SOCIAL, ECONOMIC AND POLITICAL COST OF EDUCATIONAL DEPRIVATION: A DISTRICTS LEVEL ANALYSIS OF PAKISTAN

By

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Certificate of Approval

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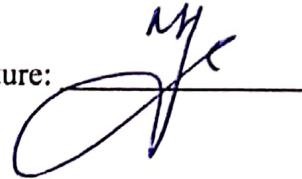
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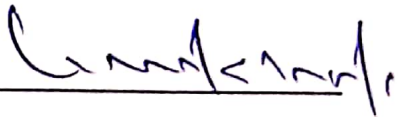**Examination Committee:**

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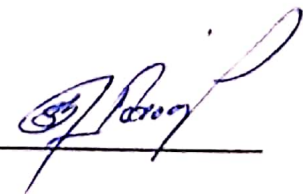
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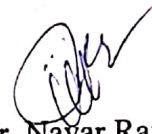Senior Research Economist
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DEDICATION

First and foremost, I'd like to dedicate this thesis to my entire family's unflinching support, particularly my father, who has consistently stood by me in every facet of my life, utilizing all of his abilities and resources. Second, this thesis is dedicated to Pakistan's whole teaching community, who are working relentlessly at all levels to ensure that the nation's future is secure, highly capable, skilled, and productive through education. They are Pakistan's frontline combatants in the fight against ignorance and the massive resources lost as a result of it.

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ABSTRACT

This study has computed the cost to the economy associated with Pakistan's educationally deprived, less productive labor force. Cost computation has been undertaken using the current actual educational profile of the labor force in the age bracket of ten years or more. The Labor Force Survey 2018 was used to gather the data required. The income of the total labor force was computed using two educational scenarios: (i) current educational profiles of the labor force and (ii) hypothetical better educational profiles (six better educational profiles have been considered). To begin with, we estimated returns to education for different levels of education. The wage rates for varying levels of education were determined by using these returns. Using the wage rates determined and available working hours, the study then computed the average annual income for each level of education. Using the average income thus computed, the income of the employed labor force with different educational profiles were computed. The sample of 30858 waged-employees in the age bracket ten years or more from HIES- PSLM 2018-19 was used for the aggregate analysis at the country level. District Rahim Yar Khan has been examined as a particular case to compute the cost of educational deprivation. Primary data of 404 waged employees in the age bracket 25-29 was used to account for individual quality, as a proxy of abilities, in computing the returns to education. The rest of the process followed for calculating the deprivation cost is the same as explained above for the aggregate analysis. The difference between the income level for the better educational profile and the current educational profile is the opportunity cost of educational deprivation. The key findings of this research have highlighted the importance of education by showing that Pakistan is facing massive opportunity costs by relying on the educationally deprived labor force. The results suggest that there could be a substantial increase in the GDP of Pakistan if the educational profile is improved. Additional growth of 3.32% in the GDP can be stimulated if those in the labor force with less than five years of education (primary level) are imparted education at least up to the primary level. The educational profile of SDG goal 4.1, requiring secondary education for all, if achieved, can stimulate sustainable GDP growth of more than 11%. Substantially higher GDP growth rates associated with even better educational profiles are indicated and explained in the main document.

Keywords: Education; Capabilities; Individual Quality; Growth and Development; Earning Function; Returns to Education; Wage Rates; Productivity; Educational Deprivation; Sustainable Development Goals.

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LIST OF ABBREVIATIONS

GDP	Gross Domestic Product
HIES	Household Integrated Economic Survey
PSLM	Pakistan Social and Living Standards Measurement
UNDP	United Nations Development Program
GOP	Government of Punjab
PBS	Pakistan Bureau of Statistics
HDI	Human Development Index
IQI	Individual Quality Index
MOF	Ministry of Finance
AEPAM	Academy of Educational Planning and Management
NEMIS	National Education Management Information System
MPI	Multidimensional Poverty Index
RYK	Rahim Yar Khan
SDG	Sustainable Development Goals
MEF	Mincerian Earning Function
KPK	Khyber Pakhtunkhwa
GER	Gross Enrollment Rate
NER	Net Enrollment Rate
ANER	Adjusted Net Enrollment Rate
GPI	Gender Parity Index
HDR	Human Development Report
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
GNP	Gross National Product
ICT	Information and Communications Technology
PILDAT	Pakistan Institute of Legislative Development and Transparency
EQI	Economic Quality Index
PQI	Political Quality Index
SQI	Social Quality Index
MPA	Member Provincial Assembly
MNA	Member National Assembly
PHW	Per Hour Wages
ML1	Main Line 1
SMEDA	Small and Medium Enterprise Development Authority

CHAPTER 1

INTRODUCTION

1.1   Background:

One of the significant breakthroughs in post-World War two development thinking emerged as greater recognition of education as one of the most critical factors determining the fates of nations. The crucial role of education towards the quality of individuals and hence the quality of institutions and society is widely appreciated in social-economic literature. Irrespective of the fundamental ideological differences, education has enjoyed recognition by every school of thought in social, economic, and development literature as an essential transformative social commodity that provides the foundations for enlightened, developed, and civilized societies (North D. C., 1991; Chambers, 1997; Robinson & Acemoglu, 2012; OSTROM, 2015).

Education, supplied through various channels and administrative structures, transforms the raw individuals into worthy "human capital" and, hence, influences the well-being of individuals and societies. Here, the word "human capital" refers to an individual's knowledge, expertise, abilities, or competencies developed through schooling, training, social atmosphere and network, family history, personal characteristics, and various other factors. It encompasses the potential to enhance the capabilities and hence offers freedom and opportunities to the individuals and societies for growth and development. As confirmed from the cases of highly developed states, education has a dominant role in their development. It has been further seen that states with a more significant proportion of the educated people are ranked higher in human development, as evident from every Human Development Report.

The flip side is that deprivation of education, defined by the lack of education of the masses, deprives the individual and society of worthy human capital and the freedom and opportunities of growth and development. This limitation then serves as a barrier to the sustainable well-being of

the individual as well as society. This is confirmed from the case of states showing up lower levels of human and socio-economic development.

Socio-economic literature has evolved a consensus that education improves freedom and the realm of opportunities for individuals and societies by providing value in terms of more excellent skills and productivity (Becker G. S., 1993; Fisher, 1932; Whitehead, 1967). The path of development a society follows mainly depends upon the quality of individuals it has. The quality of individuals primarily depends upon their capabilities, defining their freedom and operational domain to contribute effectively to their own and societal growth and development (Sen, 1980). Besides relying on various societal conditions, individuals' capabilities and functional domain equally depend upon individuals' worth, explained by their education level and access to resources.

Thus, in a contemporary, highly integrated globalized framework, no society can advance without a population with a strong foundation in factors such as schooling, skills, competencies, and professional training, advancing human capital. In this context, the individuals with a higher level of education have better earning, more resources, and hence wider operational domain explaining the greater freedom and quality of life. Thus, such a class of well-educated individuals may well be called high-quality individuals. Education, in this way, has been widely acknowledged as a transformative force that permits individuals and society to transit from dependency to independence through better economic, social, and political engagement. It enables individuals and communities to enjoy greater economic freedom and positive and fruitful societal and political involvement in addition to employment and engagement; educations is the core element of the individual growth triangle (UNDP, 2017).

Many researchers have emphasized the importance of human capital for a country's growth and development by declaring it the main growth engine. It has been further stressed that the main difference in living standards among societies is human capital (Lucas, 1993). The communities

with education as a focal point in their development thinking have a majority of well-educated high-quality individuals in the case of most of the developed nations. These nations, in return, are reaping the fruits of their emphasis on education using a higher and sustainable level of development.

Similar to the case of other least developed societies, the development thinking, centralized around education, seems miles away from its actual sense, application, and fruits when analyzed in the context of Pakistan. Pakistan, the sixth-most populous country with 212.82 million[1] residents, is one of the least growing states in the world concerning education and other socio-economic and political indicators. Despite accepting its crucial role in contemporary social-economic and political development, Pakistan is far behind developed nations in realizing education as the lifeblood of growth. State recognized the importance of education towards development by taking it as the fundamental constitutional right of every citizen as per Article 25-A of the Constitution of Pakistan. Furthermore, there is a so-called belief that education plays a pivotal role in creating human capital, which undoubtedly leads to higher economic growth (MoF, Pakistan Economic Survey 2019-18, 2019). According to this belief, state documents highlighted that human capital development is critical for improving productivity through technological innovation, leading to sustained, highly inclusive economic growth. State in this way describes education as necessary, promoting a productive and informed workforce, and creates opportunities for the socially and economically deprived sections of society (MoF, 2019).

Despite a wider acceptance of its essential role in shaping individuals and societies and its constitutional recognition, the state of education in Pakistan is miserable, both in terms of access and quality. In due course of history, the state failed to convert its resolve into educating each

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[1] Estimate of 2018 as per Pakistan Economics Survey 2018

citizen in Pakistan. It is evident from the least spending (average 2% of GDP) on education by every regime, the lowest spending of any state in the South Asian region. This insufficient spending on education and state inactivity has resulted in inadequate and inefficient educational infrastructure to deal with the educational needs of the sixth most populous country in the world. As a result, Pakistan, with a literacy rate of 59.13%, is ranked 147th out of 165 states globally. In the first three decades after independence, the literacy rate grew by 10% only, from 16.5% in 1950 to 26.3% in 1981. For the next two decades, the change in literacy rate was 17.6%, and it stood at 43.90% in 1998. Between 1998 and 2005, it changed only by a mere 6%, whereas the growth in literacy rate from 2005 to 2018 remained only 10%, with the current literacy rate of 59.13% (Rehman, Jingdong, & Hussain, 2015). Compared to other states, Pakistan has the second lowest literacy rate, the second-lowest gross enrollment rate for each level[2] , and the second-highest dropout ratio in the South Asian region (MoF, 2019). This situation is further confirmed by the existence of 51.5 million uneducated adults, placing Pakistan in third place in the top ten states with more than two million uneducated adults.

Similarly, Pakistan is second with 10 million uneducated youth amongst the top ten states with more than two million uneducated youth (AEPAM, 2015). In addition, Pakistan is second highest globally with 22.84 million[3] out-of-school children in the age bracket of 5-16, representing 44% of the total population (51.53 million) in this age bracket (NEMIS-AEPAM, 2018). These figures explain the extent to which Pakistani society is educationally deprived.

Evident from Pakistan's ranking on various development indicators, compared to other states globally, this educational deprivation damages the whole fabric of development by hurting the economy, society, and politics. One of the comprehensive measures to elaborate this deprivation

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[2] Pre Primary, Primary, Secondary, Tertiary

[3] https://www.unicef.org/pakistan/education

is Human Development Index. According to the Human Development Report 2018, Pakistan's HDI value is 0.560, placing Pakistan in the 152nd position out of 189 countries. This performance declares Pakistan as the 37th worst country in terms of Human Development. Between 1980 and 2018, Pakistan's HDI value increased from 0.359 to 0.560, showing a 56 percent increase in 38 years with an average annual growth of 1.44 percent. Pakistan has an average HDI score of 0.479 for the period 1990-2018.

In addition to the HDI ranking, Pakistan is one of the least productive, fragile, inefficient, and debt-dependent economies, offering little economic freedom to the individual and society (Zaidi, 2015). Socially, Pakistan is ranked among the most intolerant, conflicting, and divided societies based on various religious, ethnic, and social conflicts. Furthermore, it's global ranking on the rule of law, corruption, and social progress depicted an alarming situation. By political infrastructure, Pakistan is one of the most fragile or politically unstable states globally. The country has experienced three major military coups of a total length of 33 years in 73 years of history. Besides military coups, the fragility of politics is evident from short spells of different democratically elected governments (Zaidi,2015).

1.2   Problem Statement

A massive uneducated population is costing Pakistan a lower contribution to the national income and inefficient utilization of resources leading to fragile and inconsistent economic, social, and political development. Though we know that lack of education imposes costs on individuals and society; however, no precise numerical estimates of such costs are available. This huge vacuum in research makes societies like Pakistan incapable of realizing the importance of education for sustained, stable, and efficient growth and development.

1.3 Aims of the research.

Thus, by considering education as the most crucial factor for sustainable growth and development, we highlight the impact of education on the individual and society. Accordingly, the present study analyzes the cost of educational deprivation associated with a massive uneducated or less educated population in Pakistan. The study has been conducted by considering the dataset of HIES-PSLM[4] 2018-19. Moreover, a substantial uneducated population puts question marks on the quality, capabilities, and operational freedom of Pakistan. The absence of data and definite measures of individual quality differentiated by education restricts the country's ability to analyze the cost of educational deprivation by accounting for individuals' quality. To fill this gap, we have further investigated the variation in individual quality due to schooling by considering a particular case of Rahim Yar Khan, a less developed district in Punjab province with a higher degree of uneducated population. A specialized questionnaire was developed under the broader theoretical framework of the Capability Approach to analyze the variations in individual quality in social, economic, and political spheres, three key operational domains of an individual

1.4 Research Objectives

The core emphasis of the present research is the estimation of the cost of educational deprivation. Precisely, the study dealt with the following three objectives:

1. To estimate returns to education for Pakistan based on the recent PSLM 2018-19 data set and returns to education for the case of Rahim Yar Khan based on recently collected Primary data.

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[4] HIES: Household Income-Expenditure Survey, PSLM: Pakistan Standard of Living Measurement Survey

2. To construct a measure of individual abilities by assessing the Social, Economic, and Political quality of individuals with different levels of education and other socio-economic characteristics for the case of Rahim Yar Khan.

3. To estimate the cost of educational deprivation for Pakistan and Rahim Yar Khan.

1.5 Research Relevance and Significance

In the context explained earlier, this thesis is relevant for highlighting the importance of education by working out the cost of educational deprivation in terms of lost incomes based on a less productive and less efficient population. Computing this income loss is extremely important because if saved or reduced by educating the people, this income can put Pakistan on a sustainable development track. Thus, Pakistan's current situation and future growth perspective is the core motivation for conducting this analysis. Furthermore, this analysis can provide important policy insights by highlighting the losses and sources of educational deprivation. On the academic front, the research by using the traditional Mincerian Earning Function has estimated the returns to education based on the latest national-level dataset PSLM 2018-19. The outcomes are then used to elaborate the cost of a massive uneducated population in terms of loss of national income. On applied fronts, the research has provided valuable insights to supplement Pakistan's journey towards achieving various Sustainable Development Goals by showing the significance of education.

Furthermore, the study attempts to induce individuals, political leadership, policymakers, and society towards education by explaining the substantial costs associated with lack of education. This research has further highlighted the importance of education for eradicating poverty and hunger, improvements in health and well-being, quality education, innovation, infrastructure development, decent work, economic growth, peace, justice, equity, and strong institutions. In this context, all the earlier mentioned data sets and estimations generated through this research, by

providing the basis for effective and sustainable policies, would support the state towards achieving SDGs for Pakistan's long-term and sustainable development.

1.6 Organization of the thesis

The present thesis is structured as follows; in Chapter 2, we discuss various stylized facts regarding Pakistan's demographic and educational profile and district[5] Rahim Yar Khan. Chapter 3 reviews literature to highlight the importance of education for social, economic, and political development. Chapter 4 discusses the framework for analysis of individual quality, returns to education, and cost of educational deprivation. First, it discusses the Capability Approach, the framework for assessing individual quality by analyzing variations in individuals' social, economic, and political freedom with varying educational levels. Second, it deals with an overview of various approaches to estimate the returns to education. It also highlights the dominance of Mincerian Earning Function (MEF) towards an analysis of returns to education and its suitability for this research. We have considered both the frameworks of Mincerian Earning Functions: for the case of Pakistan, MEF with unobserved ability, whereas for Rahim Yar Khan, MEF with observed ability was used with consideration of individual quality as a proxy for abilities. The last part of chapter 4 provides the framework for the analysis of the cost of educational deprivation. Chapter 5 discusses the data and methodology for education returns, individual quality, and cost estimation. In Chapter 6, the estimation results have been discussed. Finally, Chapter 7 concludes the findings of this thesis and briefly discusses the policy recommendations.

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[5] District is a administrative jurisdiction in Pakistan

CHAPTER 2.

STYLIZED FACTS

Population growth and size have enjoyed a prominent place in the development debates for centuries due to their direct connections with the economy's consumption and production side. Those who perceived the consumption side as dominant explained population growth as a threat to development ((Malthus, 1798). In contrast, those, who focused on the production side, see population as potential to grow under certain pre-conditions. The advocate of this perspective explained population growth through demographic transition theory by describing the decline in population growth and hence accumulation of more significant working-age population in every society over time. With this perspective, every state has to go through a demographic transition and must face a window of opportunities due to the massive accumulation of the working-age population. Pakistan is currently running through its demographic change and hence meeting the window of possibilities open.

On the other hand, Pakistan faces a massive deficiency of necessary pre-conditions to tap this opportunity window. It has its population grew from 75 million in 1947 to 212 million in 2018. But it failed to provide a conducive environment and opportunities to reap the benefits of this population growth. When every aspect of turning the population into a potential productive force remained passive, the worst failure is that Pakistan's literacy rate was at 60% even after gaining independence 74 years ago. This poor educational profile resulted in a massive uneducated and less productive population, hurting economic growth and putting enormous socio-economic and political costs. In the light of research objectives, this chapter attempts to highlight the educational and development profile of Pakistan and Rahim Yar Khan. The aim is to bring to fore the educational endowments and disparities to highlight the educational deprivations at national, provincial, and district levels.

2.1 Profile of Pakistan

2.1.1 Demographic Profile of Pakistan

As per the sixth population census held in 2017, the population of Pakistan is 212.8 million. Comparing with 1998[6], the total population grew at a rate of 2.40 percent from 1998-2017. The urban population increased by four percentage points from 32.5 % in 1998 to 36.4% in 2017. The female population also depicts the growth of one percentage point from 48% to 49%, causing a decline in the sex ratio from 108.5 to 105.07. The population's age structure has also changed; the percentage of the population under 15 years of age fell to 35.27% from 43.4%; On the other hand, the working-age population rose to 60.42% in 2018 from 53.09% in 1998. Similarly, the age bracket of 65 and above has also gone up to 4.31% from 3.5%.

Furthermore, Pakistan is now running through a demographic transition phase, as evident from the changes in the population pyramid from 1998 to 2018 as shown in Appendix A Figure A1and Figure A2. This change in age structure shifted more population into the working-age bracket from youth dependent age bracket. As a result, it changed the overall age dependency ratio from 88.34 to 65.3, with a youth dependency ratio of 57.9% and an elderly dependency ratio of 7.4.

With the demographic transition, the window of opportunities is wide open, as now Pakistan has more youth and working-age population compared to its dependent population. Explained in terms of Youth Bulge, this working-age population is distinguished as a demographic dividend or a demographic threat based on certain pre-conditions of a society. As outlined in substantial research, the foremost pre-conditions are the state investment in population healthcare, formulation, and implementation of sound economic policies and resources, conducive environment, and growth opportunities. While every factor is crucial, the most influential factor

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[6] The previous population census was held I 1998

in turning youth bulge into demographic dividend is the state investment in education. The countries that fulfilled the pre-conditions, especially concerning education, managed to turn their youth bulge into a demographic potential and reap its fruits in terms of sustainable growth and development. Education in this way is the transformative force that can turn inferior quality humans into worthy human capital (Nayab, 2007; Sathar, Royan, & Bongaarts, 2013). Education thus is an essential social commodity for growth and development. Still, unfortunately, it remained one of the least critical areas in the public policy domains when seen in Pakistan. This criminal negligence is apparent from the educational profile discussed in the following section:

2.1.2   Educational Profile of Pakistan:

The total population of any society can be classified into two major groups concerning education, i.e., literate and illiterate. A globally accepted differentiation criterion for illiterates and literates is explained through an individual's inability or ability to read and write. Thus, as per the globally accepted definition, illiterate cannot read or write, whereas literates can read or write. The literates in the society are further classified into two subgroups based on their acquired reading and writing abilities. Those who developed reading and writing skills without attending any educational institute are literates with no formal education. Those who participated at any educational institute are called literate with formal education. Illiterates and literate with no formal education are usually considered uneducated individuals. Those who attended educational institutions refer to educated based on the schooling they acquired in a formal educational setup.

As widely used in this research, the term education system refers to the whole infrastructure to facilitate formal education. With this definition, Pakistan's educational system is classified into eight levels of education, segregated by the age and year of schooling completed. The first or the most basic level, usually called pre-primary, involves children in the age bracket 3-4 through specialized institutes called nursery or Montessori schools. These schools, through various

activities, prepare pupils for more formal education starting from the age of 5 years. The pre-primary level is followed by the second level called Primary Education, provided through primary schools, dealing with five years of schooling/education of pupils in the age bracket 5-9. Followed by Primary education is the third level, usually called middle level or lower secondary level. Provided through middle schools, a lower secondary level of education deals with the 6-8 years of schooling for the children in the age bracket 10-11. The secondary or upper secondary is the fourth level of education with schooling years 9-10 dealing with children aged 13-14 years at secondary schools. A particular class of secondary schools that deals with the schooling years 9-12 are called higher secondary schools. The fifth level follows the secondary level, the Intermediate level, which refers to 11-12 years of Education at Higher secondary schools or intermediate colleges. The sixth level of education is called bachelor/degree level that refers to 13-14 years of schooling at degree colleges or universities. The seventh level of education is called master's level that refers to 15-16 years of schooling at graduate colleges or universities. The eighth level of education that deals with 17-20 years of Education (M.Phil., Ph.D.) at universities is called post-graduate level. Education years from 13-20 are collectively called higher education. Some studies use the classification as Primary (0 to 5 years of schooling), Secondary (6-10 years of education), and Tertiary (above ten years of education). Apart from the usual eight levels, some specialized institutes provide technical education and religious education (AEPAM, 2017).

According to the recent Labor Force Survey 2018, 62.27% of the total population in age-cohort ten and above is literate, leaving behind 37.73% illiterate. 1.55 % of the literate population has no formal education, whereas 60.72 % has attended a formal educational institute. In rural areas, 46.66% of the population is illiterate, and 53.34% are literates - 1.14% have no formal education, whereas 52.20% have formal education. In contrast, 23.45% of the urban population is illiterate, and 76.55% is literate - with 2.19% without formal education and 74.35% literacy with formal education. These stats show an apparent rural-urban disparity, with rural areas having greater

illiterate populations. The educational gap is more pronounced when gender is accounted for in rural and urban areas, with males being more literates in rural and urban areas. With a 64.66% literate population, Punjab is the most educated province of Pakistan, followed by Sindh, KPK, and Baluchistan. Similarly, Punjab has the most formally educated literate population, whereas KPK is the province with the least literate population with no formal education. Baluchistan has the lowest percentage of the formally educated population, whereas it has the highest percentage of uneducated literates and illiterates. Furthermore, there is a gender disparity concerning education at the national level and for each province as the male population has more literates than the female population. KPK has the highest percentage of literates for the male population, followed by Baluchistan, Sindh, and Punjabis. However, the Punjab province leads with a higher rate of literate females for the female population, followed by Sindh, KPK, and then Baluchistan (BC), as shown in Appendix Figure A.3 and Figure A.4. Within the group, the percentage of illiterates is higher for the female population in urban and rural areas at the national level and in each province except Punjab. In urban areas, 76.55 % of the total population (both sex), 82.16% of males, and 70.59% of the female population in the age bracket ten years and more are literates. In rural areas, 53.34% total population (both sex), 66.31% males, and 40.47% females in rural areas of Pakistan. By education, most of the male and female literate population for rural and urban areas is literate with formal education. A similar division exists for all the four provinces where the urban population is more literate and educated than rural areas. The statistics presented in the appendices Table C.1 and Table C.2 for overall, male and female populations show an apparent disparity in rural and urban areas, with rural areas having more illiterate people. By level of education, most of the literate population with formal education falls in the middle or below primary education levels. The percentage of the population is higher for a lower level of education which substantially drops at higher levels of education. At the national level, 7.43% out of 60.72 % literate population with formal education has below the primary level of education, 17.52% has

primary but below middle education,11.94% has a middle, but below matric education, 11.94% has matric. Still, below the intermediate level of education, 5.93% with medium but below degree level, and 5.96 % have a degree and above level of education. Like the national level, this pattern persists in every province for both males and females, as shown in Appendix Figure C.1 to Figure C.3.

2.1.3   Educational Infrastructure and Enrolment

According to the Economic Survey of Pakistan 2017-18, 261970 institutes serve the educational needs of 137 million population in the age bracket 5-25 with an aggregate enrollment of 40.32 million. A total of 172500 institutes with 522400 teaching staff deal with the 22.9 million enrolled students at the Primary level. Forty-six thousand seven hundred institutes with 448100 teachers serve 7.36 million enrolled students in the middle class. An infrastructure of 31400 institutes with 563300 teachers is available to help secondary education with 3.86 million enrolled students. Furthermore, 5800 Higher Secondary schools and Intermediate colleges, 3700 Technical and vocational institutes, 1659 Degree Colleges, and 211 Universities deal with the educational needs of 4.3 million enrolled students at higher levels. In addition to conventional education, 32271 religious institutes (Madaris) provide religious education to 2.26 million students (MoF, 2018). If we look at the capacity of educational infrastructure, the following Table 2.1 explains per institute enrolment, teachers, and the student-teacher ratio at each level of education. The primary level of education has the highest student-teacher ratio of 44, which is almost double the world average of 23.44 according to world development indicators, 2018. This same state of affairs indicates the deficiency of infrastructure and human resources to facilitate the education of 23 million out-of-school children.

Table 2.1: Per Institute Enrolment, Teaching Staff and Student-Teacher Ratio 2017

Level of Education	Enrolment	Teaching Staff	Student Teacher Ratio
Primary	133	3	44
Middle	158	10	17
Secondary/High School	124	18	7
Higher Secondary Schools	291	21	14
Technical and Vocational Institutes	117	5	24
Degree Colleges	364	25	15
Universities	7464	270	28

The teacher-student ratio for other levels is reasonable except for the specialized institutes for technical and vocational education. In addition, the profile of Education in Pakistan is further worsened by striking disparities concerning gender and socio-economic status. Coherent with the pattern observed in section 2.1.2, a substantial gender gap exists with males outnumbering females for enrolment at every level of education based on various constraining factors like culture, poverty, availability of infrastructure, and safety concerns. With these disparities, there is an apparent inequality in terms of enrolment, both Gross Enrollment Rate (GER) and Adjusted Net Enrollment Rate (ANER) at every stage of education, as shown in the following Table 2.2:

Table 2.2:Gender Wise Enrolment 2016-17

Entity	GER (%)				ANER (%)		
	Pre-primary	Primary	Middle	Secondary	Primary	Middle	Secondary
Male	89	104	59	38	83	53	35
Female	78	90	50	29	72	45	27
Total	84	97	55	34	77	49	31
Gender Parity Index	0.87	0.87	0.86	0.76	0.87	0.85	0.77

According to AEPAM (2017), Pakistan has 22.84 million out-of-school children in the age bracket of 5-16 with 5.06 million children of primary-school-age, 6.51 million of middle school age, 4.97 million of high school age, and 6.29 million of higher secondary level. In 22.84 million out of school, children females account for 53 percent compared to 47% of male children. If we look at the regional comparison, Pakistan has the lowest GER at each level of Education in South Asia.

In addition to this, Pakistan has the lowest persistence rate and second-lowest completion rate for the primary level of education. Based on various studies, an average student-teacher ratio between 35-50 is considered appropriate from both the institute as well as student perspective by keeping in mind long term success and students' academic performance, teacher's workload, and institutional costs (Arias & Walker, 2004; Bruhwiler & Blatchford, 2011; Dynarsky, Hyman, & Schanzenbach, 2013). With the current capacity of each institute and given student-teacher ratio, Pakistan needs to double its primary and middle-level school infrastructure to facilitate the education of 22.84 million out-of-school children.

Contrary to the requirements, resource allocation describes an alarming situation as historically, Pakistan has had less than 2 % of its GDP for Education each year in the last seven decades. With these allocations, Pakistan is spending least as a percentage of its total income and expenditures on education compared to its regional partners in South Asia[7]. Thus, a lack of resources and infrastructure to enroll, retain and progress millions of school-going children, when coupled with a lack of intent by the state to invest in education, costs every domain of development in Pakistan (Zaidi, 2015).

2.2   Profile of Rahim Yar Khan

With a total area of 1180 Square Kilometer, Rahim Yar Khan is the fourth[8] largest district of Punjab province. Geographically, it is situated in the southern part of Punjab, surrounded by Muzaffargarh district on the north, Bahawalpur district on the east, Rajanpur district on the west, and Indian district Jaisalmer as well as Ghotki district of Sindh on the west. Rahim Yar khan was known as Naushehra as a part of the princely state of Bahawalpur and was renamed in 1881 by the ruler of Bahawalpur, Nawab Sadiq Khan IV, after his first son Rahim Yar Khan. Rahim Yar Khan

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[7] According to World Bank Data Portal
[8] Bahawalpur (24830 KM^2), Rajanpur (12319 KM^2), and Dera Ghazi Khan (11922 KM^2)

remained the part of Bahawalpur State until 1943, when the government of Pakistan gave it the status of a separate district of Punjab. Rahim Yar Khan is a population with varying ethnic, religious, and political backgrounds on socio-political fronts. By religion, Rahim Yar Khan is a dominant Muslim district. As per the recent population census[9], the Muslim population accounts for 97 % of the total population, whereas the rest includes 1.78 % Hindu, 0.48 % Christians, 0.08 % Ahmadis, 0.56 % Scheduled Cast, and 0.37 % from various other religious affiliations. Rahim Yar Khan is home to 63% Saraiki, 27 % Punjabi, 3% Urdu speaking, 2 % Sindhi, and the rest of the 5% are Dari, Pashtun, Balochi, and others. Thus, Saraiki is the dominant local language of Rahim Yar Khan, followed by Punjabi.

Rahim Yar Khan is a vibrant stakeholder of national politics with 6 National Assembly seats and 22 provincial assembly seats. Few influential families such as Makhdoom, Syed, Choudhary, Warraich, Gujjar, Mian, and others dominate district politics. The most influential one is the Makhdoom family enjoying political authority since 1956 from the platform of various political parties[10]. From 1956 till 2018, the dominant families of Rahim Yar Khan district have an effective political representation in Parliament and Senate by securing various significant Federal and Provincial ministries such as Finance, Commerce, Education, Health, Transport, Revenue, Information, Local Government, Social Welfare, Excise and taxation, Food and agriculture, Commerce and Investment, Statistics, and Planning and development. Apart from holding these ministries, parliamentarians from Rahim Yar Khan also served as advisors to Chief Ministers and Prime Minister, Opposition leaders, Parliamentary Secretaries, and various other political positions. Despite being the influential part of almost every provincial and national legislature, politicians from Rahim Yar Khan failed to create value in terms of the district's social, economic,

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[9] Pakistan Population Census, 2017

[10] The information is extracted from the previous members database of Provincial Assembly of Punjab and National Assembly of Pakistan.

and political development. One common trait in all the political representatives from Rahim Yar Khan is that they represent various elites, i.e., feudal, industrial, and religious elites. Another common characteristic is that most politicians are heirs to the political influence that their families had enjoyed for generations. Thus, an elitist mindset and little attention to voters' concerns, as is a typical characteristic of dynastic politics, can be expected in Rahim Yar Khan. Demographically, as per the population census of 2017, Rahim Yar Khan is the fifth largest district in the Punjab province.[11] The district has 701,520 households with a total population of 4.81 million residing in urban as well as rural areas with a population density of $405.22 KM^2$. The population mix of Rahim Yar Khan has a sex ratio of 105.2 that includes 51.3 percent males and 48.7 percent females. By residence, 21.5 percent of the total population resides in urban areas, whereas 78.5 percent resides in rural areas. The total population of the district has grown at a rate of 2.27 percent from 1998 to 2017. The age distribution of the total population of Rahim Yar khan is summarized in Figure 2.1:
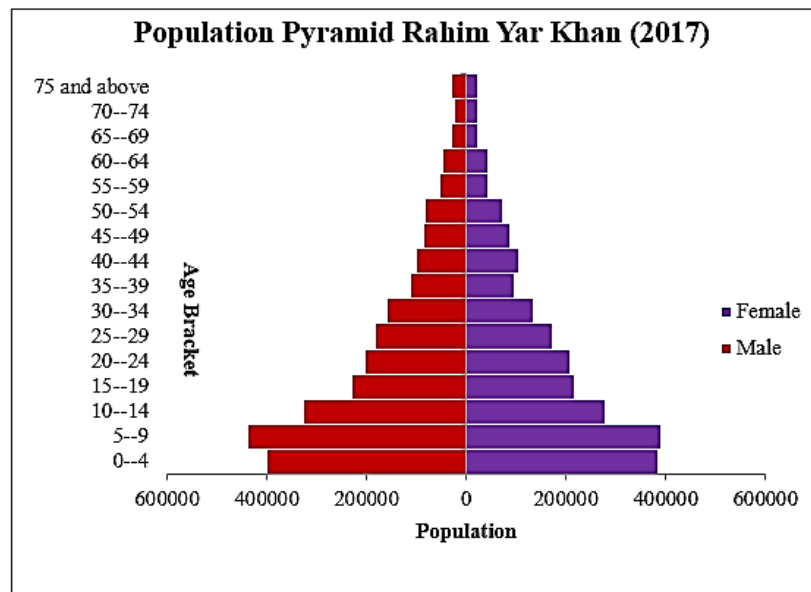
Figure 2.1:Rahim Yar Khan Population Pyramid (2017)

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[11] Lahore (11126285), Faisalabad (7873910), Rawalpindi (5405633), and Gujranwala (5014196)

As depicted in the population pyramid, the children (dependent population) (<15 years of age) account for 46.1 percent of the total population, with 24.2% males and 21.9% females. The age bracket 15-64 years of the working-age population accounts for 50.6% of the total population, with 26.1 % males and 24.5% females. Old age (dependent population) accounts for 3.2% of total population with 1.7% males and 1.5% females. The youth population (15-35 years of age) accounts for 31.3% of the population. The overall dependency ratio is 97.44 dependents per 100 working persons (15-64) with 91.1 children (0-14) and 6.3 Old aged (64+). Thirty-six percent of the total population aged ten years and above is economically active, with 29 percent working and 7 % unemployed. Sixty-five percent of the total working population aged ten and above falls in the age bracket (25-59), twenty-eight percent falls under 25 years of age (10-24), and seven percent is in the age bracket 60 plus. Sixty-four percent of the total population aged ten and above is economically inactive (the flip side being that only 36% is economically active) due to various reasons such as domestic work (46%), Studies (9%), Disability (2%), Retirement (1%), Landlords (1%), and various other reasons (5%). If we look at the age bracket 25-59, the proportion of economically active class rises to 44%, with Forty percent of these working and four percent being unemployed. The rest of the Fifty-six percent is not working on account of domestic engagements (47%), Studies (1%), Disability (1%), Feudal[12] background (2%), and Retirement (0.5%), and various other reasons (4.5%). Eighty percent of the working population is engaged in Agricultural Sector, whereas 20 % is engaged in Services and Industry (District Census Report, 2017). Socio socio-economically, Rahim Yar Khan is one of the least developed districts of Punjab province. As evident from the Pakistan Human Development Report (2017), Rahim Yar Khan is the fourth-worst district in Punjab as per the district-wise Human Development Index and district-wise

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[12] Landlords getting income from huge amount of land without working by their own selves.

Multidimensional Poverty Index. The district has accumulated 56.8 % of the total population facing Multidimensional Poverty with an average intensity of 50.8 (UNDP, 2017). Most of the multidimensional poverty facing Rahim Yar Khan is explained by education deprivation with 45.6% contribution to MPI, followed by Living Standard deprivation 29.3 %, and then Health deprivation 25.1 %. On the education front, Rahim Yar Khan is the second worst district in Punjab, with 66.9% of the total population aged ten years and above without education, and 30% of the children aged 6-16 are not attending school (GOP, 2017). One percent of the total 33.1% literate population has informal education, whereas 99% percent has attended the formal educational institute. Only four percent of the total formally educated population has professional qualifications. Out of the professionally qualified population, 31% have qualifications related to education, 11 % related to Health, 14% Engineering and technical, 10% Law, 6% Business and Commerce, 6% Agricultural, 18 % Religious and 5% enjoy professional qualifications in rest of the fields. The proportion of literates falls to 27% in the population in the 25-59 years cohort, with 99% having enjoyed formal education and 1% being through informal education. In this cohort, 6 % out of the total formally educated population has professional qualifications/education. This poor state of education is attributed to several resources, infrastructural and political constraints depicting the inability of the state towards providing appropriate quantity and the quality of education to almost 5 million population of Rahim Yar Khan.

On the health front, Rahim Yar Khan is the second-worst district of Punjab after D.G. Khan in underweight prevalence for children aged 0-59 months; the third-worst district in Punjab is stunted growth second-worst in Punjab for a prevalence rate of wasting[13]. With these indicators, Rahim Yar Khan has a child mortality rate of 109 per 1000 births, whereas the infant mortality rate is 85 per 1000 births. Parameters of adult health are also not so satisfactory due to a higher number of

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[13] 21.6% moderate & sever and 6.0% Severe.

cases regarding various diseases compared to other parts of Punjab province (GOP, 2017). The health infrastructure of Rahim Yar Khan also depicts a dismal state of affairs with a total of only eight public hospitals, 64 dispensaries, 19 Rural Health Care centers, 107 Basic Health Care centers, 2 T.B Clinics, and only 7 Maternal and Child Health care center to cater the needs of 4.8 million population (GOP, 2017).

As depicted in the Punjab Development Report 2016, the situation of law and order is also poor. Seven percent of the total crimes reported in Punjab occur in the Bahawalpur division comprising three districts, viz. Bahawalpur, Bahawalnagar, and Rahim Yar Khan. Forty-two percent of the total crimes in the Bahawalpur division have been reported in Rahim Yar Khan with 41 % of murder cases, 36 % of Attempt to murder cases, 44.08 % of hurt cases, 46 % of Assault cases, and 35% of the total rape cases. Apart from these, 75 % of the total riot cases in the Bahawalpur division have been reported in Rahim Yar Khan (GOP, 2016).

In conclusion, Rahim Yar Khan is the fourth-worst district in Punjab in human development and the fourth poorest district concerning Multidimensional Poverty. This entire state of socio-economic development depicts the failure of Rahim Yar Khan to achieve sustainable development despite an influential political representation from Rahim Yar Khan in every democratic and military regime in the form of Cabinet members, Governors, Chief Ministers, and Senators. This situation depicts a failure of the state and its social, economic, and political institutions towards generating efficient outcomes for providing a prosperous and sustainable living to the people of Rahim Yar Khan. Now the question arises here, was it the lack of; resources or the will of those at the helm or the quality of the massive uneducated population responsible for the failure of Socio-Economic and Political institutions in Rahim Yar Khan?

There may be various interpretations of the institutional failure referred to above. Still, this study has tried to explain the failure of institutions in promoting growth and development through the

linkages of education with 'Individual Quality.' Thus, the present study attempted to answer the earlier questions by assuming individuals as the 'mean' and 'end' in the development process. A comprehensive assessment of 'Individual Quality' with the lens of capability approach has been carried out to explain the importance of education in defining individual capabilities and, hence, individual quality as discussed in chapters 6 and 7.

Furthermore, the cost associated with lack of education is carried to explain the inefficiencies concerning the massive 67 % less educated population in Rahim Yar Khan. In conclusion, the next chapter discussed the previous research on the interconnections of education with various facets of individuals and societal development.

2.3 Critical Analysis

A miserable state of education, on the one hand, depicts an inherited disability of the nation towards achieving higher growth and hence sustainable development and, on the other hand, is a significant source of various social, economic, and political problems of Pakistan. In this way presence of a gigantic illiterate and less educated population is costing the development of Pakistan in every sphere (Zaidi, 2005; Rizvi, 2000; Martínez and Fernández, 2010; UNESCO, 2011; OECD,2011; HDR, 2011; Krueger and Lindahl,2001). This situation is evident from Pakistan's ranking on various global measures/indices covering political, economic, and social domains.

Politically, Pakistan's ranking of 189 out of 195 states on the Global Political Stability Index depicts it as the world's 7th most unstable political landscape. In addition to political instability, Pakistan is ranked 120th out of 180 countries on the Corruption Perception Index 2019, depicting the state of fair dealings. According to Global Prosperity Index 2019,[14] Pakistan is ranked 140th out of 167 states with 156th place concerning Peace and security, 122nd for personal freedom, 120th

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[14] Legatum Prosperity Index 2019.

for governance, 127th for enterprise conditions, 128th for market access and conditions, 138th for economics quality, 121st for living conditions, 127th for health, 133rd for education and worst for the natural environment with 167th place.

Figure 2.2: Pakistan on Global Indices

Furthermore, Pakistan is amongst the top ten states with a flawed rule of law as according to the recent Rule of Law Index 2019, Pakistan is ranked 117/126. According to the recently published report of the globally recognized Human Development Index, the poor performance of Pakistan also verifies this situation. With 67.1 years of life expectancy at birth, 8.5 expected years of schooling, 5.2 means years of education, and $ 5109 GNP per capita (2011 PPP), Pakistan is currently occupying 152nd place out of 189 countries for overall Human Development and Gender Development. Also ranked 136th according to Gender Inequality with a maternal mortality rate of 178 deaths per 100 live births, the adolescent birth rate of 38.8 births per 100 women aged 15-19, twenty percent share of seats in parliament 26.7 % female population with at least secondary education in comparison to 47.3 5 of males and 23.9% of labor force participation for females aged 15 and more in contrast to 81.5% of males. Furthermore, it is a house of 38.3% poor population according to Multidimensional Poverty Index 2019. Moreover, due to unskilled labor force, inefficient and outdated technology, corruption, and poor governance, Pakistan ranked 110th out

of 141 economies regarding global competitiveness, according to the recently published report[15]. The report ranked Pakistan 29th largest economy according to market size, 52nd dynamic business environment, and 79th state concerning innovative potential. Despite this, the state is considered to be lacking a long-term view of competitiveness with a mediocre ranking of Pakistan for the rest of 9 out of 12 pillars of Global Competitiveness, i.e., Institutions (107), infrastructure (105), macroeconomic stability (116), ICT adoption (131), Health (115), skills (125), product market (126), labor market (120), financial system(99).

In addition to Pakistan's poor global rankings, the workforce's average productive capacity is way behind the economies with a higher proportion of the educated population. The schooling-wage relationship has comprehensively explained that the productivity of an educated person on average is 40 to 50% more than an uneducated person. With this observation, an economy relying on an ignorant or illiterate labor force bearing an economic loss of almost half of the total output.

In the light of the above discussion, if we look at the Economic, Social, and Political dynamics, Pakistan, with the second-highest illiterate population in South Asia and the 18th highest illiterate population globally, is facing a crisis in all domains. ***Economically,*** Pakistan's productive efficiency, competitiveness, innovativeness in all major industries, including agriculture, are lowest compared to its productive potential. Among many, a key factor seems to be the uneducated and poorly skilled labor force. We can calculate the economic loss due to an ignorant population by comparing the current and potential production. ***Socially***, the level of human rights violations, crimes, gender issues, terrorism, extremism, and feudalism are typically at a higher proportion in the uneducated population and directly or indirectly impact economic development in the state. As per Cree et al. (2012), 85% of the prisoners involved in different types of major or minor crimes

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[15] Global Competitiveness Report 2019

in the developing world have no education. One of the significant causes of underdevelopment in rural Pakistan is the hold of the feudal system that only stands upon exploiting the massive uneducated poor population, which restricts them from participating actively in the economic and development process for their own and overall social welfare (Reference). ***Politically,*** Pakistan is ranked among the top fragile states where democracy is only symbolic without any natural fruits for the ordinary person. One of the primary reasons for this fruitless political system is the massive uneducated population, less able to take a rational and practical political decision on merit. This situation has the potential to lead to the election of inefficient or incapable political leadership. If this happened, it hurts overall development through nepotism, corruption, bad governance, wrong policies, and inefficient uses of resources and authority. These practices, at one end, weaken the confidence of foreign investors due to inconsistencies in policies, committing a heavy economic loss and push the nation into depths of desperation. On the other hand, invite non-political forces to occupy the state machinery, which is evident from more than three decades of military rules in the overall history of Pakistan. This indirectly cost the nation in terms of fragile political systems that severely impact state sovereignty and development (PILDAT, 2004).

This research highlights the importance of education for growth and development. According to the framework explained in chapter 4 for Pakistan and Rahim Yar Khan, we have examined the cost of poor educational profiles. The aim is to instigate the state towards its negligence concerning education. In light of objectives explained in chapter 1, the present study has successfully highlighted the massive wastage of income potential Pakistan faces by inefficient or insufficient investments in education, leaving the nation with a gigantic uneducated population. This research is significantly crucial in achieving sustainable development goals by the year 2030, given the window of opportunities wide open for Pakistan going through its demographic transition. The next chapter in this pursuit has discussed the literature addressing linkages of education with the various domains of development.

