economic Cooperation & Development (OECD) (OECD, 2014). OECD, for example, recognized inequality, unemployment and poverty as three major problems that have not been addressed by the economic growth from the 1990s till the present date. In addition, the OECD highlights the significance of inclusive growth. Inclusionary growth is a goal among Sustainable Development Goals of the planned Open Working Group of OECD (Cournede et al., 2015)

The G20 has highlighted the lack of inclusive growth in the region, and has pushed for robust, well balanced and sustainable growth, with special emphasis on more inclusive growth trends that are expected to stimulate citizens' abilities. This was also emphasized by Anand et al. (2013), who noted that global events such as the Arab Spring, the widening gap between Main Street and Wall Street in developed economies, and the "three speeds" of the global economy have pushed inclusive growth to the fore and made it a central point of policy discussions (Chand et al., 2019).

Inclusive growth is broader in scope, as it simultaneously focuses not only on growth in economic output but also income distribution (Alexander, 2015). Investment that have long term benefits such as public investments and infrastructure development, financial sector development, industrial employment, health and education, literacy rate, school enrolment, institutional soundness, good governance and trade openness are all major determinants of inclusive growth (Ali & Zhuang, 2007).

Despite the diversity and variation in the way different organizations define inclusive growth its determinants are fairly consistent across most of these organizations. By using the OECD and UNDP concepts, HCD indicators, together with other socioeconomic variables can be considered robust and valid predictors of inclusive growth (Cournede et al., 2015). Various variables have been found to be helpful in achieving desired level

of inclusive growth and these include structural transformations, robust institutions, human capital investment, broad based growth, job creation and social protection all of which having been proven helpful to reach the desired levels of growth (Ali & Zhuang, 2007).

It is an unrealistic to surmise that if growth has been attained its effect will automatically transmitted down the line leading to reduction in inequality and poverty. Any discussion on inclusive growth is incomplete without mentioning structural reforms (Raheem et al., 2018). While structural change is a multifaceted phenomenon that is complex and interrelated to other economic factors as well, according to Matusyama (2008), this is mainly for two reasons i.e. firstly economic growth is affected by these changes and secondly as a complementary byproduct of these reforms, economy changes in its composition such as contribution of various sectors to employment and output, modifications in industry organization etc. The most notable example of structural transformation is the transition from a predominantly agricultural civilization majorly residing in rural areas to a highly industrialized society which is predominantly urban (Shafuda & De, 2020).

The knowledge and skills accumulated by the workers owing to their job experience are referred to as Human Capital. Economic value is derived from these skills due to increased productivity by the skilled workforce in an economy (Bareke et al., 2021). Human capital roots in the understanding that not all humans have same knowledge or skill set level and that by investing in developing the skill set of workforce, quality of work as well as productivity can be increased. There is a close link between economic growth and human capital development. This is because investment in the education, skill development and knowledge base of the people in an economy, it can flourish and enhance productivity (Oluwadamilola et al., 2018).

In this study, we argue that Human Capital Development (HCD) is a good parameter / indicator for ensuring and enhancing inclusive growth. It is difficult to entirely quantify HCD as it is a vast notion. We believe, however, that two of its main indicators are health and education. The inclusion of health and education among SDGs as well as the nine MDGs further strengthens this notion. Additionally, leading global organizations including the WHO, UNESCO, UNDP and OECD have regularly advocated for increased government spending on these sectors as well as improved service quality (Sarwar et al., 2021).

On account of the foregoing, this research aims to accomplish two broad goals. The first goal is to look at the possibility of raising government investment on health and education to promote inclusive growth. The second purpose is to see if there is a threshold effect between government health and education spending and the level of national income at which government spending on human capital development can assure inclusive growth (Shafuda & De, 2020).

The originality of this research stems from its goal. The majority of studies on inclusive growth that have been published are policy studies, which are less empirical than econometric studies or other scientific approaches because they are not motivated by econometric or other scientific methodologies (McKinley, 2010).

Owing to its importance, there have been an ever increasing discussion on inclusive growth at organizations, institutions and governments. This is primarily because an increase in GDP or the income of a country does not necessarily indicate growth but longer term and sustainable growth (Maku et al., 2019). The notion is further supported by the fact that most developing countries have high unemployment rates, vast income disparities, and rising poverty rates. Despite this, such countries continue to experience growth. As a result, the recorded growth does not indicate

the results of full population but only a subset of the population (Human Capital As Engine of Growth – the Role of Knowledge, 2020).

In view of equity and fairness, new arguments are centered on emphasizing that every economic agent contributes fairly to the economic growth of the country. Our examination is limited to two prominent proponents of inclusive growth i.e. the UNDP and the OECD in order to gain a thorough knowledge of the idea. Starting with the OECD, considerable emphasis was paid to the global economy's socioeconomic challenges (unemployment, inequality, and poverty) (Šimko & Ţuicu, 2015). Its definition of inclusive growth describes it as the growth that benefits and uplifts the most vulnerable segments of society and eliminates inequality and poverty. This dispute over poverty, inequality, and growth has raged for decades, and the aim of this study is not an attempt to resolve it. Rather, it aims to demonstrate the role that this argument can play in leading to inclusive growth (Oluwadamilola et al., 2018).

Inclusive growth takes center in this discussion because it aims to demonstrate to the governments that growth although necessary for long-term development, is not an essential condition because despite its importance it is merely a means or a process rather than being a destination in itself. Thus, governments should view growth as a means or tool for reaching larger goals. Hence, quality of growth is more important than quantity of growth (Vassilev, 2018). This argument also tries to dispel the myth of growth being solution to all the issues and problems of society. As a result, concerned stakeholders are being pushed to develop policies aimed at improving inequality and poverty-resistant growth (Gupta et al., 2021).

Efforts to explain the theoretical relationship between HCD metrics and inclusive growth is precluded by the existing literature. This suggests a great deal of ambiguity in the precise methods by which HCD's impacts

are conveyed to inclusive growth. However, we propose a credible mechanism for transmission of HCD's impact that is based on the government's budgetary policy. It is dependent on the success of both government taxation and government spending (Maku et al., 2019).

With further segmentation, the relationship between these indicators could be varying among the heterogeneous income groups. Such an analysis will help in devising relevant policies and taking the right measures to ensure a holistic economic progress (Gruzina et al., 2021).

The World Bank uses various characteristics as parameters for categorization of countries which includes geography, fragility, average level of income and lending eligibility. Income based categorization classifies economies of the world into four major income segments or groups i.e. high income group, upper middle, lower middle and low income groups (McKinley, 2010). Gross National Income (GNI) per capita is the parameter for this classification and it is measured by Atlas method. Low income and middle-income countries were first introduced in the first World Development report published in 1978 and $250 per capita was used as threshold to place/categorize countries in one group or the other. The middle-income group was further sub-divided into upper middle and lower middle income groups in the 1983 publication of World Development Report (Chand et al., 2019). High income country category was the last to be added to the spectrum of income group categorization of world economies and it was done in the WDR of 1989.

Income based categorization of countries by World Bank for the year 2020, places countries with income <$1,045 in low income group, while those with income >$1,045 and <$4,095 in lower-middle income group. Countries with per capita income >$4,095 and <$12,695 are placed in upper-middle income group while countries with per capita income > $12,969 are placed in High Income group by the world bank's World Development Report published in 2020 (Anand et al., 2021).

1.3 Research Gap

After synchronizing the literature, it is found that most of the studies on inclusive growth and human capital development have been conducted on individual countries, specific regions or small groups of countries thereby keeping the scope narrow. The scope of existing studies was limited to country-specific or maximum regional specific. Hence, there is a strong need to conduct a study from a global perspective.

Secondly, most of the panel data researchers have ignored or excluded the difference in income level of countries from their studies. So, there is a research gap to include income levels of the countries in a research to study this aspect as well. The importance of this argument stems from past studies as well as several researchers have pointed out that data panel which combines countries of different income levels in the same study panel could lead to estimation errors and incorrect results. This is also one of the reason this study undertakes to compare the results of a global panel including countries with various income classification through separate income groups.

Thirdly, and perhaps most crucially, previous research has not explored the notion that there is a threshold impact between national income levels at which increased government spending on the development of human capital (health and education, for example) would guarantee growth.

Hence, there is a gap to find out the aforementioned threshold effect (Raheem et al., 2018).

1.4 Objectives of the Study

The following three overarching goals are the focus of this study:

Firstly, empirically analyze, using a panel of 125 countries irrespective of their income, whether inclusive growth can be achieved merely through

an increase in government expenditures on human capital development (i.e. health and education).

Secondly, after dividing the countries into four heterogeneous income groups using the income classification of countries by World Bank, this study uses this classification to analyze whether these income groups have different empirical outcome. The income groups as defined earlier are low income, lower middle income, upper middle income and higher income groups defined by World Bank.

Lastly, the objective is to investigate the threshold effect between government expenditures on human capital development and income level in order to ensure achieving growth through defined heterogeneous income groups.

1.5 Research Questions

The study deals with following two research questions:

Does investment on human capital development enhances inclusive growth for heterogeneous income groups?

Does there exist any threshold effect between government expenditures on education and health and national income level for growth inclusiveness?

1.6 Research Hypothesis

Following are the research hypothesis:

H_0: Govt. expenditures on education and health don't enhance inclusive growth for heterogeneous income groups.

H_1: Govt. expenditures on education and health enhances inclusive growth for heterogeneous income groups.

H_0: There exists no threshold effect between government expenditures on education and health and national income level.

H_1: There exists a threshold effect between government expenditures on education and health and national income level.