CHAPTER 3.

LITERATURE SURVEY

Given the objectives of the thesis, this chapter seeks to provide insights regarding the role of education in the social, economic, and political development of individuals and societies. The review of literature is organized into two parts. The first part involves the examination of literature with a broader theoretical perspective on the association of education with social, economic, and political development. A substantial body of research has identified education as a key determinant of the economic, social, and political growth of individuals as well as societies. Individuals with better education are recognized to have more social, economic, and political freedom, as explained by Sen (2003), and hence can have access to a broader set of functioning in all three domains of wellbeing. The flipside is that deprivation of education defined by lack of education deprives the individual and society of economic, social, and political freedom and hence adversely influences what they can do or what they can achieve in their social, economic, and political spheres. The academic work addressing the potentials of education towards the individual as well as societal wellbeing; Economic, Social and Political Spheres is discussed in sections 3.1 to 3.3.

3.1   Education and Economy:

Education as an important determinant of the individual as well as aggregate growth and development is a long-standing tradition in the empirical and theoretical findings of economics and political literature. Earlier in the 18th century, education was an agent of positive change in society from different perspectives, both economic as well as non-economic. But, later, since recognition of economics as a full fledge field of study into the broader domain of social sciences after the seminal work of Adam Smith in 1776, the economic importance of education received

some extra impetus for literary work. Since then, education's significance for the economic development of individuals as well societies has been studied from different perspectives.

Prior work in the late 18th and 19th centuries mainly focused on the importance of education as a causing factor, but later developments in the 20th century came up with some value-added analysis in the form of the Human Capital Approach, which recognized education as a triggering force for many positive externalities at the individual as well as societal level, in addition to its economic worth.   Before the twentieth century, education has developed the status of a potential commodity with a certain value for an individual's aesthetic appreciation, citizenship, and general culture. Most of the economic utility of education was explained through the societal parameters with fewer academic efforts recognizing the greater potential of education as a direct impact factor for wealth production, growth, and development. Given these circumstances, Ellis (1917), in his important work on the "Money value of education," questioned the obliviousness of literature towards identifying education as a vital source for the production of wealth. According to Ellis (1917), the quantity as well as the quality of education matters in addition to different social, political, and family-related characteristics for the production of wealth at the individual as well as at the collective level. By controlling the effects of existing wealth and ability at the individual level, he has shown through various examples that an extra income or wages premium exists for those having more education. He also explained the state's role in wealth creation through education and has shown a positive association between a state's investment in education and its wealth-producing capacity as well as productivity. Later research by Fisher (1932) suggested that education improves the skills of individuals and makes them more efficient and hence creates a wages premium for them, which positively impacts their income or production of wealth. Following the general conclusions of Ellis (1917) and Fisher (1932), many other researchers in the later parts of the 19th century have empirically confirmed education as an important determinant of wage premium. Researchers have arrived at this common conclusion while different data

sources, techniques, and contexts and while controlling for ability, family income/wealth, gender, race, age, industry and (Miller,1960; Glick and Miller, 1956; Houthakkar, 1959; Miller, 1960; Renshaw, 1960). The later part of the twentieth century has seen another interpretation of the association between education and wages through the lens of demand and supply of labor. It has been explained that the wage premium declines with a rise in the supply of more educated individuals. It is because of the availability of more educated individuals against fewer opportunities and hence tends to reduce the wage rates (Goldin and Katz, 1995, 2001; Goldin, 1999).

Another perspective explaining the linkages of education with social and economic outcomes stresses the importance of education towards creating a bunch of positive externalities essential for the growth and development of individuals as well as societies. This perspective, as pioneered by Walsh (1935) through his influential work "Capital concept applied to man," argues that investments made to humans are equally important as investments made in physical capital for the growth and development of a society. One of the important investments, as explained by Walsh (1935), is an investment for educating individuals, in addition to enhancing the technical skills, improve the thinking abilities and visions to optimally respond in different social, economic, and political spheres. Education, on the one hand, directly impacts the earning potential/ lifetime earnings, and on the other hand, it provides handy tools and information for cost reduction and value enhancement in different other areas such as physical, mental, and social health, desire for innovation, longings for a better environment, and stable socio-political system. This perspective, later called Human Capital theory, emphasized investments in human resources to create private as well as social returns of these investments. Private returns are purely related to the individual's cost and benefits of investment in education. This perspective explains how the direct cost as well opportunity cost individuals incurred to seek education add value to the life and productivity of individuals and how this improves the earning prospect at some future times (Walsh,1935; Mincer,

1958,1962,1970,1974); Schultz, 1961; Becker, 1964). Individuals' investment in formal education creates positive signals regarding their abilities, skills, and set of information which makes them attractive to employers and raises their chances of employment. Their skills gained through education, when coupled with their work experience, makes them more competitive in the labor market to have more private return in terms of higher current earnings and to accumulate more lifetime wealth than those with less Education (Mincer, 1974; Becker, 1975). As far as social returns are concerned, these are explained by the investments plus opportunity costs (if resources are limited, then a state has to divert resources from other areas to invest in education) incurred by the society towards educating an individual and the benefits associated with these investments. So, educating an individual by the society does not only create value for that individual, but it is also equally valuable for the whole society as it will enhance the productivity and earning potential of the whole society. The flipside is lower productivity and inadequate earning potentials of individuals, stimulating various socio-economic problems such as poverty, poor law & order, crimes, conflicts, corruption, poor health, etc. (Riddell, 2006). Thus, education, as widely recognized in contemporary research, is the key lever of individual, societal, and global growth and development. It is firmly established through research that long-lasting and sustainable development requires a vision of inclusive societies, and the inclusiveness of a society depends upon the quality of institutions. The quality of institutions, in turn, depends upon the quality of humans behind these institutions. The quality of humans depends upon various factors, with the most important, as per the human capital approach, is education. Thus, development depends upon good inclusive institutions which cannot be developed without quality humans, and quality humans cannot be produced without investing in education and providing productive opportunities to the produced human capital (Becker, 1993; Riddell, 2006; Acemoglu and Robinson, 2011; UNESCO, 2012).

At one end, on pure economics grounds, education contributes to personal growth and development of individuals but also creates values for the society as a rising level of education through the channel of higher earnings will reduce the dependency of individuals for their economic needs, and it will enhance the level of contribution for the welfare of society through payment of taxes on higher earnings. Better educated individuals in this way have a better standard of living on one hand and have a positive contribution towards the overall well-being of society, the other hand (Baum and Payee, 2004). *The flipside* is that a lack of education is associated with a lower level of earning and hence dependence. This pushes society into deep trouble of poverty, which increases the dependence level of individuals for their needs on the state. The state in such situations diverts precious developmental resources to combat poverty and to meet the needs of the dependent population rather than creating opportunities for growth.

3.2   Education and Society

Given massive research on the linkages of education with economic outcomes, a substantial body of research professes that the effects of education are not limited to the economic outcomes. Education is explained to have the potential which enables individuals as well societies to sustain themselves in the face of a nervy and complex world. Researchers have comprehensively identified the positive implications of education on the social attributes of individuals as well as whole societies. They have shown the effects of education on an individual's physical, mental, and social health, civic responsibilities, social cohesion, and interaction in heterogeneous societies (Schuller, Preston, Hammond, Brassett-Grundy, & Bynner, 2004; Riddell, 2006). Education is seen to have positive impacts on the physical as well as psychological health of individuals. In addition, education has the potential to affect family life, intergenerational communication, and people's ability and motivation to participate in civic and community life (Schuller, Preston, Hammond, Brassett-Grundy, & Bynner, 2004). The literature on the social benefits of education is organized

into three sections addressing the role of education towards individual's civic responsibilities, tolerance, and health behaviors.

3.2.1 Education and civic responsibility:

Central to all aspects of public sector activity is the literary conception of law abidance, projected as an important element of good governance. Public entities use compliance of law and individual law-abiding behavior as a prerequisite of good governance to achieve efficient public sector outcomes. Researchers from political, legal, economic, and social backgrounds put efforts to find different factors shaping the law-abiding behaviors of individuals. For economists, law-abiding behavior depends upon the costs and benefits of following or breaching the law. Economic perspective explains that all factors which reduce costs or increase benefits of law breaking are more likely to create a negative impact on the law-abiding behavior of individuals (Friedman, Law's Order: What Economics Has to Do with Law and Why It Matters, 2001; Stone, 2016; Bigoni, Bortolotti, Parisi, & Porat, 2014). Legal, Social and political perspective argues on the level of ethics, personal satisfaction, pride, socio-economic and political status, quality of socio-economic and political institutions and trust on state infrastructure as the determining factors for law-abiding behavior of individuals (Hinds & Murphy, 2007; Tyler, 2008). With various interpretations, education is widely recognized as an important factor having a prodigious potential to impact an individual's behavior regarding the rule of law in all spheres of life and hence is considered an important determinant of the law-abiding behavior of citizens. According to one perspective, education creates awareness towards the importance of law for order, fairness, contract enforcement, security of property rights, and smooth and transparent execution of institutions in a society and hence urge citizens to positively respond to the rule of law. This awareness creates the realization to follow the rules and regulations as well as avoid and identify violations of law for the growth and development of a society (Tamanaha, 2007). Education, in

this way, has the potential to create demand for enforcement of contracts, the rule of law, and private property rights by encouraging people to follow, "Law does and should rule." Moreover, an increased level of awareness also enables citizens to hold political powers accountable and thus maintaining social order (Tamanaha, 2007). Another perspective, as explained by Orviska & Hudson (2006), saw education with a potential to escape the rule of law. According to this perspective, education provides skills and superior access to necessary information, which Individuals use to escape the rule of law to maximize their private benefits. Using British survey data for the years 1966, 1995, and 2002, Orviska & Hudson (2006) have tried to analyze if people are more concerned about their private benefits in violating the law. They found that significant determinants of law abidance are levels of education, social cohesion, neighborhood characteristics, and trust in the legitimacy of the state. The analysis concludes that a higher level of education as a proxy of pride proxies in or support for the country may lead to a lower level of law abidance. The main reasons for this finding could be that with a high level of knowledge, people presume less need of law as guidance and, they may have a lack of trust in the state's agents. Education ensures respect for human rights, social differences, and the rule of law and hence helps in reducing violent conflicts and terrorism through raising awareness, designing better policies, and creating a constructive environment in the community. Educated people are less vulnerable to private as well as institutional deception. Education makes people aware of their rights, obligation, and different rules in private, as well as public domains and hence, make them able to identify violations of law. This at one end makes them able to avoid different kinds of deceptions and on other end enable them to raise voice against law-breaking behaviors of individuals as well as institutions (Tyler & Darley, 2000). More educated people are assumed to have more information than less educated ones. This extra information, as explained by literature, can be utilized in a negative as well as positive manner. It could be a source of exploitation, and it could also be a source of avoiding exploitation. More education on hand increases the likelihood of individuals to

identify and avoid different types of institutional as well as private scams. But, if the social, economic, and political institutions to enforce the rule of law are weak in a state, then education has the potential to provide multiple ways for deception or corruption as well as escape routes for the corrupt individuals (Friedman, 1990).

3.2.2 Education and Tolerance:

Individuals, the fundamental units of a society, are identified by their segment[16] characteristics and their social integration relevant to their segment of association. If we look at the structure and formation, the Rahim Yar Khan district is a perfect case of a heterogeneous society based on varying demographic, economic, social, political, and religious characteristics. People living in such heterogeneous societies are vulnerable to intolerant behaviors due to their interaction with individuals from diverse backgrounds and characteristics. These intolerant behaviors motivated by their economic, social, ethnic, religious, and political affiliations are likely to create conflicts at the individual as well as collective levels and hence impact individual as well as aggregate growth and development. Next, we review literature examining the causes of intolerance and how intolerance may impact individual as well aggregate development of heterogeneous societies? The effectiveness of education in mitigating intolerance is also discussed.

A lot of economic, socio-political, demographic, ethnocultural, and religious factors at the micro as well as macro-level are recognized to be the main source of intolerance in heterogeneous societies. The behavior of individuals towards accepting difference of opinion and hence depicting tolerance is defined by the macro environment and influences under which an individual grew up and operated as well micro influences based on their personal attributes and preferences. When we talk about the macro environment, one of the important determinants of tolerance in heterogeneous

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[16] Ethnicity, Religion, Social Class, Economic Class, Political Class, Gender etc.

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societies is the broader environment in which a person grows (Helbling, 2014). Persons who grow up under liberal practices with the greater quotient of acceptability of differences tend to support the liberty of others while living in diversity. In contrast, the individuals who grow up under rigid and radical practices tend to depict rigidities in accepting alternative perspectives or philosophies and hence express intolerant behaviors towards differences (Helbling, 2014).

Rubin, Taylor, Pollitt, Krapels, & Pardal (2011), in their study on Intolerance, found a strong negative association between macroeconomic stability and intolerance in a heterogeneous society: A heterogeneous society with the weaker or fragile macroeconomic setting may induce inequality/injustice/ and unfair resource distribution among heterogeneous groups and hence intolerant social interaction which led to conflicts in the society. Such interactions then push economies further into poverty and economic fragility. Economic prosperity, in this way, is seen to be inversely associated with intolerance, but the current state of affairs in most of the developed economies is negating this argument where intolerance is growing despite stable macroeconomic conditions (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011; Bandyopadhyay, 2002). Furthermore, the nature of dominant social, ethnic, political, and religious institutions and stakeholders of society are also determining factors of tolerance /intolerance. Institutions with inclusive foundations tend to promote greater acceptance and acknowledgment of alternatives views and differences, whereas institutions with extractive landscapes tend to exploit differences for extractive resolves and hence end up a divided, discordant and intolerant society (Robinson & Acemoglu, 2012).

Social trust and contacts among diverse groups or classes are also found associated with intolerance in a heterogeneous society. The political, ethnic, and religious orientation of individuals in a heterogeneous society is the other factor that has a greater potential for intolerance in a heterogeneous society. Dominant political, ethnic, religious, and social groups in less

developed heterogeneous societies are practicing their dominance for suppressing the minority groups. This bids up frustration among less dominant groups and incite intolerant interaction with the dominant groups (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011). In this context, the perceived similarities or dissimilarities are seen to be another important factor in defining intergroup tolerance. The individual and groups from diverse backgrounds with greater perceived similarities are more accepted in comparison to those with greater dissimilarities (Oudenhoven, Eisses, & Anne-Marie, 1998; Stephan, Diaz-Loving, & Duran, 2000; Costa-Lopes, Vala, & Judd, 2012; López-Rodríguez, Cuadrado, & Navas, 2017).

Another important determinant as recognized by recent literature on social tolerance in a society is how media frame various social, ethnic, religious liberties. A narrow-minded framing of issues in a divergent manner leads to intolerance in the society, whereas issues framed in a convergent and broad-mindedness, highlighting positivity, creates harmony and acceptance of alternative views and perspectives (Nelson, Clawson, & Oxley, 1997).

At the micro-level, the influence of family members, especially parents and practices followed by them, plays an important role in the intergenerational transmission of similar practices towards tolerance or intolerance. A conservative, radical, and intolerant family history are associated with similar behaviors in the next generations (Widom & Wilson, 2014; Black, Sussman, & Unger, 2010; O'Bryan, Fishbein, & Ritchey, 2004).

In addition to all these micro as well as macro factors or influences, education is also considered an important determinant of tolerance. How individuals perceive, learn, act or react over alternative perspectives and diversity, how they accept and respect others mainly depend upon their capabilities to understand micro and macro dynamics and influences defining tolerance. Education in this context is widely recognized as an effective means or instrument to make

individuals capable to better understand the dynamics of diverse societies and hence shape individual responses against difference (Vanwynsberghe & Herman, 2015).

It is generally described in the literature that societies with a pre-condition of heterogeneity are found to have a tendency of decline in rigidity and a rise in the acceptability of other groups and an alternative point of view with a rise in the average educational level (Case, Greeley, & Fuchs, 1989; Hello, Scheepers, & Gijsberts, 2002). Contrary to the general perception of literature, recent evidence has shown rising intolerance in societies with a higher level of education as seen in Western Europe (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011). Education is generally found to be a strong determinant of economic, social, ethnic, and political partiality. However, the effects of education vary across countries, and these variations are defined by different perspectives, mainly cultural and structural perspectives. By conducting multilevel analysis on the data from eleven European states, Hello, Scheepers, & Gijsberts (2002), have shown the cultural perspective as the dominant viewpoint over the structural perspective for explaining the cross-national variances in the strength of the educational influence towards socio-economic, political, and ethnic prejudice. So, they concluded that a state's political tradition and extent of social and religious heterogeneity are more important than ethnic composition and unemployment rate for the strength of the educational effect on ethnic biases. Despite these findings, education is still believed to be an instrument of harmonizing heterogeneous societies. It is recognized as an effective means for uniting individuals as well as groups from diverse backgrounds. Education is thus considered to have the potential of increasing the acceptability of the coexistence of diverse ethnic groups. Keeping in view this potential, the Council of European Union in 2009, while defining strategic objectives for achieving social cohesion and active citizenship in European states, has identified education as an important tool for creating intercultural competent, democratically stable, and discrimination-free society for positive interaction among individuals from different backgrounds and also for acceptance of fundamental human rights (Brese, et al., 2015).

3.2.3 Education and Health:

Education is immensely seen as a driving force for building general human capital. This view incorporates health as a key ingredient, and education is assumed to play a major role in defining the strength of human capital based on the sustainability of health in a wide range of circumstances. The effectiveness of education towards creating health differences and hence, building sustainable human capital is well documented and empirically supported by a huge literature addressing the linkages of education with health.

The most fundamental role of education, as explained by the literature, is to fill the void of missing information to create awareness for effective understanding and productive responses regarding different phenomenon's in multiple domains of life. With this, education's first response towards health is that it makes individuals able to understand different conditions which can impact their health, then, it makes them able to grasp the complex mechanisms and technological advancements for the improvement and sustainability of their health (Link & Phelan, 1995; Cutler, Deaton, & Lleras-Muney, 2006; Cutler & Lleras-Muney, 2006; Williams, Baker, Honig, Lee, & Nowlan, 1998).

A lot of literature has confirmed education as an effective means of facilitating the understanding, adoption, and effectiveness of public health care measures for the individual as well as societal welfare. The effectiveness of education towards health is not limited to a particular gender, race, and social class; its impacts are universal with some variation for every individual irrespective of their gender, race, and socio-economic status (Cutler, Deaton, & Lleras-Muney, 2006).

Education is believed to improve individual's ability to understand the importance of health and hence make them able to understand necessary health care measures. Based on this belief, a substantial body of research has confirmed the importance of education for women being a primary caretaker of children's health. Different studies in different parts of the world and at different times

have confirmed that more educated mothers will have healthier babies and are less prone to child mortality than those with a lower level of education. Cutler, Deaton, & Lleras-Muney (2006), examining the determinants of mortality across countries for multiple time periods in some specific countries like the UK and USA, find that individuals with a lower level of education have poor health status and are more likely to die younger than those having a better education. Another study by Rogers, Hummer, & Nam (2000) found similar results regarding the relationship between education and adult mortality for the United States. Another group of researchers finds mixed impacts of education level for the incidence of lungs, breast cancer, and cardiovascular diseases causing mortality. Adler et al. (1994) and Goldman & Smith (2002) find that a higher level of education is associated with lower probabilities of lung cancer and cardiovascular diseases causing adult mortality. On the other side, Link., Northridge, Phelan, & Ganz (1998) have observed an association of a higher level of education with more incidence of cardiovascular diseases and cancer. Poor health status and regular episodes of illness are assumed to have the potential of pushing individuals into economic troubles by affecting their productive abilities. Education in such situations serves as a form of protection against frequent episodes of illness and hence reduce the frequency of illness which pay in terms of longer working life and hence better lifetime earnings and living standards (Smith, 2003; Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003). It was found in the case of the USA that people who belong to the states where compulsory education laws were first adopted live longer than persons in other states. Similarly, mothers residing in countries with easy access to education have healthier babies (Currie & Moretti, 2003; Lleras-Muney, 2005). Similar impacts of education on an individual's health were found in the case of the UK and Ireland by Oreopoulos (2007).

In conclusion, summing up the findings regarding the linkages of education with health, literature has documented the need for better education to have healthier individuals because educations improve better eating habits, creates an understanding regarding the importance of exercise, better

earning potentials, lower frequencies of illness and lower chances of life-threatening diseases. This literature finds that people who are more aware of different health-related issues adopt preventive measures and go through regular medical examinations and therapies.

3.3   Education and Politics:

The benefit and importance of education are not confined to the social and economic spheres alone; it is seen as equally important for the growth, development, and stability of the political system, a system that involves who will get what, when, and how in a democratic nation-state (Lasswell, 1936). A political system involves a bunch of words and concepts like votes, elections, political parties, leaders, slogans, manifestos, bargains, government, decisions, policies, strikes, protests, opposition, rigging, manipulation, and many more. When seen in this context, politics, in simple words, is defined as a process that involves some stakeholders and their interaction for certain activities representing a public network dealing with public questions, controversies, bargains, settlements, and solutions of those controversies. Public questions generally referred to as public issues or political issues or political questions, are the questions concerning public problems along with the governmental decision-making process relevant to those public problems. Most often, public questions in contemporary democratic political context concern: the structure of authority in a state; control over structure and authority or control over government; the purposes for which authority is allocated to government; the way authority or power is exercised by the government; what constitute political elites; the mechanism through which a political party or elite gains the government control or authority; the use of authority for the betterment of whole society; a mechanism to avoid misuse of authority by the ruling political elite and many other questions covering political system. These questions involve some stakeholders, referred to as political participants, involved in the political system through the process of political participation. Political participation, with various forms, in this way is the mechanism through which individuals

participate in a political system and hence form a public network. Deth (2014), in his seminal work on conceptualizing political participation, comprehensively explained four variants of political participation. Political participation from the "Minimalists" perspective, as described by Deth (2014), is a set of voluntary activities by the citizens of a state regarding government or politics. Through the Minimalist perspective, Deth (2014) explained citizens' participation in the political system through three modes of participation, i.e., Conventional, Institutional mode, and elite-directed actions. The voluntary activities covering these three modes of participation include supporting a political candidate, party, or ideology, participating in election campaigns, vote casting during elections, submitting an official petition, and activism towards participatory arrangements, both financial and non-financial (Hooghe & Quintelier, 2014; Inglehart & Catterberg, 2002; Pateman, 2012; Kaase & Marsh, 1979; Albacete & Gema, 2014). Another variant is the targeted political participation which further has two categories: political participation targeted towards state/government/ politics and political participation for civic engagements. The first form encompasses activities for highlighting and mainstreaming the hidden as well as ignored issues/ problems by the government. Such participation is termed unconventional, non-institutional, and contentious political participation involving everyday activism, political actions, and protests targeted to the authoritative political elites' actions and government policies (Inglehart & Catterberg, 2002; Teorell, 2010). The third variant of political participation, which is, in fact, a form of targeted participation, is "civic engagement," which is directed to certain community problems through social or community participation and volunteering (Hay, 2007; Zukin, Keeter, Andolina, Jenkins, & Carpini, 2006). The fourth variant, expressive political participation, as explained by Deth (2014), involves political consumerism that comprises individualized collective action and personalized politics. This includes all non-political and voluntary activities by citizens to express their political intentions (Conge, 1988; Hay, 2007).

Whether voluntary, targeted, or motivational, whatever the variant of political participation, education is seen to be an important determinant for the level as well as the quality of participation in a political system. A substantial body of research on analyzing the determinants of political behaviors has documented direct as well as indirect association of education with political participation. Education is seen to impact political participation through two channels. First, education is recognized to have the potential of creating civic sense and awareness about the political environment, networks, actors, processes, and outcomes. This awareness or information set directly affects the political decisions and thus leads to direct implications for the political participation of individuals (Berinsky & Lenz, 2011). Second, education creates conditions for political involvement by easing various constraints in social, economic, and political domains. Education, in this way, defines the freedom of the individual to participate in the political system. The individual with better education have more wealth and resources to participate in the political process, they have more excess to information, are able to find and grasp political opportunities, and hence are seen to have more freedom to involve in the political system through various modes of participation (Rosenstone & Hansen, 1993; Berinsky & Lenz, 2011; Deth, 2014).

Thus, education, especially formal education, enable citizens to acquire essential knowledge and skill to effectively understand and communicate their individuals as well as collective concerns to the leading political stakeholders with certain authorities to solve the citizens' problems. Individuals with better education are thus more equipped with better skills and understanding of the complex political environment to cope with the abstract nature of politics, political issues, and political stakeholders. Hence, individuals with more formal education are recognized to be more vigilant in making political decisions and therefore positively influence the quality of political outcomes (Rosenstone & Hansen, 1993; Verba, Schlozman, & Brady, 1995; Dee, 2004; Tenn, 2007; Kam & Palmer, 2008; Sondheimer & Green, 2010). By using political involvement as a proxy for civic engagement, Milligan, Moretti, & Oreopoulos (2003) have analyzed the impact of

education on the quality of citizenship in the USA and the UK. They conclude that by eliminating the registration differences, education has a positive impact on the electoral process by way of increased participation of citizens, hence improving the quality of democracy. Their results vary for the US and UK based on the registration process. They find significant results for the US because the responsibility of registration (as a voter) lies on the individual in the US, while in the UK, it rests on regional electoral officers. Hence, the effects of education on civic responsibility are robust in the US (Milligan, Moretti, & Oreopoulos, 2003).

It is not the case that education always comes up with a direct positive effect on political participation; available evidence also suggests that an increase in the level of education is less influential towards increasing political participation than relative to social, family, and cognitive characteristics. It may influence the participation through a different route that how education impacts family characteristics, cognitive skills, and predictive powers of individuals, which makes them able to participate directly or indirectly in the political process (Berinsky & Lenz, 2011; Brody, 1978). There is mixed evidence of the direct impact of education on political participation; however, a significant body of literature has confirmed the indirect impact of education on political participation. It has been evaluated that education has a greater potential to impact different variants of political participation through the channels of higher status in the society due to higher earnings associated with a higher level of education, better cognitive skills, improved civic engagement, and more information available for assessment to the more educated individuals than less educated. In conclusion, education is considered an important determinant of political awareness, Political freedom, and political participation. Education makes individuals more capable and thus enables them to involve in a political system with a wider set of functionings in the spirit of Sen's capability approach (Sen, 1995).

3.4   Research Gap:

Regarding the importance of education in economic performance, Lutz et al. (2008) describe that "better education does not only lead to higher individual income but also is a necessary precondition for long-term economic growth. Education is a long-term investment associated with the growth and development of individuals as well as societies. A failure or inadequate investments in education make societies bear a chronic loss of income, both due to restricted productive capabilities and the dependence of illiterates or less-educated populations on state resources for their basic needs. Thus, lack of education poses costs on societies regarding lost productivity, fewer income generations, poverty, corruption, and social-political instabilities. While many studies, as discussed in the previous sections, illustrate the positive impact of education on socioeconomic and political growth, little research is done to quantitatively evaluate the cost of lack of education. The majority of studies on the effects of education focused on the direct and indirect consequences of relying on a less educated population in terms of social, political, and productivity issues (Beck, et al., 2011; Becker G. S., 1993; Bleakley, 2010; Hahn & Truman, 2015). The only credible study that tried to explain the costs related to illiteracy in terms of loss of GDP is a comprehensive report by Cree et al. (2012) from the platform World Literacy Foundation. By assuming a loss of at least 2 % of GDP, associated with lack of education, the report by World Literacy Foundation highlighted a massive USD 1.19 trillion loss of income associated with lack of education every year in emerging and developing countries. As per the parameters described by the report, lack of education costs Pakistan an estimated USD 6 billion and India an estimated USD 53.56 billion. The losses to China are pegged higher at USD 135.60 billion. Russia at USD 28.48 billion and Brazil at USD 27.41 are placed at the third and fourth places.

The sole study on the cost of a lack of education, conducted by the World Literacy Foundation, did not estimate but assumed that states with poor educational profiles would lose 2% of their

GDP. Given this situation, the credibility of Cree et al. (2012) cost estimates are easily questioned. Given this condition, there is a significant research vacuum in estimating the cost of lack of education. In order to fill the research gap, this study used a systematic approach based on Human Capital theory and estimates derived from Mincerian Earning Functions, which were then applied to labor force numbers to explain the cost of lack of education or a bad educational profile in Pakistan. The framework followed, data used, and estimation method consulted are discussed in Chapter 4 and Chapter 5.

CHAPTER 4.

MODELING FRAMEWORK

An overview of global development landscapes provides worthy insights that states who developed rapidly invested heavily in their individuals to turn them into excellent human capital. These investments make individuals have more capabilities and access to a wider operational domain, providing the state with the high-quality human capital to generate extra resources and strong institutions and hence provide foundations for sustainable development. A subsequent examination uncovered specific similar policy characteristics of such highly developed societies, including how they prioritized individual progress alongside infrastructure progress. They concentrated equally on the caliber of humans who would use their infrastructure and resources as they built physical infrastructure. In line with the development experience of developed nations, the importance of quality of individuals is recognized to be an essential condition to maximize the benefits of physical infrastructure and resources for sustainable growth and development. The underlying principles to generate such quality individuals have further been highlighted by emphasizing state investments in education and health.

According to Sen (1995), both of these investments give people more freedom to operate at their best and most efficiently by strengthening their capacities. Investments in health result in improved health conditions, allowing people to deal with health issues more effectively, avoid job absenteeism, and be more productive at work. All of these elements contribute to individual wellbeing by improving their health, productivity, and earning potential. On the other hand, education has both direct and indirect effects on individuals, making them more aware of diverse situations and more skillful in numerous aspects to effectively cope with them. Individuals and societies benefit from education because it enables them to exploit their potential. It not only makes people more skilled and hence better contributors to the economy, but it also allows them to have

more operational flexibility in other areas of life. Through education, societies transform their citizens into highly efficient and productive economic agents, well-informed, healthy, responsible social actors, and highly effective political agents.

Education in this way stands out to be the most important and influential factor in turning poor-quality individuals into high-quality, productive human resources and thus facilitating the transition from less developed to more developed. Centralizing the analysis on the importance of education, as indicated in Chapter 1, this research has focused on three key areas: First, it involves assessing individual quality; Second, it involves estimating Returns to education; finally, it carried analysis of Cost of Educational Deprivation.

We have followed the capability approach and human capital theory to proceed with our analysis as our analysis revolves around individuals and their capabilities regarding their education. To analyze individuals' abilities/capabilities, we have followed the Capability Approach to model individual quality assessment as discussed in section 4.1. To estimate returns to education, we have consulted Mincerian Earning Function in the broader framework of the human capital approach as elaborated in section 4.2. To compute the cost of educational deprivation, we have adopted a straightforward computational mechanism that involves comparing incomes related to varying academic profiles to explain the difference of income generation as the opportunity cost of lower academic profiles, as described in section 4.3.

4.1   Education and Individual Quality

Coherent with the research objectives, we attempted to assess the variations in individuals' quality based on their educational achievements/schooling level. As a prime step towards carrying this assessment, the present thesis has developed an individual quality index by following the broader conceptual framework of the Capability Approach for the case of district Rahim Yar Khan. "Capability Approach," a well-known framework by Amartya Sen, explained the well-being of

individuals and societies beyond economic development by stressing the moral importance of freedom to achieve human development. By recognizing human beings as agents, beneficiaries, and adjudicators of development and the primary means of all sorts of productions, the capability approach described well-being in terms of people's capabilities and the extent to which these capabilities are utilized (Sen, 1995). Having its early connections with Aristotle, Karl Marx, and Adam Smith, the capability approach includes economic and non-economic attributes to define human well-being (Nussbaum,1988, Robeyns, 2016).

As comprehensively illustrated by Sen (1995), the Capability Approach centralizes the idea of individual freedom to do what an individual is willing to do in every sphere of life. The capability approach explained this concept of freedom by illuminating the notions of Capabilities and Functionings. By capabilities, it entails the knowledge, resources, skills, and environment that allow individuals to do what they want. It implies individuals' functional domains by highlighting the extent to which individuals can use their capabilities to be what they want to be or do what they want to do in their lives. In conclusion, capabilities generally refer to skills set, whereas functionings refer to the use of the skill set for the achievements of individuals. Consistent with this, the capability approach explained freedom in terms of a broader skill set (capabilities) and a more comprehensive operational domain (functioning/achievements). In line with this explanation, an individual having better knowledge, skills, resources, and a conducive environment tends to do better or achieve more than those with limited knowledge, restricted skill set, lack of resources, and a non-supportive environment (Sen,1995). Thus, well-being analysis using the capability approach mainly focuses on various conditions that can influence a person's freedom to effectively utilize his capabilities for personal and societal development in every domain. An individual with better capabilities tends to achieve more in life than an individual with fewer capabilities. Individuals with better capabilities can be termed better quality individuals than those with limited /poor capabilities.

In this context, an individual's economic freedom refers to capabilities such as economic awareness, productive skills, resources, and a favorable economic environment. If they exist, these capabilities improve the operational domain for the economic well-being of individuals. Social freedom refers to stuff such as physical, mental, and social health, the ability to engage positively with other individuals with diverse backgrounds as reflected through tolerance in multiple spheres, and abilities to act responsibly and legally reflected through the law-abiding behavior of individuals. If these capabilities exist, create a more expansive social space for the individual to carry out their social pursuits. Similarly, political freedom refers to the ability to analyze the political dynamics reflected through political awareness and the extent to which individuals can participate in the political process as reflected through individual affluence against various constraining factors. In line with this discussion, this research believed that individuals having greater economic, social, and political freedom are better quality individuals than individuals having less space. Having more freedom, thus, means having fewer constraints in these domains and hence more capabilities to achieve what an individual wants to succeed in all three domains (Sen, 2003).

Addressed through the lens of the capability approach, the individual conditions about their economic, social, and political execution impact their overall freedom to operate effectively in a society. As explained earlier, these conditions define the domain of individual capabilities, which describes the range of functionings an individual can perform. Consistent with this argument, everything that can influence individual capabilities and hence functionings is the determinant of personal freedom, a key attribute of individual wellbeing. The wellbeing analysis involving the capability approach thus focuses on creation or expansion and the exercise of capabilities. Creation and Expansion of Capabilities in the light of the capability approach refers to the addition of new skills or improvements in the current skills and capability set. These expanded capabilities then explain the extent to which individuals are able to exploit their hidden potentials to achieve more

in life. In this context, a better set of capabilities in a specific domain thus means that individuals are more able to perform in that particular domain. These capabilities thus proxy the abilities and hence freedom of individuals to pursue wider operational domain. Many studies examined various factors at individual and societal levels to understand what constitutes this creation and expansion of capabilities (Sen, 2003).

On the other side, the range of functionings an individual can perform mainly depends upon the extent to which capabilities are exercised. Given this, everything that enhances the capabilities or widened the operational domain adds value to the individual capacity to operate for his own and societal well-being freely. When seen in this context, education can positively impact various conditions defining the freedom of individuals and hence is an essential factor to differentiate individuals based on their capabilities, in other words, their quality. In conclusion, the capability approach, on the one hand, addresses the use of education for whatever an individual wants to pursue. On the other hand, it sees education as a vital tool to enhance the freedom to achieve more in life by offering skills, awareness, and easing constraints. Thus, in this way, education rightly justifies its linkages with the capability approach as a capability enhancing and freedom-enhancing factor and a supporting tool for exercising abilities.

Coherent with the underlying principle explained, over the years, Amartya's capability approach has been heavily deployed in human development analysis (Bhayana & Kakkar, 2019). Different entities in this regard defined various country/state level indices by using multiple dimensions of wellbeing. Some well-known measures that followed Capability Approach are Human Development Index (HDI), Legatum Prosperity Index (LPI), Social Progress Index (SPI), and Multidimensional Poverty Index (MPI) (Klugman, Rodríguez, & Choi, 2011; Robeyns, 2016; Alkire, Conconi, & Seth, 2014; LPI, 2017; SPI,2017). All these measures and many more used objectively defined indicators extracted from state-level surveys to explain macro-level wellbeing

measures. Thus, most of the application of the capability approach occurs for macro-level wellbeing analysis to explain state-level development. A significantly inferior application of the capability approach on micro or individual level analysis left a gap for studying micro variations in individual well-being and the factors behind these variations within a society in the light of the capability approach. Furthermore, in almost every macro-level measure defined in the light of the capability approach, education, in addition to various other factors, has been used as a critical determinant of freedom. These measures thus included various indicators of education to explain the development of states.

In the light of the capability approach, the research gap related to its micro application, and the consideration of education, this research has proposed an individual level capability measure, called individual quality index (IQI). By considering various conditions, the individual quality index explains the set of individual capabilities in the economic, social, and political domains. This index is basically proposed as a measure of abilities, structured based on the interconnections of capabilities and abilities. Ability can be defined as the means, power, opportunity, or skill to complete a task. In other words, the ability is attributed to strength in a person, which supplements the completion of a given task. On the other hand, capability can be stated as the ability, fitness, or aptitude of performing a given task (Nagarajan & Prabhu, 2015). Generally, capability means having the ability to do something, which validates the quote "Capabilities means Abilities." As discussed earlier, Amartya Sen spoke of the capability approach as primarily based on people's beings and doings out of choice (Fukuda-Parr & Cid-Martinez, 2019). In other words, people can achieve a certain goal if they choose to, for example, being married, well-nourished, or even making travels. However, Amartya's capability theoretical framework was based on two claims on the moral grounds of well-being (Robeyns, 2017). One of Sen's claims was that the freedom of achieving well-being should be the primary moral importance. The other claim was that people should understand well-being in the context of functioning and capabilities. Collectively, Amartya

Sen argued with the existing notions of capabilities. The philosopher defined capabilities as the real freedoms that can account for success in their beings or doings. Amartya's capabilities definition appears more logical and applicable in the real world, which generally validates his content. Additionally, the real freedoms stated by the philosophers fit the definition of "ability." Therefore, it is valid to state that capabilities mean abilities, as it is further confirmed by one of the greatest philosophers, Amartya Sen's capabilities theory. Thus, building on the linkages of capabilities and abilities, the individual quality index hence reflects the aggregate measure of abilities. This measure does not include education as a determinant; instead, it uses different conditions about individuals' economic, social, and political freedom to analyze individual quality. Education serves as a differentiating tool to capture the variations in individual quality based on their educational achievements. Treating education in this way is beneficial to analyze its role in the expansion and creation of capabilities and individual freedom. The study has examined the impact of individual quality on wages to analyze the exercise of capabilities. The choice of wages is adopted by considering it an important indicator that explains the range of functionings an individual can pursue. The whole assessment has been explained in Chapter 4. Concluding from the discussion done in the previous section and in Chapter 3, education influences the individual quality and hence freedom through various dimensions in the Economic, Social and Political domains. The analysis of individual quality then requires studying individual capabilities in these three areas for a practical operational domain. In the light of this, next in discussion is the concise discussion on the three building blocks of Individual Quality, explaining the model of Individual Quality Index.

4.1.1 Economic Quality

Individuals and society can obtain competitive advantages through education by expanding their domain of economic capabilities and, as a result, the variety of operational activities they can do

for individual and communal well-being. Education is thus widely acknowledged to be a dominant factor towards cogent economic choices for optimal resource utilization towards maximum value creation based on its potential to enhance skills, awareness, and resources. Individuals with better education are thus observed to have access to better opportunities, earn substantially higher, and ultimately have a higher standard of living. Individuals with better education are depicted as economically better-quality individuals who not only have more freedom to pursue individual wellbeing but also contribute effectively as an excellent human resource for a higher and sustainable development at an aggregate level (Becker, 1960, 1964; Schultz, 1961; Denison, 1962; Psacharopoulos, 1989; Jain, 1991; Berger, 1988, 1992; Griliches, 1969; Fallon and Layard, 1975; Baumol, Blackman and Wolff, 1989; Pencavel, 1991). This interconnection of education with individual and societal wellbeing is explained through the following four perspectives.

Perspective One described education as a direct determinant of wealth production. The advocates of this perspective discussed the importance of education as an instrument to allocate competitive advantage by enabling individuals to earn wage premiums and create more wealth than their uneducated counterparts. The likes of Ellis (1917), Fisher (1932), Glick and Miller (1956), Houthakkar (1959), Miller (1960), Renshaw (1960), Goldin & Katz (1995,2001), Goldin (1999), and many other likeminded social scientists has comprehensively explained the relationship of education with individual wage premium and hence wealth production. By controlling for the effects of various background variables family-related, social, and personal characteristics, they highlighted a positive association between education and wealth creation. According to proponents of this perspective, individual skill enhancement through education enables individuals to exploit various resources for wealth development efficiently. They also highlighted the state's role in wealth creation through education by demonstrating a positive relationship between a country's educational investment and its wealth-producing potential and productivity. According to this direct perspective, individuals with better education have more information and effective ways of

doing things than those with no education. This increases their competitiveness and ability to create more, allowing them to earn a significant education wage premium, enabling them to accumulate more lifetime wealth. (Ellis, 1917; Fisher, 1932). Perspective two is the idea propagated by another league of social scientists collectively called Columbia-Chicago School. Lead by principal figures such as Gary S Becker, Milton Friedman, and Jacob Mincer, the proponents of Columbia Chicago School went a step further in explaining education links with economic outcomes through the "Human Capital Approach." This human capital concept, pioneered by Walsh (1935), assume human as a form of capital like many other forms of capital which can produce goods and services. This unique form of capital, as explained by Walsh (1935), requires investments like any other form of capital for the growth and development of this capital through improvements in technical skills, thinking abilities, or visions for creating optimal responses in different variants of society. Becker, in a more refined and comprehensive way, defined human capital in the following words:

> *"To most people, capital means a bank account, a hundred shares of IBM stock, assembly lines, or steel plants in the Chicago area. These are all forms of capital in the sense that they are assets that yield income and other useful outputs over long periods of time. But such tangible forms of capital are not the only type of capital. Schooling, a computer training course, expenditures on medical care, and lectures on the virtues of punctuality and honesty are also capital. That is because they raise earnings, improve health, or add to a person's good habits over much of his lifetime. Therefore, economists regard expenditures on education, training, medical care, and so on as investments in human capital. They are called human capital because people cannot be separated from their knowledge, skills, health, or values in the way they can be separated from their financial and physical assets."* (Becker, 1993)

Thus, human capital theory advocates that education, apart from its direct contribution to wealth production, create some positive externalities which help individuals accumulate more resources than less educated or uneducated individuals (Walsh, 1935; Friedman, 1955; Mincer,1958,1962,1970,1974; Schultz,1960; Becker, 1964,1975,1993; Riddell, 2006; Acemoglu and Robinson, 2011). A key finding of human capital theory builds on the principal argument of the intrinsic value of education, which explains education as an instrument to communicate social, personal, and cognitive skills to individuals, making them economically, socially, and personally sustainable. These skills gained through education, at one end, strengthen the earning prospective

of individuals by increasing their productivity & efficiency, leading to wage premiums and more wealth accumulation (Mincer, 1958, 1962, 1970, 1974). On the other end, it provides handy tools and information for lowering costs and increasing benefits in different areas such as physical, mental, and social health, urge for innovation, urge for a better environment, and stable socio-political system (Mincer, 1974; Becker, 1993). Thus, education has been explained as an important determinant of all-inclusive well-being at all levels in the light of human capital theory. It improves the lives of individuals by making them more aware, skilled, and productive to earn wages premium and hence generate higher lifetime earnings and wealth. At the aggregate level, rising skill set, awareness, and productivity then lead to more production by individuals and hence more contribution to the national income as well as various other socio-economic benefits for the states in terms of resource generation, poverty reduction, and a crime-free, inclusive, and orderly society (Acemoglu and Robinson, 2011). The human capital perspective emphasized the vision of inclusive society as a foundation for an enduring and sustainable development of a community. The fundamental principle for the inclusiveness of a society is all-inclusive and quality of state institutions, driven by the quality of human capital. The quality of human capital requires investments in education to enhance the capabilities of individuals to perform as an effective, efficient, and productive unit of society. Education, in this way, provides the basis of an inclusive and prosperous society (Becker, 1993; Riddell, 2006; Acemoglu and Robinson, 2011; UNESCO, 2012). Human capital perspective, in conclusion, emphasizes the investments in human resources to have private as well as future social returns of these investments by considering the individual as well as societal costs and benefits of education in multiple domains (Walsh, 1935; Mincer, 1958, 1962, 1970, 1974; Schultz, 1961; Becker, 1964).

The third perspective explains the impact of education through credentialing effects, adverse selection, and screening effects. The principal believers of these effects/perspectives such as Stigler (1962), Arrow (1963), Akerlof (1970), Spence (1973,1976), Löfgren, Persson, & Weibull

(2002), and many others took education as a screening device to signal out or filter the individuals with best cognitive skills. According to the signaling perspective, it is asymmetric information that made education matter for employers. In their pursuit to find an appropriate candidate for a job, employers face a natural constraint of having little access to all the information about the prospective employees while making effective employment decisions (Spence 1976). As per one interpretation, every individual possesses some skills, and they acquire some specific education to signal their respective skills to the employers in the market. When having education ensures appropriate signaling of skills and higher returns, receiving education is not costless. Individuals evaluate the cost and benefit of acquiring education regarding how effectively that education signals their skills and abilities. Individuals who see more cost of acquiring education than the return to education are less likely to go for education. Credentialing theory argues that individuals with more abilities and cognitive skills bear less cost of acquiring education, both time and economic cost. Whereas individuals with weaker skills or poor abilities are vulnerable to higher education costs, they are more likely to end without education by assuming lower returns to education than the cost of education contrary to their talented counterparts. Employers in this context believe that getting individuals with certain abilities and skills is higher among more educated. So, they use education as a proxy for identifying or screening the required skills and abilities, matching their job needs, and offering higher wages than those with less education (Spence, 1976; Akerlof, 1970).

The fourth Perspective of Education assumes a broader interconnection with individual well-being when seen from the lens of the broader theoretical framework of Amartya Sen's Capability Approach[17] that emphasized the importance of freedom for wellbeing and the importance of capabilities in defining freedom. In the light of the capability approach, education enhances the

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[17] As defined in Stanford Encyclopedia of Philosophy (1999)

economic capabilities of individuals from two sides: First, it offers superior knowledge/information, which makes individuals capable of understanding various aspects of the economy; and second, education creates multiple types of skills and improve multiple existing skills of individuals which makes them able to operates in a wider functional domain for their economic wellbeing (Sen, 1980). These two effects of education offer a higher degree of freedom to individuals by making them capable of understanding various dynamics of an economy and using a special set of skills to approach a wider range of economic functionings and hence enjoy a superior level of well-being by having higher earnings and accumulation of wealth. According to this perspective, the individuals with a higher level of education due to their excellent knowledge/ awareness, skills, and accumulation of wealth may well be called higher quality individuals. In the light of this perspective, the economical quality of an individual depends upon various skills which facilitate economic functionings, economic awareness, and resource accumulation.

Concluding from the discussion on economic linkages of education, all four perspectives directly or indirectly explained three dimensions, i.e., economic awareness, skills, and resource accumulation, are the leading indicators associated with the economic quality of individuals. These dimensions are comprehensively discussed in the following sections.

4.1.1.1 Economic Awareness:

 If individuals are incapable of assessing the resources, opportunities, potentials, structure, and basic requirement of a particular economy, then they cannot contribute effectively for their own as well as society's overall welfare (Podger & Trewin, 2014; McGregor & Pouw, 2017; Bakara, Osman, Bachok, Ibrahim, & Mohamed, 2015). The ability to effectively assess mainly depends upon how educated and aware the individuals of a society are about the strengths, weaknesses, opportunities, and threats about their economy. This awareness makes them capable of evaluating

various economic choices and, hence, leads to efficient decision-making regarding their economic functionality (Sen, 1995).

Three main stakeholders of an economy, illustrated by every introductory economics textbook, are Households, Firms, and states. These three stakeholders are engaged in four economic activities, i.e., Production, Exchange, Distribution, and Consumption of goods and services. An economic system is called "Socialist" if these four activities are completely controlled by the state and called "Free Market or Capitalist" if all four activities are managed under private control with only a state's regulatory role. None of the contemporary economies in the world has a complete socialist or capitalist structure. The economies in the world are now a combination of Social and Capitalist attributes where both states and other stakeholders are equally involved in their particular domains defined by public and private goods and services (Brødsgaard & Rutten, 2017; Zidek, 2019). The individual is the mean and beneficiary of such a mixed economic system based on its dual role of consumer and producer of goods and services. Individuals and households in such economies are owners of production factors and the ultimate consumers of all productions. To be a practical part of such an economic system in which every stakeholder wants to maximize their benefits, every individual needs to have access to necessary information for their personal and collective well-being. Individuals use a combination of knowledge and evaluation ability to analyze the choices of other stakeholders and respond most beneficially for their well-being. The individuals lacking access to information or lacking the capability to evaluate that information cannot exploit their full economic potential for their sustainable economic well-being. In addition, they may not understand their role and contribution to society (McGregor & Pouw, 2017). Thus, awareness is one of the most wanting attributes of quality economic individuals. This awareness broadened the domain of economic freedom of individuals and hence offers a great value in term of a more extensive range of functionings and serve as a shield against various kinds of economic exploitations and

deceptions in goods & services market, labor market, and financial markets as well institutional scams.

4.1.1.2   Skills:

In the last four decades, our lives have changed substantially both in scale and scope regarding the way we work, earn, and live. The outburst of technology in the post-1980s era has completely transformed the way economies produce, exchange, distribute and consume in a complex hyper-connected model. Now, globalization and the global market made it an obsolete concept for the economies to operate in isolation. On the one hand, this global interplay opens new avenues for economies to generate more income by competing globally. On the other hand, it boosted pressure on economies to respond quickly with quality goods and services in a highly competitive global market. With these dynamics, the economies are pushed to rely on highly skilled and quality human resources to attract more global buyers and capture maximum benefit from such an extremely competitive global market. These whole dynamics of the rapidly changing world, as explained by Healy & Cote (2001), require efficient responses to the changes, holistic learning, and sharing of knowledge for the success of individuals and societies. In these situations, states require well-versed critical skills to compete for global market share. These skills not only assure economic stability and prosperity for the entire community, but they also assure higher individual returns (OECD, 2013).

Furthermore, the skills set of individuals offers the greater realization of productivity gains, protects them against adverse economic shocks by guarding their employment during downturns, ensuring a better quality of work, access to innovation, and higher wages (OECD, 2017). The skills individuals carry, thus, expanded the capability set and hence their economic freedom as well as resilience against economic shocks. Moreover, better skills enable their functionality in the broader economic domain for their private and collective development. In light of the capability approach,

the two main skills that economic literature highlights as crucial for the broader freedom and wider operational domain for an economic agent are language skills and Operational skills.

The language skills explain the extent to which individuals can read, write, and speak in their Local, National, or any foreign language. Better language skills mean better economic integrations of economic agents and hence a higher level of economic freedom which facilitates the individual as well as national growth and development (Grenier, 2015; Rendon, 2007; Molnar, 2013; Marschak, 1965; Zhang & Grenier, 2013; Paolo & Tansel, 2013; Nyasulu, 2014). In addition to language proficiency, the individual's skills to effectively communicate by rational situation handling and coping of various barriers to communication also enhance the operational and functional domain of the individual (Balcar, 2014; Deming, 2017; Broecke, 2016). The economic Quality of individuals depends on their Language and communications skills; at the same time, it requires specific other skills to gain maximum out of their work activity. These skills are collectively called work and productivity skills, encompassing individual capabilities to manage workload in a targeted, focused, motivated, and well-organized manner to achieve the maximum from their efforts (Anderson & Bolt, 2015). These capabilities require realistic and well-planned work targets based on the various available resources (Savickas, 2010); motivation and efforts to achieve targets according to the defined goal setting as per specified deadlines through proper management of activities, information, documents, and resources (Vanthournout, Noyens, Gijbels, & Bossche, 2014; Bennis W. and Townsend, 1995; Maslow, 1943); and a higher degree of concentration to the assigned work/task to be achieved with best and well-focused efforts even in challenging situations through effective distraction management abilities (Taylor, 2010). All these skills make individuals more effective, focused, efficient, and hence more capable of avoiding wastages of resources and time to mark their economic success by achieving targets and being more productive. Finally, the last set of skills which are illustrated as essential for enhancing the economic quality of individuals, are related to individual capabilities to make effective and

productive decisions for the efficient economic outcome. These capabilities are displayed through a set of decision-making skills that individuals exercise while dealing with various types of choices/options/situations during their economic engagements (Butterfield, 2010). The research on individual decision-making abilities and their linkages with productivity has outlined various skills about effective, efficient, and quality decision-making of individuals. Quality decision making process first requires specificity and a clarity of the situation / issue/ choices at hand and the interrelated factors by following the principles of objectivity, purposiveness, and optimization without being trapped into information overload (Scholtes, 2002; Dhami, Schlottmann, & Waldmann, 2012; Parcon, 2007; Butterfield, 2010); a systematic analysis of various alternative solutions regarding the problem/ situation at hand to reach the optimal solution by looking at the benefits and risks associated with each alternative (Allen, 2003; Anderson & Bolt, 2015; Butterfield, 2010); consider inputs from the team members and other stakeholders to enhance ownership, involvement and validate the credibility of decision making process as well as have more dimensions to think on before making an effective decision (Allen, 2003; Simon, 2000; Butterfield, 2010); and an ability to justify the decision taken through anticipation of likely outcomes of the decisions as well as ability to review dynamically if decisions taken does not create anticipated value (Dhami, Schlottmann, & Waldmann, 2012; Anderson & Bolt, 2015; Butterfield, 2010). All these skills make individuals able to make effective decisions and hence create economic value and thus add value to individuals' economic quality.

4.1.1.3   Wealth Status

Larger the resources an individual has, the greater economic freedom he has to operate in more comprehensive financial, social, and political domains. The scale of resources an individual has, explains the wealth an individual has accumulated. Thus, wealth status, the third determinant of economic quality of the individual in the framework of this research, attracts a lot of debate in the

literature on the returns to schooling as it has been explained comprehensively through all the perspectives (direct, sheepskin, or human capital). It has been demonstrated that education is positively associated with wage premiums which lead to a higher level of lifetime earnings and hence a higher accumulation of wealth (Ellis, 1917; Walsh,1935; Mincer, 1958,1962,1970,1974; Schultz, 1961; Arrow, 1963; Becker, 1964; Akerlof,1970; Spence,1976; Sen, 1985; Löfgren, Persson, & Weibull, 2002; Robinson and Acemoglu, 2012; OECD 2013, 2017; Balcar, 2014; Deming, 2017; Broecke, 2016).

4.1.2 Social Quality Assessment:

Another critical determinant of Individual Quality is the capability set and operational domain for effective integration into society. In the context of this research, we explain this capability by introducing the concept of Social Quality. This social quality of an individual outlines an individual's effective integration into society by broadening his range of social functioning. This social quality, as briefly discussed earlier, is explained through three aspects of an individual's social involvement: First, it entails the quality of an individual's own health to operate in society effectively; Second, the quality of an individual's engagement with other units of society, indicated by his tolerance level; and third, an individual's quality of living under and with the rule of law explained by his law-abiding behavior. The examination of Social Quality of Individuals thus involves analyzing individual Health, Tolerance, and Law abidance, three key social institutions representing a system of stable and interconnected behavioral patterns operating across the whole society. These institutions shape and regulate individuals' behavior in every domain of life by influencing their normative characters and hence regulating individual responses. These responses then provide the basis for harmony, peace, social order, and good governance for efficient social, economic, and political outcomes (Robinson & Acemoglu, 2012).

4.1.2.1 Health

Good health outlines the ability of individuals to be an active and effective part of society. Health, in this way, is an essential social commodity that enhances the socio-economic capabilities of individuals and hence their domain of functionings (Grossman M. , 1972; Kumar, 2017; WHO, 2015). Good health broadened the capability set and the range of functioning. On the other hand, terrible health conditions constrain the capabilities and hence effective participation of individuals in the society (Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003; Beck, et al., 2011). Traditionally health has been recognized to have a greater potential to facilitate holistic growth and development of individuals and society (Marmot & Wilkinson, 1999; Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003; Karasek, 1990). Health is a prerequisite of individual functioning in every domain of life, which has been portrayed in literature as an essential determinant of personal capacity to operate well in every field. Health thus defines an individual's capabilities and hence their accomplishments in every domain. Health basically establishes the extent of freedom an individual has to achieve what he wants to accomplish in his life in terms of education, better employment, productivity, stable lifestyle and standard of living, engagement with other stakeholders in society, effective contribution in politics, and all other spheres of life (Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003; Bleakley, 2010). Health, in this way, is recognized to be an essential element of general human capital as well as a necessary input to various other forms of human capital (WHO-ECHP, 1999). Health with its multiples impacts on individual wellbeing may well be labeled as a parameter of individual social quality that can enhance individual capacity to operate effectively for prosperity, stability, and growth in life. Bleakley (2010) comprehensively explained the importance of health in an individual and societal well-being by describing poor health as one of the leading causes of poverty in most developing countries. At the micro-level, unhealthy individuals tend to produce less and hence unable to meet their basic needs and become dependent on state resources.

Similarly, if poor health is a tradition in society, society cannot produce enough to provide resources for the betterment of its citizens. States in such circumstances divert resources from socio-economic development towards tackling poor health and poverty and hence lack capacity in the longer term towards income improvements for sustainable growth and development (Bleakley, 2010). Poor health, both physical and mental, is examined as one of the major causes of poor educational performances, ineffective social engagement, and inefficient economic participation and hence a feeble growth and development perspective in the longer term. In short, when good health offers individuals and societies the freedom to achieve sustainable growth and development in every field, poor health, on the other hand, constrains individuals and societies from enjoying a sustainable standard of life and development.

Various studies on health assessments highlighted multiple factors which influence individual health. Some studies explain biological determinants of health by addressing age, sex, and personal behaviors regarding food intake, alcohol consumption, smoking, technology, physical activity, and attitude towards exercise in defining the quality of individual health (IoM, 2001; Lock, 2000). In addition to biological factors, the psychosocial environment, structured by family structure, culture, social networking, and social exclusion, is also found to have a significant influence on individual health (Karasek, 1990; Lock, 2000; WHO-ECHP, 1999; Pierce, Sarason, & Sarason, 1996). So other studies found the quality of the physical environment in which individuals live has a strong influence on individual health. Explained by the extent to which fresh air, clean water, proper sanitation, noise-free residential setting, and cleaner surroundings, a better-quality environment leads to a better quality of health (Klesges, Eck, Hanson, Haddock, & Klesges, 1990; Lock, 2000). Furthermore, the state infrastructure and public services towards health and socioeconomic status defined by various social commodities such as education, employment, income, and access to multiple resources, also have a strong influence on individual health (Lock,

2000; Marmot & Wilkinson, 1999; WHO-ECHP, 1999; Douglas, Conway, Gorman, Gavin, & Hanlon, 2001).

When many factors are associated with individual health, the specific focus of this research as per the research objectives is to analyze the variations in individuals' health based on their level of education. Education directly or indirectly impacts an individual's health at various stages of life. Bleakley (2010) provided a comprehensive account of changes in health at different stages of an individual's life by emphasizing the importance of childhood health towards the lifetime earning of adults. He discussed in the light of literature the importance of early life health on long-term human quality to generate more lifetime income and enjoy better wellbeing beyond income (Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003; Bleakley, 2010). Malnutrition or other diseases at an early age with severe consequences in terms of stunted growth or wasting may impede the lifetime potentials of an individual. This fact verifies the observations of various studies regarding human capital formation human quality at the early age or childhood (Marmot & Wilkinson, 1999; WHO-ECHP, 1999; Beck, et al., 2011; Bleakley, 2010). A severity faced in childhood may cause damages to later growth and development of individuals (Bleakley, 2010). Poor health at an early age comes up with various consequences; first, it digests precious resources of families. Second, it constrains the ability of an individual to be competitive in their life. Children with poor health are observed to develop various forms of lifetime disabilities. These disabilities restrict their capability to have sustainable growth and development. They tend to have less education and adverse health impacts, which collectively hurt their long-term prospect to earn more and enjoy a better living standard (Halim, Spielman, & Larson, 2015; Engle & Black, 2008).

Early childhood health problem is the outcome of various structural and behavioral issues at individual and collective levels. At one end, state interventions, resources dedication, and governance regarding the provision of scarce resources for health infrastructure and management

and its effectiveness are responsible (WHO, 2015). On the other hand, the awareness and income of parents, both mother and father, matters (Currie & Moretti, 2003). Many studies found a positive association between mother's awareness and children's health through various channels. A common phenomenon that prevails mostly in less developed states is unhygienic and fragile health practices by uneducated poverty-prone mothers. Their lack of knowledge or inadequate access to essential information for maternal improvements is vital to coping with the children's short and long-run health (Currie & Moretti, 2003). Various studies found strong linkages of lack of education with both phenomena, that is, lack of awareness and poverty (Engle & Black, 2008; Cutler & Lleras-Muney, 2006; Currie & Moretti, 2003). Lack of awareness restricts their ability to assess the dangers and hazards to children's health in addition to nutritional requirements and opportunities for health improvement for sustainable growth and development of children at early stages. Poverty restricts the family's capability to provide essential resources for short-run and long-run growth, both physical and mental. Various studies linked the poor educational profile of parents with the lack of awareness, and poverty, hurting children's health. Prickett & Augustine (2015) observed parenting behaviors towards younger children's health and found a strong association of a mother's education (as a proxy of awareness) with the short and long-run growth and development. Their study found a positive association of higher education levels with more advantageous health investment behaviors at each early development phase from 9 months till five years, providing a solid basis for later growth and development. Another study by (SHARIFF & AHN, 1995) also found the positive impacts of a mother's education on children's health both in the short and long run by controlling for rural-urban divide and gender (More effect in case of urban and males' children).

In addition to its effectiveness towards children's health, many studies have seen education as an essential determinant of adult health. When parent education is vital for creating human capital, its sustainability depends upon an adult's self-regulation and realization, which mainly depends

on individuals' awareness and education. The most fundamental role of education towards adult health is explained by its potential to teach individuals about the importance of their health for sustainable and prosperous living. Education with its potential role creates awareness among individuals to understand various conditions which may impact their health effectively and makes them able to structure effective responses to circumvent and combat various health debacles (Link & Phelan, 1995; Cutler, Deaton, & Lleras-Muney, 2006; Cutler & Lleras-Muney, 2006; Williams, Baker, Honig, Lee, & Nowlan, 1998).

In the above discussion, it has been analyzed that individuals with better education tend to have better health status and hence enjoy a longer lifespan than those with lower education levels. Individuals with less education are observed to suffer from various chronic diseases such as lungs cancer, cardiovascular diseases, breast cancer, and hepatitis and are highly likely to die younger (Cutler et al., 2006; Rogers, Hummer, & Nam, 2000; Adler et al., 1994; Goldman & Smith, 2002). Another perspective expressed by Link., Northridge, Phelan, & Ganz (1998) observed more prevalent depression, anxiety, stress among more educated individuals and hence more incidence of cardiovascular diseases. They also find a higher incidence of cancer among more educated individuals. Thus the impact of education on adult health is explained from both perspectives, the first perspective used awareness and resources as the dominant influence. According to this perspective, individuals with a lack of education are observed to experience longer spells of illness based on their lack of awareness and insufficient resources due to fragile socio-economic conditions to combat health problems. These health problems tend to push them into further economic distresses by affecting their productive abilities. Education in this scenario effectively reduces regular spells of illness through health awareness and hence improvements in health, work-life, and standard of living (Smith, 2003; Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003). On the other hand, the second perspective considered the broader environment and the lifestyle of individuals with a higher level of education. This perspective explained physical health

problems through various mental health issues (Almlund, Duckworth, Heckman, & Kautz, 2011; Douglas, Conway, Gorman, Gavin, & Hanlon, 2001; Grossman & Kaestner, 1997; Kumar, 2017; WHO, 2015).

4.1.2.2   Tolerance

Tolerance is another social commodity that enables individuals to engage and coexist with other individuals and groups with heterogeneous attributes. Tolerance in this way without any ambiguity endorsed alternative ways of feeling, thinking, and acting (Oberdiek, 2001), operates by respecting and accepting all forms of diversity (Weissberg, 2008), for a decent, progressive, and agile society (Bergen, Bergen, Stubblefield, & Bandow, 2012). Tolerance has been recognized as one of the undisputed social values and is portrayed as a highly desirable quality for peaceful, crime-free, and progressive societies providing a natural shield against various social evils such as injustice, biasedness, lack of fairness, and social disparities (Hallemeier, 2006; Kreeft, 2007) . In developed societies, tolerance is propagated as one of the most critical and highly significant attributes of a good moral person for the existence and persistence of a harmonious, tolerant and civilized society (Lickona T. , 2002). Tolerance thus depicts an essential attribute of a quality individual who can accept and respect alternative perspectives, ideologies, philosophies, values, and contrasting beliefs in a moral and ethical boundary (Weissberg, 2008). Tolerance defines the capabilities of individuals to operate in a broader domain of heterogeneous societies without conflicts and hurdles and hence is described to be an important determinant of an individual's social quality.

An overview of Rahim Yar Khan District revealed a society with 51.2% males and 48.8 % females from various ethnicities, religions, religious sects, social classes, economic classes, and varying political affiliations. Rahim Yar Khan thus depicts a perfect image of a heterogeneous society based on varying demographic, economic, social, political, and religious characteristics of its 4.8 million population. While living in such a heterogeneous society, the individuals are always

vulnerable to intolerant behaviors while interacting with individuals from contrasting demographic, social, economic, political, and religious characteristics. These biased behaviors may lead to violent conflicts at the individual as well as group levels. If spread across society, such behaviors may be disastrous for individuals and collective growth and development. Tolerance in this scenario means accepting and respecting alternative perspectives. The degree to which individuals accept or respect differences depends upon the personal preferences shaped by various factors in micro and macro environments in which an individual operates. The way an individual grew up or the environment in which an individual grew to define the pattern of engagement in a heterogeneous society. A liberal environment tends to induce liberal practices and support for liberty and hence a greater quotient of accepting and respecting differences. Rigidities explain the flipside in acknowledging and respecting differences by the individuals grown up under rigid and radical practices. These rigidities constrain their ability to accept alternative perspectives, leading to intolerant behaviors (Helbling, 2014).

A broader economic environment and broader social environment also play a major role in stimulating intolerant or tolerant behaviors. A heterogeneous society with a fragile macroeconomic environment and unjust resource distribution may induce intolerance and conflicts among competing groups. Such behaviors, if they prevail, further undermine the economic strength and hence encourage further fragility and push the whole society into economic stress stimulating various other social, economic, and political problems damaging the long-term development perspectives (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011). This inverse association of economic stability and intolerance is contrasted by the prevalence of intolerant behaviors in economically stable and prosperous nations with growing intolerance of various forms (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011; Bandyopadhyay, 2002). To explain these variations, (Robinson & Acemoglu, 2012), discusses the nature of dominant social, ethnic, political, and religious institutions and stakeholders and their role in exploiting opportunities and resources in

favor of few or all in heterogeneous societies. It has been comprehensively explained that institutions with inclusive foundations promote greater acceptance and acknowledgment of alternative views and differences.

In contrast, institutions with extractive settings tend to exploit differences for extractive purposes and hence end up a divided, conflicting, and intolerant society (Robinson & Acemoglu, 2012). It has been further seen that the dominant groups in heterogeneous societies with weaker institutional structures tend to use their dominance to suppress minority or less influential groups with greater chances to bids up intolerant interactions and hence conflicts (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011). The social contact and trust theory highlighted another factor, "perceived similarity," negatively associated with intergroup intolerance. The individual and groups from diverse backgrounds with more remarkable perceived similarities are more accepted in comparison to those with more significant dissimilarities (Oudenhoven, Eisses, & Anne-Marie, 1998; Stephan, Diaz-Loving, & Duran, 2000; Costa-Lopes, Vala, & Judd, 2012; López-Rodríguez, Cuadrado, & Navas, 2017). The media framing of various conflicting issues is also recognized to be a valid determinant of intolerance/tolerance. A positive and convergent framing by media may induce tolerance, whereas a negative framing may create divergence that leads to intolerance in the society (Nelson, Clawson, & Oxley, 1997). The intergenerational transmission of practices followed by parents and other elderly family members is also an important and influential micro determinant of tolerance/intolerance. An individual under conservative, radical, and intolerant practices by family members tends to adopt the same at later stages of life. Thus, the practices of one generation define the patterns of next-generation (Widom & Wilson, 2014; Black, Sussman, & Unger, 2010; O'Bryan, Fishbein, & Ritchey, 2004).

Individual tolerance is widely known to be influenced by education and a variety of other factors. Education enhances individual capabilities to understand and respond to alternative perspectives

and diversity positively. Education carries the potential to improve individuals' understanding of complex dynamics of diverse societies and hence shape individual responses against difference (Vanwynsberghe & Herman, 2015). With some exceptions for the case of highly educated societies with a higher degree of intolerance (Rubin, Taylor, Pollitt, Krapels, & Pardal, 2011), the general perception established in the literature is a positive association of education and tolerance (Case, Greeley, & Fuchs, 1989; Hello, Scheepers, & Gijsberts, 2002). Education can increase acceptability in heterogeneous societies through well aware and positive interaction among diverse groups with a realization to create an interculturally competent, democratically stable, and discrimination-free agile society (Brese, et al., 2015).

4.1.2.3   Law Abidance

Third an**d** one of the most important determinants of individual social quality is defined by individual behavior towards the rule of law and their responses against breaches of the law. An individual with positive conduct towards compliance with the rule of law and active involvement in identifying and reporting various breaches of law, crimes, violations of rights, conflicts, or any other illegal activities are considered quality individuals in civilized societies. They are considered precious parts of a civilized society, contributing to order, peace, and development. At the same time, individuals with passive behaviors towards compliance of law and their legal responsibilities towards identification and reporting of breaches of the law are considered poor quality individuals. These poor-quality individuals are considered the main reason behind turbulences in the social order, criminal practices, violations of human, social, and property rights, various forms of exploitations, and various forms of abuses. Thus, the law-abiding behavior of individuals is considered an important determinant of social quality.

Law abidance is an essential attribute of every civilized society established through an effective governance system and realization of obeying the law by the individuals for the order, growth, and

development of a state. A society with responsible, law-abiding citizens can have a better development trajectory and hence better social, economic, political outcomes. Thus, the law abidance of individuals shapes the path of development. The individual with the superior realization of law abidance is considered a better-quality individual compared to those having inferior considerations of law abidance. The researchers from various perspectives explained different factors shaping the law-abiding behaviors of individuals. The economic outlook saw incentives or disincentives to follow the law as a defining factor. With this perspective, the law-abiding behavior of individuals depends upon the cost and benefits of following or breach the law. Thus, according to this perspective, everything that reduces the cost or enhances the benefits of violations badly impacts an individual's law-abiding behavior.

In contrast, a higher cost in terms of punishments, penalties, fines may induce a positive behavior among individuals towards law abidance (Friedman, 2001; Stone, 2016; Bigoni, Bortolotti, Parisi, & Porat, 2014). Legal, Social and political perspective emphasize the importance of individual personal satisfaction, pride ethical consideration, socio-economic and political status, quality of socio-economic and political institutions, and trust in state infrastructure as the determining factors for law-abiding behavior of individuals (Hinds & Murphy, 2007; Tyler, 2008). Whether it is an economic, social, or political perspective, education is widely recognized as an important determinant in shaping the law-abiding behaviors of individuals. Education creates awareness and encourages a positive attitude towards the rule of law for an orderly, peaceful, and prosperous society by creating demand for enforcement of contracts, private property rights, and restraining against violations of various forms of law by encouraging people to follow the law". This awareness, when at one end makes individual law-abiding citizens, on the other hand, it enables them to hold public and political authorities accountable for their powers and resources utilization as well as official obligations (Tamanaha, 2007). When education makes an individual capable of abiding with law, the observations of Orviska & Hudson (2006) explained a contrasting strength

of education towards law by explaining education and awareness as an instrument to escape the rule of law. This perspective explains a skill and information set asymmetry between more educated and less educated individuals. The more educated individuals with superior skill and information set compared to less-educated individuals are more capable of understanding the strengths and weaknesses of rules and regulations in their professional and general proceedings. This understanding supports them to breach the rule of law without being caught. Thus, a higher level of education, given the superior skill set and information asymmetry, creates incentives to exploit the law enforcement system's deficiencies to maximize benefits by violating the law without any fear of punishment (Orviska & Hudson, 2006). Furthermore, it has been noticed that the law abidance of individuals also significantly depends upon trust and legitimacy of the state, social cohesion, and neighborhood characteristic (bandwagon effect), and level of education. It has been further observed that individuals with a lack of trust in state institutions and state agents presume less need for law as guidance despite higher education levels (Orviska & Hudson, 2006).

Despite its negative side, the effect of education on law abidance is generally observed to be positive. Apart from its influence on law-abiding behavior, education makes individuals capable of avoiding deception in every domain of life. It enables individuals to understand their rights and obligations and awareness to claim their rights and fulfill their duties according to the law. It furthermore equips individuals with the necessary information to identify and report violations or breaching of law and contribute to society's order (Tyler & Darley, 2000). More educated people are generally assumed to have access to more information which has been explained to be an advantage or disadvantage for the general law-abidance in a society. This could be a source of exploitation and violations of law, and it could likewise be a source of establishing the rule of law. At one end, it may provide opportunities to deceive and escape the rule of law, and on the other hand, it provides a shield against various forms of deceptions. The extent to which citizens comply with the rules and regulations defined and enforced through legal authorities is the pre-requisite

for the effective rule of law (Tyler & Darley, 2000). This law compliance requires the realization of the law abidance for the common good towards a prosperous, stable, crime-free, and ordered society and requires a deterrence through the risk of being caught and punished for breaching of law. Thus, in a law-abiding society, individuals are motivated to comply with the law through their desire to act legally and fear punishment. The Individuals following the law are called quality individuals as they follow and act to identify and report illegal activities or law breaching in their surroundings by honoring their social responsibility to help law enforcement agencies. Such behavior of individuals towards compliance of law by themselves as well identifications of law-breaking incidence, make the society self-regulatory (Tyler & Darley, 2000; Tyler, 2008). As explained earlier, the law-abidance of individuals is measured by the extent to which they respond against various breaches of law in their surroundings in every domain of life (Tyler, 2008). Their responsiveness, termed as their dutifulness towards various common domains as law abidance, is what an individual perceives of his social, economic, and political duty. Law-abiding citizens think beyond their gains for a common good that requires cooperation from everyone towards a prosperous, peaceful, agile, and crime-free society by combating various social ills as well as illegal activities (Tyler & Darley, 2000; Hinds & Murphy, 2007).

4.1.3 Political Quality

The third key determinant of Individual Quality, as explained in section 4.1, is how effectively an individual is integrated with the Political system and how efficiently can contribute political for the overall growth and development. Concerning this research, the integrations mentioned above refers to the Political Quality of an individual. It is comprehensively highlighted in the literature that economic growth is strongly associated with the quality of political institutions society has developed. Inclusive and stable political institutions create a conducive environment through good legislation, sound policies, the rule of law, enforcement of property rights, and other conditions

suitable for growth and development. On the other hand, extrinsic and unstable political institutions create distortions and inefficiencies, thus hurting the growth and development of a state (Conge, 1988; Robinson & Acemoglu, 2012; Hooghe & Quintelier, 2014). The extent to which political institutions can impact the growth and development depends upon the health of political institutions defined by the quality of the political system, which ultimately relies on the quality of individuals involves in the political system determining its capacity to generate efficient political outcomes (Robinson & Acemoglu, 2012).

The political quality of an individual, as discussed in Chapter 3, significantly depends upon education. Education affects the Creation and Expansion of Capabilities by impacting individuals' Political Awareness and Freedom for Political Involvement and Exercise of Capabilities by means of Political Participation. In the light of the above, if education creates and enhances political capabilities and hence the quality of individuals, then a lack of education constraints the capabilities and hence undermines the quality of individuals. Education equips individuals with necessary skills and information to understand the complex political environment, the interaction of political actors/stakeholders, political process, political outcomes & beneficiaries, and the responses which political system created for the growth and development (Berinsky & Lenz, 2011; Robinson & Acemoglu, 2012; OSTROM, 2015). This understanding of political dynamics explains the extent to which individuals are aware of abstract nature of politics, political issues, and political stakeholder and thus describe an individual's vigilance towards efficient political choices (Rosenstone & Hansen, 1993; Verba, Schlozman, & Brady, 1995; Dee, 2004; Tenn, 2007; Kam & Palmer, 2008; Sondheimer & Green, 2010). These skills and information in the context of this research refer to the political awareness of individuals based on political knowledge of individuals with reference to two dimensions: First, awareness regarding political representative at all levels of politics from local politics to national politics; and second, awareness with composition, stakeholders and functional attributes of the overall political system. In addition,

education creates an enabling environment by easing various socio-economic constraints, as discussed in the literature survey, thus defining an individual's freedom to effectively participate in the political process (Kam & Palmer, 2008). Thus, two main determinants of individual Political Quality are Political Awareness and Freedom for political involvement (Berinsky & Lenz, 2011; Deth, 2014; Rosenstone & Hansen, 1993). Furthermore, education enhances capacity by creating conditions for political involvement by providing opportunities for leadership and various forms of political participation to the individuals operating in different domains of life such as education, law, non-governmental organizations, and industry. Education in this way impacts the willingness of individuals to participate in the political process (Berinsky & Lenz, 2011; Deth, 2014). In the light of the above, if education creates and enhances political capabilities and hence the quality of individuals, then a lack of education constraints the capabilities and hence undermines the quality of individuals. To summarize the entire discussion, the graph below depicts the theoretical model of individual quality used in this study, which is described by numerous social, economic, and political dimensions as discussed in sections 4.1.1, 4.1.2, and 4.1.3:
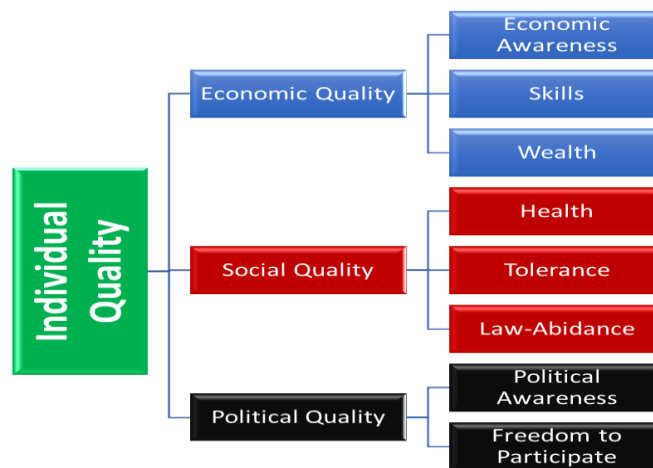
*Figure 4.1:*Framework for Individual Quality Assessment

4.2   The Concept of Capital and Human Capital

In different fields, the term capital refers to different meanings: in accounting, capital means financial assets to start and run a business enterprise. In economics, it generally refers to tangible assets, technology, or infrastructure to facilitate the production of want satisfying goods and services. In social sciences, capital means the social infrastructure that provides the foundations of a stable society. Whatever is the field of study or domain, the term capital refers to certain resources which may facilitate the creation of some goods or services. With this interpretation, capital may also include individuals without which it is hard to produce goods and services and who are the ultimate consumers of these goods and services. This perspective of seeing an individual as capital can be found in the ever-progressing production theories, which first assume the individual as a factor of production to produce goods and services by utilizing capital and other resources. In the earlier parts of the twentieth century, the individual was described to be a special type of capital. Walsh (1935), being the pioneer in this respect, in his influential work "Capital concept applied to man," argued that individuals have all the attributes which capital goods assume and hence can be treated as a special capital. This capital also requires investments with similar importance as are required for the physical capital to produce more goods and services. With investments made to humans are equally important as investments made in physical capital for the growth and development of a society. One of the important investments, as explained by Walsh (1935), is investments for educating individuals, in addition to enhancing the technical skills, will improve the thinking abilities and visions to optimally respond in different social, economic, and political spheres. Education at one end will directly impact the earning potential/ lifetime earnings, and on the other hand, it will provide handy tools and information for lowering costs and increasing benefits in different other areas such as physical, mental, and social health, urge for innovation, urge for a better environment, and stable socio-political system. Building on this principle (Kendrick, 1961) explained four major types of capital as tangible human capital, which

principally refers to the quantity of labor force; intangible human capital, which encompasses the knowledge, expertise, experience, skills, and other human attributes qualities which makes them able to produce more, intangible non-human capital that refers to process and procedures, techniques and technologies to facilitate production process; and tangible non-human capital which covers every physical asset, machinery, plants, structures, resources which can facilitate the production process.

Human capital, as explained by Becker (1964), refers to the aggregate investment in humans, which not only enhances their market capabilities earning potentials but also impacts their general life through its wider spillover effects. The phenomenon refers to a combination of innate and acquired skills and abilities throughout the life span of an individual. Innate abilities when depends upon the circumstances of individuals in which they born and grown, the acquired skills, on the other hand, requires some treatment to facilitate the accumulation of knowledge, skills, and health against substantial costs, called investments in human capital. Individuals at various stages of their life, utilizing both sets of skills and abilities to be more productive and hence enjoy better standards of living and wellbeing. Despite the simplicity in the meaning, the concept of human capital is a complex phenomenon and requires a greater grasp of some aspects which may influence its accumulation. Generally, the concept is defined through some specific aspects with some basic differences from non-human capital. First, human capital consists of both innate and acquired abilities and skills. Innate human capital represents the trio of inborn physical, psychological, and intellectual strengths which an individual carries at the time of birth. Acquired human capital, on the other hand, represents the intellectual assets and knowledge, technical skills, good health and physical strengths, and capabilities that individuals attain throughout their lifetime through personal contacts and with some investments. Second, non-human capital generally refers to a stock variable and a tradeable good. Human capital, on the other hand, can be considered as a stock as well as a flow variable based on the components it encompasses, which regularly changes with

the scale of knowledge, experience, age, etc. Furthermore, human capital is a different kind of capital in comparison to physical capital with reference to its marketability and trade, accumulation, financing, and returns. Third, decision control regarding the quantity and quality of human capital stock an individual may have varies with age. Starting from the strict decisional control of parents and various socio-economic institutions, individuals internalize these decisions in the later stages of their lives. Individuals then make decisions based on the micro and macro environment and associated incentives with the level and kind of human capital. Fourth, sources of human capital are both formal as well as informal. Formal sources include the institutional mechanism to transfer essential skills and knowledge to the human in a regulated formal environment. Informal sources of human capital, on the other hand, encompass the broader ecosystem where individuals live and work. This ecosystem helps individuals accumulate human capital through personal engagements and self-learning. Fifth, human capital can further be categorized based on its domain of operations. The kind of human capital associated with some specific activities or involves some specific skills, knowledge, and training is called specific human capital. At the same time, the kind of human capital that pertains to a broader application in the social and economic environment is called general human capital. Sixth, the stock of specific and general human capital for individuals vary according to the level of investments as well as the quality of investments individuals incur while accumulating human capital. Furthermore, human capital involves both qualitative as well as quantitative aspects. Knowledge is a qualitative face of human capital, but years of schooling an individual has quantitatively represents this human capital. Similarly, the same year of schooling from a good quality institution and a bad quality institution also reflects on the human capital of individuals. With this comes the influence of some external factors and the quality of the broader ecosystem where an individual acquires and applies human capital. For instance, the quality of the educational system, the kind of working environment, and the social conditions all influence the quantity as well as the quality of human

capital. In the light of these aspects, the stock of human capital may vary among individuals based on their circumstances and their investments. With reference to its uses, human capital corresponds to a set of marketable and non-market individual characteristics and skills. By marketable, it means those skills and individual attributes which increase the productivity of individuals in the labor market (Becker, 1993). Most of the literature on human capital addresses this use by considering knowledge and skills as an essential part of the production function. By non-market uses, it explains the spillover effects of knowledge, skills, training, and good health beyond the market for the broader wellbeing of individuals.

4.3 Education and Human Capital Stock:

An important attribute that differentiates humans from other livings species is the ability to learn and then utilize this learning to generate multiple benefits in life. A key attribute in this context involves the retention and transmission of the learning/knowledge and skills among people, which stands out to be the key to contemporary growth and development on both academic as well as non-academic fronts. A structure that facilitates this transmission of knowledge is generally referred to as schools, and the process through which transmission took place is called schooling, generally called education. Since human capital is the stock of knowledge, education then corresponds to the process of accumulating the stock of knowledge that requires certain investments. Education thus is considered as a major form of investment in human capital. The human capital approach considers education as a triggering force for many positive externalities for an individual as well as society's growth and development in addition to its services for production. It emphasizes the investments in human resources today to generate some private as well as social returns at some future time. Private returns are purely related to the individual's cost and benefits of investment in education. It explains that: what direct cost as well opportunity cost individuals incur for their education; how this education adds value into the life and productivity

of individuals; and how this improves the earning prospect at some future times (Walsh,1935; Mincer, 1958,1962,1970,1974); Schultz, 1961; Becker, 1964). Individuals' investment in formal education creates positive signals regarding their abilities, skills, and set of information which makes them attractive to employers and raises their chances of employment. Their skills gained through education, when coupled with their work experience, makes them more competitive in the labor market to have more private return in terms of higher current earnings and to accumulate more lifetime wealth than those with less education (Mincer, 1974; Becker, 1975). As far as social returns are concerned, these are explained by the investments plus opportunity costs incurred by the society towards educating an individual and the benefits associated with these investments. So, educating an individual by the society does not only create value for that individual; it is equally valuable for the whole society as it will enhance the productivity and earning potential of the whole society (Riddell, 2006)**.** Contemporary research has recognized education as the key lever of individual, societal, and global growth and development. Education enables individuals to acquire essential skills and abilities to liberate themselves from the economic limitations to enjoy greater economic freedom for their own as well as societal wellbeing. In line with this observation, we can build on the nexus of education, human capital, and individual quality. In order to analyze the association of education, the stock of human capital, and the quality of individuals, we need to look into the dynamics of individuals quality and its associated concepts. In the earlier mentioned aspects of human capital, an individual having substantial stock of human capital may well be called a good quality individual in comparison to the one with a poor stock of human capital. It is hard to exactly quantify or assess the quality of human capital stock and difficult to ensure the full utilization of all the skills, knowledge, and abilities representing the human capital stock. Measuring the quality of an individual in this context is a complex phenomenon. Since there is no universal definition or measure of individual quality based on the subjectivity and complexity the phenomenon entails, thus, the quality of individuals is explained contextually. Economic theory

addressed this complexity through the marketability of human capital representing individual quality by viewing individuals with the lens of how they may impact their own as well as society's economic wellbeing. General production theory explains this impact by considering individuals as one of the major factors of production, i.e., labor, responsible for transforming the inputs into valuable outputs by utilizing the physical, technical, technological capital available for production. The extent to which labor contributes to the production process is explained by means of labor productivity, the incremental output associated with each labor unit. The market value of this incremental output provides the basis for the compensation(wages) of labor against their efforts. Labor that contributes more to production tends to achieve higher wages and enjoy more economic freedom and a wider operational domain. In the light of the above, the wage of labor is an effective measure of labor productivity as more productive labor tends to earn more value against their incremental contribution. Wages in this scenario may serve the purpose of a measure to assess the productivity of individuals, which may vary greatly among individuals. An individual is called more productive if he or she is earning more in comparison to his peer under similar circumstances. Concluding on the discussion of human capital, we end up with the year of schooling as a representative measure of acquired human capital and the wages an individual earns, represents the outcome of his/her stock of human capital and may well be a representative measure of the quality of individuals.

4.4 Returns to education

According to objective 1, this research has estimated the impact of education (human capital proxy) on the wages of individuals, the two key variables inferred from the previous discussion. The analysis followed the returns to education approach as explained by Jacob Mincer, a leading economist representing the Chicago School approach of seeing human capital. The lead scientists in this school, such as Becker, Mincer, and Schultz, analyzed the concept of human capital by

considering the year of schooling and job experience as the main variables having a strong influence on the market wages of individuals. They introduced the idea of returns to education by addressing the linkages of education with wages. The analysis of returns to education occupies a substantial volume of socio-economic literature and significantly contributes towards highlighting the importance of education for the individual as well as societal wellbeing. These studies investigated the returns to education by considering varying contexts and data sets and unanimously concluded a positive impact of schooling on wages and hence individual wellbeing. These findings have been at the forefront of policy decisions regarding public interventions in the education sector for the holistic wellbeing of societies. The most prominent measure in this regard comes from the Mincer (1958) in the form of the Mincerian Earning Function on the principles of the neoclassical theory of capital. He developed a very simple and parsimonious model to assess the returns to education in the broader framework of the human capital approach (Mincer, 1974). This model, renowned as Mincerian Earning Function (MEF) in literature, has enjoyed the most popular measure in the subject matter of returns to education. Despite its simplistic structure and various methodological issues, hundreds of studies on returns to education in varying contexts have used and are using MEF as the foundation of their analysis. MEF is thus globally enjoying the status of a reference framework to analyze the economic impact of education in terms of its contribution towards earning potentials of individuals and how this earning potential changes with a change in the educational level? Mincer (1974) explained this relationship by examining the impacts of schooling years on per hour wages, indicated by returns to education or returns to schooling.