1.7 Significance of the Study

The study brings global perspective to the study of human capital development and inclusive growth considering SDGs, investment on education and health are global subjects and it is the first study in this regard. Historically, all such studies primarily focused on specific countries or regions and utilized time series data sets to analyze the relationship between human capital development and inclusive growth. This limitation warrants a global study rather than a limited study focusing on few countries or a specific country only, in order to explore the concept from another dimension while conducting a robust empirical analysis. The study is aligned with advocacy of leading global organizations (WHO, UNESCO, UNDP and OECD) regarding increased government spending on education and health. Being global study, it will endorse the results/outcomes of individual/regional studies.

Furthermore, all the past studies on the subject have examined the relationship between human capital development and inclusive growth without incorporating the income level. Especially the studies which used panel data, have not considered heterogeneity of Income level among countries to play a role. To fulfill this gap, our research subdivides countries included in global data panel into four sub panels based on their income level and combining countries with similar income level into one panel. This yields two types of results, one of global panel and the other of sub-panels. The study then compares the results of different income groups with the global panel to analyze whether there is any difference. Further, this helps to address the disparity pointed out by various

researchers that pooling of heterogeneous income groups of countries can lead to estimation errors. Furthermore, it is also important because it will reflect how growth varies from low-income countries to high-income countries, based on government investment on human capital development.

Moreover, identification of threshold effect will be useful for effective allocation of resources on education and health across different income groups.

Furthermore, the research will facilitate the accomplishment of the third and fourth Sustainable Development Goals (SDGs), namely "quality education" and "good health and well-being," respectively. Human capital development through investment on education and health will lead to achieve these SDGs.

2. Literature Review

There is a plethora of research on inclusive growth and human capital development. In many countries, inclusive growth has been a major focus of development research and policymaking. However, there are multiple distinct definitions of inclusive growth in the literature, none of which converge on a common understanding of the notion, let alone a sensible way to operationalize it.

The idea of inclusive growth emerged as part of a larger shift in development theory away from the belief that equity must be sacrificed for growth or that growth must come from periods of deprivation. Instead, there was a widespread realization that not only is growth possible while preserving equity, but that growth and the reduction of poverty and inequality may even be mutually beneficial (Raheem et al., 2018).

This transition occurred from the growth of development thinking, which was largely based on the developmental experiences of nations outside the

select group of industrialized countries as the twentieth century progressed. The strategy involved a number of distinct but interrelated advancements among poverty, growth and inequality are there in our understanding of the relationship (Warner, 2011).

The development literature, which turned into closely inspired through the trajectory of early developers (Grömling & Klös, 2019), tended to assume that after improvement turned into started, it might run on its own, incrementally following the equal steps toward excessive degrees of common wealth and industrialization.

List (1841) stated that temperate countries developed in four distinct ways: through agriculture, pastoral life, agriculture combined with manufacturing, and agriculture, manufacturing, and commerce (Vassilev, 2018). In Rostow's degrees of Growth model, traditional society, take-off conditions, maturity pressure, and age of excessive mass intake were all equivalent steps (1956; 1959).

Such framings of development implicitly assumed that average incomes would rise and overall living standards would improve along the naturally occurring sequence of stages and country developed (Anand et al., 2013).

The incorporation raised concerns that, as Kanbur (2000) notes, require active intervention to manage distributional issues across growth processes. These concerns were evident in wider theoretical and policy debates like the World Bank's Redistribution with Growth report (Chand et al., 2019) as well as official government policies like India's Third Five-Year Plan. Although the basic policies required for growth and the eradication of poverty are widely accepted, little is known about how they work. The reason behind is that reduction in poverty does not have to come at the cost of growth that results in long-term improvement in both a condition for poverty and the basis for poverty-reducing growth to promote inclusive growth (Ali & Zhuang, 2007). Rapid growth is

undoubtedly important for significant poverty reduction but it must be broad-based across sectors and equitable to be long-term sustainable. This is especially important given that some key determinants of growth (e.g., education, openness, and financial depth) have been linked to higher, raising the question of what proximate factors support inclusive growth (Raheem et al., 2018).

Klasen (2010) has stated, “Inclusive growth has become a strategic pillar to guide the ADB's operations in its operational strategy.”(Klasen, 2017). There is, however, not a particular definition or metric for tracking inclusive growth progress at the country, program or at a project level" (Horizons, 2020).

Only recently has there been a concerted attempt to build analytical frameworks for monitoring success in inclusive growth (Klasen, 2017). But the battle is far from ended.

The distribution of income gains is referred to as inclusive growth in the literature, whereas inclusive development is compared in some cases (De Haan, 2015).

This view doesn’t contradict the notion in a way that inclusivity implies not excluding any group although accommodates the notion of benefiting the most disadvantaged groups. When considering the reduction of disadvantages, inclusive growth could be referred to as "disadvantage-reducing" growth (Klasen, 2017).

Around the turn of the century, the term "inclusive" was initially applied to describe growth episodes, emphasizing the characteristics of what was perceived to be pro-poor growth (Anand et al., 2021). Furthermore, according to Ranieri and Ramos (2013), pro-poor growth is "one that allows the poor to actively participate in and significantly benefit from economic activity." The features that set apart pro-poor growth were

emphasized by using the term "inclusive economic growth." But as previously said, the majority of the research on pro-poorness has focused on economic outcomes, with non-income consequences only recently being added (OECD, 2014). Consequently, pro-poor growth—which is a subset of the larger concept of inclusive growth—and the concepts of inclusivity and taking part in and profiting from growth processes have come to be seen as related to but distinct from one another (McKinley, 2010).

Attempts to relate growth and inclusivity also have important pragmatic motivations. The popularity of Inclusive Growth in less developed countries stemmed partially from the fact that smaller states made redistribution more difficult. Similarly, in the Global North, redistribution is rarely at the top of people's minds (Raheem et al., 2018). In the United Kingdom, for example, 30% of the public agreed in 2014 that the government should spend more on welfare assistance for the poor, while 39% opposed. Taxation and redistribution are two electoral issues that Inclusive Growth helps to avoid (Horizons, 2020). It's certainly no surprise that Inclusive Growth has gained traction in the developed world at a time when most governments are facing austerity and unwilling to invest in redistribution.

According to Klasen (2017), the inclusive growth strategy has the power to reduce poverty and inequality on all fronts. Because inclusive growth creates connections between many policy sectors, it can aid in mobilizing more resources to fight poverty and inequality. Few politicians could successfully run on an anti-growth platform since growth is the dominant narrative, public institutions are built around it, and growth is the mainstream (Gruzina et al., 2021). Combining the growth agenda with an inclusive one can help businesses with a long history of growth focus address a new goal and attract new resources (Str et al., 2007).

Consequently, the agenda for inclusive growth helps to raise more funds in order to tackle the problem of poverty and inequality reduction. It tackles an issue with diminishing public support (inclusion) by applying a policy goal with broad support and substantial resources (growth) (Lee, 2019).

There is also a second set of arguments for why inclusive growth initiatives ought to be concentrated in cities. Part of a "global trend to devolution" has seen subnational administrations around the world receive more authority and responsibility (Gruzina et al., 2021). Cities have seen the greatest impact from this trend, as seen by the numerous best-selling books that highlight the importance of cities to the economy (Ramos et al., 2013).

Cities, paradoxically, have become particularly important economic actors as a result of structural change and globalization. Transition- Cities at that time were in a position to focus on the distribution of benefits and had improved somewhat post-industrial (Anand et al., 2013).

Cities-focused approaches reflect the fact that this is where inequality is most visible (Kazmi et al., 2017). For some time, academics have raised worry about rising inequality, while high-profile urban politicians, most notably Bill De Blasio, Mayor of New York, have successfully run for election on anti-inequality platforms. A third element is the growing unhappiness of some urban electorates with national policymakers' anti-poverty policies (Shafuda & De, 2020).

Research to date has concentrated on establishing whether growth benefits the poor. If the growth curve is perfectly flat, all percentiles develop at the same rate, leaving inequality intact, the growth process is called neutral distribution (Grömling & Klös, 2019). The reform is pro-poor if it considerably lowers poverty through redistribution. Pro poor growth is therefore equal to the distributional rectification times the usual growth

rate. It is necessary to identify the criteria and indicators for an inclusive growth framework in order to monitor national progress on inclusive growth (McKinley, 2010).

The literature mentioned above emphasizes how important it is to assess inclusive growth and its sources. In fact, the lack of a single volume defining inclusive growth in the Proceedings of the 2011 OECD/World Bank Conference, where academics and stakeholders from around the globe discussed the challenges of implementing and sustaining inclusive growth policy, indicates how we still struggle to come up with a succinct and universally understood definition of inclusive growth (OECD, 2014). Throughout the conference, learning was applied in at least six different contexts: decreasing income inequality, eliminating absolute poverty, internalizing external growth factors, closing the income gap between the north and south, and decreasing opportunity inequality, which includes giving emerging market economies more room in international governance and providing access to resources like finance, education, and the legal system (Vassilev, 2018).

After providing an introduction of the idea of inclusive growth as well as its drivers, the measurement-related challenges should be investigated. Measuring inclusive growth faces a similar fate as there is no consensus on a meaningful definition (Vassilev, 2018). The concept of social opportunity Function was dependent on two factors: the population's average opportunity availability and the distribution of opportunities within the population. The poor are given more weight in this role (Son, 2010). As a result, opportunities produced for the impoverished are more essential than possibilities created for the wealthy. Increased access to these possibilities would result in more inclusive growth (Šimko & Ţuicu, 2015).

Using the macro social mobility function, the micro research on income distribution presented by Ali and Son (2007) serves as the foundation for

a measurement of inclusive growth. Their measure offers a framework for analyzing equity and efficiency simultaneously (Neagu & Teodoru, 2018). The indicator is also employed in low- and emerging-earnings nations to study the dynamics and determinants of inclusive boom (Raheem et al., 2018).

According to the model, inclusive growth is correlated with both income growth and distribution. Using consumer's theory, the income and substitution effect was divided into growth and distributional components (Raheem et al., 2018).

To capture these features, it should satisfy two properties, one for capturing growth dimension it should be increasing and argument and secondly it should satisfy the transfer property - any transfer that comes through a poor one to a richer one, reduces the function's value (Ehigiamusoe & Lean, 2019).

Within the nonappearance of a clear definition of comprehensive development, endeavors to measure it have depended on the arbitrary utilize of case definitions. Be that as it may, small exertion has been made to operationalize the definitions of comprehensive development and in this way assess comprehensive development. The tremendous larger part of works that conceptualize comprehensive development don't go past a conceptual work out (Horizons, 2020).

There are studies that examine the performance of a country in supporting poor growth and its causes and indeed, any assessment of poverty trends can be analyzed in terms of supporting poverty Growth was considered a "weak absolute". (Raheem et al., 2018). Outlook As far as growth is concerned almost in sufficiently long periods - analysis of the pervasiveness of growth is still rare. The few existing assessments reflect conceptual discussion, while highlighting practical challenges by

implementing inclusive growth metrics, particularly in terms of data availability (McKinley, 2010).

Anand et al. (2013) reported that Iankovichina and Lundstrom (2009) presented an analytical framework for the analysis of inclusive growth with respect to the pace and pattern of growth. This method, which considers a number of variables, emphasizes the employability of the poor, the cost of capital, geography, and infrastructure, as well as obstacles to inclusive growth, rather than assessing a nation's level of inclusivity (Ranieri & Ramos, 2013). They therefore don't offer an indication of inclusion. Rather, their technique is especially suitable for identifying impediments to involvement and may therefore be helpful in policy-making, as the application of analytical frameworks in Zambia, for instance, indicates (Anand et al., 2021).

McKinley (2010) proposed an overarching growth index that is based on the Asian Development Bank's long-term strategic framework 2008-2020. It states that in order to achieve overarching growth, two things must happen: (1) sustainable growth that generates and increases economic opportunities; and (2) wider access (McKinley, 2010). These are opportunities for community members to participate in growth and take advantage of it. Growth, economic infrastructure, income and equality poverty, productive employment, gender equality, human capabilities and social support are all included (Dahlström et al., 2017). The measurement of the recommended data in each these indicators is largely consistent with the conceptualization of the inclusive growth index and the availability of data, which McKinley emphasizes as a barrier to the inclusive operation of definitions of inclusive growth (McKinley, 2010).

McKinley (2010) proposed an Inclusive Growth Index, which states that inclusive growth requires sustainable growth that creates and expands economic opportunities. . And (2) can provide these opportunities for community members to contribute to growth and infrastructure, wealthy

incomes, social support, equality, gender equality and human capabilities (McKinley, 2010).

The recommendations made for each of these indicators are largely inconsistent with the conceptualization of inclusive growth and can be adapted (McKinley, 2010). Mckinley (2017) acknowledges the predictability of value judgments in constructing a composite index that includes a variety of indicators of inclusive growth, but argues that such an effort nevertheless leads to clarifying differences and facilitating work to achieve a common ground as well as progress assessments (Dahlström et al., 2017).

In spite of the reality that McKinley's proposed composite record for by and large development contains a noteworthy share in these regions, it slacks behind, particularly since the weighting conspire utilized is profoundly alluring. In spite of these deficiencies, the utilize of the Combined Development List in case ponders in Bangladesh, Cambodia, India, Indonesia, the Philippines and Uzbekistan may be a welcome special case to the broad need of operational definitions for evaluating comprehensive development (McKinley, 2010).

According to the African Development Bank, part of its continuous endeavor to provide a mechanism to evaluate inclusive growth and inform development policy is the creation of an inclusive growth index. This is consistent with its long-term strategy's use of inclusive growth as a guiding concept (Ali & Zhuang, 2007).

Work creation, get to fundamental foundation and social administrations, financial openings, voice and responsibility, territorial integration, social security, get to beneficial information and rural efficiency have been detailed in this list . Making such an record must overcome the same deterrents that McKinley (2010) proposed composite list (McKinley, 2010).

Ramos, Ranieri, and Lamens (2013) as of late proposed lessening development incorporation. This concept is distinctive from past pointers since it tries to evaluate the effect of the development handle in terms of comprehensiveness and at the same time evacuate the sum of accomplished development from the file (Shuaibu & Oladayo, 2016). These three factors in this think about, based on the concept of comprehensive development as a handle that makes strides benefit sharing and support, incorporate: salary destitution, imbalance (as an marker for the measurement of benefit sharing), and the employment-to-population proportion (Gruzina et al., 2021).

The file highlights destitution and disparity, which have long been key markers of pro-poor and unavoidable development, and combines them with the work file to consider cooperation. In arrange to diminish the issues of self-assertive weight choice of each flag, these three markers were given the same weight within the list (Maku et al., 2019). This paper analyzes the degree of consideration in 43 creating nations over two time periods, as well as the inescapability of the growth process - changes within the level of incorporation over time as a work of GDP development (Oluwadamilola et al., 2018).

Endeavors to survey comprehensive development give experiences not as it were into crucial improvements inside and between nations, but too into a conceptual discourse of comprehensive development, as they survey the ampleness of definitions (Abbas, 2000). They are fundamentally restricted to surveying changes in learning as a result of development. They don't appear causation, nor do they clarify the way in which development happened, since it as it were decides whether they happen at the same time or not, whether they are related or not. This should be taken under consideration when analyzing the centrality of distributed discoveries (Khan et al., 2019).

Diverse studies have defined human capital in different ways. As previously noted in articles, human capital comprises health, education, knowledge, migration, and other factors that could raise workers' productivity and the nation's GDP (Sarwar et al., 2021). In the final two decades of the 20th century, human capital dominated the growth literature due to the significant rise of endogenous growth theory, which was put forth by Lucas (1988) and Romer (1986) as an alternative to the earlier neoclassical theory of growth (Curea & Ciora, 2013). They maintained that if capital is efficiently allocated to human capital, it can be returned to the scale in the form of sustainable returns, despite the fact that scale returns are diminishing and poor.

Roemer (1986) proposed a long-term economic growth model in which human education capital is considered as input to production that increases production and marginal growth over time. He goes on to say that a country with a huge amount of human capital is expanding significantly faster than a country with a small amount of human capital (Human Capital As Engine of Growth – the Role of Knowledge, 2020).

Munir and Arshad (2018) investigate the short- and long-term effects of Pakistan's physical capital stock and real human capital on the country's economic growth using the endogenous growth model. According to Ayertey Odonkor et al. (2019), the research findings back up the endogenous growth model, which states that factors like human capital and actual physical capital accumulation raise employment rates, per capita income, labor productivity, and economic growth resources. This means that GDP accumulates for each workforce that has these factors. The impact of human capital on economic growth was investigated by Rosendo Silva et al. (2018). The findings indicate that enhancing health has a significant and positive impact on economic growth since a healthy worker may further boost labor productivity (Shafuda & De, 2020).

Nilia and Sitana (2016) investigate the favorable short- and long-term correlation between human capital and growth. The primary finding was that any shock to human capital development could hinder growth, thus policymakers need to pay attention to human capital development (Maku et al., 2019). Suhravat and Giri (2016) looked at the long-term relationship between economic and economic growth as well as the effects of financial development and growth in SAARC countries (Sarwar et al., 2021). Suhrawat and Gary (2015) also provide a long-term connection to India's economic growth. Using the endogenous growth model (2012), Massoud and Hardaker investigated the effects of financial development on emerging economies (G20 Development Working Group (DWG), 2019). It was found that financial development is essential for growth and that the relationship between stock market development and financial growth is stable over time (Abubakar et al., 2020).

The link between human capital and growth was examined by Siddiqui and Rahman (2017) in a number of Asian countries. Experimental Bayesian technique was used. According to this study, primary and secondary education play a greater role in changing economic growth in East Asia, while vocational and secondary education has a beneficial effect on economic growth in South Asia (Maku et al., 2019).

The impact of human capital on economic growth in sub-Saharan Africa was studied by Ogundari and Awokuse (2018). As a measure of human capital, they looked at human capital and health. The results of GMM system showed that both health and education have a positive effect on economic growth and health has a greater impact than education (Horizons, 2020).

The studies of literature show a strong focus on human capital and economic growth. The relationship between primary education and economic growth is frequently examined, in addition to other elements such as higher education, research and technology (Horizons, 2020).

Human capital and physical capital have also been compared in studies. Education seems to boost economic growth. Reducing poverty and increasing employment have a significant impact on economic growth. In both rich and developing nations, population increase, the development of human capital, and economic growth have all been studied (Abubakar et al., 2020).

Using cross-country panel data, Hur (2014) investigated the relationship between fiscal policy and IG. The findings showed that government investment on health and education, particularly in poor nations, has a substantial impact on IG. He also suggested increasing health-care spending, public-sector investment, and social-sector subsidies to increase growth inclusiveness (Baily et al., 2021).

Agreeing to Adedeji et al. (2013), instruction and wellbeing are basic donors to the IG. Auxiliary school enrolment and fabulous wellbeing increment laborer efficiency and improve wage conveyance. According to Haan (2013), solid financial development, HCD, and high-quality teach are all vital supporters to comprehensive development (Kazmi et al., 2017).