Another approach that attempted to estimate the returns to education is called the elaborate approach. This method attempts to find the rate of discount, which equates the stream of educational benefits with the flow of educational investment at a given point in time by considering the age-earnings profiles in relation to education level. The annual stream of benefits according to

elaborate method is the earning of educational level whereas stream of the cost involves the foregone earning as well as investment on schooling. The private rate of return in this approach reflects the behavior of people in seeking different levels and types of education and as the distributive measures of the use of public resources. The greatest limitation for the elaborate method is the unavailability of detailed data, which is required for the estimation of returns to education according to this method.

Since other methods involve detailed data sets or methodological complications, the Mincerian framework, on the other hand, involves years of schooling, experience, and wage-earning. Despite criticism, this is the most widely used approach in the world. According to Bjorklund and Kjellstrom (2002), despite the limitations of the Mincerian equation, if simplicity is considered for the estimating of the impact of work experience and schooling on wages, the Mincerian equation is hard to beat with its two variations.

4.4.1   Earning Function

The earning function method estimates the private returns of education by means of a log-linear relationship of wages with the work experience with and without a square term for the year of experience and year of schooling. The coefficient on schooling in this relationship corresponds to the returns to education contrary to the short-cut method, which computed private returns to schooling as the proportion of years of schooling and earnings. The equation presented by Mincer has been widely accepted and referenced since the time of its inception in 1970 and has been used as a standardized method of calculation of returns to investment in education. At the global level, two landmark studies by Psacharopoulos and Patrinos provided the global average returns to education. By considering the data of 98 countries, Psacharopoulos Patrinos (2004) concluded a ten percent average return to education for an extra year of schooling. They also concluded some more interesting evidence regarding the higher rate of returns to education in lower and medium-

income countries, whereas lower returns to education in higher-income countries. They substantiated their claims by presenting the evidence of higher average returns to education in Sub-Saharan Africa and Latin American region whereas, lower average returns in OECD and lowest in non-OECD European countries. The average return to education in the Asian region was found to be 10%. In continuation to their efforts towards looking at global estimated returns to education, Psacharopoulos Patrinos (2018) again looks at the global average returns to education by extending the number of countries from 98 to 139. They considered 1120 estimates of returns to education, evaluated between 1950 and 2014 for 139 countries, to analyze the global averages. With little variation from their earlier estimates, the global average private returns to education were found to be 8.8% with eight mean years of schooling, again with a similar pattern of returns to education for various regions. Private returns to education were found to be highest with the average return at 11% in Latin America and Caribbean region followed by Sub-Saharan Africa with 10.5%, East Asia and Pacific region with 8.75, South Asian region with 8.1%, Advance Economies with 8%, Europe and Central Asia with 7.3% whereas it was found lowest in North Africa and the Middle East with 5.7%. Based on the world bank (2016) classification of Income groups, Psacharopoulos Patrinos (2018) recorded an average return to education of 9.3% for lower-income countries with an average of five years of schooling, 9.2% for middle-income countries having seven mean years of schooling, 8.2 % for higher-income countries with 9.2 mean years of schooling. These estimates highlighted the inverse relationship between mean years of schooling and average returns to education. Furthermore, in both the studies, the average return to an extra year of schooling for women is found to be higher than for men.

Various studies since the emergence of this concept have investigated returns to education for the case of Pakistan. All these studies considered various forms of traditional Mincerian Schooling-Earning Function to estimate the average returns to an extra year of schooling. A review of these studies revealed a similar conclusion with respect to the country's lower average returns to

schooling that falls in the range of 5 to 7 percent (lower than the regional estimates concluded by Psacharopoulos Patrinos (2018), in comparison to neighboring India as well as other developing nations, positive association of returns to education with an increase in the level of education, and gender disparity of returns to education, with females depicting higher average returns to education than males. The findings of some recent studies are discussed next. Being a pioneer in analyzing the earning-schooling relationships, Hamdani (1977) used a project appraisal technique to compute the internal rate of return to education. Later, Guisinger et al. (1984) used the data extracted from a survey of 1000 households done in the Rawalpindi district to estimate the returns to education by considering schooling level by controlling for the influence of the sector of employment. They concluded a lower return to schooling in comparison to other developing states on account of various loopholes in government policies. By using the data of 2593 wage employees from the Population-Labor-Force and Migration Survey of 1979, Khan and Irfan (1985) explained the returns to schooling through standard Mincerian Earning Function. They concluded on average lower returns to education in Pakistan in comparison to the average return to education of developing states. Another study that used labor force data came from Asma Hayder in 2007. In her study, Hyder (2007) used data from the 2001-02 Labor Force Survey (LFS) to estimate returns to education according to her explained seven levels of education by controlling for the private or public sources of education. Her estimates vary from 1.5 percent for primary education to 9.23 percent for higher education.

By considering the data from Pakistan Integrated Household Survey 1995-96, Nasir and Nazli (2000) analyzed the returns to education for salaried persons as well as wage earners. By controlling education quality and other factors, they concluded a positive association of earnings with an increase in the schooling years. Their analysis outlined two main findings; first, education is significantly found to be associated with higher earnings which they presented through their empirical finding of an average 7% percent returns to education for an extra year of schooling for

wage earners. Second, they explained backward causation as well by showing the demand for more education by high earners. Extending her earlier analysis, Nazli (2004) used the data from Pakistan Socio-Economic Survey 1998-99 to again assess the returns to education for salaried persons and wage earners. She also considered the work-related variables such as occupation and experience. By considering for education and experience interaction, Nazli (2004) concluded a significantly positive but declining association of education-experience interaction term with earnings. Another study by Khan and Toor (2003) also used two rounds of the Pakistan Integrated Household Survey, i.e., 1990-91 and 2001-02, to analyze the private returns to education for individuals with varying educational levels. Coherent with earlier studies, they also concluded a positive association of education and earnings, but contrary to the previous studies, they concluded an inconsistent pattern of returns to education at various levels as well as for males and females. By using the same data set as of Khan and Toor (2003), another study by Jamal et al. (2003) also examined the subject matter and concluded an average 6.4% return to an extra year of schooling. They also analyzed differences in the returns to education for varying educational levels and concluded 3% return for primary education, 4% for secondary education, 16% for higher secondary level, 13% for tertiary technical, and 11% for tertiary general. Another study in the later years by Aslam (2007) relied on PIHS 2001-02 dataset and analyzed the returns to education for men and women by using four different statistical methods. With inter-method variations, she concluded a higher rate of returns to an extra year of schooling for a female that falls in the range of 13-18%   whereas 7-11% for males. Another study that used the dataset of PIHS 2001-02 came from Ashraf (2011), confirming the observations of Aslam (2007) regarding the higher returns to education for females, Ashraf (2011) recorded 13% returns for females in comparison to 5% returns for and an extra year of schooling for males. Two studies, Abbas and Foreman (2007) and Khan (2008) used Pakistan Social and Living Standard Measurement Survey (PSLM) data set for the year 2004-05. The study by Abbas and Foreman (2007) also recorded a higher return to education for females with primary

education at ten and of secondary education at 13% in comparison to males with 5.7% for primary education and 6.5% for higher secondary education. The study by Khan (2008) estimated an average of 5 % returns to an extra year of schooling after controlling the type of qualification. Another study that relied upon PSLM data came from Quraishi (2012), which used Pakistan Social and Living Standards Measurement Survey (PSLM) 2005-06 to analyze the returns to education by accounting for gender differences in enrolment. Quraishi (2012) reported an increasing return to education with the level of education with females accruing higher returns than males. On average the returns to education for salaried persons was recorded around 6%.

Based on the fundamentals explained by Becker (1964) towards estimation of returns to education in the framework of Human Capital Theory, Mincer (1974) proposed the following standard model based on individual cross-sectional differentials to quantify the impact of schooling on individual earning.

$$Log(W)_i = \alpha + \beta_1 S_i + \beta_2 E_i + \beta_3 E_i^2 + \varepsilon_i$$

The standard semi-logarithmic model written above linearly explained variations in the hourly wages (W) through the year of schooling (S) an individual has completed and his work experience (E). The model includes a quadratic experience term based on the curvilinear behavior of wages against labor market experience. Various other studies also consider a variety of other controlling factors such as gender, race, profession, age, location, ethnicity, etc., in addition to schooling years and experience in the Standard Mincerian Function to estimate returns to education.

4.4.1.1 MEF with unobserved ability

In contemporary literature, the application of MEF comes with and without consideration of individual abilities or capabilities. Most of the studies on returns to education do not account for the individual abilities as it appears in the above model due to complexities involved in measuring

abilities. These studies then evaluated the returns to education by considering abilities as unobserved. This approach of returns to education by assuming abilities as an unobserved variable is followed in this research to estimate the returns to education for the case of Pakistan due to unavailability of any observed measure of abilities in the dataset followed for analysis, as explained in the next section.

4.4.1.2 MEF with observed ability

The treatment of abilities as unobserved in the returns to education analysis by using MEF has been questioned widely on account of ability bias which may over or understate the returns to education. Since, it has been explicated that Per hour wages, the dependent variable in most of the returns to education models, when depends upon schooling years, also depends upon individual abilities (Card D. , 1995). It has been highlighted that the omission of conditions explaining the abilities of individuals from earning functions creates an ability bias (Behrman & Rosenzweig, 1999; Ashenfelter & Rouse, 1998; Regan, Burghardt, & Oaxaca, 2006). It is thus argued that analysis of returns to education is incomplete without abilities, and hence individual abilities/ capabilities cannot be ignored. To cope with this ability bias in returns to education analysis, another set of studies used various proxies of abilities to capture the variations in individual productivity based on their used proxy for abilities (Griliche, 1977; Card D. , 1999; Lang, 1993). The standard model with a proxy of an observed ability turns out to be of the following form:

$$Log(W)_i = \alpha + \beta_1 S_i + \beta_2 Ability_i + \beta_2 E_i + \beta_3 E_i^2 + \varepsilon_i$$

A lot of studies, however, have highlighted various issues regarding the use of various proxies of abilities in the returns to education analysis. The use of a variety of proxies such as individual IQ level, Math Skills, and School quality is described to be weak and inappropriate towards capturing the individual abilities (Card & Kruegerl, 1992; Card D. , 1995; Behrman & Birdsall, 1983). This

research, based on objective one, which corresponds to the estimation of returns to education for the case of Rahim Yar Khan, has used the Mincerian Earning function with an observed measure of ability. The whole analysis in this regard was conducted based on primary data with an exclusively defined measure of ability, i.e., an individual quality index as explained in section 4.1.

4.5   Cost of education

The impact of education on personal income varies around the world, but it is apparent that earning potential is positively associated with the level of education. According to various studies, educated individuals are earning more than their uneducated or fewer educated counterparts. As per (World-Literacy-Foundation, 2015) illiterate persons earn 30% to 42% less than literate persons. If accounted for a higher level of education, this difference is much bigger. Furthermore, uneducated people lack the ability to improve their personal skills and take advantage of various occupational pieces of training to enhance their earning potentials (Hartley & Horne, 2005). An uneducated or less educated individual in this way not only have less current income but also has limited income growth and hence less lifetime income. The educated individual, on the other hand, earns more current as well as lifetime income and hence is able to accumulate more lifetime wealth (Becker G. S., 1993). On the one hand, uneducated individuals are earning less personal income; on the other hand, they are less productive in their contribution to the national economy. Based on their lackluster earning potentials due to poor skills and inability to learn and take advantage of technological advancements, they are highly prone to production damages and hence losses to the national income. In addition to this, the individuals with no or less education are two times less likely to get jobs in the first place, and if they have any opportunities, they are more likely to have employment at lower wage rates. Furthermore, they are highly exposed to negative economic shocks in terms of saving and getting employment during economic downturns (Martinez & Fernandez, 2010).

When prime implication comes for the earning potentials and productivity, the spillover effects of these economic implications is more damaging in term of social dilemmas individuals and societies are facing due to accumulation of uneducated or less educated and less productive population. Almost 43 % of the world's poorest populations are illiterate. This number goes much higher if less educated individuals are also accounted for (Martinez & Fernandez, 2010).

Also, a person's ability to obtain, interpret, and implement health-related information and messages is severely obstructed by a lack of education. As a result, home and individual health, cleanliness, and nutrition suffer. Uneducated persons, particularly mothers, are more likely to practice bad dietary and sanitary habits at home. This leads to an increase in sickness, accidents, and other health difficulties, rising demand for medical services, and causing workplace absenteeism due to illness on the part of either the parent or the children. These health problems, if left untreated, might result in permanent disability or death. A kid born to a mother who can read is 50% more likely to live through the age of five in underdeveloped countries (Martinez & Fernandez, 2010). Literate people practice better cleanliness, have easier access to preventive health measures such as vaccinations and medical check-ups, and can learn more about nutrition to feed their families. Due to a lack of information about sexual and reproductive health and poor or non-use of contraception, lack of education increases the likelihood of high-risk sexual behavior. According to one study, educated women are three times more likely than uneducated women to be aware that even someone who appears to be in good health can be infected with HIV. Unplanned and teen pregnancy are more likely when people are unaware of contraceptive techniques. As a result, young new mothers are less likely to continue their education or enter the labor force. Furthermore, because they cannot read or understand written health and safety regulations, employees with a lack of education or a low level of education are more likely to experience work-related accidents. Their inability to understand and deal with safety regulations and warnings put theirs as well as the lives of their co-workers at risk. On one end, such incidents

boosted the cost of medical services, and on the other hand, it leads to higher absenteeism, damaging the long-term productivity of the individual as well as the business entities and national economy ((Martinez & Fernandez, 2010). In addition to lost productivity, the state needs to invest substantial resources to deal with the health problems, which again cost the national economy.

Similarly, most of the crimes in society are positively associated with a lack of education as individuals with no or less education is highly unlikely to get jobs and hence are prone to involvement in criminal or non-state activities. According to World-Literacy-Foundation (2015), 60-80% of the criminal are either illiterate or less educated. The main reason for their participation in criminal activities is stretched back to their inability to get jobs and respectable earnings (Martinez & Fernandez, 2010; World-Literacy-Foundation, 2015). This again costs society in terms of the existence of crimes as well the dedication of substantial resources to curb these crimes.

Concluding on the discussion, the lack of education is imposing substantial costs (both direct and indirect) to the society as well as the economy. Despite its utmost importance, academia, unfortunately, paid less attention to the estimation of these costs. Very few attempts are made to compute these costs. Those who attempted to compute have computed it through mere assumptions. The only credible estimate available is from the World-Literacy-Foundation (2012,2015), which computed it by assuming 2% of the total GDP as the cost to illiteracy. No methodological framework is shared to compute such costs.

This research attempted to estimate the cost of education deprivation by making use of a return to education as estimated according to the framework explained in section 4.4; average annual working hours determined by analyzing the annual working days available; total, employed, and unemployed labor force by the level of education in the age bracket ten years and more, extracted from the labor force survey 2018 for both urban as well as rural areas; and different

educational profile of the labor force. The estimation process then involves a five steps mechanism as explained in section 5.3.3 to explain the cost of educational deprivation.

CHAPTER 5.

DATA AND ESTIMATION METHODOLOGY

The need for reliable and quality data is widely emphasized in social research to produce good and reliable results for reliable and effective empirical analysis. Thus, the pre-requisite for any empirical investigation is the availability of quality data as the method to be used for analysis ought to agree with the nature and quality of data at hand. The design of a study, in this way, is defined by the nature of the data which that study intends to investigate (Olsen & George, 2004; Wooldridge,2010; Gujarati, 2011). Based on the research objectives defined earlier, this research followed a cross-sectional study design with primary as well as secondary data. For the case of Pakistan, the research relied upon the credible data source PSLM 2018-19, whereas primary data was collected by means of a reliable survey designed specifically for the case of Rahim Yar Khan. Both types of data are explained in this chapter.

5.1 Data for the case of Pakistan:

Two types of data were used for the whole analysis regarding cost estimation for the case of Pakistan. Individual-level data from Pakistan Social and Living Standards Measurement Survey HIES-PSLM 2018-19 was used for the analysis of returns to education, whereas population and labor force data was extracted from the Population Census 2017 and Labor Force Survey 2018-19. HEIS-PSLM 2018-19 contains data of individuals corresponding to 24809 households from all the districts in four provinces of Pakistan, covering urban as well as rural areas. The dataset provides a comprehensive account of various household-level indicators on Education, Health, Population Welfare, Housing, Water Sanitation & Hygiene, Information Communication & Technology (ICT), Food Insecurity Experience Scale (FIES), and Income & Expenditure. In addition to household-level indicators, the dataset provides substantial individual-level data of 175691

individuals with variations according to gender, employment status, schooling, various earned as well as unearned incomes, working days, age, and various other attributes. We have used this individual-level data of HIES-PSLM 2018-19 to estimate the returns to education and then the cost of educational deprivation for the whole of Pakistan. All the individuals who were wage earners and fell in the age bracket ten years or more were selected for this analysis. With this criterion, the data of 30858 wage earners from all the districts of Pakistan has been used for the estimation of returns to education. Further to this, the data regarding the distribution of population with respect to age and education have been extracted from the Population census, and the distribution of total, employed, and unemployed labor force in the age bracket ten years or more was extracted from the Labor Force Survey 2018-19.

5.2 Data for the case of Rahim Yar Khan:

Primary data was collected from Rahim Yar Khan for this study, as explained in the forthcoming section. Secondary data from various reliable sources were used at various stages of this research: historical facts were extracted from sources such as the Punjab Development report (2016,2017), Alif Ailaan Foundation, Population Census Reports (1998-2017), Labor Force Survey 2018-19, Country Human Development Report (2017), and historical records of parliament from the online parliamentary library to describe the profile of Rahim Yar Khan District.

The core analysis for Rahim yar Khan is based on primary data of individuals with different levels of education from four of its tehsils[18]. Data, in this regard, was collected for two sets of variables by using a pre and post-tested[19], reliable questionnaire by following a multi-level purposive

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[18] Rahim Yar Khan, Sadiqabad, Liaqatpur, and Khanpur

[19] Questionnaire was tested twice after designing for the clarity of questions as well various communication and language problems as well as perceived meaning of the questions. Questions were rephrased/restricted according to the problems noted while conducting the pilot survey in the field. Second, after collecting data from the sample, it was checked for the validity and reliability of all the items and hence highly reliable and valid items were considered from the analysis as explained in the next section.

sampling technique to include individuals from all educational levels[20]. The unit of analysis, as indicated earlier, has been an individual with one of the seven levels of education, who is a wage earner, and falls in the age bracket (25-59). These conditions were imposed to ensure the inclusion of individuals from the educational levels 0-6[21]. Twenty-five years of age was considered a natural starting point for this research because, at this age, an individual can possibly attain the highest level of education (16+). We only consider the working population as one part of our analysis involves economic quality that requires economic information, as explained earlier. Based on our sampling frame, the proportion of the male and female working population in the age bracket 25-59 for all levels of education was determined by considering the current population census district report for Rahim Yar Khan[22]. A total of 421 respondents, according to the proportions explained in Appendix Table D.1, were surveyed with a 95% confidence interval through a well-trained surveyor. Given several constraints, the sample used for Rahim Yar khan was determined as follows:

The individuals surveyed were selected from 42 union councils (a small administrative jurisdiction) of Rahim Yar Khan District out of a total of 122 Union Councils in four Tehsils (Rahim Yar Khan 40; Sadiqabad 29; Khanpur 28; Liaqatpur 25)[23]. Based on the required sample size of 421, a systematic random approach was followed at the union council level to select 42 Union Councils, covering the entire district as shown in Appendix Table D.2. With this scheme, every 3rd union council from a sorted list of 122 union councils in four tehsils has been selected for the survey. The recruitment of respondents within each union council is based on convenience sampling as financial and other constraints did not permit an utterly randomized selection at this

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[20] 0, Primary, Middle, Matric, Intermediate (12), Bachelors (14), Masters and Above (16 and 16+)

[21] If age is set to be 20 years, then in Pakistan it is unlikely that an individual has 16+ educations at the age of 20.

[22] Table 12 and Table 25 of District Census Report Rahim Yar Khan.

[23] List attached as Table A-2 in the Appendices A

stage. The recruitment process involved consideration of ten individuals from each union council which fits the sampling frame explained earlier and suites the requirements of this research. A few necessary steps in this regard were followed to ensure the inclusion of the right candidate for the survey. A hit and trial method was adopted to survey ten persons from each union council by relying on personal observation and pre-survey screening interviews. Furthermore, the survey was conducted by ensuring the inclusion of male as well as female respondents according to the sample chart, explained in Appendix Table D.1. First, based on personal observation about the suitability of research, a screening review has been carried to ensure four things, i.e., working status, age, education, and willingness of respondents to participate in the survey. The survey was conducted if the respondent fits in the sampling frame after screening review, i.e., working-age of respondent falls in the age bracket 25-59, respondent belongs to one of the required educational levels as per sample chart and above all the respondents show willing to participate in the survey. If the person refuses to participate or does not fit in the sampling frame, then the surveyor repeated the review process with some other individual until he gets data from 10 individuals according to the sampling frame from each union council.

Recruitment in this way ensures two important things: first, it ensures the consent of the respondents by explaining to them completely the purpose of data collection and research objective. Second, it ensures quality responses based on the willingness of respondents. By following the mechanism explained above, a total of 421 responses were collected from 42 union councils. Out of 421 responses, the data of 404 individuals with varying levels of education, age, working status, gender, and other socio-economic and political attributes with sampling frame defined earlier was found satisfactory for further analysis.

5.2.1 Questionnaire:

A customized questionnaire was designed based on established literature as discussed in the coming section for effective data collection by accounting for the importance of reliability and validity of data, which may be affected by the design discrepancies. A standard structure of survey with questions divided into three sections, i.e., Administrative, Classification, and Targeted, has been followed with greater emphasis on the sequence as well as wording and meaning of questions to ensure order, precision, and clarity (Bryman, 2016). The administrative part encompasses survey administration with three items, i.e., Response ID, Locations of Survey, and Surveyor Name. The classification part is intended to record the general profile of respondents regarding their demographic, social, and economic attributes. The targeted part, which is the most important and core part of this study, included questions with varying ordinal scales to assess the social, economic, and political quality of individuals with different levels of education. The set of questions asked for subjective assessment were selected carefully by considering the theoretical relevance of each question with the dimension being tested in the light of the local dynamics of Rahim Yar Khan to ensure validity. Furthermore, to make it an appropriate and effective instrument, the questionnaire was designed under the guidance of well-tested sources.

5.2.1.1 Classification Questions:

These are the questions meant to different individuals based on their demographic, social, economic, political, and religious characteristics. Classification questions are divided into three subcategories, i.e., General Information, Background Information, and Current Economics Status of the respondents. Variables for which data was collected in each part are described next. General variables are important to separate the impacts based on personal characteristics of individuals such as Education (Edu), Gender (G), Age (A), Marital Status (MS), and Resident Status (RS), i.e. (Urban/Rural). Background variables in the context of this research are important for three reasons:

First, to examine the variations in the educational attainment for individuals with varying backgrounds; Second, to analyze disparities in individual quality regarding their background; and third, to examine the differences in productivity. The key background variable for this research are (FE) Father's Education, (ME) Mother's Education, and (ST) Schooling Type. To examine the current economic status of individuals with various educational levels, the key economic variable this research has considered are (WS) Work Status (Employed or Self-employed/Business), (WD) Working days per week, (WH) Work Hours per day, (Exp) Work Experience, (MI) Monthly Income, and Personal Assets Worth (Wealth).

5.2.1.2 Variables from Subjective Assessment:

As explained earlier, Individual Quality Index was computed by assessing the Economic, Social, and Political Quality of Individuals, each defined by several variables as explained next. The set of questions asked for subjective assessment were selected carefully by considering the theoretical relevance of each question with the dimension being tested in the light of the local dynamics of Rahim Yar Khan to ensure validity. Furthermore, to make it an appropriate and effective instrument, the questionnaire was designed under the guidance of well-tested sources.

5.2.2 Conduct of Survey:

The questionnaire was designed and executed using google forms. Originally, it was designed in the English language with translation in simple and understandable Urdu language with further support in local language[24] to make it a useful instrument. The survey has been conducted as a structured interview with the help of a surveyor. The surveyor was used to avoid confusion and to clarify or explain the meanings of various terms to collect quality data. Every respondent was explained in an ethical and simple manner completely about the type, objectives, and effectiveness

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[24] Surveyor was deployed from the Rahim Yar Khan district well aware of the local language as well as local dynamics.

`of this study to ensure true natural responses in the best possible manner and to create an effective environment for data collection. The average interview time for one respondent of the survey was 40-60 minutes. The respondents were pre-informed about the interview duration, and only those respondents were selected who consented and had enough time to actively complete the survey. All the responses were recorded using google forms, from where the excel data sheet was extracted for data analysis.

5.2.3   Reliability and Validity:

The quality of research depends upon the quality of data in hand, and the quality of data depends upon the kind of data collection instrument used. The quality of the data collection instrument is defined by the reliability and validity of the instrument to ensure the right ingredient for effective analysis. We have conducted a reliability and validity check to ensure high-quality data and to identify the relevant items in each part of our instrument and their appropriateness for further assessment of Political, Social, and Economic Quality assessment. To ensure the validity and reliability of items concerning the economic, social, and political quality of individuals, we have gone through an exploratory Factor Analysis (EFA), Pearson Correlation Analysis, Internal Consistency Analysis, Confirmatory Factor Analysis, and further validity and reliability analysis through AVE and Composite Reliability. This analysis ends up with the fitness of all items for economic awareness assessment and language assessment, five items of functional communication skills, five items for decision-making skills[25], and four items for work and productivity skills[26]. For social quality assessment, four items for each of the Health, Tolerance, and Law-Abidance, as shown in Appendix Table E-9, were found fit for further analysis. At the same time, all the items

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[25] item DM6 was found invalid

[26] item WP5 was found invalid

for political assessment were found appropriately valid and reliable for further analysis and estimation.

5.3   Estimation Methods

This part deals with the computational and estimation methods for the computation of the Individual Quality Index and the estimation of Quality and Wage Functions. Section 5.3.1 comprehensively explained the procedure to compute Individual Quality, whereas section 5.3.2 discussed the method for the estimation of Quality and Wage Functions.

5.3.1   Computation of Individual Quality Index:

As explained earlier, the Individual quality index is an aggregate measure of Economic Quality Index (EQI), Social Quality Index (SQI), and Political Quality Index (PQI). Thus, computation of Individual Quality first requires the computation of three domain indices with the dimensions explained in the forthcoming sections.

5.3.1.1   Economic Quality Assessment:

Despite questioning the idea of economic prosperity as the sole criteria of wellbeing, most of the development literature still believes that long term sustainable development of society critically hinges upon its ability to generate optimal economic value. The extent to which a state can generate such economic value depends upon the quantity as well as the quality of its labor force and its physical infrastructure (Romer, 2011). Given the similar level of physical infrastructure, the states with superior quality well educated human capital are generating more economic value than those with less-educated inferior human resources (Nussbaum, 1988; Sen, 2003; Robeyns, 2005; Commim, Qizilbash, & Alkire, 2008). (Nussbaum, 1988; Sen, 2003; Robeyns, 2005; Commim, Qizilbash, & Alkire, 2008; Robinson & Acemoglu, 2012; Ellis, 1917; Fisher, 1932; Walsh, 1935; Becker, 1962-1975-1993; Akerlof, 1970; Mincer, 1958-1970-1974; Riddell, 2006). We conclude

from the literature on the benefits of education towards the economic quality of individuals through the Economic Quality Index (EQI) based on three subdomain Indices regarding Economic Awareness, Skills, and Wealth as discussed next.

Building on the importance of economic awareness as mentioned in Chapter 4 Section 4.1.1.1, the study has outlined many features relevant to three markets (Goods and services, Labor, and Financial), state institutions, and policies to assess the economic awareness of individuals. Following a thorough examination of Pakistan's economic dynamics, a set of 10 questions about various economic conditions was devised to test people's economic awareness. The relevance and universality principles were followed to choose the items for awareness assessment. According to this criterion, the economic indicators universal across all educational levels and social strata were included in the assessment tool. Additionally, items included in the awareness evaluation were chosen with three levels of difficulty, i.e., lower, medium, and higher, to distinguish between people with different degrees of education.

Coherent with the above objectives, the research analyzed the knowledge of individuals by accepting economic awareness as an important indicator of individual financial freedom that offers a great deal of rationality towards various economic decisions. It explains the extent to which individuals can consume, save, or invest for their current or future wellbeing.

To assess economic awareness, we take into account the following variables: Inflation rate, National Debt, Interest rate, Minimum wage rate, Tax-free monthly income, Current General Sales Tax, State announced wheat price, name of the main stock exchange, sectoral distribution in GDP, sectoral distribution of resources. The rationale for including these variables is given below:

An increase in the prices leads to a decline in buying ability (the domain of economic functionings) and hence contraction of economic freedom to have a fair standard of living. It may influence the long-term economic perspective and hence may push individuals into poverty traps. Similarly, a

decline in prices leads to more economic freedom. In line with this, to be able to make rational decisions with limited resources, the economic agents must be aware of changes in prices and their likely impacts (Jacobs, Perera, & Williams, 2014). Thus, the knowledge about changes in the price of goods and services, reflected through the Inflation rate, has been assessed as an important economic attribute due to its direct relationship with the economic freedom of individuals. A consumer's current or future decisions related to savings, investments, and consumption are closely related to the prevailing interest rate. The interest rate in this way is another important economic attribute that may influence the current or future economic freedom of individuals. A lack of awareness from the prevailing interest rates and hence the economic opportunities available may influence the economic freedom of the individual in the short or long run. Thus, to be able to make rational economic decisions about saving, investment, and consumption, the individuals must be aware of current interest rates to take benefit of them (Hansen, 1996; Attanasio & Weber, 2010).

To avoid deception by markets or providers of goods and services, one must be aware of the sales tax on consumption. In line with this, the assessment of economic awareness also considered knowledge about sales tax. Similarly, the knowledge about tax-free monthly income, state-declared minimum wage, price of food essential items such as wheat or flour makes an individual economic agent rational about their decision making, and hence, offers a great deal of economic freedom to make the best decision for their wellbeing. Likewise, the knowledge about some macroeconomic indicators or state institutions such as national debt, overall resource creation, and distribution makes individuals able to understand the broader economic environment for optimal decision making at the individual as well as collective level. The questions related to national debt have been considered for the assessment due to its importance in the policy decisions of the less developed states like Pakistan. Due to its centrality, the economies like Pakistan formulate their policies based on the magnitude of the national debt. In line with this argument, most of the

changes in those economic attributes which have a direct impact on the economic freedom as well as the overall wellbeing of individuals are directly or indirectly associated with the national debt. For example, to finance the debt costs, interest payments, or debt repayment, the state increases taxes or withdraws tax credits, raises prices on state-controlled utilities, increases interest rates, invests less, and undermines the growth opportunities and hence influences individual freedom in every domain of life. Furthermore, the social, economic, and even political environment of Pakistan is widely influenced by these attributes. The policymakers and contenders in social, economic, and political contests always use these attributes to undermine contrasting opinions and to gain support for their own ideology. In line with this, the idea of inflation, national debt, and other attributes are well-celebrated concepts in Pakistan irrespective of the occupation and level of education and hence was considered for economic awareness assessment.

The complete list of items considered for economic awareness assessment with exact statements is presented in the Appendices Table E.1. Based on the responses against ten questions for the economic awareness assessment, an aggregate awareness score was determined by summing all the correct answers. The aggregate awareness score was then used to determine the Economic Awareness Value for the whole sample with different educational levels by means of the following formula:

$$\textbf{\textit{Awareness Value}} = \frac{\sum \textit{Correct Answers}}{\textit{n}}$$

In the above equation, n is the total number of questions included in the Economic Awareness instrument.

The Awareness Value computed falls in the range of (0-1), with all values closer to zero depicting lower awareness level and the values closer to 1 depicting a higher awareness level. On the whole, every individual fall into one of the five categories of Economic Awareness, i.e., All the individuals who fail to answer even a single question has awareness value equals zero and were

declared not aware at all; The individuals who responded with at most one-fourth of the right answer secured awareness values greater than zero but less than or equals 0.25 and were placed in "Least Aware" category; The individuals who responded with at least one fourth and at most half of the right answer secured awareness values greater than 0.25 but less than or equals 0.5 and were placed in "Moderately Aware" category; All those who responded with more than 50% but less than or equal to 75% right answer were placed in the fourth category called " Substantially Aware" with 0.5 < Awareness Value <=0.75; and all those with 0.75 < Awareness Value <=1 were placed in Highly Aware category.

To assess language skills for this research, we have integrated a mechanism in the survey questionnaire that requires self-reporting abilities of individuals regarding their local language (LL), National Language (NL), and globally recognized foreign language English (FL). Respondents were asked to rate their reading, writing, and speaking skills regarding their local, national, and foreign language on a 5-point Likert Scale[27]. Based on individual responses against reading, writing, and speaking skills, an average score was determined for all three languages (Local, National, English), which were used to compute a Language Value (LV) for the whole sample by dividing Language Score obtained by maximum skill level(4)[28]. The values obtained against each language, i.e., Local Language Value (LLV), National Language Value (NLV), and Foreign Language Value (FLV), were then averaged to yield an aggregate Language Skill Value (LSV) representative of the language skills of individuals in this setting. The aggregate language values obtained fall in the range of (0-1), with all values closer to zero depicting poor language skills and the values closer to 1 depicting a higher level of Language Skills. In between two extreme values that are Zero (No Skill at all) and One (Perfect Language Skills), all the individuals

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[27] 0-No skill;1-Poor Skill;2-Fair;3-Good;4-Excellent

[28] $Language\ Value = \frac{Average\ Lanaguage\ Score}{4}$

were categorized according to four slabs of language skills: The individuals with $0 < LSV <= 0.25$ were placed in the category " Poor Language Skills"; Those with $0.25 < LSV <= 0.5$ were placed in the category " Average Language Skills"; Those with $0.5 < LSV <= 0.75$ were placed in the category "Good Language Skills"; and those individuals who have $0.75 < LSV < 1$ were placed in the "Excellent Language Skills" category.

For the assessment of functional communication, we have used an instrument of 5 items to assess the capabilities of individuals against various functional communication skills. The respondents were asked to rate their capability regarding listed five situations on a 5-point Likert Scale as shown in Appendix Table E.2. Furthermore, we have integrated five items in the survey questionnaire with a focus on the earlier explained dimensions to assess the work and productivity skills in the context of this research based on a five-point Likert scale. The respondents were asked to report how often they tend to match the following five dimensions of effective work and higher productivity in their work activities presented. The items used for this assessment are listed in Appendix Table E.3. The assessment of decision-making skills for economic quality in this research was done using six attributes of effective decision-making, as illustrated in the previous paragraph. The respondents have presented these six attributes and were required to report their own practice regarding their decision-making process on a five-point scale, as shown in the Appendices Table E.4.

Above mentioned three operational skills were computed based on the responses against all items for three skills by averaging to yield a relevant skill score which was then divided by maximum value on the scale (4) to yield Functional Communication Skill Value (FCSV), Work and Productivity Skill Value (WPSV), and Decision-Making Skill Value (DMSV) all three in the range of (0-1). These values were then aggregated to form an aggregated Operational Skill Value (OSV).

An Aggregate Skill Value (ASV) was determined by averaging the outcomes of Language Skills (LSV) and Operational Skills (OSV). This ASV represents the economic freedom of individuals defined by their language, functional communication, work and productivity, and decision-making skills to achieve what they want to achieve for their well-being. With the same specification as used to differentiate based on OSV and LSV, every individual was categorized into one of the four skill categories (Poor, Moderate, Good, and Excellent) according to their Aggregate Skills Values (ASV).

In the light of discussion done in Chapter 4 Section 4.4.1.3, Individuals' reported asset worth was used to compute a wealth index according to the rationale followed by the Human Development Index for the computation of Income Index computation (UNDP, 2018). Thus the formula to compute wealth value is:

$$\boldsymbol{Wealth\ Value}(\boldsymbol{WV}) = \frac{(log(W_i) - \log(W_{Min})}{(log(W_{Max}) - \log(W_{Min})}$$

Where, W_i is the Total Reported Assets Worth of ith individual (W_{Max}) is the Maximum Assets worth in the total data collected, which is RS: 120000000 and (W_{Min}) is the Minimum Assets worth which is Rs: 10000, which is the least reported personal asset worth. The wealth Value (WV) of all the 404 respondents was computed in the prescribed manner. Every individual in the sample was categorized into one of the four categories according to their wealth status determined by the wealth index in the range of (0-1) as Low Wealth Status (0 <= WV <= 0.25), Moderate Wealth Status (0.25 < WV <= 0.5), Good Wealth Status (0.5 < WV <= 0.75), and High Wealth Status (0.75 < WV <= 1).

Finally, Economic Awareness Value (AEV), in addition to Aggregate Skills Value (ASV) and Wealth Value (WV), were used to compute the aggregate Economic Quality Index by following equal weight conventions as:

$$\textbf{Economic Quality Index}(\textbf{\textit{EQI}}) = (\textbf{\textit{AV}} * \textbf{ASV} * \textbf{\textit{WV}})^{\frac{1}{3}}$$

This Aggregate value, as determined for every individual, describes their economic freedom and hence economic quality based on three sets of capabilities, i.e., their skills, economic awareness, and resources. This value depicts the extent to which individuals are capable of utilizing their skills, awareness, and resources to extract maximum economic benefits for a sustainable economy as well as other facets of well-being. Based on earned Economic Quality Index value, every individual in the sample was categorized into one of the four categories of Economic Quality between two extremes defined by Perfect Quality with EQI=1 and No Quality with EQI=0. Individuals have EQI greater than zero but less than equals to 0.25 were categorized as "Low Quality," those with EQI greater than 0.25 but less than equals 0.5 were called "Average Quality" individuals, those who has EQI values greater than 0.5 but less than equals 0.75 were placed in "Highly Quality "category, and those who yielded EQI values greater than 0.75 but less than one were categorized as "Very High Quality "Individuals.

5.3.1.2 Social Quality Index:

Based on various perspectives regarding the interconnection of education and health, as explained in Chapter 4, we have assessed the health of Individuals with seven levels of education. The part of the survey that pertains to the assessment of health was developed based on theoretical consideration regarding various aspects of individual health as discussed in Section 4.1.2.1 Chapter 4. We have considered eight items with a self-reporting five-point Likert scale for health assessment regarding the frequency of various Physical, Mental, and Social health situations/occurrences as shown in Appendix Table E.6.

For Physical health, we have considered the prevalence of chronic diseases (Bernell & Howard, 2016; Callander, Schofield, & Shrestha1, 2013; WHO, 2015; Hwang, Weller, Ireys, & Anderson, 2001; Ozieh, Bishu, Dismuke, & Egede, 2019); good night sleep of at least 7 to 8 hours as an

indicator of good physical health(Epstein & Mardon, 2006; Opp & Toth, 2003; Cohen, Doyle, & Alper, 2009; Lange, Perras, Fehm, & Born, 2003); and individuals self-perception about own physical appearance, the prevalence of physical pain, and self-perception about own physical health as an indicator of overall physical health(McDowell, 2006; Garcia, 1998; Park, 2007). For mental health assessment, we have selected two items: individual responses against negative emotions, depression, and anxiety-inducing various other problems on one's own life (Elkin, Shea, & Watkins, 1989; Thibodeau, Fein, Goodbody, & Flusberg, 2015; Takeuchi & Nakao, 2013; Beck et al., 2011; MU, 1992); and individual self-assessment of self-esteem and happiness, an important indicator of mental health (Coopersmith, 1967; Mecca, Smelser, & Vasconcellos, 1989; Shiovitz-Ezra, Leitsch, Graber, & Karraker, 2009). The analysis of health is incomplete if we do not consider the third aspect of the health triangle, i.e., the social health of individuals in addition to their physical and mental health. Thus, to make our health assessment complete, we have examined the social health of individuals towards measuring their overall health status by recognizing it as another key aspect of social quality. Comprehensively defined by Russel (1973), social health represents those dimensions of well-being that concern an individual's engagements with other people and their reactions and his interaction with social institutions and societal traditions. The definition describes the domain of an individual's social functioning by uncovering the dimensions of an individual's personality, sociability, contact with societal stakeholders, institutions, and norms. Since it mainly involves human interaction, it is thus termed in literature as social adjustments, social well-being, social performance (McDowell, 2006; Keyes, 1998). A lot of studies in various contexts used different instruments and scales to measure the social health of individuals. Few well-known scales which attempted to assess social health include MacFarlane (1981) Social Relationship Scale, Sarason (1983) Social Support Questionnaire, RAND (1978) Social Health Battery, Sherbourne and Stewart (1991) Social Support Survey, Katz (1963) Adjustment Scale, Remington and Tyer (1979) Social Functioning Scale and many at different

time. All these scales used multiple items with an ordinal scale to assess the broader extent to which individuals are socially integrated or socially isolated (McDowell, 2006). Thus, these scales focus on two dimensions of an individual's social functioning, whether they are actively involved with or have a stronger sense of belongingness to their families, friends, communities, and organizations or they are isolated or disintegrated in their personal, social, and work life. Based on these two broader dimensions opposite of each other, we have used a question," How often do you feel isolated in your personal, social as well as professional life?" to assess the social health of individuals with different levels of education in Rahim Yar Khan district. Three scales were used for the eight questions of health assessment, each with a different five-point Likert scale: the item related to chronic health diseases was assessed on the Likert scale with the frequency of more than three months disease spells in the last five years (0-(5 or more); 1- (4 times); 2- (3 times); 3-(One to Two times); 4- (Not at all); items from H2-H7 were assessed on a common scale (0-Never; 1-Rarely; 2-Sometimes; 3-Often; 4-Always); and the last item(H8) was assessed on the reverse of this scale as (0-Always; 1-Often; 2-Sometimes; 3-Rare; 4-Never).

As explained in Chapter 4 Section 4.2.2.2, despite variations in perspectives, a global consensus exists on describing tolerance or intolerance using accepting and respecting morally permissible alternative perspective, vision, behavior, philosophies, and difference based on gender, ethnicity, and race, religion, political affiliations, and socio-economic classes (Weissberg, 2008; Bergen, Bergen, Stubblefield, & Bandow, 2012; Helbling, 2014; Hofstede, 2001; Lickona T., 2002; Widom & Wilson, 2014). This consensus urged us to define a measure for the assessment of tolerance or intolerance scaled by the acceptance of varying social, economic, political, demographic, religious attributes defining tolerance by the individual in Rahim Yar Khan. An instrument consisting of eight items was developed to assess the level of tolerance/intolerance. These items were selected based on various dimensions by considering the local dynamics of Pakistan, which can incite intolerant behaviors with inherent demographic, social, religious,

political, and economic heterogeneities. Despite a great leap forward, Pakistani society is still lacking behind on the realization of women's education, labor force participation, and political involvement. Pakistan, thus being a rigid society based on various cultural, social, religious dynamics, depicts a lower acceptance level for the wider female participation in society (Siddiqui, 2017; ICG, 2015). The study has considered two questions for the tolerance assessment of individuals with respect to education to examine the perception regarding variations in the acceptance level of the individual for broader female participation in socio-economic and political spheres. As explained in Annexure Table E-6, one question dealt with the education and labor force participation (Item T1), whereas the other question addresses the perception regarding female broader political involvement (Item T2). Coherent with the general landscape of an inferior socio-economic and political status of religious minorities, depicting weak inter-religion relationships as well as a complex case of ethnic and racial division depicting social conflicts (Majeed, 2010; Fazal, 1999) urged us to consider the assessment of a complicated and sensitive case of inter as well as intra-religions rigidities depicting disturbing relationships between different religious groups (Haqqani, 2005). To assess the acceptability of individuals from other faith groups and religious sects, we have included four items (T4 to T7) in the tolerance assessment as shown in Appendix Table E.6(Page 190). We have further considered two items (T3 & T8), as shown in Appendix Table E.6, to assess the acceptance of individuals from varying incomes groups as well as acceptance of alternative political, social, economic perspectives (Hofstede, 2001; Nasir, Chaudhry, Khan, & Hadi, 2015). Thus, based on these dynamics, an instrument used for the assessment of tolerance assessed the acceptance level of individuals against the eight items summarized in Appendix Table E.6. These items were theoretically valid for the analysis of tolerance from the Pakistani perspective.