The improvement of human capital, combined with solid financial development, incorporates a significant affect on comprehensive development. Instruction and healthcare, framework and vitality speculation, monetary segment improvement, and solid administration are basic approach devices for achieving the comprehensive development point (Eigbiremolen & Anaduaka, 2014). In arrange to attain comprehensive development, instruction is required. It progresses the quality of the workforce, which boosts financial development and decreased destitution. Additionally, dynamic charges, higher benefits uses, higher work share of pay, and social security are all basic components that contribute to the next level of incorporation (Bareke et al., 2021).

Omotayo (2015) states that there is a direct and positive correlation between human capital investment and economic growth in Nigeria, with an increase in GDP following an increase in human capital allocation. Kanyo (2013) asserted that capital expenditures have little impact on economic growth, presumably because of Nigeria's low use of expenditures, but that investing in human capital has the potential to drive economic growth (Wilson & Briscoe, 2004). This supports the findings of Campbell and Agbiokuro (2014), who found that real government spending on education positively affects the expansion of the Nigerian economy as a whole (Maku et al., 2019).

This study showed that Solo's assumption about high population growth / low returns in the Nigerian economy was not valid, which was a surprising finding. According to Arabi and Abdullah (2013), the quality of education is a major factor in economic growth, and people with higher education have a greater impact on economic return than those with only a high school diploma (Abubakar et al., 2020). In terms of health-related interactions, Jaiyeoba (2015) discovered a long-term link in Nigeria between government investment in education, health, and economic growth (Eigbiremolen & Anaduaka, 2014).

Despite the progressive taxation, social protection and infrastructure development, spending in HCD is required to meet the IG target. To achieve the IG and development, economies must invest in basic infrastructure, health services, and secondary and higher education. Investment in health and education are the most important sectors for inclusive growth (Horizons, 2020).

Since the advent of the Solo growth model (1956), education has been considered as a fundamental predictor of economic growth. Despite the fact that Solo did not explicitly include education in his theory of development, the prominent place of technology in his model provided pressure to focus on education. However, technological innovation

requires an educated population (Ehigiamusoe & Lean, 2019). Nelson and Phelps (1966) explicitly stated this link in what they called "investing in humans": Employees needed training to use new technology (whose development was considered exogenous), thus productivity. Increased all factors and encouraged economic development (Horizons, 2020). Human capital played an important role in technical progress and economic growth decades later, thanks to endogenous growth theories. Accumulation of human capital through training and on-the-job training, based on new growth theories such as Lucas (1988) (Horizons, 2020). Romer (1990); Mankiw, Romer, & Will (1992); Barro and Sala-i-Martin (1997) promote economic growth by improving labor productivity, promoting innovation and technological adaptation, and reducing fertility (Baily et al., 2021).

Additionally, Mankiw, Romer, and Will (1992) found that the versatility of GDP per capita relative to the enrollment rate for non-oil trading nations is 0.66 and for OECD nations 0.76, and contrasts in enrollment rates can lead to a need of income meeting. Clarify. 1960 and 1985. Agreeing to Pushcart and Lee (2010), expanding the normal school year by one year increments per capita GDP from 1.7% to 12.1%, depending on the characteristics (i.e. arbitrary relapse versus settled impacts), in Cohen and Soto (2007) calculate the return on school a long time from 12.3% to 22.1%. Hanushek and Woessmann (2009) found that expanding a unit in a country's normal cognitive test scores increments its per capita salary (Khan et al., 2019).

However, several studies highlight the development of human capital in order to achieve long-term EG. Arrow (1962) did, however, introduce the concept of human capital while discussing the method of learning by doing. Furthermore, in Romer's famous work on the long-term determination of EG (1986, 1990), HCD was identified as a crucial component of economic growth. As a result, economies with more human

capital tends to raise faster since they are more adept at comprehending modern technology ways (Maku et al., 2019).

Human capital is a significant factor and a driving force in the R&D business. As a result, it promotes technological advancement and, as a result, economic growth (Romer, 1990). More capital can be accumulated by educated workers (Raheem et al., 2018). In comparison to less educated professionals, they have a greater understanding of modern technology (Fernandez & Mauro, 2000). A higher school enrolment rate is essential for achieving a faster long-term growth rate. Furthermore, education increases worker productivity, allowing them to earn more and maintain a higher standard of living (Horizons, 2020).

Better education is critical to accelerating long term growth. It also increases worker productivity. Quality education and health care, as well as the accumulation of physical capital, have a significant positive impact on the EG (Eigbiremolen & Anaduaka, 2014).

The amount that spend by the government on health and education helps to the development of HCD. It boosts worker productivity, allowing EG to move at a faster speed. The importance of health in HCD cannot be overstated. It helps workers to be more productive. As a result, it is vital to invest more in HCD capital in order to improve the growth process in the short and long-term. Long-term economic growth requires investment in human capital as well as physical capital accumulation (Kazmi et al., 2017). Health is a crucial aspect of HCD and is required for speedier EG. Better-for-your labors are very popular. Because they work for such a long time, they are always creative enough to earn comparatively high pay (Abubakar et al., 2020).

Furthermore, education increases a worker's earning potential. HCD development through education spending is critical for poverty reduction, especially in emerging nations. As a result, governments should capitalize

more in education to reduce poverty, particularly in rural areas (Abbas, 2000).

Similarly, better diet has a good impact on worker health. As a result, they are more productive and make more money. The common of the workforce can participate in the growth process through accumulating human capital through education. It ensures female workers' engagement and allows them to earn a greater wage at a younger age (Winters, 2012). Entrepreneurial education contributes to the creation of jobs in a favourable way. Furthermore, government spending on health and education has a big influence on jobs (Ekanem & Emanghe, 2014). Education also attests to the fact that labor, whether male and female, contributes to output-generating activities that raise people's standards of living (Maku et al., 2019).

By concluding it, human capital development is critical for both advanced and developing countries to accelerate long-term growth. In many developed countries, quality education combined with a high school enrolment rate has helped long-term growth. Increased enrollment rates also had a significant positive impact on long-term EG in developing nations. In developed economies, HCD accumulation is a significant source of EG (Shuaibu & Oladayo, 2016).

The presence of comprehensive development guarantees that all the nation areas are dynamic within the development prepare of the economy. Past considers recommend that to improve comprehensive development, the government must increment use on instruction and health (Shafuda & De, 2020). The endeavors to extend the government's venture in these segments (instruction and wellbeing) would further generate extra government income. Subsequently, the government must center on progressing its consumption on wellbeing and instruction (Ali, 2007).

However, not all economies respond identically to all policy decisions. Also, the level of income in an economy matters towards such a government's decision to improve human capital development expenditures (Wilson & Briscoe, 2004).

Subsequently, it may be a critical require for arrangement choices to decide that salary level, at which an increment in government consumption on instruction and wellbeing would guarantee development and improvement. Doing this suggests that this consider would confirm the presence of an edge impact (in case any) between government consumptions and national pay level (Personal & Archive, 2015).

The literature mentioned above makes it clear that developing human capital via health and education improves growth inclusivity. Overall, the bulk of research demonstrated that inclusive growth is substantially and favorably correlated with human capital development, as demonstrated by health and education. On the contrary, there are few research which have proven negative association between education and economic growth (Pelinescua, 2015), Afzal et al., 2010). Moreover, the studies like Eggoh et al. (2015), Tobing & Jeng (2012), Wang et al. (2019), Mehrara (2011) and Eggoh et al. (2011) have also shown negative or no relationship between health and economic growth.

3 Data and Methodology

In this chapter, the nature of data used and methodology adopted in this study is discussed. This study used secondary panel data of 125 countries for a period of 20 years from 2000-2019. The data is taken from WDI of World Bank. Our primary intention was to include all those countries of the world which have data on inclusive growth, govt. expenditures of education and govt. expenditures on health for at least three decades. Unfortunately, even after intensive research, the data on health couldn’t be

found prior to 2000 from all possible available sources[1]. Hence, the unavailability of the data has limited the overall scope of this study.

In order to incorporate income levels, the countries have been assembled into four different categories according to their income levels which are further based on World Bank's classification of the countries. Relying on the available literature, the study followed the works of Iqbal et al. (2021), Ehigiamusoe et al. (2021), Ehigiamusoe and Lean (2019), Majeed and Tauqir (2020), among others, and used World Banks's classification of countries on the basis of income levels.

Low income ($1,045 or less), lower medium income ($1,046 to $4,095), upper middle income ($4,096 to $12,695), and high income ($12,696 or more) are the four groups. 38 lower middle income nations, 32 higher medium income countries, 39 high income countries, and 16 low income countries were included in the study. The lack of data makes it possible to include just a certain number of low-income counties in this analysis. The study's participating nations are enumerated in Appendix Table No. 5.

Following is the summary of categories and countries included in the study:

Table 3.1: Summary of Countries

Sr. No	**Abbreviation**	**Category**	**2020 GNI per Capita** (July 1, 2021)	**Total Number of Countries** (According to GNI per Capita)	**Total Number of Countries** (According to data availability)

[1] IFS, Penn World, Trading Economics, UN Data Set and SWIID

1	LIC	Low-Income-Countries	$1,045 or less	27	16
2	LMIC	Lower-Middle-Income-Countries	From $1,046 to $4,095	55	38
3	UMIC	Upper-Middle-Income-Countries	From $4,096 to $12,695	55	32
4	HIC	High-Income-Countries	$12,696 or more	80	39
Total				**217**	**125**

3.1 Conceptual Framework

Since the key purpose of the study is to find the (threshold) level of income at which increase in govt. exp. on HCD i.e. education & health would ensure growth. This within itself contains an implicit assumption that government expenditure on human capital development positively effects the economic/inclusive growth which has already been approved by several studies conducted for different geographies. However, since the study is using all income group economies from all of the regions of the world, therefore, it is necessary to first achieve inclusive growth for all income countries involved in the study.

Regardless of the fact that the inclusive growth has different definitions across different institution, however, there are few common determinants of inclusive growth. Using the notion of UNDP and OECD, it can be

summarised that HCD indicators serve as strong and valid determinants of inclusive growth.

Economic growth is an important component of inclusive growth. Economic growth is significantly influenced by Human Capital Development. In the current study, we argued that HCD could be a viable and effective strategy for ensuring and enhancing inclusive growth. HCD is a vast notion that cannot be quantified in its entirety. However, we contend that education and health are two of the HCD's most important indicators. This notion is also backed by the fact that both education and health have maintained their importance as essential MDG and SDG objectives. Furthermore, international organizations such as the United Nations Development Programme (UNDP), the Organization for Economic Cooperation and Development (OECD), UNESCO, and the World Health Organization (WHO) have consistently advocated for improved education and health, as well as increased government spending in these areas. There has been ample evidence that confirmed the positive association between investment on human capital, through education & health and the economic growth, (Ravallion 2004; Hull 2009).

Health and education access determines the quality of human capital development. In order to guarantee that the working population have the human traits necessary for successful employment, investments in human capital development, such as those made in health care and education, are essential. Human capacities need to be enhanced for growth to be inclusive. Within the framework of inclusive growth analysis, health and education spending can also serve as indicators of the degree of opportunity equality among a nation's citizens.

Since, it is argued that human capital development indicators are the key determinants for achieving inclusive growth. Therefore, government expenditures or investment in education & health lead to enhance the productivity and efficiency of the individuals. Since outcomes of the

employment are essential outcomes for growth inclusiveness (Raheem et al., 2018), consequently, productive employment remains one of the topmost drivers for attaining inclusive growth.

3.2 Variable Definitions

The key variables in this research study are inclusive growth as a dependent variable, and government's expenditure on HCD i.e. education & health, as dependent variables.

Dependent Variable

In the literature, different proxies are used to capture inclusive growth. GDP per capita, measured at current US dollars (Aoyagi & Ganelli, 2015; Anand et al., 2013) and GDP per person employed (Raheem et al., 2018; Kouton, J. 2020) are two major proxies used to capture the growth. However, GDP per person employed sounds like the most suitable proxy to capture inclusive growth. It reflects two things, first) "average opportunities that are available to the whole population" and secondly) "how all these opportunities are dispersed amongst the population".

Relying on available literature, the study followed the works of Raheem et al. (2018), Oyinlola and Adedeji (2019), Kouton (2020), Oyinlola et al. (2020), Nketia et al. (2022), among others, and used GDP per person employed as a proxy to measure inclusive growth because both aspects of growth and employment are being captured at the same time. According to the World Bank, the GDP per person employed is defined as "GDP divided by the total employment in an economy". GDP per person employed is measured in constant 2017 PPP $.

Independent Variables

Our dependent variables include the labor force, physical capital (gross fixed capital formation), and government spending on health and education. "Current operating expenditures in education, including wages

and salaries and excluding capital investments in buildings and equipment" is the definition of the variable for government spending on education (measured in current US dollars). However, "per capita public health expenditure in current US dollars, which covers current health expenditures include healthcare goods and services consumed during each year" is the metric used to measure health spending.

In line with Hur (2014) and Ali et al. (2012), we measured the physical capital using gross fixed capital formation as a proxy. "Land improvements (fences, ditches, drains, and so forth); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, commercial and industrial buildings, are all included in gross fixed capital formation (formerly gross domestic fixed investment)." The units of measurement are current US dollars. Economic growth is positively impacted by capital production (Anand et al., 2013; Gibescu 2010).

Furthermore, we have followed Hur (2014) and utilized the labor force (as a percentage of the overall population) as a proxy. "People in the labor force are those who, for a set amount of time, provide labor to produce goods and services. They must be at least 15 years old." It encompasses job seekers who are new to the workforce as well as those who are unemployed but looking for work. Not everyone who works is included, however. Students, family workers, and unpaid laborers are frequently left out, and some nations do not include members of the military services in their calculations. The number of workers changes throughout the year due to the influx and outflow of seasonal workers.

Control Variables:

Control variables included in the analysis are foreign direct investment (FDI), trade openness (TOP), inflation (INF) and; population growth rate (PGR).

Trade Openness (TOP)

Trade openness is measured by "dividing the sum of imports and exports with GDP", following the Hur (2014) and Aoyagi and Ganelli (2015). TOP has a positive and significant impact on the economic growth of the economy and it also helps in boosting inclusive growth (Keho 2017; Anand et al., 2013)

Foreign Direct Investment (FDI)

By following Anand et al. (2013), we measure the FDI using the total FDI capital stock as a proxy. The net influx represented as a percentage of GDP is known as FDI. "Direct investment equity flows in the reporting economy are referred to as foreign direct investment." It is the total of other capital, earnings reinvested, and equity capital. One type of cross-border investment is known as "direct investment," which is defined as when an individual from one economy has control over, or a substantial amount of influence over, the management of an enterprise located in another economy. To establish if there is a direct investment relationship, one must possess ten percent or more of the common shares of voting stock. FDI has a positive and substantial effect on the economic growth (Pekkas 2015).

Inflation:

Inflation is the consumer price index expressed in annual percentage change which is measured generally by the Laspeyres formula. Inflation negatively affects economic growth (Anand et al., 2013; Barro 1995).

Population Growth Rate:

The data for the population growth is taken in percentage as the annual rise in overall population.

Interaction Term:

The gross national income divided by the midyear population and converted to US dollars using the World Bank Atlas approach is known as GNI per capita (formerly known as GNP per capita). GNI is the total value contributed by all resident producers plus any product taxes (less subsidies) that were not factored into the output valuation plus net foreign primary income (revenue from property and employee remuneration). For cross-country comparisons, GNI is calculated in national currency and translated to US dollars using official exchange rates; otherwise, an alternative rate is applied in cases where the official exchange rate is judged to deviate significantly from the one that is actually used in international transactions. The World Bank uses a particular Atlas conversion technique to reduce volatility in prices and currency rates. In order to account for variations in inflation rates between the nation and the G-5 countries up until 2000, a conversion factor is employed, which consists of averaging the exchange rates for the current year and the two years prior. (The United States, the United Kingdom, Japan, Germany, and France). The Eurozone, Japan, the United Kingdom, and the United States have been among these countries since 2001.

3.3 Empirical Model

In order to determine/identify/find that income level, at which, increase in government's expenditure on education & health will ensure growth, it is necessary to first empirically examine and confirm the achieving of ING through the government's expenditures on Human Capital Development (i.e. health and education), for the defined heterogeneous income groups. Once inclusive growth is achieved/confirmed through HCD, then the threshold income level, which ensures inclusive growth, is determined for all income groups.

In order to confirm the contribution of HC towards inclusive growth, the study employs Mankiw et al. (1992)'s following neoclassical model in order to evaluate empirically if the expenditures of the government on

education & health make the growth inclusive in all income groups. In order to achieve this, first, we would check the direct effect of the government's expenditures on the education & health for the process of inclusive growth and secondly, we would identify the level of income for all income groups, at which, a rise in the government's expenditure on education & health ensures the growth.

In the view of above, the following econometric model, denoting the baseline inclusive growth equation, is adopted to find the impact of HCD on inclusive growth:

$$ING_{it} = \alpha_0 + \alpha_1 LAB_{it} + \alpha_2 CAP_{it} + \alpha_3 EDU_{it} + \alpha_4 HLT_{it} + \alpha' Z_{it} + \mu_{it} \quad \ldots\ldots \quad (3.1)$$

This is common effect model, where ING representing Inclusive Growth is proxied from GDP per person employed (constant 2017 PPP $), LAB represents labor force, CAP is the representation of capital stock through GFCF (gross physical capital formation), EDU & HLT are government expenditures on education and health respectively and Z is a vector of control variables. The latter contains foreign direct investment (FDI), inflation rate (INF), trade openness (TOP) and population growth rate (PGR).

The α_0, α_1, α_2, α_3, α_4, α_5 are regression parameters and σ denotes a k x 1 parameters vector on control variables. The μ is a stochastic error. The subscript i represents countries, whereas t is a time index.

Followings equations 3.2 and 3.3 are for fixed and random effect models respectively:

$$ING_{it} = \beta_0 + \beta_1 LAB_{it} + \beta_2 CAP_{it} + \beta_3 EDU_{it} + \beta_4 HLT_{it} + \beta' Z_{it} + \epsilon_i + \mu_{it} \quad \ldots\ldots (3.2)$$

$$ING_{it} = \gamma_{0i} + \gamma_1 LAB_{it} + \gamma_2 CAP_{it} + \gamma_3 EDU_{it} + \gamma_4 HLT_{it} + \gamma' Z_{it} + \mu_{it} \quad \ldots\ldots (3.3)$$

Where $\gamma_{0i} = v + \delta_i$ and v is the error term.

Before analysis, all of the variables were transformed into the natural logarithm, in order to interpret the variables in term of elasticity and secondly, in order to reduce the long numbers/digits of the data into few digits for easy and decent representation and for understandable and meaningful interpretation.