Based on the dimensions explained in Chapter 4 Section 4.2.2.3, we have constructed an instrument to assess the law-abiding behavior of individuals by considering reporting to legal

authorities against law-breaking incidences as an indicator of law-abiding behavior. The instrument consists of 8 items regarding various social, economic, political law-breaking situations, as shown in Table 4-7. The extent to which individuals are willing to report against these eight situations if they observe around them depicts their law abidance. Individuals were asked to respond on a five-point Likert-type scale regarding their chances of reporting to concerned legal authorities against prescribed situations. The situations representing illegal activities or lawbreaking were selected based on theoretical as well as practical relevance with the local dynamics of Pakistan, as shown in Table B-7 in Appendices B

After conducting reliability and validity tests as explained in Section 5.2.3, Four out of eight items were found fit for the assessment of Social Quality. Thus, the measure for individual social quality, i.e., Social Quality Index, was computed based on the data regarding 12 items as shown in Table B-9, four for each of the three factors.

The estimation involves two levels: First, individual responses against four items for each of the Health, Tolerance, and Law-Abidance were summed to generate an aggregate Health, Tolerance and Law abidance scores. These scores were then used to compute the Health, Tolerance and Law-abiding indices as follows:

$$Factor\ Index = \frac{(Individual\ Aggregate\ Factor\ Score) - (Minimum\ Score)}{(Total\ Aggregate\ Factor\ Score) - (Minimum\ Score)}$$

All the items were assessed on a five-point Likert scale (0,1,2,3,4), with zero indicating least score and 4 indicating maximum scores. Based on this scale, an individual can maximum obtains a score of 16[29] and a minimum zero (with all zero responses) for a factor with four items. An individual in this way may obtain an aggregate score between zero and sixteen. Using these

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[29] Total Number of Items * Maximum Score = 4 * 4 = 16; Number of Items * Minimum score = 4 * 0 = 0

three values, Individual Aggregate Factor Score (0-16), Maximum Factor Score (16), and Minimum factor score (0), we have obtained factor index outcomes in the range of (0-1). Here, factor value 0 means a worse state of that factor, 1 means an excellent state of that factor, and a value equal to 0.5 indicates an average state. All values closer to 0 depicts a poor state, and all the values closer to 1 show a good state. Thus, in the first phase, we have computed Health Value (HV), Tolerance Value (TV), and Law Abidance Value (LV) for 404 individuals of varying educational levels in the age bracket (25-59) from Rahim Yar Khan district. In the second stage, the data generated values of three factors were used with equal weight convention to compute a Social Quality Index as:

$$\textbf{Social Quality Index}(\boldsymbol{SQI}) \ = (\boldsymbol{HV * TV * LV})^{\frac{1}{3}}$$

Social Quality of Individual is thus an average of Health, Tolerance and Law Abidance quality of individuals.

5.3.1.3 Political Quality Index:

Two facets of Political Awareness, i.e., Awareness of the political representatives and Awareness of the overall political system, have been assessed to test the political knowledge of individuals at various levels of education. Awareness of political representatives was assessed to examine the knowledge of individuals 'about their political representatives at every level of political hierarchy. As discussed in the framework, respondents were asked for the Name, Education, Profession, and Political Party of the seven key political representatives at all three levels[30]. These seven representatives are classified as local representatives of Rahim Yar Khan (District Chairman, UC

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[30]District Nazim/Mayor/Chairman of respondents district and his Union Councile Chairman/Nazim at local level; Chief Minister of Punjab Province and member provincial assembly (MPA) of respondent's constituency at provincial level; and President, Prime-Minister of Pakistan, Member National Assembly(MNA) of respondent's constituency at national level.

Chairman, MPA, MNA) and representatives of national stature (Chief Minister Punjab, Prime Minister of Pakistan, and President of Pakistan). The aim to judge this sort of awareness was to observe how well aware individuals are with the profile of political representatives to whom they have elected at various levels. Respondent awareness score for this was determined based on the right answers they have responded. These scores generated values in the range of (0-4)[31]. With seven representatives, an individual can take a maximum score of 28 with a scoring range (0-4), and at minimum, he can have 0. Thus, based on obtained scores, an APR (Awareness of Political Representative) value is generated as follows:

$$APR\ Value(APRV) = \frac{(Obtained\ Score\ of\ APR) - (Minimum\ Score\ of\ APR)}{(Maximum\ Score\ of\ APR) - (Minimum\ Score\ of\ APR)}$$

Awareness of the political system was assessed to examine the knowledge of individuals regarding composition and some basic functional attributes of the political structure of Pakistan. The assessment was carried using a set of questions about the composition, key stakeholders, and some functional attributes of Pakistan's political system. A set of seventeen questions, as shown in the Table B-8 of Appendices B, with a dichotomous scale (0,1), was presented to the respondents regarding the composition, key stakeholders, and some functional attributes to assess Awareness of individuals with overall Political System (APS). Respondents were marked **one** against each right answer and **zero** for each wrong answer. By using these responses, an aggregate APSV (Awareness of Political System Value) was determined simply by aggregating the number of right responses a respondent secured and then dividing the aggregated number by the total number of questions (17) as:

$$APS\ Value(APSV) = \frac{(Number\ of\ Right\ Answers)}{(Total\ Number\ of\ Questions)}$$

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[31] 0 if respondent knew nothing, 1 if he knew only one and so on 4 if he knew all four attributes for a representative.

Thus, by following the procedure explained above, the assessment of political awareness of the political system was done for all 421 respondents (with 404 appropriate responses). This generated values in the range of zero and one, like the values in the first part. For both variants of awareness, the values closer to one show a higher level of awareness, whereas values closer to 0 depict a lower level of awareness.

Finally, an aggregate value of political awareness was yielded by averaging the two awareness scores with equal weights convention. Based on the awareness scores, an individual may fall into one of the six categories of awareness: Individuals who scored none fall into the category Not Aware at all, those who scored in the range of 0 and 0.249 falls in the second category *Slightly Aware*, individuals with values in the range of 0.25-0.499 fall in the third category Somewhat aware, individuals with values in the range of 0.5-0.749 fall into fourth category *Moderately Aware*, those who scored in the range of 0.75 -0.99 falls in fifth category Highly Aware, and individuals who scored one are named Completely Aware.

The second determinant of political quality, as explained in Chapter 4, is the freedom to participate or the freedom to involve in the political system. This freedom in the light of capability approach depends upon economic resources, socioeconomic conditions, security conditions, opportunities for political involvement/participation, and access to necessary information. These are the economic or non-economic factors as evident from the current situation of most of the less developed world, including Pakistan, which can constrain and hence define an individual's capacity in terms of freedom to effectively participate in the political process. In line with this fact, the freedom of political involvement was determined by assessing the extent to which an individual feels constrained regarding earlier explained five factors. All the respondents were asked to express their degree of constraint for each of the five constraining factors on a five-point Likert

Scale[32]. The scale used was designed in this way to measure the freedom, opposite of constraints. Thus, with this analogy, zero means highly constrained and hence no freedom accordingly, and four means not constrained at all and hence complete freedom.

After getting the responses on a 0-4 scale regarding five conditions that can influence the individual freedom to participate in the political system, a weighted average is then determined based on how influential a factor is in defining the freedom for political participation. Based on the local dynamics, economic resources among all are the most important and influential factor that defines the space or scale of political participation in societies like Pakistan, where politics is an expensive commodity. Thus, freedom for political participation score is a weighted average of five factors with 50 % weight assigned for economic resources due to its prime importance in Pakistani Politics, whereas 50% was assigned to the other four factors (each with 12.5% weight). This yielded a Freedom value for every respondent as:

$$FPI = 0.5(Economic\ Constraints) + 0.5(Non - Economics\ Constraints)$$

Political Awareness and Freedom for Political Participation, as determined in the previous sections, represents the capabilities of individuals to effectively participate in the political process and hence jointly proxies Political quality. Thus, to determine a unique estimate of political quality for every individual, a Political Quality Index was computed as aggregating Political Awareness and Political Freedom as:

$$\textbf{Political Quality Index}(PQI) = (PA * FPI)^{\frac{1}{2}}$$

Political Quality Index generated values in the range of (0-1) for every individual in the sample. PQI value closer to 1 depicts a higher level of political awareness and political freedom

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[32] 0-Highly Constrained; 1-Constrained; 2-Moderately Constrained; 3-Somewhat constrained, 4-Not Constrained at all.

and a hence higher level of political quality. Whereas a PQI value closer to zero describes a lower level of political quality.

5.3.1.4   Individual Quality Index:

The outcomes of three domain indices, i.e., Social Quality Index, Economic Quality Index, and Political Quality Index, were aggregated to generate Individual Quality Index. The aggregation was done based on varying weights for Social, Economic, and Political Quality indices. Weights for thee indices were determined by analyzing the correlation of these indices with education years. We adopted this mechanism with the central objective of this research as our primary purpose in this research is to analyze the individual quality based on education. Thus, coherent to our research objectives, different weights for three domains were determined by using Pearson Correlation between education and three quality indices, as explained next.

5.3.1.4.1   Weights Determination:

Pearson Correlation is one of the most widely used measures to determine how well two variables are related to each other. It tells us the strength of the linear relationship between two variables. By using Pearson correlation as a mechanism, we have determined the weights of Social, Economics, and Political Quality for the computation of aggregate Individual Quality for this research. The rationale of using Pearson Correlation for weight determination lies in the strength of the relationship of education, the core differentiating variable for individual quality, with the Social, Economic, and Political Quality as per the data in hand. That is how well data is related to education defines the contribution of a domain index in the aggregate individual quality. With this analogy, the weight determination was done in three steps: First, the correlations with education and three domain indices were determined; Second, the significance of the correlations determined in the first step was established; Third, weights for three domains were computed based on the

significant correlations. By using Pearson Correlation, we have estimated the correlation coefficient for all three domain indices about education as summarized in the following Table 5.1:

Table 5.1: Correlation of Three Domain with Education

Domain Index	Pearson Correlation(ρ)	
Social Quality Index	ρ_{SE}	.224
Political Quality Index	ρ_{PE}	.595
Economic Quality Index	ρ_{EE}	.494

These correlations were tested for significance with the following three hypotheses:

Hypothesis 1: Correlation between Social Quality and Education (ρ_{SE}):

$$H_0: \quad \rho_{SE} = 0$$

$$H_a: \quad \rho_{SE} \neq 0$$

Hypothesis 2: Correlation between Political Quality and Education (ρ_{SE}):

$$H_0: \quad \rho_{PE} = 0$$

$$H_a: \quad \rho_{PE} \neq 0$$

Hypothesis 1: Correlation between Economic Quality and Education (ρ_{SE}):

$$H_0: \quad \rho_{EE} = 0$$
$$H_a: \quad \rho_{EE} \neq 0$$

These hypotheses describe the need for a two-tailed test of significance as there is no specific direction mentioned in the hypothesis. Furthermore, the number of observations is 404, with these observations at $\alpha = 0.05$, we have the following test statistics and relevant p-values:

Table 5.2: Correlation Significance Results

Domain Index	Pearson Correlation(ρ)		t_{Calc}[33]	$t_{Critical}$[34]	p-value	Conclusion
Social Quality Index	ρ_{SE}	.224	4.61	+/- 1.96	.00001	Significant
Political Quality Index	ρ_{PE}	.595	14.84	+/- 1.96	.00001	Significant
Economic Quality Index	ρ_{EE}	.494	11.39	+/- 1.96	.00001	Significant
*Significance Test (Two-Tailed) N=404 and $\alpha = 0.05$						

All three correlations are significant according to t and p-values, as shown in the above table 5.2. As the absolute value of all the t-calculated values is greater than 1.96 (the limit to rejection region) and hence falls in the rejection region. This leads us to a conclusion of rejecting the null hypothesis for all three correlations, and hence we concluded with the significance of three correlations. Similarly, the p-values are less than 0.05 and hence depicting the significance of correlations.

After determining the significance of the correlation of Social, Political, and Economic Quality, we are now ready to determine the weights. To determine the weight, we find the sum of three correlations, which is 1.313, and then divided each of the three-correlation value to determine the respective weights as:

Table 5.3: Weights for Social, Economic, and Political Quality

Domain Index	Weight	
Social Quality Index	W_S	.17
Political Quality Index	W_P	.45
Economic Quality Index	W_E	.38
Total	$\sum W_i$	1

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[33] $t_{Calculated} = \frac{r \sqrt{n-2}}{\sqrt{1-r^2}}$ where $r = $ correlation coefficient

[34] $t_{Critical}$ with $Df = 402$ and $\alpha = 0.05$ for two tailed $t - test$ is +/- 1.965883

These weights, as determined by the prescribed procedure, well verify our claims about the higher importance of Political and Economic domains as explained in Chapter 6. At the same time, most of the social outcomes are explained by the quality of Political and Economic institutions and the practices followed by them. As comprehensively elaborated by Robinson and Acemoglu (2012), the social order, crime control, individual behavior towards differences, and availability, as well as quality of social services and products, mainly depends upon the nature and quality of Political and Economic institutions operating in that society. If Political and Economic institutions are good and inclusive, they tend to generate agile and peaceful societies. Thus, most of the development in a state is shaped by the types of Political and Economic Institutions as well as resources. Under these lines, the weights determined in the previous section are coherent with the natural importance of the three domains in the development process or the freedom of a state towards development.

5.3.1.4.2 Individual Quality Index Computation:

With 17% weight assigned to Social Quality, 45 % weight for Political Quality, and 38% weight assigned to Economic Quality, an aggregated Quality Index was computed. This Aggregated value in the range of (0-1), determined for every individual, describes the overall freedom of individuals and hence quality. Differentiated by education, this value depicts the extent to which individuals are capable of utilizing their social, economic, and political strengths to achieve whatever they want to achieve in their lives.

All the individuals in the sample, based on their individual quality values, are grouped into four categories of individual quality in between two extreme situations of "Perfect Quality" with IQI of one and" No Quality at all" with IQI of zero. Individuals having IQI values greater than zero but less than equals to 0.25 were categorized as "Low Quality," those with IQI greater than 0.25 but less than equals 0.5 were called "Average Quality" individuals, those who has IQI values greater than 0.5 but less than equals 0.75 were placed in "Highly Quality "category, and those who

earned IQI values greater than 0.75 but less than one was categorized as "Very High Quality, "individuals. The values of the Individual Quality Index, in the light of the capability approach, represent an individual's capabilities, defining his freedom of opportunities on aggregate as well as disaggregated level for social, economic, and political domains. These indices, in the light of human capital theory, can further be explained as the stock of human capital the individuals with different levels of education may have. Thus, the computation process, as explained in the previous sections, regarding Economic Quality Index (EQI), Social Quality Index (SQI), and Political Quality Index (PQI), further provided hands-on data for individuals with different levels of education regarding their Economic Awareness, Skills, Wealth, Health, Tolerance, Law-abidance, Political Awareness, Political Freedom, and Political Participation.

5.3.2   Estimation of Wage and Quality Functions:

The selection of a technique mainly depends upon the nature and structure of data as statistical models to be used for any empirical analysis ought to be in concurrence with the nature of data at hand (Biørn, 2016; Griliches, 1986). As explained earlier, this study used cross-sectional data of individuals with different levels of education from a district with heterogeneous characteristics. The data collected may very likely have the problems of Heterogeneity, Endogeneity, Multicollinearity, and Heteroskedasticity. These problems may cause problems of inference by constraining unbiased, reliable, and meaningful results, less effective in guiding policy decisions (Zaidi,2015; Heckman & Sedlacek, 1985; Stoker, 1993; MENG, 2000; Mertens, 2005; Kennedy, 2008; Antonakis, Bendahan, Jacquart, & Lalive, 2014; Shaver, 1998; Podsakoff, MacKenzie, & Podsakoff., 2010; Fiori & Antonakis, 2011). The most frequently used econometric techniques, as suggested by a vast literature for cross-sectional studies like this research, are OLS, IV/2SLS, and GMM, each with its own merits, demerits, and limitations (Wooldridge, 2010). Ordinary Least Square, a standard econometric technique that requires the estimates (a, b) which

can minimize the squared deviation of the actual and estimated value of dependent variable Y explained by the error ε, i.e., $Min \sum \varepsilon^2 = Min \sum(Y - a - bX)^2$. This minimization as an essential requirement for having consistent and unbiased estimates needs to satisfy the orthogonality condition of no correlation between the explanatory variables X and the error term. The presence of endogeneity leads to the violation of orthogonality conditions making the Ordinary Least Square method an inefficient mechanism to generate consistent and unbiased parameters for an appropriate policy solution. With endogenous explanatory variables, the OLS estimators are biased in the small sample and inconsistent in the large samples (Wooldridge, 2010; Gujarati, 2011; Griliches,1986; Biørn, 2016). The reasons for the inability of OLS towards estimation of true, consistent, and the unbiased parameter is that the problem of endogeneity makes the number of moment conditions less than the total parameters in the model(K) and hence lead to the under-identification of the model (Soderblom, 2009; Wooldridge, 2010). To make the system an identifiable one, we need to cut down the correlation between an endogenous explanatory variable and the error term, for which OLS is incapable, and we need to rely on some other mechanisms such as instrumental variables (IV) estimations/ 2SLS or GMM. Despite various issues and limitations, OLS is one of the most widely used estimation techniques for returns to education analysis. This research also used OLS for the estimation of Quality Function and two Wage function for both the case. As discussed earlier, we rely on the data of HIES-PSLM 2018-19 for the case of Pakistan. This data set provides no appropriate instrument which can be used in return to education analysis and hence makes it difficult for us to use 2SLS or GMM. Based on our data constraints, we followed the traditional OLS technique coherent with the analysis of a lot of studies on a domestic as well as global scale, as discussed in chapter 3. Similarly, the data collected for the case of Rahim Yar Khan was not appropriate to use 2SLS or GMM for estimation of Quality function and Wage function. We again rely upon OLS for this case as well. With the data limitations, our whole estimation mechanism remained simple and straightforward.

Concluding the whole framework, data, and methodology, Human Capital theory provides us with the basic framework for this research through the well-known Mincerian Schooling Earning function with two unobserved as well observed ability variables. The model with unobserved ability was adopted for the case of Pakistan, whereas the model with observed ability was adopted for the case of Rahim Yar Khan. Primary data collected from Rahim Yar Khan, as well as the estimated values of the Individual Quality Index as explained in Section 5.3.1, was used for the econometric analysis regarding the case of Rahim Yar Khan as explained in the next section. The econometric analysis involves the estimation of two types of models in this research: One for the estimation of wage function to analyze the returns to education for two cases and the other one for the estimation of quality function. As discussed earlier, the returns to education analysis for Pakistan as well as Rahim Yar Khan used Mincerian Earning Function but with a different specification by conceding some of the data issues as discussed earlier. The returns to education analysis for the case of Pakistan used MEF with an unobserved abilities framework, whereas for the case of Rahim Yar Khan, a quality index as explained in section 5.2 was used as a proxy for abilities. The function and models for both cases are discussed in the next section.

5.3.2.1 Returns to education for Pakistan:

To analyze the returns to education for the case of Pakistan based on data of 30858 individuals in the age bracket ten years or more, we have used the traditional MEF in the light of various studies (Schultz, 1961; Becker, 1964; Mincer, 1970; Griliches, 1977; Blackburn & Neumark, 1992; Belzil, 2006). Under the available data and research objectives, the estimation of returns to education follows the following Wage Function:

$$Log(PHW) = f(Edu, Exp)$$

Where PHW represents per hour wages, Edu represents the completed schooling years, and Exp is the work experience. Per-hour wages were calculated by using the available data regarding total

annual income, working days in a month, and working hours in a day. Thus, PHW is determined by dividing the reported total annual income of individuals with the total annual working hours[35] based on reported working days per month[36] and average work hours per day. The data regarding work experience was also not available in the PSLM dataset. Work experience[37] is then computed using Age and Schooling years. Log of Per Hour Wages is used under the conventional wisdom to look in the growth of Wages against Schooling (Becker G. S., 1993; Belzil, 2006; Griliche, 1977; Mincer, 1974). The wage function was estimated under two assumptions related to the impact of education and experience in the light of literature. The effect of education on wage growth is widely explained to be positive. Coherent with the academic evidence, we have assumed a positive impact of schooling and work experience on wage growth (Schultz, 1961; Becker, 1964; Mincer, 1970; Griliches, 1977; Blackburn & Neumark, 1992; Belzil, 2006). Thus, based on our discussion in the previous section, we started the estimation of returns to education by assuming:

$$\frac{\partial Log(PHW)_i}{\partial Edu_i} > 0 \quad \text{and} \quad \frac{\partial Log(PHW)_i}{\partial Exp_i} > 0$$

5.3.2.2 Returns to Education for Rahim Yar Khan:

In line with our research objectives, the returns to education analysis for Rahim Yar Khan involves two stages: Stage one covers the relationship of education and individual quality to examine how education influences individual quality. Stage 2 involves the impact of education on Wages by accounting for the impact of individual quality and various other control variables. A comprehensive multicollinearity analysis was done to analyze the likelihood of linear dependence between education and individual quality before conducting returns to education analysis using OLS, as explained in the next section.

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[35] Total Annual Working Hours = 26*12*8 = 2496

[36] Reported average working days per month in PSLM 2018-19 are 26 and average working hours per day are 8.

[37] Work Experience (EXP) = Age – Education – 5. Here, five represents the average schooling start age.

Multicollinearity is one of the various problems which may create misleading impacts in the cross-sectional analysis. It refers to a phenomenon in multiple regression analysis that arises as a violation of an assumption of linear independence of explanatory variable (Belsley, Kuh, & Welsch, 1980). There is no precise definition of Multicollinearity, but it is explained through the presence of an approximately linear relationship between explanatory variables. It is comprehensively addressed in the economic literature that there exists some degree of relationship between predictors. Thus, collinearity is generally inherited in most economic relationships. What degree of collinearity is worrisome is generally explained in the literature through two states, termed as, Perfect Multicollinearity and Non-Perfect Multicollinearity (Weisberg, 2013; Greene, 2000). Various methods and tests have been discussed in the literature to test Multicollinearity. The most common test, as explained in the literature, is to look for the correlations among predictors and then test for the Variance Inflation Factor (Russell & Cohn, 2012), showing the strength of the linear relationship between predictors. As stated in the literature, it is difficult to have variations in one variable by keeping other constant when there exists Multicollinearity and hence makes it harder to have complete information regarding the partial regression coefficient (Freund, Wilson, & Sa, 2006). The degree of this inability is explained through the Variance Inflation Factor, which quantifies the effect of how much variance of a coefficient increases due to Multicollinearity. Various cut-off values for the Variance Inflation factors are interpreted in literature to depict the dangerous linear relationship. The most stringent cutoffs are five that explains the existence of Multicollinearity if VIF is greater than 5. Various other studies have also mentioned 7 or 10 as the VIF cutoffs (Belsley, Kuh, & Welsch, 1980; Jones, 2019; Freund, Wilson, & Sa, 2006).

In the light of above, we have tested the Multicollinearity for both the model through bivariate correlations and Variance Inflation Factor, with the results described in the following table indicates no existence of Multicollinearity. In bivariate correlation between two predictors,

a value that lies in the range of 0.7 to 1 is indicative of chances of Multicollinearity (Freund, Wilson, & Sa, 2006). Based on this cut-off, our estimates of correlation indicate no Multicollinearity in the Stage 1 model as none of the values exceeded 0.70, as shown in the following table 5.4:

Table 5.4: Correlation Metrics Stage 1 Model

Variable	IQI	Edu	FE	ME	WD	WH
IQI	1					
Edu	.654**	1				
FE	.439**	.348**	1			
ME	.253**	.176**	.390**	1		
WD	-.288**	-.194**	-.328**	-0.028	1	
WH	-.188**	-0.047	-.158**	-0.014	.310**	1
** Correlation is significant at the 0.01 level (2-tailed).						

To further ensure, we have also estimated the Variance Inflation Factor involving predictors in Stage1 Model, the cut-off for VIF in access to 5 is stated as indicative of Multicollinearity (Russell & Cohn, 2012). With this cut-off, our estimates indicated no Multicollinearity as none of the VIF is greater than five:

Table 5.5: Collinearity Statistics Stage 1 Model

Variables	Tolerance	VIF
Education	0.868	1.15
Father Education	0.692	1.45
Mother Education	0.834	1.20
Working Days	0.807	1.24
Working Hours	0.899	1.11
Dependent Variable: IQI		

For the stage 2 model, the only correlations that exceeded the cut-off 0.7 to 1 are among Age and Experience (0.952). This indicates the existence of Multicollinearity among two variables. To further ensure, the VIF analysis also revealed a higher VIF exceeding the cut off value of 5 for Age and Experience as shown in the following table:

Table 5.6: Collinearity Statistics Stage 2 Model

Variables	Tolerance	VIF
Education	0.536	1.864
Individual Quality Index	0.53	1.886
Age	0.088	11.358
Experience	0.087	11.487
Working Days	0.816	1.225
Working Hours	0.879	1.138
Dependent Variable: Log Per Hour Wage(LPHW)		

We have excluded the age and found all VIF well below the cut-off value of 5. We estimated the stage two model by excluding the Age but got no substantial improvements and variations in the signs. On the other hand, excluding age from the relationship reduced the explanatory power as indicated through a decline in the value of R-square from 0.349 to 0.340. We decided to keep the Age in the model to keep the explanatory power of the model high when no substantial variation in other coefficient is observed due to the existence of collinearly.

Another problem that may influence the regression analysis is Endogeneity which means a non-zero correlation between an explanatory variable and the error, i.e., $Cov(X, \varepsilon) \neq 0$. Generally explained as an outcome of measurement error, missing variables, and recursively between dependent and independent variable causing feedback loop, endogeneity is a problem which may create biased results hence may violate the assumption of unbiasedness in OLS estimation (Volker, 2006; J.Salkind, 2010).

It has been widely recognized in the literature that there exists endogeneity in the Schooling-Wage relationship mainly due to measurement error and some unobserved determinants of education that may influence wages and hence may bias the returns to education (Maluccio, 1998; Card D. , 1999). In the light of contemporary research involving education and its impacts on wages or other variables, the most appropriate method to deal with the problem of endogeneity is to use instruments for the endogenous predictors in the Instrumental Variable regression technique or

2SLS. Despite the likely existence of endogeneity in both of our models, we cannot use instrumental variables or the 2SLS technique due to our research constraints regarding available data. For instance, we have collected data regarding education through schooling years completed by an individual and hence cannot have any other instrument to include for education in the Quality Function as well as Wage Function. Thus, based on our research constraint, we have used OLS with the variable of education as the year of schooling completed by an individual. Since data regarding education is only collected for a year of schooling completed, thus we have no other choice of using some other variable as an instrument of education. Thus, in compliance with the practices followed in the literature in case of similar constraints (Davidson & Mackinnon, 1993), we continue with the same framework of using Schooling Year completed as an instrument of education to conduct the regression analysis as discussed in the next section. We also faced some research constraints in terms of dealing with the issue of heterogeneity as it required a substantial amount of data to differentiate the impact of Gender, Urban-Rural divide, and other characteristics. Due to financial as well as time constraints, it was difficult to collect a substantial amount of data that can be used to differentiate the impacts. Given our constraints, we have estimated the Stage 1 and Stage 2 model by assuming general data for both genders and all areas, as explained in the next section.

5.3.2.2.1 Stage 1 Estimated Model:

Various studies explained the positive impacts of education on individual wellbeing from various perspectives and elucidated the role of education towards what Amartya Sen has called Social, Economic, and Political freedom defined by the accumulated capabilities in these domains for a healthier and prosperous domain of functioning. These capabilities, thus, proxies the quality of individuals. Individuals with more capabilities may have more freedom, resources, and a wider domain to operate for their social, economic, and political wellbeing. Thus, a more capable

individual is more able to perform well and enjoy more wellbeing and thus are higher quality individuals in comparison to those with little operational domain. Measuring the capabilities of nations is easy as a lot of macro data is continuously collected and sorted by various national and global agencies, but measuring capabilities at the individual level involves a lot of effort and resources. Based on the difficulties connected with the measurement of individual capabilities, most of the studies relied on aggregates to explain the general individual quality. I have tried to break the shell of relying on macro data and estimated the individual quality as a proxy of wellbeing/abilities/capabilities as explained in Section 5.2.5. Now the core emphasis in the first stage of regression analysis is to analyze the relationship of individual quality with education by addressing the following key questions. Is education related to individual quality determined by the social, economic, and political capabilities of individuals? Are less educated individuals also at a low level in individual quality? Does individual quality improve with education? We have observed a glance of the positive education-quality relationship as shown in Figure 5.1. To get a clear picture of the relationship, to obtain definite results, and to have the exact strength of the relationship as per the data available, we have gone through the estimation of the following function:

$$IQI = f(Edu, Age, Exp, FE, ME, WD, WH)$$

In the above-defined Quality Function, the dependent variable IQI is the aggregate individual quality index computed in the previous chapter, whereas Edu=Schooling Years completed by the respondent; Age=Age of respondents; FE=Father's Education; ME=Mother's Education; WD=Working Days per week; WH=Daily working hours; and Exp=Work Experience. Based on the quality function defined earlier, the basic model used for estimation was an adapted form of the traditional earning function by Mincer (1970) but with some modification. In contrast to the traditional earning functions explained by Mincer (1970,1977), we have Individual Quality instead

of Wages as a dependent variable against education, age, experience, and other control factors. The basic linear estimation model followed was:

$$IQI_i = \beta_0 + \beta_1 Edu_i + \beta_2 Age_i + \beta_3 Exp_i + \beta_4 FE_i + \beta_5 ME_i + \beta_6 WD_i + \beta_7 WH_i + \varepsilon_i$$

This model assumes the positive relationship of education with individual quality; this assumption was based on the average relationship between education and individual quality as depicted in Figure 6.5, as well as the positive association of education on wellbeing as explained by a lot of academic work from the channel of education's impact on economic prosperity (see Becker, 1960,1964; Schultz, 1961; Denison, 1962; Mincer, 1958,1970,1974; Griliches,1969; Fallon and Layard, 1975; Baumol, Blackman and Wolff, 1989; Psacharopoulos, 1989; Pencavel, 1991; Jain, 1991; Berger, 1988, 1992); Social wellbeing (see Case et al., 1989; Hello et al., 2002; Moretti, & Oreopoulos, 2003; Schuller et al., 2004; Riddell, 2006; Orviska & Hudson, 2006; Milligan, Rubin et al., 2011); and for the sustainability as well as productivity of political system (Acemoglu and Angrist, 2000; Card, 1995; Sondheimer and Green, 2010; Milliganet al.,2004; Kam and Palmer,2008; Tenn, 2007). Thus, based on our anticipation from the graphical depiction of the relationship and based on literature, we have assumed a positive relationship between education and individual quality:

$$\beta_1 = \frac{\partial IQI_i}{\partial Edu_i} > 0$$

Since variable of individual quality was first time investigated and hence had no evidence in support of the +/- relationship between age and individual quality. For our analysis, we used an indirect interconnection as addressed by a lot of academic studies regarding the positive association of age, experience, parents' education, and other family and background characteristics with the social, economic, political, and aggregate development of individuals. For instance, age, as well as experience, is explained to have a significant positive impact on the social, economic, and political development of individuals from the channels of a higher degree of awareness,

productivity, and earning associated with age and experience. With Age and experience comes maturity, more knowledge, awareness, learning, skills, and hence more capabilities having positive impacts on the individual wellbeing / indirectly individual quality. Similarly, family-related variables parent's education and family wealth are also explained to have a positive impact on the wellbeing, growth, and development of individuals. The effect of father and mother education is seen to be positive on the earnings, educational achievements, awareness, and health (Ellis, 1917; Fisher, 1932; Walsh, 1935; Mincer, 1974; Becker G. S., 1993; Berinsky & Lenz, 2011; Brody, 1978). In contrast, another perspective see age as a deteriorating factor as the quality of health regarding all three variant of health (physical, social, mental) and hence the quality of life depreciate with age, similarly, ability to work longer hours, and more working days decline with age, the from this perspective, a rise in age leads to a fall in earnings, in addition, individual freedom to participate in the political system also weaken with age (Rook, 1984; Isaacowitz & Smith, 2003; Warr, 1992). Summing up these points of view, age has a negative side as well in addition to its positive influence on individual quality. If we look at the scatter plot of Age and Individual Quality, a random behavior can be observed as shown in the following Figure 5.1:
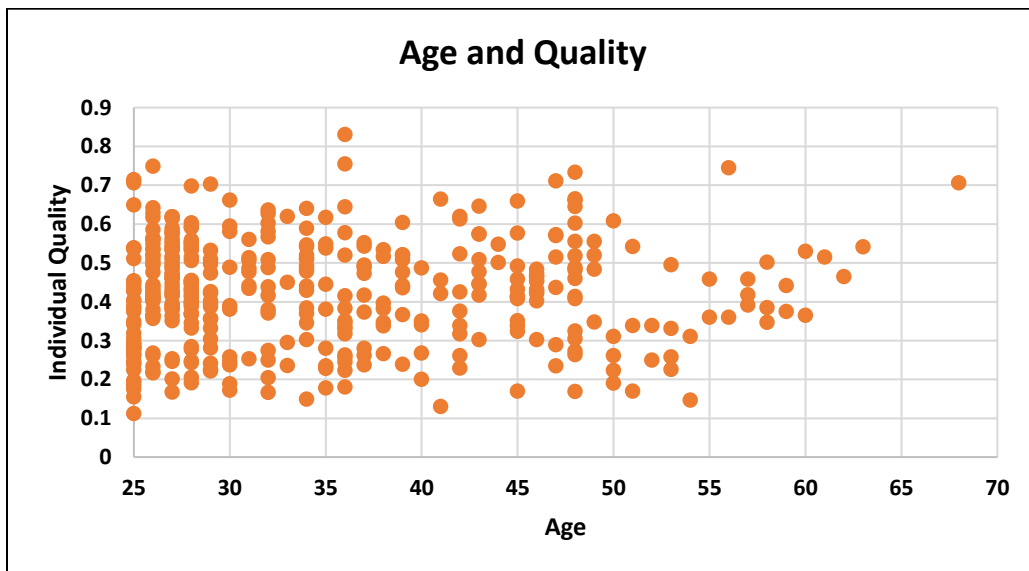
Figure 5.1: Age and Individual Quality Scatter Plot

Microscopic observation of the scattered plot revealed a positive influence of age on individual quality, especially for the post 40 age brackets. So, based on literature and some clues from the scatters plot on this pattern, we have initially assumed a positive relationship between Age and IQI. Concluding our discussion, we have assumed a positive effect of age, experience, and parent's education on Individual Quality. Thus, in our model, we proceed by assuming:

$$\boldsymbol{\beta_2} = \frac{\partial IQI_i}{\partial Age_i} > \mathbf{0}, \ \boldsymbol{\beta_3} = \frac{\partial IQI_i}{\partial Exp_i} > \mathbf{0}, \boldsymbol{\beta_4} = \frac{\partial IQI_i}{\partial FE_i} > \mathbf{0}, \boldsymbol{\beta_5} = \frac{\partial IQI_i}{\partial ME_i} > \mathbf{0}.$$

Mixed evidence is traced in the literature regarding the impact of longer working hours and more working days in a week on individual wellbeing. Traditionally, the phenomenon is explained through labor-leisure tradeoff that explained that given a fixed endowment of time, an increase in the amount of labor leads to a decrease in leisure time (Becker G. S., A Theory of the Allocation of Time, 1965). This explains that if individuals spend more time in the market, then they have less personal time as well less time to spend with family and friends, and other social engagements or activities which may influence their wellbeing positively (Becker G. S., A Theory of the Allocation of Time, 1965; Joll, McKenna, McNabb, & Shorey, 1983). It has been further elaborated that if earning changes with change in working days[38] per week or working hours then, more working days (with a gap of 7 days) and more working hours lead to higher earnings (Shank, 1986; Finnigan, 2018). But if earnings are fixed, then an increase in working days and working hours leads to a decline in the earnings and hence economic wellbeing (Schank, 2015). It has been further explained that longer working hours and more working days a week led to a restless personal routine and hence comes up with worse impacts on the health, family life, and effective participation in the society. Thus, individual quality deteriorates with an extensive working routine (Schank, 2015; Chapela, 2015; Savedoff & Schultz, 2000; Presser, 1989). Based on this evidence,

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[38] Normally a global standard working week is 5 days but in various parts of the world there are 6 or 7 days of working week.

we have assumed a negative association of working days (WD) and working hours (WH) with individual quality as:

$$\beta_6 = \frac{\partial IQI_i}{\partial WD_i} < 0; \ \beta_7 = \frac{\partial IQI_i}{\partial WH_i} < 0$$

5.3.2.2.2 Stage Two Estimated Model:

We have adopted a modified form of traditional wage functions in the light of various specifications used by studies such as (Schultz, 1961; Becker, 1964; Mincer, 1970; Griliches, 1977). All of these wage functions treated abilities as an unobserved variable in wage determination due to various technical issues related to the measurement of abilities (Griliche, 1977; Blackburn & Neumark, 1992; Belzil, 2006). My analysis in this research tried to fill the gap of missing abilities from the wage equations by providing the measure of Individual Quality as a proxy for individual abilities or capabilities. By accounting for the Individual Quality in the wage equation, we have tried to answer some crucial questions to provide policy guidance. We have already seen in the previous section that individual quality improves with education. Now the main question is whether the improvements in individual quality based on the increase in education may have some significant impact on the wages of individuals or not? How poor quality is costing individual incomes and hence aggregates income.

Stage two, regression, in the context, explained, mainly concerned with the impact of Individual Quality on the Wages by controlling for the impact of Schooling, Age, Work Experience, Parents Education (Father and Mother Education), Working Days per week, and Daily Working Hours. Under the given specification, stage two estimation concerns the following Wage Function:

$$Log(PHW) = f\ (Edu, IQI, Age, Exp, WD, WH)$$

Where PHW is Per Hour Wages, Log is used in accordance with the conventional wisdom to look at the growth of Wages against Schooling (Becker G. S., 1993; Belzil, 2006; Griliche, 1977; Mincer, 1974). Contrary to the traditional wage equations (Mincer, 1974; Griliche, 1977), the inclusion of Individual Quality in the given framework bridges the gap of treating individual capabilities/abilities as unobserved due to various issues in the determination of abilities and hence their effect on wages (Blackburn & Neumark, 1992). With Individual Quality as a proxy of abilities/capabilities, the reference model used for estimation is a traditional specification of the Mincerian Wage-Schooling Model with a non-linear effect of experience. The complete model is explained in equation 2:

$$Log(PHW)_i = \beta_0 + \beta_1 Edu_i + \beta_2 IQI_i + \beta_3 Age_i + \beta_4 Exp_i + \beta_5 WD_i + \beta_6 WH_i + \beta_7 Exp_i^2 + \varepsilon_i$$

This model was estimated under various assumptions established so for according to the examined impacts of various factors on the wages. The effect of education is widely tested to be positive on wages and wage growth (Griliche, 1977; Blackburn & Neumark, 1992; Belzil, 2006). In line with the conventional wisdom established by a lot of empirical work such as (Schultz, 1961; Becker, 1964; Mincer, 1970; Griliches, 1977; Blackburn & Neumark, 1992; Belzil, 2006), we have also assumed a positive impact of education on wages in this research. Thus, based on our discussion in the previous section, we started the estimation of second stage regression by assuming:

$$\beta_1 = \frac{\partial Log(PHW)_i}{\partial Edu_i} > 0; \beta_3 = \frac{\partial Log(PHW)_i}{\partial Age_i} > 0; \beta_4 = \frac{\partial Log(PHW)_i}{\partial Exp_i} > 0$$

The estimation of total annual working hours available is determined by assuming a general six working days per week with eight daily working hours based on the average working days and working hours of our sample for this study. With this specification, an increase in the working days leads to a decrease in the hourly wages. Similarly, an increase in the daily working hours also leads to a fall in the hourly wages rate if annual income does not change. This whole situation, in addition to the discussion done in the assumption section of the stage 1 regression model, leads us

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to assume a negative relationship of hourly wages with Working Days (WD) and Working Hours (WH) as described below:

$$\beta_5 = \frac{\partial Log(PHW)_i}{\partial WD_i} < 0; \ \beta_6 = \frac{\partial Log(PHW)_i}{\partial WH_i} < 0$$

Under the assumptions explained for stage 1 and stage 2 models, estimation results are explained in Chapter 6, section 6.2, followed by the further analysis of cost estimation.

5.3.3   Cost of Educational Deprivation:

Finally, the procedure or method to compute the cost of educational deprivation for both cases follows a straightforward computational mechanism developed solely for this research. The cost is explained in terms of the opportunity cost of staying with the current educational profile when it is compared with the incomes associated with some improved educational profiles. The difference in income is then explained as the income lost or cost of a massive uneducated population. Cost is computed by using the outcomes of Wage Function for the case of Pakistan. For the case of Rahim Yar Khan, the outcomes of both Quality and Wage Functions are used. The cost of educational deprivation, fundamentally, follows the concept of opportunity cost. The concept basically involves the potential and actual incomes associated with each level of education for the labor force in the reference age brackets of the two cases. The cost estimation further required the proportion of labor force according to education level.

5.3.3.1   Cost Estimation for the Case of Pakistan:

Cost estimation for the case of all rural and urban areas of Pakistan follows a simple approach that involves five steps: First, wages rates for each year of schooling are determined by using the estimates of returns to education. The wage rates determined are multiplied by the total working hours available in a year to yield the average annual income for each year of schooling. Second, the total, employed, and unemployed working population in the age bracket ten years and more is

determined based on the labor force survey 2018-19. Furthermore, based on the education profile of the population in the reference class, the proportion of population according to education level was determined by consulting Pakistan Labor Force Survey 2018. Based on the education proportions number of persons with each level of education are determined for the total, employed and unemployed labor force. The number of persons in each level of education for three classes of the labor force (Total, Employed, and Unemployed) are multiplied with average annual income to compute aggregate income of total and employed labor force as well as income loss of the unemployed labor force. This yielded the total and employed income for each level of education. Summing income of all the educational levels, we have generated the total income if all the labor force is assumed employed (at full employment level), the total income of all the employed persons and value of income loss due to unemployed labor force, all in the age bracket ten and above. Fourth, six improved educational profiles are assumed for the same working population but with a little improved educational profile from the original educational profile. For instance, the profile of case 1 assumes a fifty percent decline in the educated population and an equivalent rise in the population with primary education. Based on the six profiles as explained in chapter 6, section 6.3, steps two and three are repeated to compute the income of the total and employed labor force for each of the six profiles. These incomes are then compared with the original profile to explain the difference of income as the cost associated with the current poor educational profile of the labor force in Pakistan.

Fifth, Steps one to four are repeated for the nine years from 2009-2017 by discounting the labor force and average annual income with the average population growth rate and average income rise in the reference time 2009-17. Based on these estimates, an aggregate loss of income is explained by not having an improved educational profile as of six cases. The whole procedure and estimation results are explained in Chapter 6, Section 6.3.

5.3.3.2   Cost Estimation for the Case of Rahim Yar Khan

Cost estimation for the case of Rahim Yar Khan follows a similar general computational procedure as explained in the previous section for the case of Pakistan that involves the comparison of income associated with the total, employed, and unemployed labor force with varying educational profiles. The computation of cost was carried after the estimation of Quality and Wage functions, two important measures providing inputs for the cost computation. The quality function provided the average individual quality against each level of education. Based on the determined individual quality values, Education years, and average values of control variables, Log Hourly Wages are determined as explained in the previous section. These log hourly wages were used to generate wage rates against each level of education for determining values of individual quality by exponentiating the log hourly wages. Based on the wages rates against each level of education, Annual Income for each level of education is determined by multiplying the appropriate wages rates with the available annual work hours. Similar to the case of Pakistan, the average working hours available to the wage earners in Rahim Yar Khan were also the same 2496. To proceed further for cost estimation, the population statistics of Rahim Yar Khan, according to the population census 2017 and labor force survey 2018-19, were used to extract the percentages and numbers of the population in our referenced age bracket (25-59) years for each educational level. This gives us the number of individuals against each educational level in the age bracket (25-59) with three specifications: Total labor force, Employed labor force, and Unemployed labor force. By multiplying the annual computed income as determined in the previous step, with the number of Individuals in all three specifications, we have computed the Aggregate Income of Total Labor Force in the age bracket 25-59, Aggregate Income of Employed Labor Force, and Aggregate Loss of Income due to Unemployed Labor Force. The estimates of Potential and Actual income, as well as unemployment cost, were estimated based on the actual education profile of Rahim Yar Khan in the age bracket 25-59, which includes 12% of the labor force with no formal education; 26%

who has completed five years of schooling; 20% who has completed eight years of schooling; 20% who has completed ten years of schooling; 9% who has completed 12 years of schooling; 7% who has completed 14 years of schooling; 4 % who has completed 16 years of schooling; and 2% of those who have completed 18 or more years of schooling. Similar to the case of Pakistan, to explain the cost related to lack of education by uneducated population, we have again used the proposed six cases with varying educational profiles, all with some better educational profile than the original profile of Rahim Yar Khan. Based on these changes, we have estimated the Potential and Actual Incomes again based on new percentages according to six cases, as we did in the last step for the original case. Finally, the cost of educational deprivation is explained in terms of lost income by not having one of the six profiles and by staying with the original education profile with the massive population having primary or below education. Comparing cases with original situations revealed the opportunity cost of not educating the uneducated or less educated. The whole mechanism is explained in Chapter 6, Section 6.3. Similar to the analysis done for the case of Pakistan. We further conducted the whole cost analysis for the time period 2009-2017 to explain the aggregate cost of educational deprivation in nine years from 2009-2017, to show how much income Rahim Yar Khan has lost during the time period 2009-17 by not having an improved educational profile in the year 2009.

CHAPTER 6.

ESTIMATION RESULTS

The chapter has two parts: The first part provides a detailed discussion on the computed Individual Quality with its three domain indices. The second part deals with the estimation of returns to education, Estimation of the quality function, and computation of the Cost of educational deprivation for both cases.

6.1   Individual Quality

It is comprehensively explained in previous chapters that education affects the Creation and Expansion of Capabilities in all domains of life by positively impacting various conditions defining the freedom of individuals. Individuals then utilize these capabilities for their own as well as the collective well-being of their societies. In line with the objective of this research Individual Quality Index was computed in the light of discussion done in Chapter 4 and Chapter 5, as a proxy of abilities, an important factor which must be accounted for the returns to education analysis in order to remove ability bias for the case of Rahim Yar Khan. With the intended goal, this section provides insights into three measures of individual quality computed according to the framework discussed in chapter 4, section 4.2. Defined as a quality index, the objective of these measures is to highlight the importance of education towards the economic, social, and political quality of individuals. Furthermore, a collective measure of individual quality based on three indices computed as per the mechanism explained in chapter 5 is discussed in relation to education. This aggregate individual quality is used as a proxy for abilities in the returns to education analysis for the district Rahim Yar Khan as comprehensively discussed in Part Two of this chapter.

6.1.1 Economic Quality

It has been well explained in the literature that education enables individuals and societies to gain competitive advantages by widening their domain of capabilities and hence the range of operational activities they can perform for the individual as well as collective well-being. Based on its potential to enhance skills, awareness, and resources, education is globally recognized to be a dominant factor towards cogent economic choices for optimal utilization of resources towards maximum value creation. It is largely acknowledged that individuals with better education have access to better opportunities, can earn substantially higher, and ultimately have a higher standard of living. Thus, individuals with better education are depicted as economically better-quality individuals who have not only better skills, awareness, and productivity and hence resources but also a pre-requisite and crucial human resource for a higher and sustainable development at the aggregate level. On the other hand (Becker, 1960, 1964; Schultz, 1961; Denison, 1962; Psacharopoulos, 1989; Jain, 1991; Berger, 1988, 1992; Griliches, 1969; Fallon and Layard, 1975; Baumol, Blackman and Wolff, 1989; Pencavel, 1991). In addition to the three perspectives discussed in chapter 3, Education is seen to have a broader interconnection with individual well-being when seen from the lens of Amartya Sen's Capability Approach[39] that emphasized the importance of freedom for wellbeing and the importance of capabilities in defining freedom. In the light of the Capability approach, education enhances the economic capabilities of individuals from two sides: First, it offers superior knowledge/information, which makes individuals capable of understanding various aspects of the economy; and second, education creates various types of skills and improve various existing skills of individuals which makes them able to operates in a wider functional domain for their economic wellbeing (Sen, 1980). These two effects of education offer a higher degree of freedom to individuals by making them capable of understanding various

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[39] As defined in Stanford Encyclopedia of Philosophy (1999)

dynamics of an economy and use a superior set of skills to approach a wider range of economic functionings and hence enjoy a superior level of well-being by having higher earnings and accumulation of wealth. According to this perspective, the individuals with a higher level of education due to their superior knowledge/ awareness, skills, and accumulation of wealth may well be called higher quality individuals. In the light of this perspective, the economic quality of an individual depends upon various skills which facilitate economic functionings, economic awareness, and resources accumulation. The next section discusses the outcome of three determinants of Economic Quality, i.e., Economic Awareness, Skills, and Wealth, according to the structure of analysis explained in Chapter 5 Section 5.3.1.

6.1.1.1   Economic Awareness, Skills, and Wealth Status:

Coherent with the observations of Sen (1985) and Bakara, Osman, Bachok, Ibrahim, & Mohamed (2015), the Economic Quality of Individuals depends upon their economic awareness, skillset, and the resources they have for their sustainable economic wellbeing. This section, in the light of computed value, discusses these three variants of the economic quality of individuals.

Economic awareness as assessed according to the framework outlined in Chapters 4&5 depicts a generally depressing state for the case of Rahim Yar Khan as the highest awareness value, attained by individuals with the highest level of education, is below average (less than 0.5). It has been observed that the whole sample illustrates a below-average Economic Awareness, as 94% of the respondents with less than 16 years of education fall in the least Aware Category. At the same time, the rest of 6% of respondents with 16 or more years of education fall in the Moderate Awareness Category but failed to secure at least 50% of the awareness value. If we look at the awareness curve, the economic awareness increases with the level of education, as shown in the Following Figure 6.1:
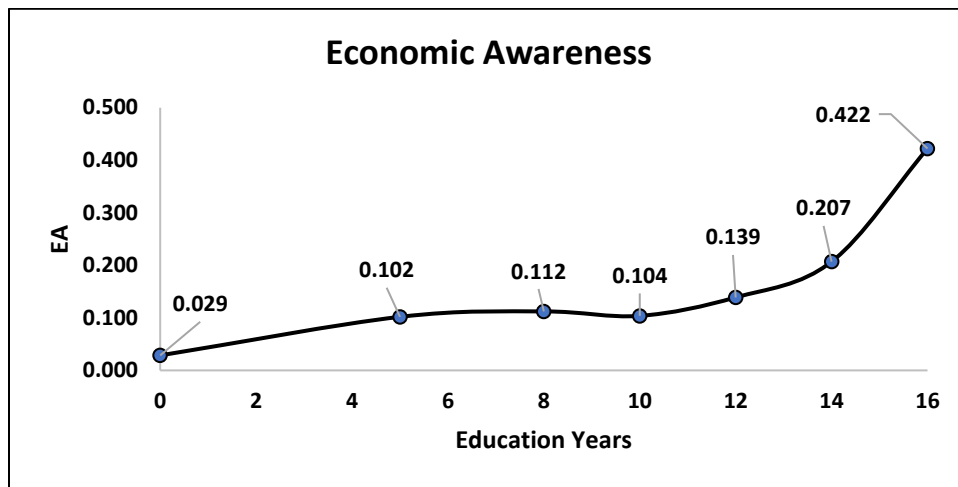
Figure 6.1: Education and Economic Awareness

Despite an increasing pattern, the extent to which awareness grows is not impressive as the least aware were individuals with no education having Awareness Value (0.029), and the most aware were individuals having 16 or more years of education with an average Awareness Value (0.422). From 0 to 8 years of schooling, economic awareness increases with a declining rate; for matric level, it fell, and then it grew with increasing rate from 10 years of schooling to onward. Intergroup analysis of education depicts a huge improvement of 256% from 0 years to five years of education; 10.1% improvement from five years to eight years of education; a 7.5 % fall from eight to ten years of education; a 34% improvement from ten o 12 years of education; 49% improvement from 12 to 14 years; and a 104% improvement in economic awareness from 14 years to 16 and more years of education. On the whole, if we divide the whole sample into two sections, then economic awareness depicts a 263% increase from 0 years to ten years of education and a 307% growth from ten years to 16 or more years of education. In conclusion, despite a miserable general picture, the awareness of individuals depicts a positive association with education with substantial changes for all levels of education. This highlights the role of education in improvements of individual economic awareness. The current state of below-average economic awareness of individuals at Rahim Yar Khan put question marks on the economic rationality for optimal economics choices as individuals use to buy, work, use resources, but they are unaware of

most of the basic economic information they encounter every day. They used to pay Sales Tax but do not know the exact rate of tax, and they use to work at lower wages as they were not aware of the state announced minimum wages and other economic indicators. This lack of awareness restricts their ability to take maximum advantage of their resources as well as their labor force. With these outcomes, less aware economic agents are prone to inefficient utilization of resources as well as exploitation from the other market agents.

The next area of economic assessment, according to the framework explained in chapter 4, is to evaluate the extent to which individuals have skills to effectively communicate, engage in economic work and take decisions. In this regard, first, a language skills value is determined to show language proficiency, then a joint measure of operational skills was computed based on three core operational skills, i.e., Functional Communication, Work and Productivity, and Decision-Making Skills. The computation of Aggregate skills was done based on the individual values for their language proficiency and three operational skills. According to the responses collected for proficiency in a local, national, and foreign language, a steady increase in the aggregate language proficiency is observed with an increase in education, as shown in Figure 6.2:
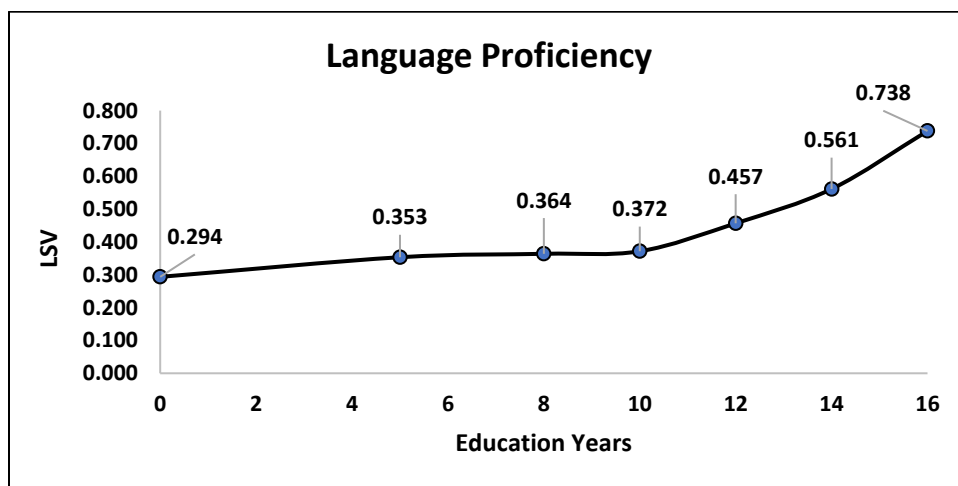
Figure 6.2: Education and Language Proficiency

According to the language curve in Figure 6.2, none of the individuals has poor language skills as the lowest language skills were depicted by uneducated individuals, but still, their average value shows a moderate language skill with LSV=0.294. Similar to the behavior of economic awareness, the language curve of individuals also shows a small positive change in language proficiency for a lower level of education and a bigger change for advance educational levels. A five-year rise in the education from zero education to primary education leads to a 20.4 % upsurge in the language skills value from 0.294 to 0.353, showing a substantial improvement; 3 % change from five to eight years of education; 2.2% change from eight to ten years of education; 23% change from ten to twelve and twelve to 14 years of education; and a substantial 33.5% change from 14 to 16 and more years of education. This explains a significant improvement in the language skills of individuals with an increase in education year according to the data of Rahim Yar Khan.

Three operational skills, i.e., Functional Communication Skills, Work and Productivity Skills, and Decision-Making Skills, were computed based on the responses against valid and reliable items. With the value classification explained in chapter 5, the data shows a general rising pattern for the Functional Communication Skills with an increase in schooling years, as shown in Figure 6.3:
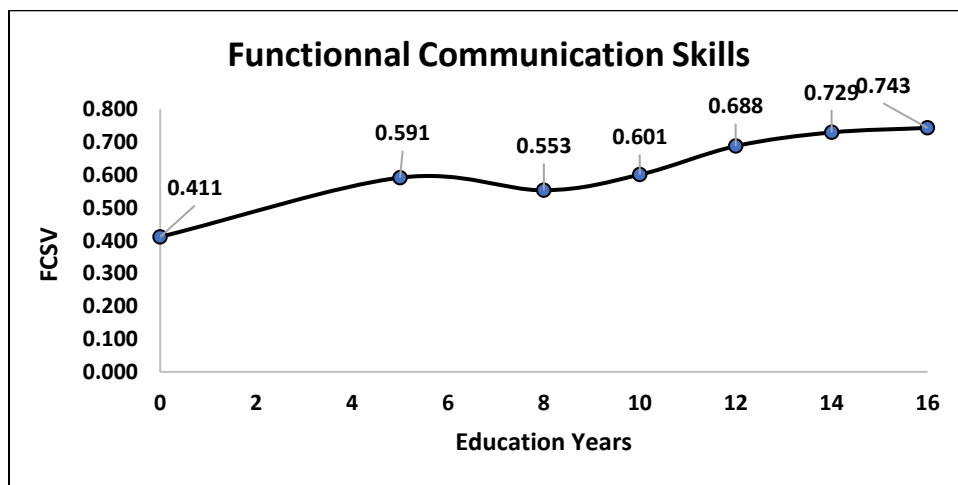
Figure 6.3: Education and Functional Communication Skills

Starting from 0.411 for uneducated individuals, Functional Communication Skills increases by 44% for five years of schooling to 0.591 and then fell by 6.5% to 0.553 from five to 8 years of schooling, it increases again from eight to ten by 8.6 %; ten to twelve by 14.5 %, twelve to 14 by 6.1 % and from 14 years to 16 and more years of education by 2 %. Generally, a 46% improvement in Functional Communication has been noticed from 0 years to ten years of education in comparison to 24% improvement from ten to 16 and more years of education. This describes a greater change in Functional Communication Skills for up to ten years of education.

Similar to the FCSV, the Work and Productivity Skill Values (WPSV) and Decision-Making Skills Values (DMSV) closer to zero describe poor skills, whereas values closer to 1 depict Good Skills. By using average values of WPSV for every year of education, a WPSC Curve was defined that generally depicts a rising tendency with a change in education, as shown in Figure 6.4:
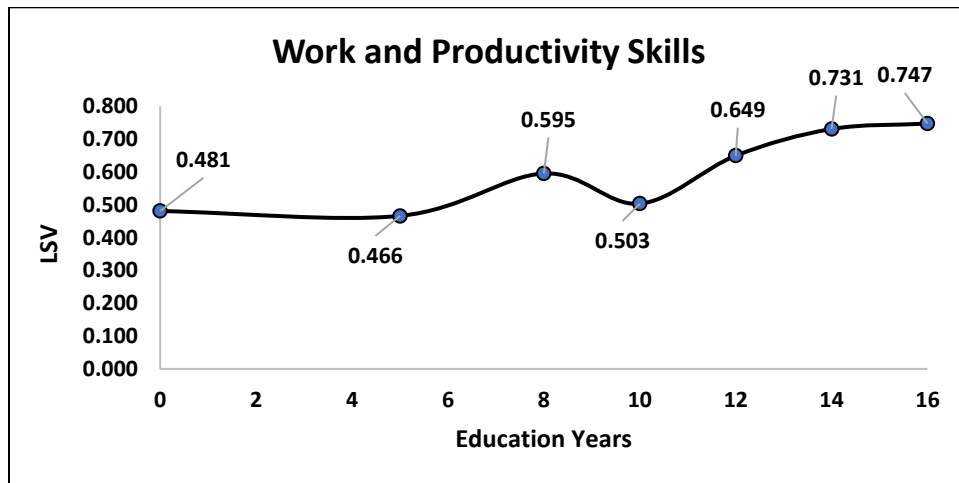
*Figure 6.4:*Education and Work & Productivity Skills

As shown in the above figure, the lowest Work and Productivity skills (0.466) are marked by the individuals with five years of education, 3% lower than uneducated individuals (0.481). Generally, individuals up to five years of education fall in the moderate skill category (0.25-0.5), whereas the rest of the sample falls in the Good Work and Productivity Skills category (0.5-0.75) with varying values for every level of education. The pattern of change in Work and Productivity Skills is so

that the WPS curve shows a fall of 3% from zero to eight years of education; a rise of 27.7% from five to eight years; again, a fall of 15.5% from eight to ten years; and then a rise of 29%, 12.5%, and 2.3% from ten to twelve, twelve to fourteen and fourteen to sixteen and more years of education respectively. These work and productivity skills of individuals illustrate a fluctuating behavior with the year of education.

The Decision-Making Skill Value (DMSV) denotes the effective decision-making capability of individuals to facilitate their economic well-being. A Decision-Making Skill curve was defined by using the average DMSV against each level of education. The curve depicts a substantial improvement in the decision-making capabilities of individuals with the rise in education years. With substantial variations in the DMS values for every level of education, on average, individuals with education years from 0-10 falls in the Good Skill (0.5-0.75) category, whereas those with tertiary education (12-16&16+) falls in the Excellent Skill category with DMS value in the range (0.75-1). With a general rising tendency, the DMS curve shows a rise of 15 % from zero years of education (0.534) to five years of education (0.613) and a rise of 12% from five years to eight years of education (0.684) before it fell by 1 % from eight to ten years of education (0.677) to the level below eight years of education. The DMS curve again rises by 14.3% from ten to 12 years of education (0.773), by 7.2% from 12 to 14 years of education (0.819), and by 1.1% from 14 to 16 or more years of education (0.838) as shown in the following Figure 6.5:
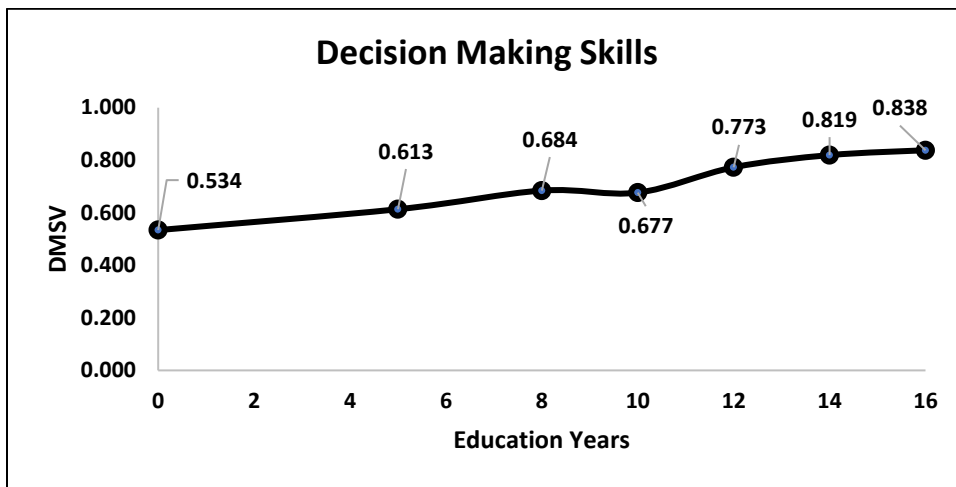
*Figure 6.5***:** Education and Decision-Making Skills

Functional Communication Skill Values (FCSV), Work and Productivity Skill Values (WPSV), and Decision-Making Skill Values (DMSV) as computed in the previous sections were averaged to yield an Aggregate Operational Skill Value (OSV). An OSV curve with average values against each level of education is generated, as showing in Figure 6.6:
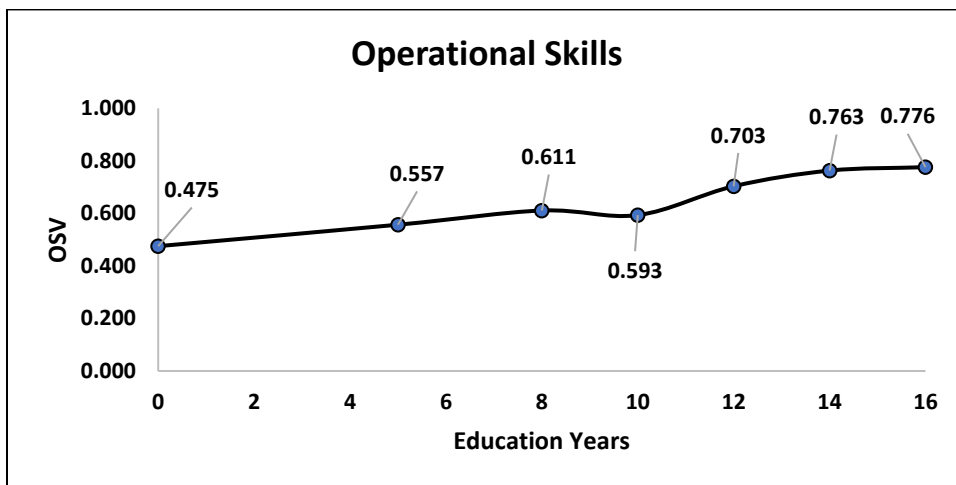
*Figure 6.6***:**Education and Operational Skills

Consistent with the structure of FCSV, WPSV, and DMSV, the aggregate OSV curve also portrays an increasing curve with education years. The individual with no education falls in the moderate skill category with OSV (0.475), whereas individuals from five years of education to fourteen years of education fall in the Good Skill category, as shown in Figure 6.6. Level by level analysis

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shows a 17.2% increase from zero to five years, 9.7% increase from five to eight years, a 2.9 % decrease from eight to ten years, an 18.5% increase from twelve to fourteen years, and a 1.7% increase from fourteen to sixteen or more years of education.

An Aggregate Skill curve was defined by using the average ASV against each of the seven levels of education. The Aggregate Skill Curve illustrates an almost linear relationship of Skills and Education with only a minor downward kink for ten years of education. This skill curve of Rahim Yar Khan verifies the claims established in the literature, as discussed earlier, that education improves skills and hence creates economic value for individuals. According to the ASV curve, individuals from zero years of education to 10 years of education in Rahim Yar khan fall in the moderate skill category with ASV 0.385, 0.455, 0.487, 0.483, respectively. Those with education years twelve to fourteen fall in the good skill category with Aggregate Skill Values 0.580 and 0.662, respectively. In comparison, Individuals with education years 16 or more fall in the Excellent Skill category with ASV 0.757, as shown in Figure 6.7:
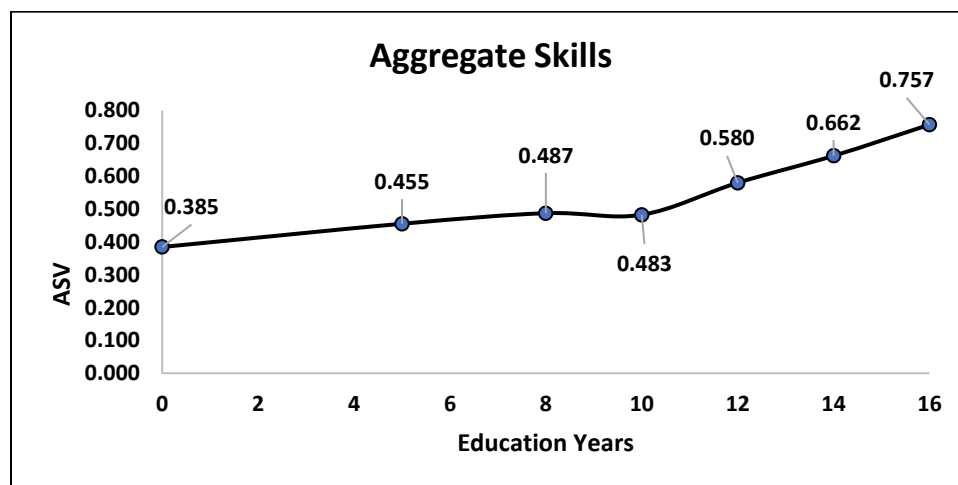
Figure 6.7: Education and Aggregate Skills

If we look at the improvements in skills with education, there is a 25.5 % improvement from 0 years of education to ten years of education with 18.4 % improvement from 0 to five years, 7.1% from five to eight years, and a fall of 1% from eight to ten years of education. The ASV from 10

years of education to 16 or more years of education, on the other hand, depicts a 56.9% improvement with 20.2 % growth from ten to twelve years, 14.2 % growth from 12 to 14 years, whereas 14.3% growth from 14 to 16 or more years of education.

The third indicator of individual economic quality, i.e., the Wealth Values for all the individuals, were grouped by averaging according to their respective education years. These average values were then used to draw a Wealth Status Curve, as shown in Figure 6.8:
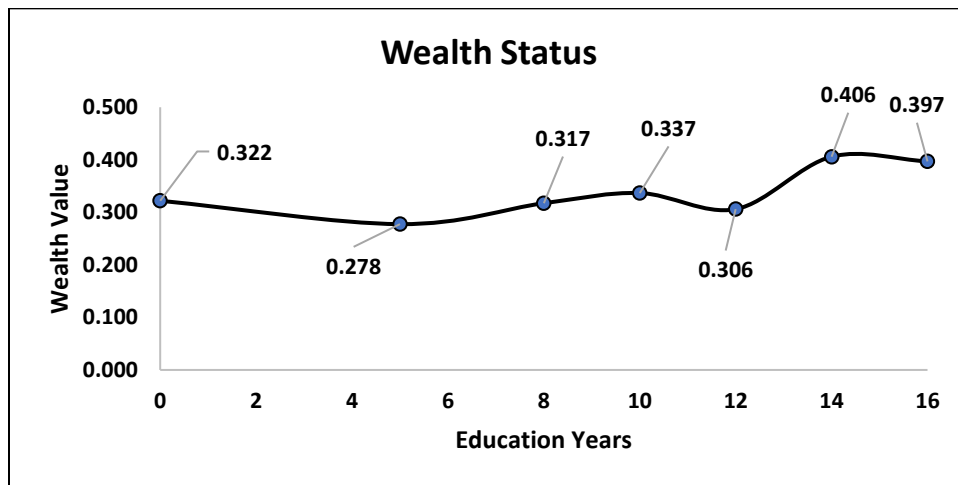
*Figure 6.8:*Education and Wealth Status

According to the wealth curve, the wealth status of the whole sample falls in the Moderate Wealth Status category in the range of (0.25 - 0.5) with variation for all educational years. They were generally depicting a stationary state with values floating between 0.322 and 0.3978 regarding asset accumulation for all the educational levels. Wealth Status depicts a 4.6 % improvement from 0 years of education to ten years of education with a 13.8 % decrease from 0 to five-year, 14.3 % increase from five to eight years, and an increase of 6.1% from eight to ten years of education. The Wealth Status from 10 years of education to 16 or more years of education, on the other hand, depicts a 17.9% improvement with a 9.1 % decrease from ten to twelve years, 32.6 % increase from 12 to 14 years, whereas 2.2% decrease from 14 to 16 or more years of education. These fluctuating values depict a minor association of asset accumulation with respect to education as

there was an incidence where an uneducated person owns a substantial asset, whereas a highly qualified individual may not have enough assets or wealth. The majority of the businessmen operating in the market were less educated or uneducated but had substantial wealth, whereas the majority of highly qualified individuals were on jobs.

6.1.1.2 Economic Quality Index:

By aggregating Economic Awareness, Skills, and Wealth Status, by using equal weights, an Economic Quality Index was computed. Averaging Economic Quality Index for every year of education, we have defined an Economic Quality Curve (EQC) as shown in the following Figure 6.9:
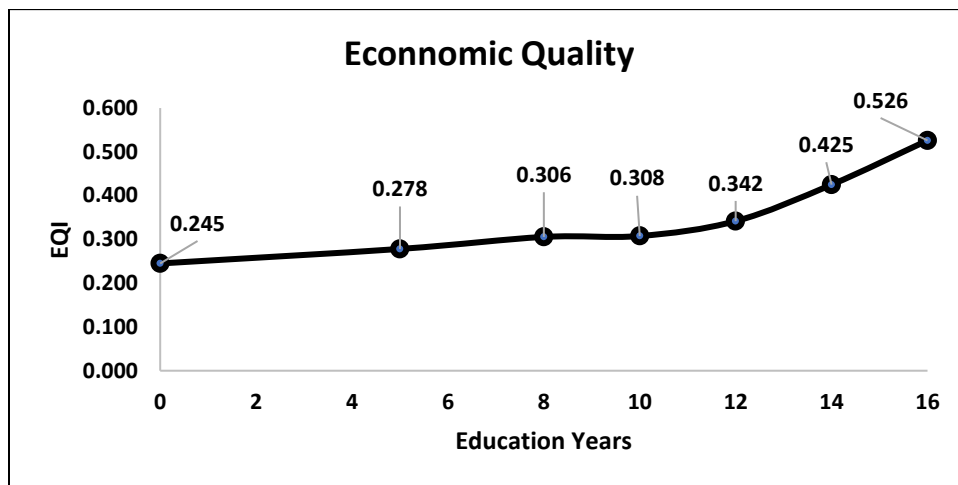
*Figure 6.9:*Education and Economic Quality

The Economic Quality Curve illustrates a rising trend with an increase in education years, as shown in Figure 6.9. The Economic Quality of individuals from 0 years to fourteen years of education falls in the Average Quality Category (0.25-0.5). The only level of education above average is 16 or more years of education that falls at the bottom of the High-Quality bracket. On average, the Economic Quality of the whole sample for all levels of education with a value (0.316) falls in the Average Quality category indicating the below-average economic capabilities for the people of Rahim Yar Khan district. If we look at the pattern of change according to education years,

Economic Quality depicts the growth of 25.6 % from zero years of education (0.309) to 10 years of education (0.375), with a 13.5 % change from 0 years to 5 years and 9.9 % change from 5 years to 8 years, whereas a minor 0.7% change from eight years to 10 years of education. From ten to 16 or more years of education, the growth in Economic Quality of Individuals is 70.9%, with a change of 11% in EQI from 10 years to 12 years, 24.4% change from 12 years to 14 years of education, and a 23.8 % change from 14 years to 16 or more years of education. This shows that although the economic quality of individuals improves with the level of education, greater effects exist for post-secondary Level of Education from 12 years of schooling to 16 or more and hence signifies the importance of higher education for the economic quality.

6.1.2 Social Quality

Rahim Yar Khan, in due course of its history failed to provide essential social commodities such as education, health, security, and a better standard of living. As discussed in Chapter 2, Rahim Yar Khan is the fourth worst in Punjab (GOP, 2017). This whole state of affairs with a gloomy situation of social development and hence a poor social status of an average citizen in Rahim Yar Khan illustrates a failure of state institutions, especially political institutions, towards the creation of a healthier, peaceful, crime-free, tolerant, prosperous, and agile society. Under these circumstances, our analysis in this part involves the assessment of Social Quality, a representative measure to gauge the social freedom of individuals with varying levels of education according to the dimensions explained in chapter 4. Social Quality thus proxies the social capabilities and hence social functionings of individuals for a healthier and prosperous society (Sen & Dreze, 1995).

As discussed in chapter 2 and chapter 4, the social effects of education are explained by its effects on an individual's Personal Capability defined by individual health, Social Capability defined by the extent to which an individual is able to participate in society, and individual Civic Capability defined by his behavior towards the rule of law. In general, social quality involves the

behavior of individuals towards their own self, towards other individuals and groups with alternative perspectives or diverse attributes, and towards his legal obligations and his civic responsibilities (Schuller, Preston, Hammond, Brassett-Grundy, & Bynner, 2004; Riddell, 2006). Social Quality, based on the education of an individual in this way, depends upon health, tolerance, and law abidance, as discussed comprehensively in chapter 4. The outcomes of three determinants of social quality, i.e., Health, Tolerance, and Law abidance, as well as the aggregate of these three, i.e., Social Quality Index, are discussed in the next section.

6.1.2.1   Health, Tolerance and Law Abidance at Rahim Yar Khan

The important linkages of education (year of schooling) and individual health are well elaborated in the literature (Grossman & Kaestner, 1997). Effecting through direct as well as indirect channels, education is widely accepted as an important determinant of the health and social wellbeing of individuals (Grossman M. , 1972; M. Shohel & Howes, 2019). In the light of positive interconnections, the health curve determined for Rahim Yar Khan depicts a tendency of rising health status with a rise in education, confirming the positive association of education with health (Hahn & Truman, 2015; Cuñado & Gracia, 2012; Ross & Mirowsky, 1999). A level-specific view, on the other hand, displayed a fluctuating health curve with a zigzag behavior, as shown in Figure 6.10. Starting from the health index value (0.763), for the individuals with no education, there is a fall in the health status of individuals with primary education level (HI=0.713), there is again a substantial rise for middle education (HI=0.790) and again a fall for Matric (Hi=0.729). However, after matric level, health curve in confirmation to the observations of (Ross & Mirowsky, 1999; Cuñado & Gracia, 2012) depicted a steady rise from intermediate (0.795) and reached its maximum for graduation (0.828) level and then fell for higher qualifications, i.e., for 16 and 16+ (0.813) as shown in the Figure 6.10:
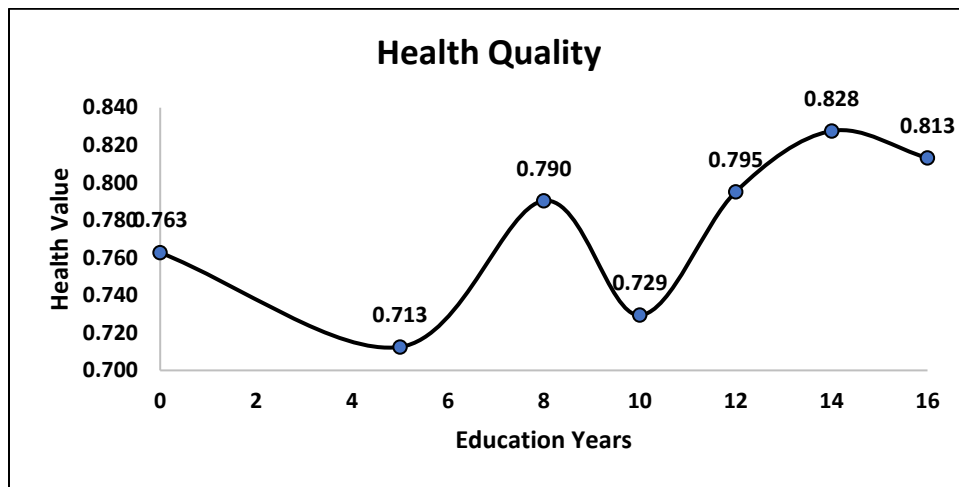
Figure 6.10: Education and Health

Few aspects in our analysis require some more attention; according to our study, there is no substantial difference in the health status of individuals with primary and matric level education. Similar behavior is noticed for individuals with middle and intermediate-level education. To further examine the relationship, we have conducted a regression analysis by using health index estimates as an outcome variable against, Education, Age, Work Experience, Father's Education, Mother's Education, and Per Hour Wages. Our results indicate significant positive effect of individual's own Education ***(β=0.005 & p=0.05)*** and Mother's Education ***(β=0.008 & p=0.03).*** The effect of Age is insignificant, but it comes with its natural negative signs showing an inverse relationship of age and health confirming (Shallcross, Ford, Floerke, & Mauss, 2013), the effect of Per Hour Wages, Father's Education, and experience were also found insignificant. These results substantiated our claims that education leads to improvement in health, it makes individuals able to understand the need for good health, requirements, and its effectiveness for their life (Zon, Reijneveld, Leon, & Bu̇ltmann, 2017; Cuñado & Gracia, 2012; Kumar, 2017; Abachizadeh, et al., 2017; Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003).

Another important determinant of social quality of individuals is that how tolerant they are while their engagement with other individuals from other social, ethnic, religious, political

backgrounds as well as the opposite gender (Case, Greeley, & Fuchs, 1989; Hello, et al. 2002; Brese et al. 2015). The average tolerance values for every level of education are determined according to the five valid and reliable dimensions explained in chapter 5. If we mainly investigate the question related to female education and labor force participation, it depicts a positive association with education. The respondents' perception about female labor force participation improves with an increase in education level. According to data collected, the acceptance of women's education and labor force participation is least for uneducated individuals (score 1.8 out of 4). In contrast, it rises to 2.2 for individuals with five years of schooling, 2.4 for ten years of education, 2.7 for 14 years of education, and 3.1 for 16 and more years of education. Thus, a rise in education level depicting more acceptability of women's education and labor force participation. A similar trend is observed for other items related to tolerance assessment. All the earlier mentioned dimension scores are averaged for each level of education to generate a Tolerance Curve, as shown in Figure 6.11:
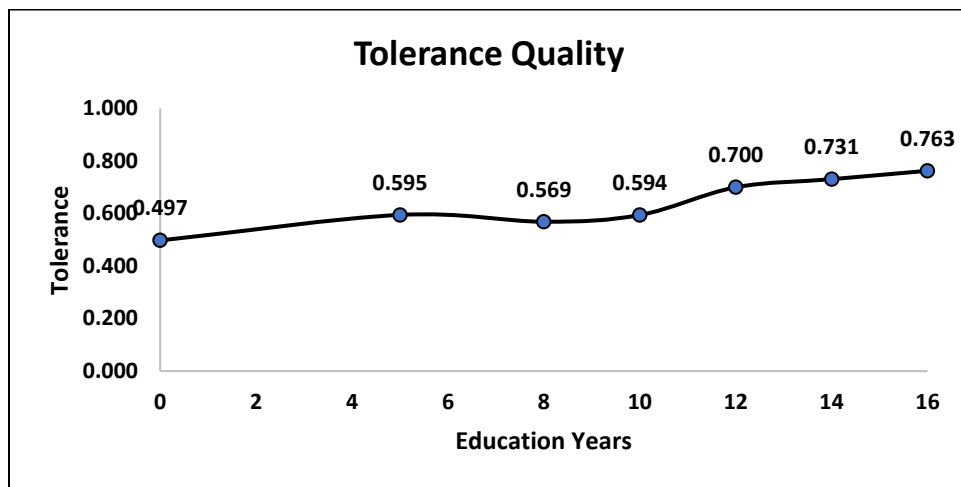
Figure 6.11: Education and Tolerance

The curve has been demonstrating a general tendency of increasing tolerance level with an increase in the year of schooling. The tolerance curve shows a ten-percentage point rise (0.497 to 0.595) in the tolerance level from zero level education (No formal schooling) to primary

education (Level-1, five years of education). The tolerance level does not vary substantially from five to ten years of schooling (matric level), but it depicts an increasing trend after matric. With a general rise in the tolerance level, the magnitude of the effect of education on tolerance is clearly higher from Level-3 to Level-6 in comparison to Level-0 to Level-3. A multivariate regression analysis was carried to enlighten the relationship between Education and Tolerance further. After controlling the effect of Age, Per Hour Wages, Father Education, Mother's Education, and Work Experience, we found a significant positive effect of education on tolerance (the only significant effect in this regression) with β=0.013, t-stats=3.72, and p=0.0002. These results explain that controlling for other variables, each year's rise in education leads to a 1.3% rise in the tolerance level of individuals. This result confirms our claims that education has positive effects on tolerance.

With the importance of individual law abidance for the individual and overall well-being of a society, this research has evaluated the law-abiding behavior of individuals with different levels of education by following the research setting explained in Chapter 5. The average estimated values of the law-abidance index against each level of education are depicted in Figure 6.12:
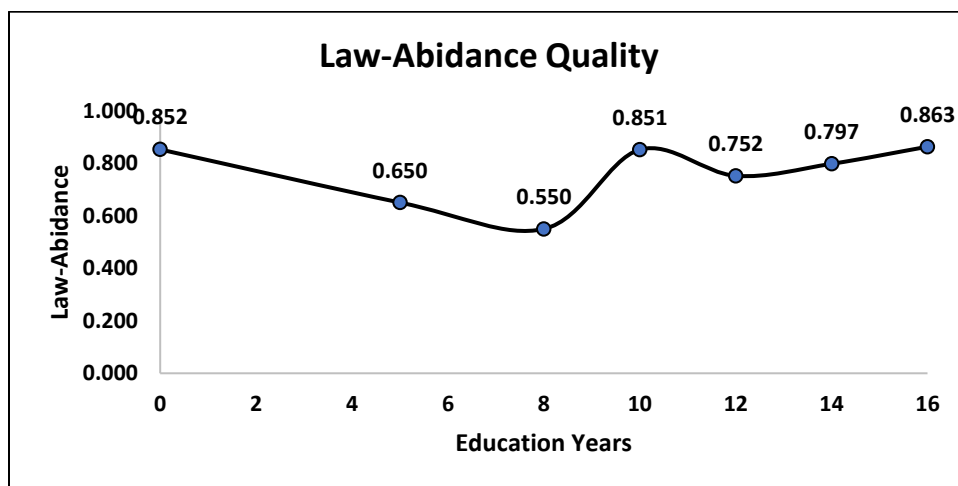
Figure 6.12: Education and Law-Abidance

The Law-abidance curve shows a compelling case where individuals without education and those with ten years of schooling as well as highest education (16 and above years) were the ones who represented the highest prospect of reporting against breach of law. Generally, the law-abidance curve portrays a tendency of declining chances of reporting from no education (0.852) to eight years of schooling (0.550), and then it took a rising jump for ten years of schooling (0.851) and a sharp downward jump for 12 years of education (0.752) before it follows a steady rise for 14 years (0.797) and 16 or more years of schooling (0.863). This pattern indicates a w-shaped law-abidance curve showing rise and fall at various levels of education. Multivariate regression, with law-abidance index values as outcome variable against Year of Schooling, Age, Per Hour Wages, Experience, Father's Education, and Mother's Education has been conducted. The results exposed a significant positive effect of education on individuals' law-abiding behavior with $\beta=0.005$, t-stats=2.325, and p=0.0206, confirming our claims for the Rahim Yar Khan that education positively impacts law-abidance of the individuals.

6.1.2.2   Social Quality Index

Joining Health, Tolerance and Law-abidance indices, we have computed a Social Quality Index, a composite measure representing the overall social quality of individuals with different education levels. This index depicts the capabilities of individuals for their efficient and effective functioning in society as healthy, tolerant, and law-abiding citizens. It differentiated the quality of individuals based on education, showing how capable individuals from varying education levels are towards their efficient and effective social functioning, creating private and social value (Riddell, 2006). Figure 6.13 depicted the Social Quality concerning education and highlighted a static behavior for no education to eight years of education and then a steady rise afterward.
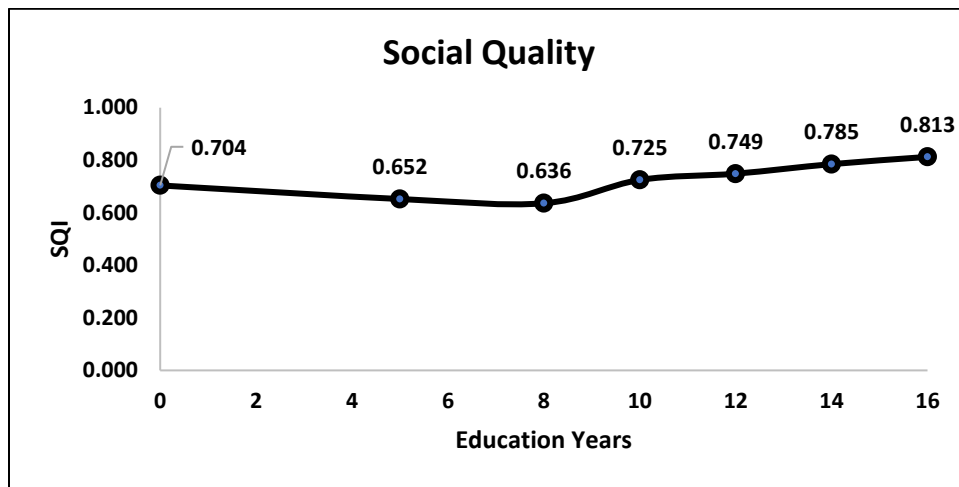
Social Quality

*Figure 6.13:*Education and Social Quality

A good health value (0.763) and law-abidance value (0.852) made individuals with no education more capable than those with 5 and 8 years of schooling. Despite substantially higher health quality, the individuals with eight years of education depict the lowest social quality based on their poor positions against tolerance and law abidance. The average value obtained by these individuals made them the worst in terms of Social Quality, with the lowest value (0.636), showing a gap of 3.6 % from zero years and 2.7% from primary education, as shown in the Social Quality Curve (SQC) in Figure 6.13. The curve followed a rising path but with a declining rate from 8 years to 16 or more years, indicating a positive association of Social Quality with Education (above middle level). Social Quality Index has been regressed against education and other control variables (Age, Experience, Father's Education, Mother's Education, Per Hour Wages). The results demonstrated a significant positive impact of education on Social Quality with *β=0.01, t-stats=4.79, and p=0.0000*, confirming our claim that Education positively influences the social quality of individuals. The regression results show a 1% rise in social quality with each year's increase in schooling.