3.4.1 Threshold Methodology

The extended inclusive growth specification model following the interaction between traditional growth drivers such as education and health-care spending and gross national income (GNI) is represented in the equation 2 as follows:

$$ING_{it} = \alpha_0 + \alpha_1 LAB_{it} + \alpha_2 CAP_{it} + \alpha_3 EDU_{it} + \alpha_4 (EDU_{it} * GNI_{it}) + \alpha_5 HLT_{it} + \alpha_6 (HLT_{it} * GNI_{it}) + \alpha' Z_{it} + \mu_{it} \quad \ldots\ldots (3.4)$$

Taking derivative first with respect to EDU_{it}:

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = \alpha_3 + \alpha_4 GNI_{it}$$

Putting derivative value equal to 0

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = 0$$

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = \alpha_3 + \alpha_4 GNI_{it} = 0$$

$$GNI^{*} = -\frac{\alpha_3}{\alpha_4}$$

This value of GNI_{it} will be the threshold value for government's expenditure on education. The marginal effect of education on inclusive growth is evaluated around this threshold value using +/- 1 standard deviation (SD) of GNI around the threshold. That is,

$$GNI^{*} \pm SD$$

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = \alpha_3 + \alpha_4 GNI^{*} = \alpha_3 + \alpha_4 \left(-\frac{\alpha_3}{\alpha_4} \pm 1SD\right) = \pm \alpha_4 SD$$

Now taking derivative with respect to HLT_{it}:

$$\frac{\partial ING_{it}}{\partial HLT_{it}} = \alpha_5 + \alpha_6 GNI_{it}$$

Putting derivative value equal to 0

$$\frac{\partial ING_{it}}{\partial HLT_{it}} = 0$$

$$\frac{\partial ING_{it}}{\partial HLT_{it}} = \alpha_5 + \alpha_6 GNI_{it} = 0$$

$$GNI^{*} = -\frac{\alpha_5}{\alpha_6}$$

This value of GNI_{it} will be the threshold value for government's expenditure on the health. The marginal effect of education on inclusive growth is evaluated around this threshold value using +/- 1 standard deviation (SD) of GNI around the threshold. That is,

$$GNI^{*} \pm SD$$

$$\frac{\partial \mathrm{ING}_{it}}{\partial \mathrm{HLT}_{it}} = \alpha_5 + \alpha_6 \mathrm{GNI}^* = \alpha_5 + \alpha_6 \left(-\frac{\alpha_5}{\alpha_6} \pm 1\mathrm{SD} \right) = \pm\, \alpha_6 \mathrm{SD}$$

5. Results and Discussion

5.1 Descriptive Statistics and Correlation Analysis

The descriptive statistics is an important tool in order to get an idea about the trend of the data. It shows the tendency of the expected empirical results whether the result will have an increasing or decreasing trend, uniformity, or variation.

The summary statistics of variables, included in the model, are presented in the below Table 4.1. It showed a wide range of variation among variables in all of the income groups used in this study. It revealed that inclusive growth is notably higher in high-income-economies as compared to low-income-economies. Moreover, it is obvious that government expenditures on human capital development (i.e. education & health) is lower in low-income-countries relative to high-income-countries. Therefore, it could be implied that as the countries move to high-income-group from low-income, there is an increase in government expenditures on human capital development and consequently rise in inclusive growth.

Similarly, capital stock, foreign direct investment and trade openness increase, whereas, inflation and population growth rate decreases, however, no significant change is observed in the labor force when we the countries move to higher income from low or lower income groups.

Since the groups are based on the income levels, therefore, a wide variation in values of the variables, is observed amongst the income groups, used in the study, during the period under consideration. Minimum and maximum value and standard variation among groups vary accordingly. Low-income-group has low values for each variable,

therefore, minimum and maximum values are low as compared to other groups. Similarly, when we move to high-income-group from low-income-group, the minimum and maximum value of each variable increase across the groups. Likewise, the standard variation across each group varies and has increasing trend from low-income-group towards high-income-group for all variables.

Table 4.1: Descriptive Statistics

Variables / Groups		AIC	HIC	UMIC	LMIC	LIC
ING	Mean	43779.9	93194.92	36331.9	16062.54	4055.53
	Std. Dev.	41412.55	36761.94	14053.39	10071.58	1622.83
	Min	1371.236	30068.33	6133.802	2934.637	1371.24
	Max	266103.7	266103.7	81788.63	49428.52	8320.91
	Obs.	2500	780	640	760	320
ED	Mean	1.91E+10	4.79E+10	1.28E+10	2.93E+09	2.14E+08
	Std. Dev.	7.02E+10	1.17E+11	3.09E+10	5.00E+09	2.04E+08
	Min	5454591	1.29E+08	5454591	7452906	7469765
	Max	9.54E+11	9.54E+11	2.55E+11	3.22E+10	8.42E+08
	Obs.	2500	780	640	760	320
HLT	Mean	1050.467	2971.213	354.964	95.065	28.73
	Std. Dev.	1793.676	2203.974	237.903	79.167	13.4
	Min	4.478	203.506	26.129	5.971	4.478
	Max	11038.07	11038.07	1531.48	390.21	65.54
	Obs.	2500	780	640	760	320

Variables / Groups		AIC	HIC	UMIC	LMIC	LIC
CAP	Mean	1.16E+11	2.32E+11	1.31E+11	3.05E+10	1.67E+09
	Std. Dev.	4.39E+11	5.46E+11	5.91E+11	8.61E+10	1.90E+09
	Min	6974332	5.00E+08	40940760	47353118	6974332
	Max	6.12E+12	4.49E+12	6.12E+12	6.89E+11	9.02E+09
	Obs.	2500	780	640	760	320
LAB	Mean	23073182	13741465	37255161	27848573	6113735
	Std. Dev.	81215256	26964427	1.34E+08	74249750	5728031
	Min	31205	145088	31205	74628	407093
	Max	7.87E+08	1.67E+08	7.87E+08	4.95E+08	29801894
	Obs.	2500	780	640	760	320
IN	Mean	5.018	2.217	5.995	6.71	5.872
	Std. Dev.	6.143	2.155	7.407	6.759	6.084
	Min	-18.11	-4.48	-4.3	-18.11	-8.975
	Max	59.22	19.38	59.22	48.7	34.7
	Obs.	2332	708	605	736	283
FDI	Mean	1.27E+10	3.05E+10	9.52E+09	2.24E+09	2.99E+08
	Std. Dev.	4.05E+10	6.54E+10	2.38E+10	5.59E+09	4.01E+08
	Min	-1.69E+11	-1.69E+11	-1.02E+09	-4.55E+09	-3.22E+08

Variables / Groups		AIC	HIC	UMIC	LMIC	LIC
	Max	5.11E+11	5.11E+11	1.75E+11	4.45E+10	1.86E+09
	Obs.	2385	718	630	727	310
TOP	Mean	83.277	106.19	80.546	73.52	56.069
	Std. Dev.	52.232	74.566	34.633	33.81	20.083
	Min	19.56	19.56	21.852	20.72	20.964
	Max	437.33	437.33	220.41	210.4	127.2
	Obs.	2500	780	640	760	320
PGR	Mean	1.462	0.948	1.038	1.765	2.84
	Std. Dev.	1.2	1.189	1.153	0.83	0.62
	Min	-2.17	-1.85	-2.17	-1.05	0.26
	Max	7.776	7.776	6.559	3.438	4.63
	Obs.	2279	688	534	737	320

The correlation analysis of dependent and independent variables presented in Table 4.2 reveals that inclusive growth and human capital development (government expenditures on education and health) are positively and significantly correlated in all income groups. Similarly, inclusive growth and capital stock have positive and significant correlation whereas inclusive growth has significantly negative correlation with labor force.

Furthermore, there is a strong and positive association between government spending on health, capital stock, and labor force and education spending.

Finally, the analysis showed that government expenditure on health is positively correlated with capital stock but negatively correlated with labor force. Capital stock and labor force have positive and significant correlation in all income groups.

Table 4.2: Correlation Analysis

Variables	ING	EDU	HLT	CAP	LAB
All Income					
EDU	0.293***				
HLT	0.772***	0.505***			
CAP	0.189***	0.820***	0.350***		
LAB	-0.070***	0.292***	-0.008	0.635***	
High Income					
EDU	0.116**				
HLT	0.494***	0.465***			
CAP	0.094**	0.980***	0.445***		
LAB	-0.048	0.958***	0.367***	0.976***	
Upper Middle Income					
EDU	0.014*				
HLT	0.535***	0.309***			
CAP	0.110**	0.838***	0.054		
LAB	-0.237***	0.698***	-0.048***	0.821***	
Lower Middle Income					
EDU	0.379***				
HLT	0.710***	0.220***			

CAP	0.124***	0.737***	0.010	
LAB	-0.052	0.650***	-0.141***	0.889***
Low Income				
EDU	0.049*			
HLT	0.490***	0.254***		
CAP	0.103*	0.825***	0.266***	
LAB	-0.279***	0.664***	-0.166**	0.715***

5.2 Estimation Results

Since the econometric model used in the study is a static panel model, therefore, most appropriate and well-known static panel data estimation techniques are fixed effect and random effect. Moreover, as pooled ordinary least square (OLS) does not incorporate the time-specific and country-specific properties, therefore, fixed effect model and random effect model are used for estimation. After consideration of three static panel models and their empirical findings from the estimation, it is found that fixed effect is preferred to the common effect and random effect models. In the next step, the "Hausman test" has been used to select between fixed effect model and random effect model. It is confirmed through the results of significance of Hausman test, which showed the rejection of the null hypothesis i.e. Random effect is appropriate. To this end, the study was constrained statistically to focus on using, discussing and interpreting the empirical results estimated through the fixed-effect-model only.