6.1.3 Political Quality

Politics is another critical area where the quality of individual matters most due to its strong influence on the other two areas, i.e., Social and Economic. The quality of the political system and its relevant institutions, as discussed in chapters 3-4, mainly depends upon the quality of individuals involved in any role. Coherent with the importance of the political domain, a political quality assessment has been conducted to evaluate the political quality of individuals for Rahim Yar Khan. A Political Quality Index has been computed based on political awareness and political freedom of individuals with different education levels according to the structure explained in chapter 4. To further illustrate the exercise of political capabilities, the study has also computed a political participation index for every individual. Furthermore, to analyze the quality of political participation, a comparison of Political Participation and Political Awareness was also undertaken.

6.1.3.1 Political Awareness and Political Freedom

The assessment results for both facets of political awareness, as explained in chapter4 & 5, revealed a horrifying state of individuals' knowledge about their political representatives and overall political system. Assessment concerning awareness of political representatives generally exposed the higher level of ignorance. The intensity of ignorance is higher for local political representatives than representatives of the National Stature. Eighty-three percent of the respondents with level 0 education and eighty-four percent with level 1 (primary) education were utterly unaware[40] of their local political representatives. This percentage of individuals with complete ignorance begins to fall substantially after primary education. The rate drops to seventy-nine percent for level 2, seventy-two percent for level 3, sixty-six percent for level 4, forty-six percent for level 5, and twenty-one percent for level 6, as shown in Figure 6.14

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[40] Knew none of the four attributes i.e., Name, Education, Profession, and Political Party
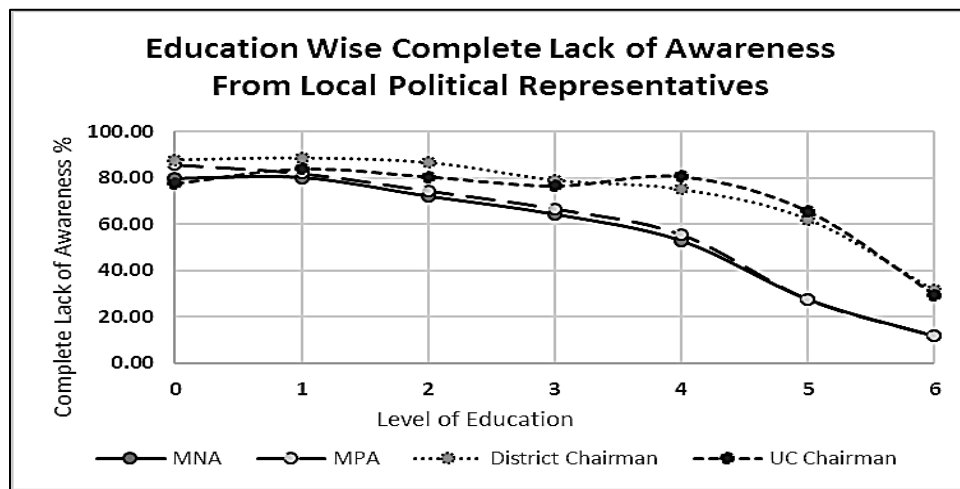
Figure 6.14: Education and Awareness of Political Representatives

Although it shows an improvement in the awareness with the rise in educational level, twenty-one percent completely ignorant individuals with the highest level of education are shocking. These results highlighted the dire state of vigilance and rationality of the highly educated class, putting question marks on the quality of their political choices at national, provincial, and grassroots levels. On the whole, the poor state of political awareness highlights the inability of individuals to assess their political legislatures at each level to make effective and efficient political decisions. As indicated by the graph, this inability declines with the increase in education years and hence signifies the importance of education towards the quality of political choices.

A glance at the data collected shows a substantially lower level of ignorance for the political representatives of national stature contrary to the local representatives for all levels of education. As summarized in the Appendices Table F.1, complete ignorance from the president, Prime Minister (PM) of Pakistan, and Chief Minister (CM) Punjab is the largest for individuals with no education. This percentage of completely ignorant individuals then fell with a rise in education level. Generally, the level of awareness rises bottom-up in the hierarchy of political representatives. The decline in ignorance or the increase in awareness for representatives at the top, i.e., President, Prime Minister, and Chief Minister, may well be a media effect due to a regular

media exposure of these top political entities. With his eminent recognition as a cricket player, philanthropist, and politician 0f change, the most recognized political representative as per this study remained the Prime Minister of Pakistan as ninety-four percent of the total individuals surveyed were aware of at least one attribute of four regarding Prime Minister of Pakistan.

A set of seventeen questions with a dichotomous scale (0,1), as shown in Appendix Table E.8, was presented to the respondents regarding the composition, key stakeholders, and some functional attributes to assess the knowledge about the structure of National Politics. Like the outcomes of earlier assessment, the results regarding knowledge of the political system also led us to a poor display of awareness at all levels of education, as summarized in Appendix Table F.2. It is clear from the findings that most of the individuals surveyed were not aware of the composition, key stakeholders, and functional attributes of national politics. This poor awareness of political structure at every level of education confirms the poor quality of political choices of individuals in Rahim Yar Khan. To further proceed with our assessment, political awareness scores were determined according to the method explained in chapter 4 for every individual based on their responses against both sets of questions to draw some objective conclusions about overall political awareness according to their educational level. According to the values determined, a positive association of both variants of political awareness with education is observed. Awareness regarding political representatives illustrates higher values than awareness regarding the political system at each level of education. These results indicate that individual awareness with political representatives is comparatively higher for each level of education. This pattern highlights the trend the individuals are least concerned about the dynamics of the political system; they are more concerned about their personalities. In conclusion, it also highlights a dangerous trend of making a political decision based on individual likes or dislikes without knowing the system. The gap of awareness at each level of education for both variants is apparent, and it reduces with an increase in education level, as shown in Figure 6.15.

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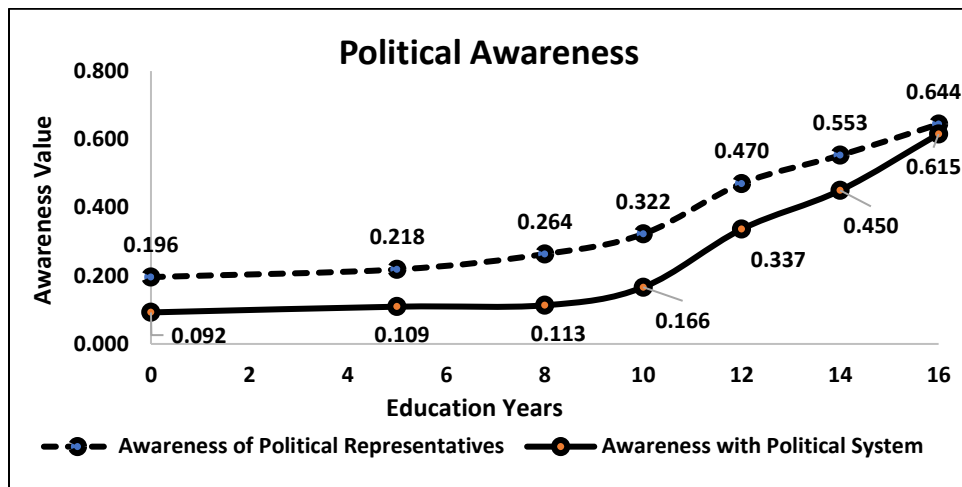
*Figure 6.15:*Education and Two Variants of Political Awareness

Consistent with the two variants of political awareness, the aggregates awareness increases with the level of education, but the range of values depict a lackluster result as individuals with maximum education, i.e., 16 or 16+, have political awareness that falls in the moderate awareness range. Furthermore, there is no substantial rise in both the variants of political awareness from level 0 to level 2, but after eight years of schooling or level three, the increase in awareness shows a more significant improvement. Thus, the aggregate value of Political Awareness, as shown in Figure 6.16, reveals the same pattern as it appears for each of the two variants of awareness as shown in Figure 6.15. It depicts a positive association between year of schooling and aggregate Political Awareness with a smooth transition in the overall awareness level from one level of education to the other. The rise in overall political awareness from level 0 to level 2 is not substantial; there is an exact two percentage point change from zero education to primary schooling. From primary to middle, it shows a slight improvement with a 2.4 % change in Political Awareness. From middle to matric (10 years), it shows a 6% improvement in political awareness. The most significant change (16%) as per the data collected is observed when education years change from ten to twelve. From 12 to 14 years of education, the change in political awareness is positive 10%, and from graduation (14 years) to masters or higher, the change in political

awareness is positive 13 percent. On the whole, a rise in education leads to a rise in awareness of individuals in the Rahim Yar Khan district, as shown in Figure 6.16.

Aggregate Political Awareness
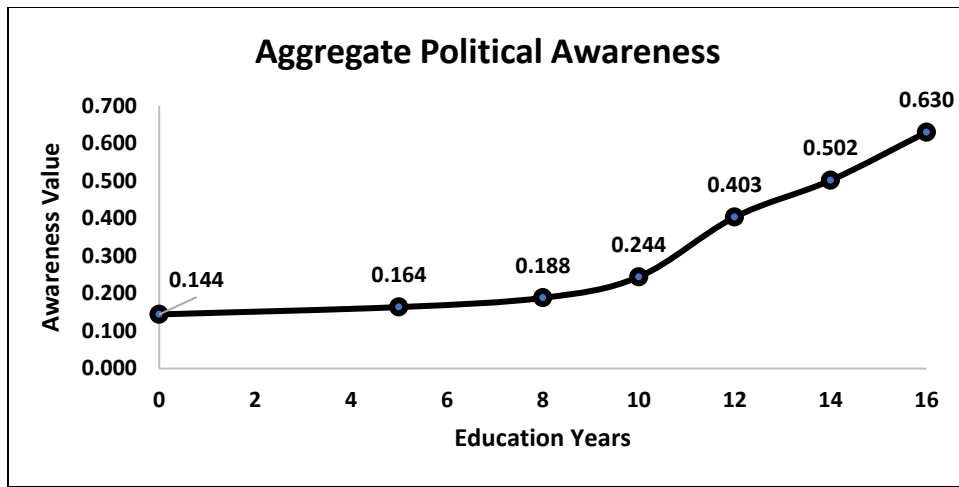
Figure 6.16: Education and Aggregate Political Awareness

As explained in chapter 5, the assessment of individual freedom for political involvement was carried out based on five conditions that can restrict individuals' effective political participation. The assessment yielded an M-shaped average freedom curve against education, as shown in Figure 6.17. It offers a general rise in the freedom of political involvement with a rise in educational level. Level 0 depicts the least freedom, whereas level 4 depicts the highest level of freedom for political participation. A dip in the space to participate is apparent from primary education (level1) to middle (level 2). To explore the main reason behind the dip at the middle level of education, we have analyzed the data collected and found average monthly income as the main driving force for the underlying patterns. A rise in average monthly income from level 0 (Rs: 15987.76) to level 1 (Rs: 25023.81) is observed, followed by a decline for level 2(Rs:23273.28), and it rises for a higher level of education again as summarized in the Appendices Table F.3. The Per Hour Wages (PHW) pattern also depicted a similar behavior as of the monthly income. At first, it rises from level 0 (Rs: 82.21) to level 2 (Rs: 123.40), and then it falls for level 2 (114.33) and again rises for level 3(Rs: 253.65) and so on. This pattern again persists for the values for Economic Freedom as; first,

it rises from level 0 (0.209) to level 1 education (0.519), then it falls for level 2 (0.427), and it rises afterward (0.617, 0.819, 0.871). When most of the freedom for political involvement is explained by economic resources, it is evident from the data that a fall in the freedom for individuals with education level 2 (middle/8 years of schooling) is due to a falling monthly income and productivity level. Hence, they were the ones facing strict economic/resource constraints.
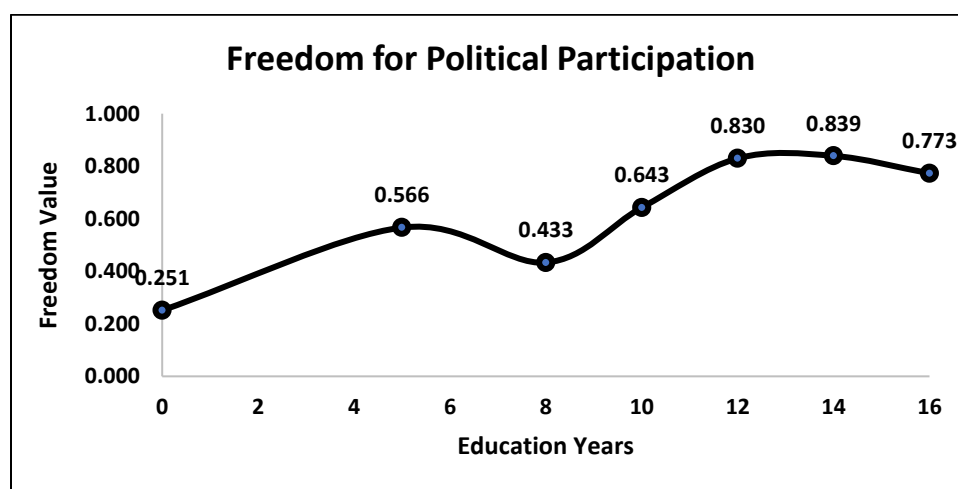
*Figure 6.17:*Education and Freedom for Political Participation

On the whole, in confirmation of the observations of (Kam & Palmer, 2008), the aggregate freedom curve, Figure 6.17, depicts a general positive association between Education and Freedom for political involvement. According to (Kam & Palmer, 2008), education ease constraints by impacting economic and non-economic constraining factors and hence creates a conducive environment to participate in the political system. Thus, education by offering freedom enhances individual capabilities to involve in the political system effectively.

6.1.3.2   Political Quality:

In line with the pattern of Political awareness and political freedom, the aggregate political quality, an aggregate of two, depicts a positive association with the level of education as shown in the political quality curve in Figure 6.18:
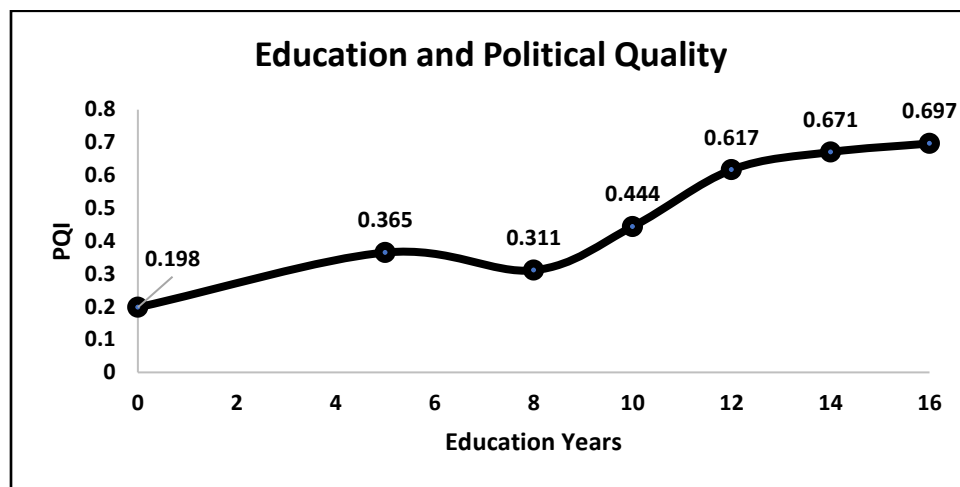
Figure 6.18: Education and Political Quality

The aggregate political quality curves show a general tendency of increase in political quality with an increase in education levels[41] for the case of Rahim Yar Khan. Individuals with level 0 education have a Political Quality score (0.312) that lies in the Low-Quality band (0-0.333). Those with level 1-5 have PQI scores (0.386), (0.365), (0.456), (0.622), and 0.665) respectively with all lies in Medium Political Quality Band (0.333-0.665) with a differentiable degree, whereas individuals with level 6 education lie in High political Quality Band (0.666-0.999) with political quality score (0.676). The general tendency of a rising political quality curve shows the positive association of education and individual political quality. According to SDG 4, suppose the population in Rahim Yar Khan is given appropriate education of at least ten years of schooling. In that case, it will improve individual political quality and hence their political choices, leading to better political outcomes, an essential ingredient for sustainable development.

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[41] Six education levels are used synonymously for different graphs, each representing different year of schooling: level-0 belongs to schooling years less than primary or no education; Level-1 (5 years of schooling); level-2 (8 years of schooling); Level-3 (10 years of schooling); Level-4 (12 years of schooling); Level-5(14 years of schooling); level-6(16 or more years of schooling)

6.1.3.3 Political Participation

The assessment of political participation was carried out based on the three modes of conventional and two unconventional political participation, as explained in chapter 4. Individual responses for all education levels regarding three modes of conventional political participation are summarized in Appendices Table F-4. It depicts a higher willingness of individuals at all levels of education regarding their chances to vote in the next elections: A total of 79.59 % respondents with level 0 education; 77.14% with level 1 education, 94% with level 2 education, 91 % of level 3 education, 100 % with level 4 education, 86% of level 5, and 91 % of respondents with level 6 education showed a high and very high chance of voting in the elections. A bipolar[42] behavior of individuals is observed for the second mode of conventional political participation, i.e., the prospect of campaigning in the election for some political party/candidate, as most of the responses lies on two extremes, i.e., no chance of campaigning or high/definite chances of campaigning. The majority of the respondents at all levels of education depicted the slightest interest for the third mode of conventional political participation, i.e., donating to some political party or some political candidate/leader, as shown in the Appendices Table F-4. The responses regarding two unconventional modes of political participation are summarized in Appendices Table F-5. The highest likelihood of participating in protests for political issues emerged for the individuals with no education as 55% of them showed the intent of participation with the highest probability. This higher willingness of individuals with no education to participate in protests with the lowest level of awareness (0.144), as shown in Figure 6.16, is frightening as such individuals may easily exploit

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[42] 44.90 % of the respondents with education level 0, 25.71 % with level 1 education, 34.15 % with level 2 education, 34.57 % of level 3 education, 55.56 % with level 4 education, 72.41 % of level 5, and 39.54 % of respondents with level 6 education showed a high and very high chance of campaigning for some political party/ candidate in the elections. Whereas 47 % of the respondents with education level 0, 42 % with level 1 education, 51 % with level 2 education, 48 % of level 3 education, 22 % with level 4 education, 21 % of level 5, and 40 % of respondents with level 6 education were those who showed a zero chance of campaigning for some political party/ candidate in the elections.

the political system. From level 1 to level 6, the data showed a gradual rise in the proportion of individuals with a higher likelihood to participate in the political protests and a fall in the proportion of individuals with the least likely to participate in the political protests[43]. When asked for chances of leading/representing their communities to resolve political problems, the assessment showed satisfactory results as depicted by the higher willingness of individuals with various levels of education to participate in the political system by leading their communities. As shown in the Appendices Table F-5, 51% of respondents with level 0 education, 54% with level 1 education, 56% with level 2, 67 % with level 3, 91 % with level 4, 89 % with level 5, and 82% of respondents with level 6 education (16 years or higher) showed high intentions or likely to lead their community for conveying political problems to the concerned political authorities.

6.1.3.4 Education, Political Awareness and Political Participation

It is highly acknowledged in the political literature that awareness of the political participant is an important factor behind the quality of the political system, as a well-aware individual makes efficient political choices leading to efficient political outcomes. And individuals with the least awareness are more likely to make inefficient choices and hence are more likely to generate inefficient outcomes. Thus, it is not only participation, but well-aware participation that generates political value in terms of effective political choices for efficient political outcomes—putting together political awareness and political participation for each level of education explains a substantial gap between the two. As shown in Appendix Figure F-8, individuals without education (67% in the case of Rahim Yar Khan) are more participative but have a lower level of awareness. This substantial participation by least aware uneducated individuals raised serious concerns about

the quality of their political choices for meaningful/ efficient political results and clarified the situation as to why Political System is not generating value for the population of Rahim Yar Khan despite substantial participation. The Figure depicts the quality of political participation explained by a clear gap between political participation and awareness for each level of education. This gap shows that individuals are participating in the political system through conventional as well as unconventional modes but without having proper awareness of Political Dynamics that comprises of awareness of Political structure as well as awareness of Political Representatives. As discussed in section 6.1.3.1, the majority of the respondents as per this study were not even aware of the names of their local political representatives even at the bottom level of political hierarchy (their local councilors). Individuals used to vote but without knowing the background of a political candidate's, i.e., Name, Education, Profession, and in some cases, Political Parties. This whole situation raises serious concerns about the quality of their choice. Individuals with a greater lack of awareness are more likely to make wrong political choices and are more likely to repeat wrong choices again and again. This confirms the situation of the Rahim Yar Khan District, where the Political Status quo is reaping the fruits of ignorance by enjoying political authority even without any socio-economic value for the people of Rahim Yar Khan. Our analysis shows that the highest probability of making wrong political choices exist at level 0 education, where we have observed a huge gap of (40%) between political awareness (0.144) and political participation (0.539), as shown in Figure 6.19. This is horrifying for the case of Rahim Yar Khan District, where 67 % [44]of the total population is making political choices with huge ignorance. The whole society of the Rahim Yar Khan is facing the consequences of these ignorant choices in terms of inefficient Political Status Quo for seven decades which is failed to generate social-economic value for the Population of Rahim Yar Khan.

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[44] Population without any formal education
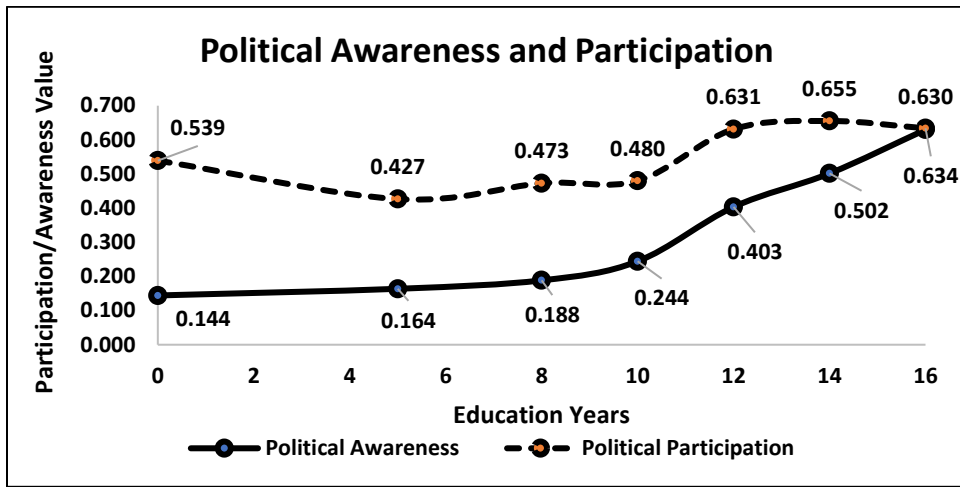
Figure 6.19: Education, Political Awareness and Political Participation

The next question arises here, does education have any potential or strength to bridge the gap? The answer as per our analysis is, yes, education can bridge this gap by raising the awareness level of individuals, as shown in Figure 6.19. When compared against each level of education, the gap shows a substantial decline with a rise in education level, and it ends up with no gap for the individuals with level 6 education, as shown in Figure 6.20:
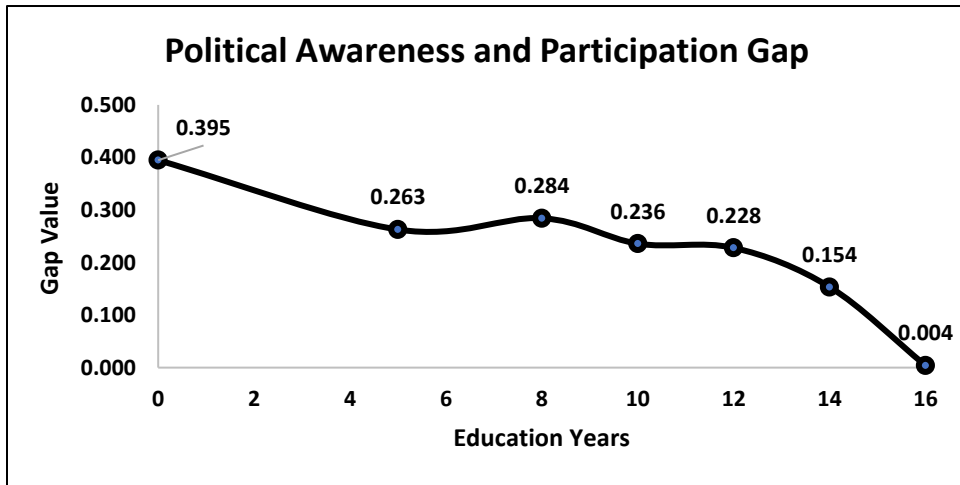
Figure 6.20: Education and Awareness-Participation Gap

6.1.4 Education and Individual Quality:

Individual values computed as Economic Quality Index, Social Quality Index, and Political Quality Index were used as input to compute the aggregated Individual Quality Index based on the

appropriate weights determined by the correlation of education with three domain indies as explained in chapter 5. Like other indices, the computation of aggregate individual quality index yielded values in the range of (0-1). Individuals with quality values in the greater than 0 but less than 0.25 are placed in the category Low Quality, those with values 0.25 to 0.5 are placed in the average category, whereas individuals in the range of 0.5-0.75 and 0.75-0.99 are placed in the high and very high-quality category. This Aggregate value, determined for every individual, describes the overall freedom of individuals and hence a composite measure of an individual's social, economic, and political quality. Individual Quality improves with an increase in the education years as the proportion of low-quality individuals falls with the increase in education years, as shown in the below Figure 6.21:
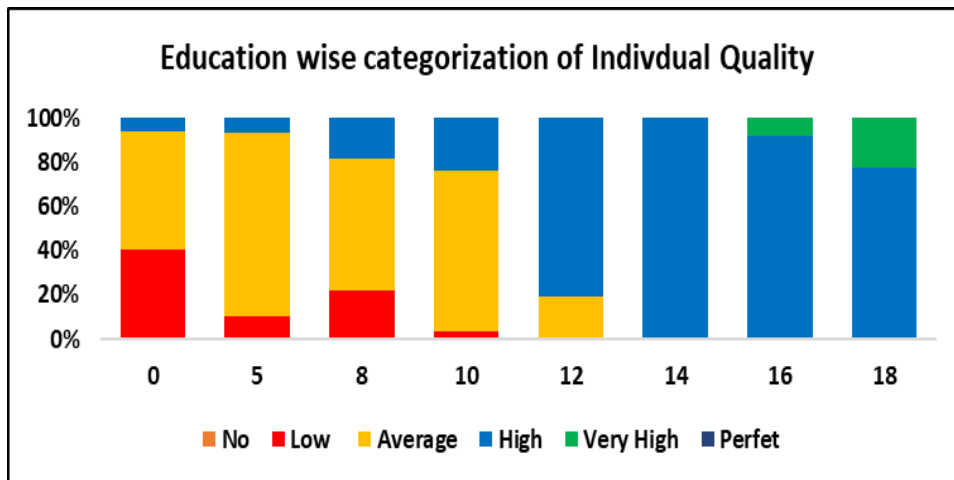
Figure 6.21: Classification of Individual Quality as per Education

To further investigate the impact of education, we have defined an Individual Quality Curve by averaging values of the Individual Quality Index for every year of education. The Individual Quality Curve generally demonstrates a rising trend with an increase in education years, as shown in Figure 6.22. The Individual Quality of respondents with education years from 0 to 10 falls in the Average Quality Category (0.25-0.5). Whereas the average value of IQ for respondents with education from 12 to 16 or more falls in the High-Quality range (0.5-0.75).
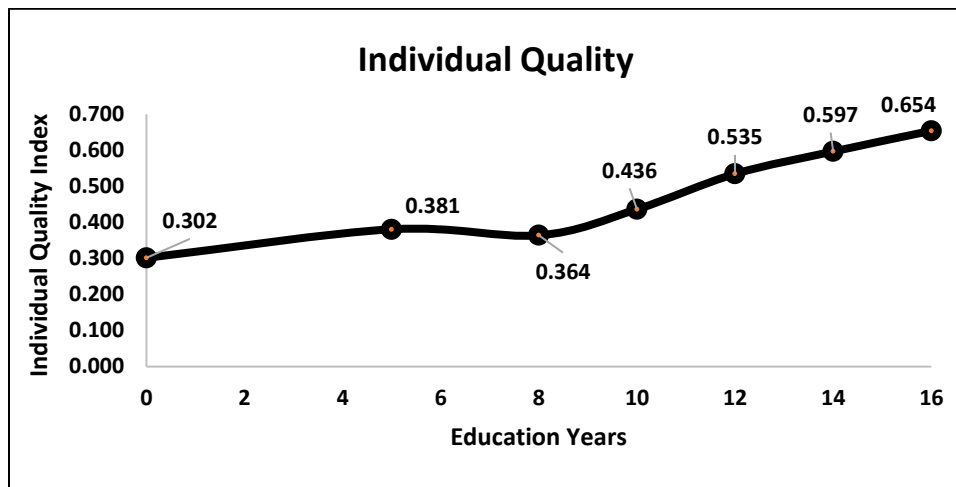
Figure 6.22: Education and Individual Quality Curve

On average, the Individual Quality of the whole sample for all levels of education with a value (0.424) falls in the Average Quality category indicating the below-average aggregate capabilities for the people of Rahim Yar Khan district. Individual Quality illustrates an improvement of 44.6 % from zero years of education (0.302) to 10 years of education (0.436), with a 26 % increase from 0 years to 5 years, 4 % decrease from 5 years to 8 years, and a substantial 20% increase from eight years to 10 years of education. Individual Quality improves by 49.9% from ten to 16 or more years of education with an increase of 22% from 10 to 12 years, a 12% increase from 12 years to 14 years of education, and a 10% increase from 14 years to 16 or more years of education. Although the behavior of aggregate individual quality curve depicts greater improvements in the quality of individuals for post-secondary education years from ten to 16 or more, a substantial improvement of 44.6% for secondary and below education years highlighted the importance of all levels of education for individual quality and hence attracted the attention of policymakers to equally focus on all levels of education above zero levels to enhance the capabilities and hence functioning of individuals for their personal as well as collective well-being. Since the individual quality index computed and discussed in this chapter reflects the aggregate capabilities of individuals, it was used as a proxy for the abilities while estimating returns to education for Rahim Yar Khan.

6.2 Cost of Educational Deprivation

As discussed in chapter 2, section 2.1, corresponding to the massive uneducated population in Pakistan is the poor performance of the state on all social, economic, and political fronts. Pakistan being the house of millions of uneducated adults and out-of-school children, is facing gigantic stress on the productive capabilities as well as national resources in addition to countless social, economic, and political concerns. Despite the very critical nature of the issue, no serious attempts are made by academia to highlight the intensity of massive national ignorance due to a bulk of uneducated individuals in the country.

To highlight the importance of education and to instigate a broader policy realization, this research attempted to compute the costs associated with the poor educational profile of the country. The computation of cost related to educational deprivation involves three phases, as explained in chapter **5.** The first phase encompasses the analysis of returns to education for Pakistan as well as Rahim Yar Khan, as done in Section 6.2.1. Returns to education for Pakistan was estimated by using the recent HIES-PSLM 2018-19 data of 30858 wage earners in the age group ten year and above from 24890 households of all the districts in Pakistan. Estimation of returns to education for Pakistan was carried according to Mincerian Earning Function with unobserved ability due to lack of data regarding any proxy of abilities. For Rahim Yar Khan, the estimation of returns to education was carried by considering Individual Quality Index, explained in chapter 5, as a proxy for abilities in the returns to education analysis by using the Mincerian Framework.

In the second phase, the outcomes of returns to education analysis, in addition to the education-wise proportion of labor force,[45] were then used to compute the wage rates as well as income of total and employed labor force. In addition to income estimation, the monetary value of

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[45] According to the Labor Force Survey 2018

unemployment was also determined for the unemployed labor force aged ten years and more for the case of Pakistan and in the age bracket 25-59 for the case of Rahim Yar Khan[46].

In the third phase, six cases, as explained in Table 6.18, with some improved educational profiles from the original educational profile of the labor force in the above-mentioned age brackets, were considered for computing income of total and employed labor force as well as the value of unemployment. The difference of incomes for each of the six cases is computed from the income of the original education profile. These differences are then explained as the lost income or opportunity cost of not having any of the educational profile of six cases in the year 2017.

To further elaborate the magnitude of the issue, the total population, as well as the total employed and unemployed labor force, was computed by discounting the average population growth rate[47] from 2009-2017. The average annual income for every level of education was also computed through year-by-year discounting of average income starting from 2017 with average wage growth rate as per state announcements in budgets statements from 2009-2017[48]. With this data, the income of the total labor force, employed labor force, and the unemployed labor force is computed for the period 2009-2017 based on original as well as six proposed education profiles. The income of six profiles was then compared with the original case to explain the aggregate opportunity cost or loss of income from 2009-17 by not having improved educational profiles as of the proposed six cases.

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[46] Due to availability of data in this age bracket.

[47] Average population growth rate in Pakistan from 2009-2017 is 2.1%

[48] Average wage increase is 10% according to budgetary announcements between 2009-2017

6.2.1 Return to Education, Wage Rates, and Income Estimation

As explained in chapter 4, the first phase, which involves the estimation of returns to education, is conducted by using the traditional Mincerian Earning Function with the unobserved ability for the case of Pakistan and by using the individual quality index as a proxy of abilities for the case of Rahim Yar Khan.

6.2.1.1 Case of Pakistan

Under the assumptions outlined in Chapter 5, we have calculated the overall returns to education for rural, urban, and all areas of Pakistan by also considering the significance of job experience. Furthermore, in line with the literature, the returns to education for different levels of education were assumed to vary in all three models. Thus, to analyze the returns to these educational differences, the total 30858 observations were divided into three groups: Primary, which included data values in the range of 0 to 5 years of education; secondary, which included 6 to 10 years of education, and Tertiary, which included 11 to 20 years of education. Based on this categorization of schooling years, the returns to education have been estimated for Rural, Urban, and All areas of Pakistan with results presented in the following Tables 6.1 to Table 6.3:

Table 6.1: Returns to Education (All Areas)

Variable	Primary Level (0-5)	Secondary Level (6-10)	Tertiary Level (>10)
Constant	2.99***	2.978***	2.698***
	(0.0186)	(0.0525)	(0.0556)
Education	0.113***	0.0813***	0.1006***
	(0.0037)	(0.0057)	(0.0036)
Experience	0.0177***	0.0278***	0.0385***
	(0.0005)	(0.0006)	(0.0009)
R-Square	0.0907	0.1971	0.2975
F-Stat	833.28	1073.42	1145.77
F-Sign	0	0	0
Observations	16699	8745	5414
Significance: * $p <= 0.10$; ** $p <= 0.05$; *** $p <= 0.01$ Bracket (Standard Error) Dependent Variable: Log Hourly Wage			

Table 6.2: Returns to Education (Rural Areas)

Variable	Primary Level (0-5)	Secondary Level (6-10)	Tertiary Level (>10)
Constant	2.91*** (0.0223)	2.94*** (0.0699)	2.81*** (0.0886)
Education	0.1129*** (0.0048)	0.0736*** (0.0077)	0.0838*** (0.0059)
Experience	0.0163*** (0.0007)	0.0276*** (0.0009)	0.0392*** (0.0014)
R-Square	0.0784	0.1945	0.2829
F-Stat	472.75	540.75	418.13
F-Sign	0	0	0
Observations	11066	4481	2122
Significance: * $p <= 0.10$; ** $p <= 0.05$; *** $p<=0.01$ Bracket (Standard Error) Dependent Variable: Log Hourly Wage			

Table 6.3: Returns to Education (Urban Areas)

Variable	Primary Level (0-5)	Secondary Level (6-10)	Tertiary Level (>10)
Constant	3.24*** (0.0304)	3.13*** (0.0785)	2.73*** (0.0711)
Education	0.0935*** (0.0056)	0.0778*** (0.0084)	0.1052*** (0.0044)
Experience	0.0183*** (0.0008)	0.0265*** (0.0009)	0.0369*** (0.0011)
R-Square	0.0994	0.1866	0.2943
F-Stat	310.75	488.78	688.95
F-Sign	0	0	0
Observations	5633	4264	3292
Significance: * $p <= 0.10$; ** $p <= 0.05$; *** $p<=0.01$ Bracket (Standard Error) Dependent Variable: Log Hourly Wage			

The general return to education (without discrimination of educational level) for all areas has been estimated to be 8.4% when the experience was not considered and 10.72% when experience has been considered. When adjusted for the location, the returns to education were estimated to be 9.63% for urban areas and 10.51% for Rural areas. When segregated based on variations in education, the findings reveal significant variability in educational returns across regions and levels of education. For all areas, the returns to primary, secondary, and tertiary education are estimated to be 11.30%, 8.13%, and 10.6%, respectively. Similar U-shaped behavior of returns to

education for rural and urban areas is found with high returns for primary level, followed by low returns for secondary level and then high returns for tertiary levels. Furthermore, the returns to primary education for rural areas are 21% higher than urban areas. In contrast, the returns to secondary education in rural areas are 6% lower than in urban areas. The opposite behavior with the largest gap has been noticed for tertiary education, where returns to schooling are 26% higher in urban areas. Similarly, the effect of experience also varies across the region as well as between educational groups. The returns to experience in all areas, rural as well as urban areas, depicted a rising pattern with the level of education. In all areas, the returns to experience for the primary level is 1.77%, which increased to 2.78% for the secondary level and 3.85% for the tertiary level. Similarly, the income growth associated with experience in rural areas is 1.63% for primary level,2.76% for secondary, and 3.92 % for tertiary level of education. A similar pattern is observed for urban areas where on average 1.8%% growth in hourly wages of individuals with a primary level of education is associated with work experience, which increases to 2.65% for secondary level and 3.69% for tertiary level. The sign for both the education and work experience for all three models were according to the assumptions as shown in the estimation results tables 6.1 to 6.3.

In the second phase towards estimation of cost of educational deprivation, the outcomes of returns to education analysis were used to estimate the Hourly Wage Rates for Pakistan as well for Rahim Yar Khan. The estimation of hourly wages was done by assuming the sample average values for control variables. Thus, by assuming an average value of the experience of 24 years[49], the average wage rates were determined by using the returns to education and experience estimates According to the results explained in Tables 6.1 to 6.3. The wage rate for from 0 years to 5 years of education are determined by using the estimates for primary level, whereas the wage rates from 6-10 years and higher than ten years were determined by using the returns to education and experience

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[49] Based on sample average of 30858 observations.

estimates of the secondary and tertiary level of education for all, urban and rural areas for Pakistan. In Pakistan, labor force data by education is classified as Below Primary, Primary but below middle, Middle but below Matric, Matric but below intermediate, Intermediate but below degree, and Degree and Postgraduate level. Thus, in order to match the available classification of the labor force by education and for further calculations, the estimated wages rates are averaged for the earlier mentioned six education groups as summarized in Table 6.4. In all three estimates, the lowest wage rates are for the uneducated or less educated labor force having schooling years zero or below primary. Furthermore, the average wage rates depict an increasing behavior with the education level. These results are in accordance with the observations of the human capital theory, which believes that education builds abilities that make employees more productive. In other words, it explains that wage differentials reflect productivity inequalities. As a result, workers with a greater level of education would earn higher wages, notwithstanding the fact that they are more productive than their less-educated counterparts (Becker, 1964). It is further apparent from the below estimations that for each level of education, the wage rate is higher in urban areas in comparison to rural areas.