The results of the estimation show that fundamental determinants of inclusive growth, i.e. human capital development which includes expenditure on education & health, are significant. The results reveal that HCD through government expenditures on education and health increase GDP per person employed. Human capital development through

education is significantly and positively associated with the inclusive growth. An increase of 1% in government expenditures on education will enhance the inclusive growth by 9% in LIC, 8% in LMIC, 3% in UMIC and 10% in HIC respectively. It indicates that human capital development through education enhances the skills of the labor force, resulting in an increase in productivity of the workers which ultimately becomes the source for production of higher levels of output. Education enhances inclusiveness by different channels. Firstly, it raises the skills and capabilities of the workers to produce an output at higher level because the workers can fathom out and execute the latest technologies. Furthermore, it enables unskilled labour force to participate and contribute in the production process of the economy. Lastly, education generates employment opportunities for the people and it raises the living standard of the individuals.

Similarly, HCD through health significantly and positively affects inclusive growth. According to the results, a rise of 1% in government expenditures on health will boost the inclusive growth by 16% in LIC, 9% in LMIC, 25% in UMIC and 6% in HIC respectively. This shows that a better-quality health is necessary to improve the degree of inclusiveness. Health allows workers to engage in more activities and perform and contribute more effectively. Workers that are in better health are more productive and efficient. They are able to better comprehend, adopt, and implement many contemporary manufacturing methods and procedures. It's because good health is a requirement for a strong and healthy brain. Furthermore, healthy workers labour for a longer period of time and obtain sufficient experience to contribute effectively to the economy.

These results are akin to the results of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Hur (2014), Anand et al. (2013), Matilda (2013), Adedeji et al. (2013) and Bloom et al. (2004).

Both education and health continue to represent significant and positive coefficients across all income groups. It shows that HCD, through improvement in education & health, enhances the contribution of the labour force to the economy regardless of the level of income. Although, the rate at which human capital development affects inclusive growth may vary at different income levels, however, according to the results, human capital development at any income level, will definitely lead to inclusive growth in the economy positively and significantly.

Our other descriptive variable capital stock is also positively associated with inclusive growth and it remains significant in all income groups except low income countries. This demonstrates that physical capital promotes growth inclusiveness. Moreover, physical capital is one of the fundamental determinants of economic growth and the economic growth is the first and foremost component of inclusive growth. These results are analogous to the empirical findings of earlier studies of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Hur (2014), Anand et al. (2013), Anand et al. (2014), Afzal et al. (2012) and Bloom et al. (2004)

The coefficient of labour force is negative but significant across all income groups. Since population growth is used to be usually negatively related to employment and consequently to inclusive growth, one major reason for the negative relationship between labour force and inclusive growth (GDP per person employed) could be that when total population rises, the increase in the employment rate is lower than the increase in overall labour force. It means, population increases, consequently labour force increases but employment rate doesn't increase with the same or higher rate in order to cater the labour force to be fully employed.

The overall impact of trade openness is also positive and statistically significant. The trade openness is significant in all of the income groups; except in low income countries where its impact is insignificant. Trade openness is amongst standard determinants for economic growth in

general and for inclusive growth in particular. Trade openness accelerates inclusive growth process. It describes that trade openness aids the economies to achieve higher inclusive growth. As the share of exports rises, trade openness generates employment opportunities which boosts the degree of growth inclusiveness. These results are consistent, reliable and matching to previous findings of Bashier & Wahban (2013) and Anand et al. (2013).

Alike trade openness, FDI is overall positively and significantly related to inclusive growth. It is significant for all income groups except high income group where it is insignificant. FDI is also counted among standard determinants of inclusive growth. FDI promotes and improves the degree of IG through creation of decent number of employment opportunities. It fosters the growth process which certainly leads towards IG. Our results are identical with the empirical outcomes of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018) and Anand et al. (2013).

Population growth is negatively and significantly associated with inclusive growth. It demonstrates that a rise in population will decrease the degree of growth inclusiveness because rise in overall population decreases employment and minimizes economic growth and consequently inclusive growth.

Table 4.3: Coefficient Estimates

Variable	AIC	HIC	UMIC	LMIC	LIC
Coefficient Estimates					
EDU	0.070***	0.096***	0.027*	0.080***	0.087***
HLT	0.140***	0.055***	0.259**	0.089***	0.162**

			*		*
CAP	0.097***	0.029*	0.088***	0.110***	0.024
LAB	-0.405***	-0.293***	-0.168***	-0.267***	-0.164***
INF	-0.028**	-0.055***	-0.014	-0.016	-0.023
FDI	0.017	0.015	0.029*	0.079***	0.084***
TOP	0.011	0.135***	0.050*	0.052**	0.021
PGR	-0.066***	-0.033*	-0.129**	-0.159**	0.021
Constant	11.578***	11.612***	9.589***	7.917***	6.341***
Diagnostic Statistics					
Number of Countries	125	39	32	38	16
Number of Observations	2500	780	640	760	320
Hausman test	279.01***	454.41***	18.05**	167.08***	14.63*

Note: Here *, **, *** indicate statistical significance at 10%, 5% & 1% respectively. Standard errors are robust. ING, EDU, HLT, LAB, CAP, INF, FDI, TOP & PGR show Inclusive Growth, Govt. Expenditures on Education, Govt. Expenditure on Health, Labour Force, Capital Stock (Gross Fixed Capital Formation), Inflation, Foreign Direct Investment, Trade Openness, and Population Growth Rate respectively.

5.3 Threshold Analysis

The results of threshold estimation are presented in the Table 4.4 below. The results confirm the existence of a significant threshold effect in each income group. The estimated GNI threshold value for government expenditure on education is 4.759 for all-income, 3.256 for high-income,

3.975 for upper-middle-income, 5.445 for lower-middle-income and 6.369 for low-income economies. These are log values of GNI which in nominal form are 116.675 for all-income, 25.957 for high-income, 53.248 for upper-middle-income, 231.507 for lower-middle-income and 583.239 for low-income economies. All the nominal values are in USD.

These threshold values show that to ensure inclusive growth through government expenditure on education, it is necessary to have such income levels in the country. With this level of income, an investment on government expenditure on education will ensure inclusive growth. The results demonstrate that the threshold value increases when we move from a high income country to a low-income country. It means low-income countries are required to raise income level or should have higher income level in order to ensure that the government plans to expend on human capital development through education. For instance, low-income countries should raise the national income level more than USD 583.239 to ensure the existence of inclusive growth if governments invest on human capital development through making expenses on education. For lower-middle-income, GNI level should be more than USD 231.507 whereas for upper-middle-income and high-income economies, the required threshold level of GNI, for growth ensurety through government expenditure on education, should be USD 53 and 26 respectively.

The marginal effect of education on inclusive growth is evaluated around the threshold value, both log and nominal, using +/- SD (standard deviation) of GNI around the threshold. The results exhibited a significant shift before and after the threshold value. The GNI value is negative before threshold value, zero at threshold and becomes positive after threshold value, with respect to the change in the government expenditure on education. It means that any investment on education prior to reaching the threshold level doesn’t have a significant impact whereas government

expenditure on education after threshold value has a positive and significant effect on inclusive growth.

Alike education, there exists a significant threshold effect for government expenditure on health in each income group. The estimated GNI threshold log value for government expenditure on health is 5.628 for all-income, 5.087 for high-income, 5.203 for upper-middle-income, 6.004 for lower-middle-income and 6.781 for low-income economies. The nominal threshold values are 278.066 for all-income, 161.923 for high-income, 181.824 for upper-middle-income, 404.973 for lower-middle-income and 880.721 for low-income economies. All the nominal values are in USD.

To ensure growth to be inclusive through government expenditure on health, low-income-economies needs to raise an income level of USD 880.721 which is close to the maximum income level in the low-income counties. It shows that there is dire need to first raise the income level of the people in low-income countries, only then, a rise in government's expenditures on health would ensure growth and development. As we move to high-income-countries from low-income, there is a fall in the threshold income level for each upstream income country. It shows that higher will be the income level, the more will be the effect of government's investment on the health of the public and consequently, the higher will be growth, especially in low-income-countries where growth will be more inclusive.

Similar to education, the marginal effect of health on inclusive growth, when evaluated around the threshold value, both log and nominal, using +/- SD (standard deviation) of GNI, exhibited a significant shift before and after the threshold value. The GNI value is negative before threshold value, zero at threshold and becomes positive after threshold value, with respect to the change in the government expenditure on health. It means that an investment on health prior to reaching the threshold level doesn't

have much impact whereas government expenditure on health after threshold value has positive and significant effect on inclusive growth.

Although the threshold effect exists for both indicators of human capital development, i.e. government expenditures on education and health, however, the threshold level of GNI for health remains higher than education in each income group.

Table 4.4: Marginal Effects of Education and Health on Inclusive Growth at min, max, average, and around thresholds of GNI

Items	GNI* per Capita (Log Values)					GNI* per Capita (Nominal Values)				
	AIC	HIC	UMIC	LMIC	LIC	AIC	HIC	UMIC	LMIC	LIC
Minimum	4.788	8.326	6.492	5.075	4.787	120	4,130	660	160	120
Maximum	11.556	11.556	9.628	8.872	6.888	104,370	10,4370	15,190	7,130	980
Std. Dev.	1.587	0.645	0.606	0.719	0.471	17,840	19,052	2,965	1,233	205.434
Average	8.352	10.235	8.442	7.267	6.101	12,475.18	33,443.04	5,487.852	1,815.789	493.063
Threshold (TH) $\frac{\partial ING}{\partial EDU}$	4.759	3.256	3.975	5.445	6.369	116.675	25.957	53.248	231.507	583.239
GNI* Value at Threshold - SD	-0.014	-0.017	-0.061	-0.011	-0.008	-158.954	-500.692	-291.767	-15.698	-13.213

GNI* Value at Threshold + SD	0.014	0.017	0.061	0.011	0.008	160.961	501.886	301.627	22.749	13.629
Threshold Level $\frac{\partial ING}{\partial HLT}$	5.628	5.087	5.203	6.004	6.781	278.066	161.923	181.824	404.973	880.721
GNI* Value at Threshold - SD	-0.058	-0.004	-0.009	-0.035	-0.038	-653.882	-132.185	-45.682	-59.841	-17.144
GNI* Value at Threshold + SD	0.058	0.004	0.009	0.035	0.038	653.469	132.114	45.522	59.261	16.049

Note: GNI value is 0 at threshold level.

6 Summary of the Results

Based on above mentioned results and discussion, it is concluded that the development of human capital through expenditure and investment in education and health can contribute to the achievement of inclusive growth. The panel evidence presented in the study backs this up. Human capital development is found to be a key component of inclusive growth across all income groups. At all income levels, the impact of government's expenditures on HCD (i.e. education & health) are found positive and statistically significant on inclusive growth. The rate (percentage change), at which, an increase in expenditures of the government on education & health, would raise the growth, varies from one income group to other and no symmetry is observed in the overall change rate across the groups.

Despite human capital development, GFCF, TOP and FDI are found to be the significant elements of the inclusive growth whereas population growth has adverse effects on inclusive growth.

The results are evident to the existence of notable and significant threshold effects between government's expenditures on human capital development and income level in order to ensure the growth to be inclusive. The threshold value increases when we move from a high income country to a low-income country. It means low-income countries are required to raise income levels or should have higher income levels in order to ensure inclusive growth if the government plans to expand on human capital development through education and health.

Moreover although, the threshold effect exists for both indicators of human capital development, i.e. government's expenditures on education & health, however, threshold level of GNI for health sector remained higher than education in each income group. It means that in order to enhance the human development through health, the importance of income level in an economy becomes even inevitable. Investment on education may work even at a lower level of GNI in an economy, however, in order to make sure that the public enjoys the government's investment on health, it is absolutely necessary to have and maintain a higher level of national income in the economy.

7 Conclusion and Policy Recommendations

7.1 Conclusion

This research study examined through empirical analysis the impact of human capital development, through government spending on health & education, on inclusive growth. There is plenty of research already available that has attempted to quantify the impact that human capital development has on inclusive growth. However, none of the studies

has explored the role of income in consideration with government's expenditure on human capital development to ensure inclusive growth.

To this end, this research had two objectives which are interlinked; first) to confirm the influence of human capital development on inclusive growth for different income groups and second) objective is to find threshold income level, at which government expenditures on education and health sectors, would ensure growth inclusiveness.

Human capital development is segregated into education and health whereas inclusive growth is proxied as GDP per person employed. Heterogeneous panels of 125 countries, divided into four groups, categorized based on difference in income levels. The groups titled high-income countries, upper-middle-income countries, lower-middle-income and low-income countries were used as per categorization of World Development Report.

Three static panel models were estimated on the panel data containing 4 different income groups and findings have revealed that fixed effect model is found preferred over the random effect and common effect model. It is confirmed through the results of Hausman test which were significant and therefore leads to the rejection of the null hypothesis i.e. "Random effect is appropriate". To this end, the study has statistically constraint of having to focus on the usage, discussion and interpretation of the empirical results of estimation only from fixed-effect-model.

It is further evident from the empirical results that human capital development through spending on health & education positively affects the degree of inclusive economic growth across all income levels. Inclusive growth is determined to a good degree by Health & Education. These results are similar to the results of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Hur (2014), Matilda (2013), Anand et al. (2013), Adedeji et al. (2013), and Bloom et al. (2004).

Despite human capital development, Trade Openness (TOP), Foreign Direct Investment (FDI) and Gross-Fixed-Capital-Formation (GFCF), are significant components of inclusive growth. FDI, Trade Openness and Physical Capital have been found to boost inclusive growth while the inflation and population growth negatively impact/hamper the inclusive growth. These findings are alike to the outcome of several earlier studies of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Anand et al. (2014), Hur (2014), Anand et al. (2013), Afzal et al. (2012) and Bloom et al. (2004).

The results disclosed the existence of a significant threshold effect between government expenditures on human capital development and income level for growth inclusiveness. The threshold value increases from high income country to low-income country. It means low-income countries require to raise income levels in order to ensure inclusive growth if government invests in human capital development through HCD's key indicators, i.e.

education and health.

7.2 Policy Recommendations

Policy implications of the study are noteworthy in that it highlights the fact that governments need to increase their investment in health & education sectors in order to achieve inclusive growth. Since, the results show that government expenditures on education and health have positive and significant impact on inclusive growth, therefore, Human Capital Development through education & health should take center stage in policy decisions because such development especially achieved through education raises the productivity levels in the economies and therefore foster inclusive growth. Education leads to grow human capital. An educated labour force leads to employment which reduces the poverty and brings about a decrease in the income inequality due to better/increased wages of the labour force. Education and employed workers produce and contribute more to the economies as compared to uneducated or low-education and unemployed labour force.

Similarly, human capital development through health enhances inclusive growth because healthy workers are in a better position to work with contemporary methods and techniques of production because of the ability to concentrate and understand well. Moreover, healthy workers perform work for extended years and deliver increased output levels due to better productivity level thereby they contribute more to the growth of economy. This leads to faster growth leading to employment creation while also enhancing the wages earned by labor force with the ultimate impact on income equality which is reduced thereby leading to further inclusive growth in the economies.

Thus, with increase of governments' expenditures on health & education, the productivity of the economies would improve, there will be increase in investment to harness increased productivity, thereby creating further employment opportunities and ultimately benefits the governments in the form of increased tax revenue. In fact an increase in government spending on health & education brings back benefit of additional tax revenue to the government. Thus, an effort to raise government spending in the fields of health and education would bring in more money for the government. Therefore, it is imperative that governments focus on augmenting their investments in the health and education sectors. Therefore, it is advised that policies to raise the share of total public spending on human capital development could have an impact on an improvement in health and education for a reasonable promotion of inclusive growth. If these policies are implemented correctly, they may raise the economy's level of human capital, which will lead to inclusive growth.

Since FDI and trade openness are also important determinants of inclusive growth, therefore, steps should be taken to promote trade openness and attract FDI because FDI

and trade openness create decent number of employment opportunities in the economies, which lead to higher production and contribution to the economies.

Furthermore, in order to ensure growth with government investment on education and health, it is necessary to raise gross national income in the economy, especially in lower-middle and low-income economies. After attaining threshold income level, any government investment on education and health will be effective and fruitful.

Pakistan, being in the lower-middle-income group, has already attained income level over the threshold value of this group, therefore, government expenditures on education and health would ensure the growth and hence, policies to increase public expenditures could influence a boost in education and health for reasonable promotion of inclusive growth.

The study results will be useful for governments to use their resources efficiently in relevant sectors. It will help develop a framework for these countries at the individual as well as the regional level.

Future Research Direction

A promising area where future research focus is to investigate the causes and effects of the income level on inclusive growth for individual countries or a group of countries of similar income level.

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Appendices

Appendix: List of countries included in the study

39 High Income Countries

Australia	Switzerland	France	Korea, Rep.	Portugal
Austria	Chile	United Kingdom	Luxembourg	Saudi Arabia
Belgium	Cyprus	Greece	Malta	Singapore
Bahrain	Czech Republic	Hungary	Netherlands	Slovak Republic
Bahamas, The	Germany	Ireland	Norway	Sweden
Barbados	Denmark	Iceland	New Zealand	Uruguay
Brunei Darussalam	Spain	Italy	Oman	United States
Canada	Finland	Japan	Poland	

32 Upper Middle Income Countries

Albania	China	Guatemala	Malaysia	Thailand
Argentina	Colombia	Jamaica	Namibia	Tonga
Armenia	Costa Rica	Jordan	Panama	Turkey
Bulgaria	Dominican Republic	Lebanon	Peru	South Africa
Belarus	Ecuador	Mexico	Paraguay	
Brazil	Fiji	North Macedonia	Romania	
Botswana	Gabon	Mauritius	Russian Federation	

38 Lower Middle Income Countries

Benin	Comoros	Iran, Islamic Rep.	Nepal	Tanzania
Bangladesh	Algeria	Kenya	Pakistan	Ukraine
Belize	Egypt, Arab Rep.	Kyrgyz Republic	Philippines	Uzbekistan
Bolivia	Ghana	Sri Lanka	Senegal	Vietnam
Bhutan	Honduras	Morocco	El Salvador	Vanuatu
Côte d'Ivoire	Haiti	Mongolia	Eswatini	Zimbabwe
Cameroon	Indonesia	Mauritania	Tajikistan	
Congo, Rep.	India	Nigeria	Tunisia	

16 Low Income Countries

Burundi	Guinea	Mali	Sierra Leone
Burkina Faso	Gambia, The	Mozambique	Chad
Central African Republic	Guinea-Bissau	Niger	Togo

Congo, Dem. Rep. Madagascar Rwanda Uganda

List of Abbreviations

All Income Countries	AIC
Department for International Development	DFID
Foreign Direct Investment	FDI
Gross Domestic Product	GDP
Gross Fixed Capital Formation	GFCF
Gross National Income	GNI
Gross National Product	GNP
High Income Countries	HIC
Human Capital Development	HCD
Inclusive Growth	ING
International Monetary Fund	IMF
Low Income Countries	LIC
Lower Middle-Income Countries	LMIC
Millennium Development Goals	MDGs
Organization for Economic Cooperation and Development	OECD
Sustainable Development Goals	SDGs
Trade Openness	TOP
United Kingdom	UK
United Nations Educational, Scientific, and Cultural Organization	UNESCO
United Nations Development Program	UNDP

Upper Middle Income Countries	UMIC
World Development Indicators	WDI
World Health Organization	WHO