Table 6.4: Estimated Wage Rates by Education Group (PKR)

Education	All Areas	Rural	Urban
Below Primary	38.61	34.46	48.18
Primary but below middle	61.17	55.40	68.87
Middle but below Matric	76.48	68.63	83.77
Matric but below Inter	99.73	91.78	106.16
Inter but below Degree	131.73	121.41	138.65
Degree & POSTGRADUATE	199.66	171.35	214.32

To determine the annual income based on the above-estimated wage rate, the total working hours available to the wage earners per year were determined by assuming average values of the whole sample regarding working days and working hours. Thus, with an average of 26 working days in a month and eight daily working hours, the annual working hours available to the wage earners

are determined to be 2496[50]. Multiplying Annual Working Hours Available with the wage rates summarized in Table 6.4 yielded Average Annual Income for All areas as well as rural and urban areas of Pakistan. The estimated annual incomes based on each level of education are summarized in the following Table 6.5:

Table 6.5: Estimated Average Annual Income by Education Group (PKR)

Education	All Areas	Rural	Urban
Below Primary	96372.73	86004.60	120255.09
Primary but below middle	152686.86	138280.44	171907.91
Middle but below Matric	190903.00	171291.44	209086.04
Matric but below Inter	248937.35	229083.41	264970.61
Inter but below Degree	328801.41	303040.66	346080.77
Degree & POSTGRADUATE	498349.94	427694.19	534950.47

After determining the annual income for each level of education, the next step involves the computation of income of total and employed labor force as well as the value of unemployed labor force for the case of Pakistan in the age bracket ten years or more. According to the 2017 population census, the total population of Pakistan is 207.91 million, and 71.58 % of this population (148.82 million) falls in the age bracket ten years and more. 44.28% of the total population aged 10Year or more is economically active, with 94.21% employed and 5.79% unemployed. If we look at the Rural-Urban divide, then 63.5% of the total population (132 million) resides in rural areas with 66.57 million males and 65.43 million females, and 36.5% of the total population (75.91 million) resides in urban areas with 39.11 million males and 36.378 million females. 69.37% of the total rural population (91.60 million) and 75.40 % of total urban populations (57.24 million) lies in the age bracket ten years or more. 47.14% of the total rural population (43.18 million) with (68.84% males (31.37 million) and 25.61% female (11.77 million) and 39.71 % of the total urban population with (66.68% males and 11.09*% female population)

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[50] Working Days(26)*Daily Working Hours(8)*12 =2496

aged 10 Year or more is economically active. In rural areas, 94.97% of the total economically active population is employed, and 5.03% is unemployed. In urban areas, 98.36% of the economically active population is employed, with 1.64% unemployed. In both regions, as well as for all areas, the unemployment rate of females is higher than males, as shown in the Appendices Table G-1. Furthermore, 2, a massive 37.73 % of the total labor force in the age bracket ten years or more is illiterates, whereas 41% of the literate labor force has education five or fewer years of schooling. When accounted for other levels of education, 61% of the total literate labor force has the education level of eight or fewer years of schooling, whereas adding matric level makes it 81% population with ten or fewer years of education. Labor force having education years 14 or more accounts for 10% of the total literate labor force. The total, as well as employed and unemployed labor force by the level of education in the age bracket ten years and above for the case of Pakistan, is determined as per labor force survey 2018-19 according to the education-wise population distribution. Thus, the total employed and unemployed labor force in the age bracket ten years and above is summarized in Appendix Table G-2. The income of the total and employed labor force, as well as the monetary worth of the unemployed population, has been estimated by multiplying the education-wise population as per Appendix Table G-2 with the respective average annual income of rural, urban, and all areas as shown in Table 6.5. Thus, the income estimates for total and employed labor force are explained in the following Tables 6.6 and Table 6.7, whereas the income loss associated with the unemployed population is summarized in Table 6.8:

Table 6.6: Income of Total Labor Force 10 Year and above (Rs billion)

Level of Education	All Areas	Rural Areas	Urban Areas
Below Primary	2966	2074	877
Primary but below middle	1764	1070	660
Middle but below Matric	1502	790	663
Matric but below Inter	1959	884	1007
Inter but below Degree	1286	482	751
Degree & Postgraduate	1959	543	1316
Total	**11436**	**5843**	**5273**

The estimates of Table 6.6 explain that if all the labor force in the age bracket ten years and more are employed, then it has the potential to generates Rs 11436 billion from all areas with Rs 5843 billion from rural areas and Rs 5273 billion from urban areas with the current educational profile of the labor force as explain in Appendices Table G-2. The income related to the employed labor force by the level of education is summarized in the following Table 6.7:

Table 6.7: Income of Employed Labor Force 10 Year and above (Rs billion)

Education Level	All Areas	Rural Areas	Urban Areas
Below Primary	2795	1970	813
Primary but below middle	1661	1016	612
Middle but below Matric	1415	750	615
Matric but below Inter	1845	841	935
Inter but below Degree	1210	458	696
Degree & Postgraduate	1844	513	1220
Total	**10769**	**5548**	**4890**

Education-wise, income estimates of Table 6.7 for the employed labor force show an income generation of Rs 10769 billion for all areas, Rs 5548 billion for rural areas, and Rs 4890 billion for urban areas with the current educational profile. When seen in the context of the unemployed labor force, Pakistan, with its current educational profile, is wasting an income of Rs 666 billion for all areas due to unemployment, with a loss of Rs 291 billion for rural areas and Rs 383 billion for urban areas as shown in Table 6.8:

Table 6.8: Income Loss of Unemployed Labor Force 10 Year and above (Rs billion)

Education Level	All Areas	Rural Areas	Urban Areas
Below Primary	172	104	64
Primary but below middle	102	54	48
Middle but below Matric	88	39	48
Matric but below Inter	115	44	72
Inter but below Degree	76	24	55
Degree & Postgraduate	115	26	96
Total	**666**	**291**	**383**

6.2.1.2   Case of Rahim Yar Khan:

Like the case of Pakistan, the return to education was determined based on the data of 404 wage earners with different educational levels in the age bracket 25-59. The estimation of returns to education differs from the case of Pakistan as it considered Mincerian Earning Function with observed abilities. Based on these differences, the wage rates and income estimation involve two stages, as discussed in Chapter 5 Section 5.3.2. Stage one comprises the estimation of quality function to analyze the impact of education as well as another control variable, and stage two involves the estimation of wage function to analyze the returns to education by including individual quality as a proxy for abilities in the analysis. Stage 2 As discussed in Chapter 5 Section 5.3.2, stage 2 regression is a modified form of traditional wage functions with various specifications (Schultz, 1961; Becker, 1964; Mincer, 1970; Griliches, 1977). All of these wage functions treated abilities as an unobserved variable in wage determination due to various technical issues related to the measurement of abilities (Griliche, 1977; Blackburn & Neumark, 1992; Belzil, 2006). My analysis in this research tried to fill the gap of missing abilities from the wage equations by including the measure of Individual Quality as a proxy for individual abilities or capabilities. Thus, for stage 1 estimation under all the assumptions defined in Chapter5, various specifications of the quality function were estimated with and without the quadratic effect of education on individual quality. The need to include a quadratic term in the model comes in the application based on the curvilinear behavior of the Individual Quality Curve, as shown in Figure 6.5. Thus, general nonlinear model (Non-linear in education) we used is explained as model 4 in the following Table 6.9:

Table 6.9: Estimated Quality Function (Rahim Yar Khan)

Predictors	Linear Specifications		Non-Linear Specification	
	Model 1	Model 2	Model 3	Model 4
Constant (β_0)	0.477***	0.430***	0.471***	0.506***
	(0.06)	(0.073)	(0.072)	(0.059)
Edu (β_1)	0.017***	0.017***	0.003	0.003
	(0.00)	(0.001)	(0.003)	(0.003)
Age (β_2)		0.002	0.001	
		(0.002)	(0.002)	
Exp (β_3)		-0.001	-0.001	
		(0.002)	(0.002)	
FE (β_4)	0.004***	0.005***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
ME (β_5)	0.004**	0.004**	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)
WD (β_6)	-0.021**	-0.023***	-0.025***	-0.023***
	(0.009)	(0.009)	(0.009)	(0.009)
WH (β_7)	-0.01***	-0.01***	-0.007**	-0.007**
	(0.004)	(0.004)	(0.004)	(0.004)
Edu^2(β_8)			0.001***	0.001***
			(0.0002)	(0.00018)
R^2	0.506	0.511	0.538	0.534
F	81.537	59.081	57.414	75.719
Sig.	0.0000	0.0000	0.0000	0.0000

Significance: * $p < 0.10$; **$p<0.05$; *** $p<0.01$

The values of Individual Quality against each level of education were estimated by using the estimation result of four models summarized in Table 6.9. Our main objective here has been to look for the impact of education on individual quality, and to achieve this objective; we have used sample averages for other control variables as Age (35 years), Experience (11 years), Father Education(6 years of schooling), Mother Education(1 Year of schooling), Weekly Working Days (6 days) and Daily Working Hours(8 hours). By using these average values, the Individual Quality

against each level of education was estimated for all four models. The average values for six levels of education are summarized in the following Table 6.10:

Table 6.10: Estimated Individual Quality by Level of Education (Rahim Yar Khan)

Education Level	Model1	Model2	Model3	Model4
Below Primary	0.333	0.339	0.329	0.352
Primary Below Middle	0.401	0.407	0.372	0.395
Middle Below Matric	0.444	0.450	0.415	0.438
Matric below Inter	0.478	0.484	0.459	0.482
Inter Below Degree	0.512	0.518	0.511	0.534
Degree and above	0.588	0.594	0.661	0.684

Based on the larger explanatory power of model 3 in comparison to the other three models, we have selected model 3 as a reliable source of data generation for further analysis of stage 2 estimation. Under all the assumptions explained in Chapter 5, section 5.3.2, we have estimated four models by including individual quality in the regression for abilities for the estimation of returns to education for the case of Rahim Yar Khan. The first three models assume linear specification for all the variables, whereas model 4 incorporated the quadratic term for experience due to a vague behavior of Log Hourly Wages against work experience as depicted in the following scatter plot:
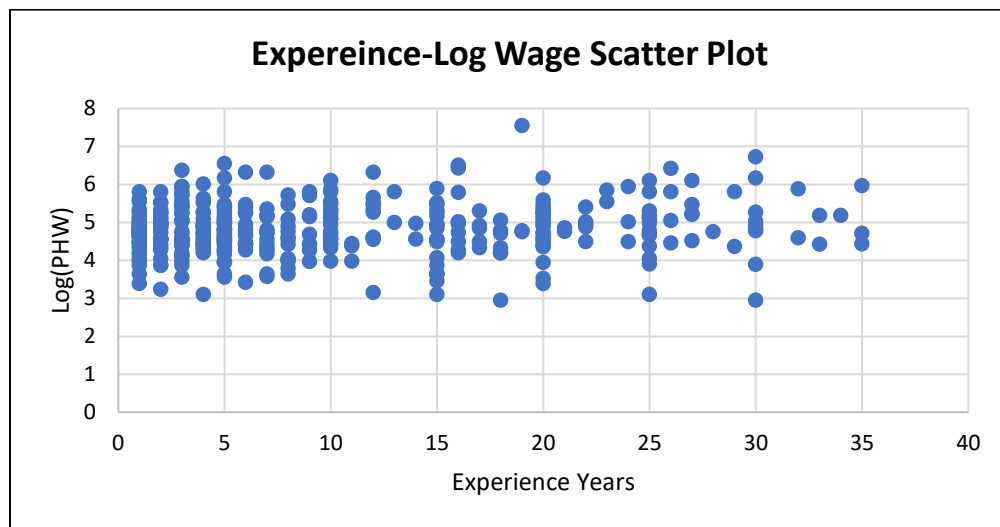
Figure 6.23: Experience -Hourly Wages Scatter Plot

The estimation results of all the four models are summarized in Table 6.11, where the effect of age is only significant in model 1 with the simplest form, which does not account for experience. The effect of age becomes insignificant once the effect for experience is accounted for as per the estimation results of model2-4. This verifies the traditional observation of the redundant age effect in the wage determination (Griliche, 1977).

Table 6.11: Estimated Wage Function (Rahim yar Khan)

Predictors	Model 1	Model 2	Model 3	Model 4
Constant (β_0)	3.431***	4.09***	5.963***	5.866***
	0.145	0.277	0.45	0.452
Edu (β_1)	0.054***	0.048***	0.05***	0.051***
	0.009	0.009	0.009	0.009
IQI (β_2)	1.095***	1.13***	0.71**	0.713**
	0.294	0.292	0.293	0.292
Age (β_3)	0.013***	-0.015	-0.014	-0.014
	0.003	0.01	0.01	0.01
Exp (β_4)		0.031***	0.032***	0.051***
		0.011	0.011	0.015
WD (β_5)			-0.195***	-0.189***
			0.054	0.054
WH (β_6)			-0.063***	-0.065***
			0.022	0.022
Exp^2(β_7)				-0.001*
				0.0004
R^2	0.282	0.295	0.343	0.349
F	52.294	41.823	34.616	30.272
Sig.	0.0000	0.0000	0.0000	0.0000

Significance: * $p <= 0.10$; ** $p <= 0.05$; *** $p<=0.01$

In addition to the redundancy of age after inclusion of experience in the equation, the explanatory power of the model with experience improves by 4.6%, depicted by the improvement in the value of R^2 from 0.282 to 0.295. The explanatory power of the model further improves substantially once effects for the workdays per week and daily working hours were accounted for as R^2 jumps

from 0.295 to 0.343, showing an improvement of 13.22%. After incorporating the quadratic term, the explanatory power further improves by 1.75% with all significant effects except age. This urges us to rely on the non-linear model with quadratic experience term due to its larger explanatory power in comparison to the other three models. In model four, the sign of Education, Individual Quality, and Experience were positive, as assumed earlier, with positive education elasticity of wages 0.051(p<0.01), Quality Elasticity of wages 0.713 (p<0.01), and experience elasticity of 0.051(p<0.01). The sign for age was negative contrary to the assumed positive effect, but insignificant age makes this sign redundant. The effect of workdays on log wages was found to be negative in accordance with the assumption laid for the analysis with negative Workdays elasticity of Wages -0.189 showing an inverse relationship between workdays per week and wages as with given wages, an increase in workdays lead to a decrease in the hourly wages according to the hourly wage determination equation[51]. Similarly, the sign with working hours also appears in accordance with the assumed negative effect on hourly wages again according to the Hourly Wage equation as Working appears in the denominator of the equation and hence depicts an inverse relationship with the hourly wages. The Working Hour elasticity of wages, according to our estimation, depicts a significant (p<0.01) response of -0.065 on wages against each hour change in the working of individuals. The quadratic term of experience was also significant (p<0.10). With the estimation results explained in Table 6.11, we have selected model four for further analysis for the case of Rahim Yar Khan. The results of model 4 are used to estimate the wage rates for Rahim Yar Khan. The estimation of wage rates for the case of Rahim Yar Khan requires values against Individual Quality and other control variables. Thus, earlier estimated values of individual quality, as shown in Table 6.9, are used to compute the wage rate for each level of education. Furthermore, the average values for age (35), experience (11), weekly workdays (6), and daily working hours

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[51] $Hourly\ Wage = \dfrac{Annual\ Income}{((52*Per\ Week\ Working\ days))*Daily\ Working\ Hours}$

(8) are used to determine the wage rates. With these values, the estimated log hourly wages and relevant wage rates are summarized in Table 6.12:

Table 6.12:Estimated Wage Rates by Level of Education (Rahim Yar Khan)

Education Level	Estimated IQI[52]	Estimated LPHW[53]	Estimated Wage Rate[54]
Below Primary	0.329	4.501	90.129
Primary Below Middle	0.372	4.734	113.724
Middle Below Matric	0.415	4.891	133.143
Matric below Inter	0.459	5.025	152.144
Inter Below Degree	0.511	5.164	174.851
Degree and above	0.661	5.512	247.570

To determine the annual income for each level of education for the case of Rahim Yar Khan, the total working hours available for work per year, i.e., 2496 hours, were multiplied with the wages rates of Table 6.12. The estimated average annual income for each level of education for the case of Rahim yar Khan is summarized in the following Table 6.13:

Table 6.13:Estimated Average Annual Income by Level of Education (Rahim Yar Khan)

Education Level	Estimated Wage Rate	Estimated Annual Income
Below Primary	90.129	224963.028
Primary Below Middle	113.724	283855.554
Middle Below Matric	133.143	332323.683
Matric below Inter	152.144	379750.757
Inter Below Degree	174.851	436429.245
Degree and above	247.570	617935.494

Similar to the case of Pakistan, further analysis after estimation of wage rates and average annual income by the level of education involves the proportion of the total, employed, and unemployed labor force in the age bracket (25-59). We again extracted these percentages in the

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[52] Based on Model 3 for stage 1 regression

[53] Based on Model 4 for stage 2 regression

[54] Computed by applying exponent function on Log Hourly Wages (LPHW) i.e. = Exp (LPHW)

prescribed age bracket for each level of education by consulting district population census report 2017 for Rahim Yar Khan district and Labor Force Survey 2018. The total population of Rahim Yar Khan, according to the 2017 population census, is 4.814 million (Est 2017), with 67% of the total population 3.20 million falls in the age bracket ten and more years. According to the Labor Force Survey (2018), the total labor force in the population age ten years and above is 65.5 %, with 61.71 % employed and 3.79% unemployed. 47% of the total population (10 years and more) falls in the 25-59 years age bracket (1.487525 million). Out of a total 2.094 million labor force (65.5% of the total population aged ten and more), 65.72% falls in the age bracket 25-59, which is 1.375983 million with 61.91 % employed labor force which accounts for 1.296366 million and 3.80% unemployed which is 79617 persons**. Furthermore, 12% of the labor force is below the primary level of education, 26% has completed five or more years, but less than eight years of schooling, 20 % has middle but less than matric education, 20% has completed matric but less than intermediate, 9% completed intermediate but less than degree level, whereas 13% has completed a degree or postgraduate level of education. With this distribution the total, employed and unemployed labor force in the age bracket 25-59 are summarized in the following Table 6.14:

Table 6.14: Total, Employed and Unemployed labor force aged 25-59 (Millions)

Education Group	Proportion	Total LF	Employed LF	Unemployed LF
Total	100%	1.38	1.30	0.08
Below Primary	12%	0.17	0.16	0.01
Primary but below middle	26%	0.36	0.34	0.02
Middle but below Matric	20%	0.28	0.26	0.02
Matric but below Inter	20%	0.28	0.26	0.02
Inter but below Degree	9%	0.12	0.12	0.01
Degree & Postgraduate	13%	0.18	0.17	0.01

With prescribed population distribution, annual income of Total, Employed and Unemployed labor force for each level of education for the case of Rahim Yar khan was calculated by multiplying the labor force as determined in the above table 6.14, and the Average Annual Estimated Income

has been determined for each level of education as shown in Table 6.13. These estimations, as shown in Table 6.15, were carried to estimate two types of costs: First, the cost of unemployment, the income loss due to unemployment, and second, the cost of uneducated population or lower educated population.

Table 6.15: Income of Total, Employed and Unemployed Labor Force RYK (PKR billion)

Education Group	Total Labor Force	Employed	Unemployed
Below Primary	37.15	35.00	2.15
Primary but below middle	101.55	95.67	5.88
Middle but below Matric	91.45	86.16	5.29
Matric but below Inter	104.51	98.46	6.05
Inter but below Degree	54.05	50.92	3.13
Degree & Postgraduate	110.53	104.14	6.40
Total	499.24	470.35	28.89

According to our estimates in Table 6.15, Rahim Yar Khan has the potential to generate Rs.499.24 billion with its current educational profile if its total labor force is employed. If we only consider the currently employed labor force with its current educational profile, then Rahim Yar Khan is currently generating Rs.470.35 billion. With a 3.80% unemployed labor force, Rahim Yar Khan is wasting Rs.28.89 billion due to the unemployed population in the age bracket 25-59. Thus, Rahim Yar Khan is facing Rs.28.89 billion as a cost of unemployment which, under given circumstances where the state has announced a 7% interest rate, may expand to Rs.30.91 billion just in one year. And if the same behavior persists for the next five years, then Rahim Yar Khan may likely be facing Rs.40.52 billion as a loss of income due to unemployment in the next five years.

6.2.2 Cost of Education Deprivation Analysis

In order to proceed with our analysis further, we have discussed the following six cases by assuming different educational profiles with a higher proportion of educated labor force than its actual profile to elaborate the cost related to uneducated or less educated population for the case

of Pakistan as well as Rahim Yar Khan. The description of six cases is given in the following Table 6.16:

Table 6.16: Proposed Improved Educational Profiles

Cases	Description
Case 1	Half of the population with below primary education is added to the population with primary education. This change reduced the proportion of the below primary population by half and increased the proportion of the population with primary education by the same amount.
Case 2	All the population with below primary education is added to the population with primary education. This change reduced the proportion of the below primary population to zero and increased the proportion of the population with primary education by the amount of below primary population.
Case 3	All the population with below primary and primary education is added to the population with middle level of education.
Case 4	All the population with below matric level (below primary, primary, and middle) is added to the population with matric level of education.
Case 5	All the population with below matric level (below primary, primary, and middle) is added to the population with matric level of education, and 25% of the population with matric is added to the population with intermediate education.
Case 6	Case six assume that no one is below ten years of schooling. It assumes 50% population with matric education, 30% with an intermediate level of education, and the rest of the 20 percent with a degree or above level of education.

We've estimated the income of the total, employed, and unemployed labor force for the case of Pakistan as well as Rahim Yar Khan with the above-mentioned six educational profiles under two main assumptions. First, we assume that the proportion of total labor force, employed labor force, and unemployed labor force does not change for both cases. Second, we assume the same average wage rate for each level of education. This assumption is based on our limitation to collect data separately for each of the six profiles due to resources as well as time constraints. Thus, we assume

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that an increase or decrease in the supply of labor in an educational level does not change the average wage rate for that level. Hence, we discussed six cases by assuming wage rigidity for each level of education.

6.2.2.1   Six Educational Profiles and Income for the Case of Pakistan

With the above-mentioned assumptions, the total and additional income of Total, Employed, and Unemployed labor force according to six profiles in comparison to the original educational profile for the case of Pakistan is summarized in table 6-17 to 6-20 and for the case of Rahim Yar Khan are summarized in the Table 6.21 and Table 6.22

Table 6.17: Income of Total Labor Force with different educational profiles (Pakistan)

Cases	All Areas	Rural Areas	Urban Areas
Original	11436	5843	5273
Case 1	12302	6473	5462
Case 2	13169	7103	5650
Case 3	14787	8155	6064
Case 4	17700	10262	6863
Case 5	17857	10041	6611
Case 6	21271	12565	7803

As shown in the above table, it shows a substantial difference in income potential when each proposed case is compared with the original case (one with an original educational profile). This highlights the opportunity cost of not having an improved education profile of its labor force. A similar result is depicted for the case of the employed labor force, as shown in Table 6.18:

Table 6.18: Income of Employed Labor Force with different educational profiles (Pakistan)

Cases	All Areas	Rural Areas	Urban Areas
Original	10769	5548	4890
Case 1	11586	6146	5065
Case 2	12402	6745	5239
Case 3	13926	7743	5623
Case 4	16671	9745	6364
Case 5	16210	9535	6130
Case 6	20038	11934	7240

Following Table 6.19 shows the difference of income for each of the six cases with reference to the original educational profile. According to the estimates, if Pakistan had the education profile of case 1 in the years 2017, then it could have an extra potential to generate Rs 867 billion of more income with the same population in the age bracket ten years or more for all areas. Similarly, it could have more potential income of Rs 1733 billion, Rs 3351 billion, Rs 6264 billion, Rs 6421 billion, and Rs 9836 billion in 2017 if Pakistan had the educational profile of case 2, case 3, case4, case 5, and case 6 respectively for the same population in the age bracket ten years or more. These statistics explain the massive loss of income potentials by relying on the current weak educational profile, which accumulates massive uneducated or less educated labor force. It further explains the benefits associated with educating the population as our estimate depicts a definite increase in income associated with improved educational profiles.

Table 6.19: Additional Income of Total Labor Force with Six Cases

Cases	All Areas	Rural Areas	Urban Areas
Case 1	867	630	188
Case 2	1733	1260	377
Case 3	3351	2312	790
Case 4	6264	4419	1589
Case 5	6421	4198	1338
Case 6	9836	6722	2530

Similarly, with the same employed labor force, Pakistan could have earned an additional Rs 817 billion (1.66 percent of GDP) if it had the educational profile of Case 1, Rs 1633 billion (3.32 percent of GDP) if it had the educational profile of Case 2, Rs 3157.17 billion (6.40 percent of GDP) if it had the educational profile of Case 3, Rs 5901.61 billion (11.98 percent of GDP) if it had the educational profile of Case 4, Rs 5440.46 billion (11.04 percent of GDP 2017) if it had the educational profile of Case 5, and Rs 9268.98 billion (18.80 percent of GDP) if it had the educational profile of Case 6 in the year 2017.

Table 6.20: Additional Income of Employed Labor Force (PKR Billion)

Cases	All Areas	Rural Areas	Urban Areas
Case 1	817	599	175
Case 2	1633	1197	349
Case 3	3157	2196	733
Case 4	5902	4197	1474
Case 5	5440	3987	1240
Case 6	9269	6386	2350

As shown in Table 6.19 and 6.20, a similar pattern prevails for both the urban as well as rural areas. The amount of income lost by not having any of these educational profiles for Pakistan's labor force is alarming in the wake of the extreme resource scarcity Pakistan is facing. The huge opportunity cost of staying with the current poor educational profile of the labor force will definitely expand in the future if the state remained passive towards its investment for the growth of the education sector. Thus, to avoid these costs and to add resources to the already scarce resources pool, the state needs to invest aggressively in education to turn its less productive labor force into highly productive human capital, as is evident from the higher wage rates for a higher level of education.

6.2.2.2 Six Educational Profiles and Income for the case of Rahim Yar Khan:

Similar to the case of Pakistan, as explained in section 6.2.2.1, the income associated with the total labor force, employed labor force, and the unemployed labor force was estimated for the case of Rahim Yar Khan in its prescribed age bracket (25-59). It also depicted a similar pattern of income rise with the change of educational profile of labor force from its original distribution to the distribution explained through six cases. The estimates of income for the original and proposed educational profile are summarized in Table 6.21:

Table 6.21: Income of Labor Force Proposed Educational Profiles RYK (PKR Billion)

Education Profile	Total Labor	Employed Labor	Unemployed Labor
Original	499.24	470.35	28.89
Case1	504.10	474.93	29.17
Case2	508.96	479.51	29.45
Case3	534.31	503.39	30.92
Case4	572.16	539.05	33.11
Case5	576.05	542.72	33.33
Case6	611.47	576.09	35.38

As shown in Table 6.21, Rahim yar Khan could have earned extra income in 2017 with the same employed labor force in the age bracket ten years or more if it had the educational profile of any of the cases 1 to case 6. Thus, Rahim Yar Khan district is facing an opportunity cost of staying with the same educational profile and not switching to the cases described.

Table 6.22: Additional Income with proposed educational profiles

Education Profile	Total Labor	Employed Labor	Unemployed Labor
Original	0.00	0.00	0.00
Case1	4.86	4.58	0.28
Case2	9.72	9.16	0.56
Case3	35.07	33.04	2.03
Case4	72.92	68.70	4.22
Case5	76.82	72.37	4.44
Case6	112.24	105.74	6.49

As shown in Table 6.22, at full employment level (Total Labor Force employed), PKR 4.86 billion is the cost of not switching to case-1, whereas PKR 9.72 billion, PKR 35.07 billion, PKR 72.92 billion, PKR 76.82 billion, and PKR 112.24 billion is the cost of not having education profile of case-2, case-3, case-4, case-5, or case-6 respectively. This cost with the currently employed labor force in the age 25-59 is PKR 4.58 billion, PKR 9.16 billion, PKR 33.04 billion, PKR 68.70 billion, PKR 72.37 billion, and PKR 105.74 billion by not having a shift from the present educational profile to Case-1, Case2, Case-3, Case-4, Case-5, and Case-6 respectively. Similarly, table 6.22

also highlighted that loss of income due to unemployment will also increase if a highly educated unemployed population is not provided with the opportunities in addition to improvements in their educational levels.

6.2.3 Cost Estimates for the period 2009-17:

To further explain the income loss dues to uneducated and less educated individuals, we have also conducted the whole estimation as done in sections 6.2.1 and 6.2.2 for the last decade from 2009-2017 for both the cases. This was done to highlight the gigantic cost or loss of income associated with the weak educational profile from 2009-2017. The estimation of pre-2017 nine years required some treatment in population numbers as well as the annual average income to generate the right population numbers and to have relevant year's annual income for every educational level. We performed this treatment under certain assumptions as listed below:

- First, we assume that the proportion of the population in the prescribed age bracket for Pakistan and Rahim Yar Khan does not change over the period 2009-2017.

- Second, the proportion of total, employed and unemployed labor force also remained same over the period 2009-17 for both the cases.

- Third, the educational profile of the population also remained the same for both Pakistan and Rahim Yar Khan over the time 2009-2017.

Under these assumptions, we have computed the present values for Average Annual Income and Total Population on a year-by-year basis. We have considered the Average Annual Income increase of 10% as per the official income rise announcements by the state in various budgets during the period 2009-17 to discount Annual Income. At the same time, the average population growth rate from 1998 to 2017, 2.40% for Pakistan and 2.27%[55] for Rahim Yar Khan were considered to discount the total population. Under this setting, the Average Annual Income for each year of education and total population for the period 2009-2017 was computed for Pakistan and Rahim Yar Khan.

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[55] Population Census Report 2017

6.2.3.1 Pakistan from 2009-2017:

Multiplying average annual income for each level of education with the total, employed, and unemployed labor force of Pakistan in the age bracket ten years or more for each year from 2009-17 yielded the aggregate income related to total and employed labor force as well as income loss of unemployed labor force for the case of Pakistan, as shown in the following Table 6.23 to 6.24:

Table 6.23: Income of Total Labor Force with Six Cases for 2009-17(Pakistan)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	11436	12302	13169	14787	17700	17857	21271
2016	10174	10945	11716	13155	15747	15887	18925
2015	9052	9738	10424	11704	14010	14134	16837
2014	8053	8663	9274	10413	12464	12575	14979
2013	7165	7708	8251	9264	11089	11188	13327
2012	6374	6857	7340	8242	9866	9954	11857
2011	5671	6101	6531	7333	8778	8855	10549
2010	5045	5428	5810	6524	7809	7879	9385
2009	4489	4829	5169	5804	6948	7009	8349

Table 6.24: Income of Employed Labor Force with Six Cases for 2009-17(Pakistan)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	10769	11586	12402	13926	16671	16210	20038
2016	9581	10308	11034	12390	14832	14421	17828
2015	8524	9170	9817	11023	13195	12830	15861
2014	7584	8159	8734	9807	11740	11415	14111
2013	6747	7259	7770	8725	10445	10156	12554
2012	6003	6458	6913	7763	9292	9035	11169
2011	5341	5745	6150	6906	8267	8038	9937
2010	4751	5112	5472	6144	7355	7152	8841
2009	4227	4548	4868	5466	6544	6363	7866

The difference of incomes for each year has been calculated to explain the total cost of educational deprivation for the period 2009-2017 by explaining the cost associated with uneducated and lower educated individuals between 2009 and 2017, as shown in the following Table 6.25 & 6.26:

Table 6.25: Additional Income of total labor force for 2009-17(All Areas Pakistan)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	867	1733	3351	6264	6421	9836
2016	0	771	1542	2981	5573	5713	8751
2015	0	686	1372	2652	4958	5083	7785
2014	0	610	1221	2360	4411	4522	6926
2013	0	543	1086	2099	3925	4023	6162
2012	0	483	966	1868	3492	3579	5482
2011	0	430	860	1662	3107	3184	4878
2010	0	382	765	1478	2764	2833	4339
2009	0	340	680	1315	2459	2521	3861
2009-17	**0**	**5112**	**10225**	**19768**	**36953**	**37880**	**58020**

Table 6.25 explains that the total labor force aged ten years or more if all employed could have earned PKR 5112 billion more income from 2009 to 2017 if Pakistan had the educational profile of Case 1 back in 2009. This amount is equivalent to 10% of the total GDP of Pakistan in 2017. With the educational profile of Case 2, the increase in income between 2009-17 is estimated to be PKR 10225 billion, which is 21% of GDP in 2017. Similarly, the increase in potential income between 2009-17, associated with Case3, Case 4, Case 5, and Case 6, is PKR 19768 billion (40% of GDP), PKR 36953 billion(75% of GDP), PKR 37880 billion(77% of GDP), and massive PKR 58020 billion(118% of GDP in 2017). These estimates explain the intensity of the matter as Pakistan is carrying an extremely poor educational profile for its population and hence facing massive opportunity cost of lost income potentials.

A similar pattern is observed for the employed labor force as shown in table 6.26 that employed labor force aged ten years or more could have generated PKR 4817 billion more income from 2009-17 if it had the educational profile of Case 1 in the year 2009. Similarly, the employed labor force of Pakistan for the prescribed age bracket could have more income of PKR 9634 billion, PKR 18624 billion, PKR 34813 billion, PKR 32093 billion, and PKR 54678 billion if it had the educational profile of Case 2, Case 3, Case 4, Case5, Case 6 respectively in 2009.

Table 6.26:Additional Income of Employed Labor Force for 2009-17(All Areas Pakistan)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	817	1633	3157	5902	5440	9269
2016	0	726	1453	2809	5251	4840	8246
2015	0	646	1293	2499	4671	4306	7337
2014	0	575	1150	2223	4156	3831	6527
2013	0	512	1023	1978	3697	3409	5807
2012	0	455	910	1760	3290	3033	5167
2011	0	405	810	1566	2927	2698	4597
2010	0	360	721	1393	2604	2400	4089
2009	0	321	641	1239	2317	2136	3638
2009-17	**0.00**	**4817**	**9634**	**18624**	**34813**	**32093**	**54678**

When compared with the GDP of Pakistan, these figures explain the horrible magnitude of actual income loss[56] as a percentage of GDP in the year 2017. Thus, the opportunity cost of not having the educational profile of the case1 in the year 2009 is an aggregate income loss of 10% of the total GDP of Pakistan. Similarly, the opportunity cost of not having the labor force educational profile of case2, case3, case4, case5, and case 6 is 20%, 38%, 71%,65%, and 111% of GDP of Pakistan in the year 2017. The complete estimates of income from 2009-17 for total as well as an employed labor force of rural and urban areas are summarized in Appendix Tables G-5 to G-16.

6.2.3.2 Rahim Yar Khan from 2009-17:

After discounting the population of Rahim Yar Khan from 2009 to 2017 by using the population growth rate of 2.27%, we again computed population in the total labor force, employed and unemployed in the age bracket 25-59 for each level of education. Similarly, we yielded the discounted values of average annual income for each level of education for the time 2009-17. The income associated with the total, employed, and unemployed labor for the period 2009-17 was computed by multiplying the discounted annual average income of each level of education with the relevant discounted population of the total, employed, and unemployed labor force for each of

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[56] Associated with employed labor force

the nine years. Thus, potential income associated with total labor force and actual income associated with employed labor force for the period 2009-17 is summarized in the following tables 6.27 and 6.28:

Table 6.27: Income of Total labor force 2009-17 RYK (RS Billion)

Year	Original	Case 1	Case2	Case3	Case 4	Case 5	Case 6
2017	499.24	504.10	508.96	534.31	572.16	576.05	611.47
2016	443.78	448.10	452.42	474.95	508.60	512.06	543.55
2015	394.48	398.32	402.16	422.19	452.10	455.18	483.17
2014	350.66	354.07	357.49	375.29	401.88	404.61	429.49
2013	311.71	314.74	317.78	333.60	357.23	359.67	381.78
2012	277.08	279.78	282.48	296.54	317.55	319.71	339.37
2011	246.30	248.70	251.10	263.60	282.27	284.20	301.67
2010	218.94	221.07	223.20	234.32	250.92	252.63	268.16
2009	194.62	196.51	198.41	208.29	223.04	224.56	238.37

Table 6.28: Income of Employed labor force 2009-17 RYK (RS Billion)

Year	Original	Case 1	Case2	Case3	Case 4	Case 5	Case 6
2017	470.35	474.93	479.51	503.39	539.05	542.72	576.09
2016	418.10	422.17	426.25	447.47	479.17	482.43	512.10
2015	371.66	375.28	378.89	397.76	425.94	428.84	455.21
2014	330.37	333.59	336.80	353.57	378.62	381.20	404.64
2013	293.67	296.53	299.39	314.30	336.56	338.86	359.69
2012	261.05	263.59	266.13	279.38	299.17	301.21	319.73
2011	232.05	234.31	236.57	248.35	265.94	267.75	284.22
2010	206.27	208.28	210.29	220.76	236.40	238.01	252.64
2009	183.36	185.14	186.93	196.24	210.14	211.57	224.58

Similar to our analysis for the case of Pakistan, we have explained the cost of uneducated and less educated individuals by comparing the income of total and employed labor force with the original education profile with the income of total and employed labor force having advanced educational profiles of six cases. This exercise provided us with the income difference from the original profile for each of the six cases for the period 2009-17, as summarized in Table 6.29 to Table 6.30. Table 6.29 explains the income potential associated with the total labor force. It means that if the whole labor force of Rahim Yar Khan is employed and had an educational profile of case 1, then it could

have earned PKR 28.60 billion more income in the last nine years from 2009-17. Similarly, the potential income loss is more when the original case is seen in comparison to potential income associated with case2 to case 6, which is PKR 57.20 billion, PKR 206.28 billion, PKR 428.94 billion, PKR 451.88 billion, and a total of PKR 660.24 billion respectively.

Table 6.29: Additional Income Total Labor Force 2009-17 **RYK** (**Rs** Billion)

Year	Original	Case 1	Case2	Case3	Case 4	Case 5	Case 6
2017	0.00	4.86	9.72	35.07	72.92	76.82	112.24
2016	0.00	4.32	8.64	31.17	64.82	68.28	99.77
2015	0.00	3.84	7.68	27.71	57.62	60.70	88.69
2014	0.00	3.42	6.83	24.63	51.22	53.95	78.83
2013	0.00	3.04	6.07	21.89	45.53	47.96	70.08
2012	0.00	2.70	5.40	19.46	40.47	42.63	62.29
2011	0.00	2.40	4.80	17.30	35.97	37.90	55.37
2010	0.00	2.13	4.26	15.38	31.98	33.69	49.22
2009	0.00	1.90	3.79	13.67	28.43	29.95	43.75
2009-17	**0.00**	**28.60**	**57.20**	**206.28**	**428.94**	**451.88**	**660.24**

Table 6.30 describes the actual opportunity cost of not having an improved educational profile for the labor force in the year 2009. In comparison to the actual income of the employed labor force with the original educational profile, Rahim Yar Khan has lost an Income of PKR 26.95 billion by not having an educational profile of case1, Whereas the losses associated with the educational profiles of case2, case3, case4, cas5, cas6 are PKR 53.89 billion, PKR 194.35, PKR 404.12 billion, PKR 425.73 billion and PKR 622.03 respectively.

Table 6.30: Additional Income Employed Labor Force 2009-17 RYK (Rs Billion)

Year	Original	Case 1	Case2	Case3	Case 4	Case 5	Case 6
2017	0.00	4.58	9.16	33.04	68.70	72.37	105.74
2016	0.00	4.07	8.14	29.37	61.07	64.33	94.00
2015	0.00	3.62	7.24	26.11	54.28	57.19	83.55
2014	0.00	3.22	6.43	23.21	48.25	50.83	74.27
2013	0.00	2.86	5.72	20.63	42.89	45.19	66.02
2012	0.00	2.54	5.08	18.34	38.13	40.17	58.69
2011	0.00	2.26	4.52	16.30	33.89	35.70	52.17
2010	0.00	2.01	4.02	14.49	30.13	31.74	46.37
2009	0.00	1.79	3.57	12.88	26.78	28.21	41.22
2009-17	**0.00**	**26.95**	**53.89**	**194.35**	**404.12**	**425.73**	**622.03**

These figures highlight the importance of education as a minor change in the educational profile of Pakistan, and Rahim Yar Khan can induce substantial income generation. When these figures are seen in the light of the Sustainable Development Goal, investments in educations will not only increase the volume of the educated population, but it will also guaranty an extra income, which not only benefits individuals but the state as well, with its multiplier effects on consumption, demand, investments, and above all government revenue generation.

CHAPTER 7.

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

When education is linked to many benefits, a lack of education or a lower level of education, as well as poor quality education, deprives individuals and societies of economic, social, and political benefits, and so has a negative impact on their well-being. These negative consequences cost individuals and societies in terms of lower individual and national incomes, poverty, socioeconomic and political fragility, intolerance, and a weaker and lawless society (Becker G. S., 1993; Mincer, 1974; Griliche, 1977). Likewise, it is linked to futile political systems with weaker and ineffective political institutions that create and promote ineffective and extractive policies in every sector of life, all of which have a negative impact on the lives of people as well as society as a whole. Given these viewpoints and consequences, this research attempted to fill a significant gap in the body of work regarding specific estimates of the costs that societies pay as a result of a lack of education. Furthermore, attempts are made to highlight the role of education in holistically addressing individual and community growth and development. The crucial role of education in improving the economic benefits as well as the broader quality of individuals has been explained by discussing the case of Rahim yar Khan district under the guidance of the Human Capital Theory and Capability Approach. The present study has highlighted the significance of education in enhancing the overall freedom of individuals through improved quality as well as better earning to operate effectively as a worthy human capital with its multiple spillover effects on the wider functional domain for their Economic, Social and Political wellbeing. The present study, thus, tried to show the impacts of education on individual quality as well as the cost associated with lack of education objectively in terms of lost income potentials, as briefly discussed in the next sections.

7.1   Individual Quality:

In line with the importance of individuals' freedom in wellbeing, this research constructed a measure of individual quality by assessing various parameters of individual freedom in three key domains of wellbeing. This measure of individual quality at the end provided the extent to which individual freedom varies with education and, on the other hand, provided an opportunity to use it as a proxy for abilities in the returns to education analysis.

Our estimates of individual quality depicted a generally positive association with education, and it improves with an increase in the year of schooling. When analyzed against a different level of education, the change in quality is less for schooling years 0 to 8 and high for the subsequent levels. To further verify this relationship empirically, the study carried a regression analysis to analyze the impact of education on Individual Quality by controlling for various other background factors in the light of literature. Prior studies have comprehensively explained that the capabilities and achievements of individuals with varying backgrounds differ greatly. When favorable background conditions stimulate the process of capability accumulation, unfavorable background conditions, on the other hand, restrict the accumulation of capabilities and hence achievements of the individuals (Wilson, 1987; Becker, 1993; Boggess, 1998; Jones & O'Brien, 1999; Ermisch & Francesconi, 1997-2000; Rosetti & Tanda, 2000; Heckman, 2000). *One* of the prime background variables having a strong influence on the capabilities, growth, and achievement of individuals as identified in the literature is Parents Education. Researchers in varying situations by using various data sets, techniques, and constraints comprehensively concluded a positive association between parents' education and the accumulation of human capital, capabilities, and hence a better standard of living. The literature thus concluded a positive effect of parent's education on child's physical, mental, and social growth as well as their achievements in life. (Becker, 1993; Ermisch, 1997; Bogess,1998; Acemoglu and Autor, 2011). Two channels have

been identified in literature through which parents' education impacts pupil's human capital accumulation and capabilities and hence overall quality. First, educated parents contribute indirectly by investing more in a child's education, by imparting/transmitting the importance of education, and by providing a conducive environment to learn and excel in every walk of life. Second, educated parents contribute directly to the capabilities and hence the quality of their children by helping them in understanding the importance of positive, moral, and ethical behaviors in society, which contributes positively to their future growth (Ermisch,1997; Acemoglu & Autor,2011). Literature has further identified variations in the effects of father and mother's education on a child's wellbeing, with mothers having a dominant impact because of spending more time with children (Ermisch, 1997).

The consideration of background variables in this analysis has been carried under certain assumptions, as explained in section 6.1.2. The relationship of parents' education was assumed positive, whereas the relationship of workdays and work hours was assumed negative with the overall individual quality. The regression outcomes justified most of the assumptions under which analysis was carried. The signs for own Education, Father's Education, Mother's Education, Working Days, and Working Hours were according to the assumed change.

The effect of own education, our core emphasis variable, on individual quality with linear specifications, comes with a positive sign with coefficient value 0.017 showing 1.7 % quality return to education. This explains that each year rise in formal education tends to boost individual quality by 1.7 %. This verifies our claims that education positively impacts individual quality. Based on the graphical pattern of the relationship between education and individual quality, a curvilinear specification of the model with the introduction of the quadratic term for education in the linear models was tested, and results still verify our claims regarding the positive impacts of education on individual quality.

The effect of parent's education is found to be positive on quality. The effects were significant and with assumed signs but with negligible strength[57] for both mother's education and father's education that appears to be 0.004 for both—showing 0.4 % increase in individual quality with every additional year of Father's Education and Mother's Education.

The results associated with work-related parameters also confirm the assumptions laid as both working days and work hours depicted a significant negative impact on individual quality. The impact of Working days is substantial with a coefficient value depicting a 2.3% inverse impact on individual quality with a one-day rise in working days per week, whereas the impact of Working hours is 0.7% showing a decline in individual quality by 0.7% with every additional working hour. The impact of age, as well as experience, has been found insignificant with surprisingly reverse signs.

Concluding from the analysis of individual quality, our results confirm the effectiveness of education in enhancing the capabilities and hence quality of individuals with our framework of analysis revolving around the assessment of social, economic, and political capabilities. Thus, individuals with higher education in the present research setting are more capable and hence may have more freedom to operate in the wider social, economic, and political domains.

7.2   Cost of Educational Deprivation:

As a first step towards estimation of cost associated with lack of education, the analysis of education on wages, returns to education for both the cases was carried through a well-known Mincerian framework. For the case of Pakistan, the study relied on a traditional earning function with unobserved ability by considering the district-level data of 30858 individuals from the HIES-PSLM 2018-19 dataset. The estimation was carried by accounting rural-urban divide as well as

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[57] This may be due to less data

variations in the level of education. Thus, in total, five different estimations have been made to determine overall combined (both rural-urban) as well as rural and urban returns to education without any categorization of education level. The estimate for overall returns explains almost similar results: overall returns to education for all areas are found to be 8.4% when the experience was not considered in the analysis, and it turned out to be 10.72% when the experience was introduced in the model. When adjusted for the location, the returns to education were estimated to be 9.63% for Urban areas whereas 10.51% for Rural.

Various studies questioned the constant returns to education across all educational levels and hence explained variations in returns for different levels of education. In line with these observations, the study has further investigated the returns to education by categorizing the overall sample into three educational groups, i.e., Primary, Secondary and Tertiary for rural, urban, and all areas, as discussed in Chapter 6. The estimate for returns to education discriminated by level education depicted floating results. Returns to primary education in rural areas are 21% higher than in urban areas. The returns to secondary education in urban areas are 5.70 % higher in rural areas. Similarly, the return to tertiary education is 25.5% higher for urban areas than rural areas.

In the case of Rahim Yar Khan, the study adopted the Earning Function with Observed abilities to assess the impact of education on wages by accounting for abilities. The unavailability of published data for this analysis urged us to use the primary data of 404 wage earners with different levels of education in the age bracket 25-59. Thus, for the case of Rahim Yar Khan, the return to education was estimated with two specifications. One by excluding individual quality and second by including individual quality in the regression equation. Without individual quality, the linear specification with two explanatory variables of Education and Age depicted an overall significant relationship with log hourly wages, with both the variable having a positive impact on log hourly wages. In this model, the expected value of return to education appears to be 7.5%. The

estimated returns to education for both the cases are found closer to the 7.2% return to education explained by Nasir & Nazli (2000) for the case of Pakistan and on a global level, the estimates of the 9% return to education estimated by (Borjas, 2004), South Asian Average Return to Schooling of 8.1% and World Average return to the schooling of 8.8% as recently presented by (Psacharopoulos & Patrinos, 2018) based on their review of literature on returns to education. Their discussion revolves around various models which takes abilities as unobservable variable and hence defined return to education by not considering the abilities. The inclusion of work experience in the model for the case of Rahim Yar Khan came up with two effects; first, it turned the significant impact of age to zero, and second, it reduces the return to education to 7.1%, contrary to the case of Pakistan where returns to education increase with the inclusion of experience. Furthermore, a more decline in return to education with unobserved ability is noticed in the case of Rahim Yar Khan after considering the weekly working days and daily working hours. With the inclusion of working days and working hours, the average return to education fell to 6.4% in both linear and non-linear in experience (quadratic experience term) model with all significant impacts except age, according to assumed signs as explained in Chapter 5. After introducing the individual quality in the wage equation, the return to education falls to 5.4% in a simple model of three explanatory variables Education, Age, and Individual Quality, all with accurate signs as per our assumption. Thus, the inclusion of Individual Quality reduced the return to education by 28% from its value in the unobserved specification. The return to education fell to 4.8% once the effect of work experience was controlled in the simple model. This inclusion of experience, similar to the models with unobserved ability, made the age effect insignificant as well as negative in contrast to our assumed impact of age on wages; this also brings down the return to education by 32% from its value of 7.1% in unobserved ability model. It is interesting to observe that return to education increased to 5% once the effect for working days and working hours is controlled. Furthermore, when the quadratic term for experience was introduced in the model with individual quality, the

return to education again depicted a slight improvement to 5.1%, closer to the average return to education 5.4%, as explained by Jamal (2015) for the case of Pakistan by considering the data from 2003-2013. According to our reference specification (Model 4), the return to education is 5.1%, which drops from 6.4% of the model with unobserved ability. This 20% difference in return to education is attributed to Individual Quality and hence may well be considered the effect after considering the abilities according to the framework of this research.

The effect of age on wages is positive and significant in the simplest linear model 1, but once the impact of work experience is controlled, the variable of age turned insignificant with negative signs. This also confirms the redundancy of age according to the traditional wisdom regarding schooling-wage functions (Borjas, 2004; Becker G. S., 1993; Blackburn & Neumark, 1992; Mincer, 1974; Griliche, 1977). The effect of experience in both linear and non-linear specifications is significant. The return to experience in linear models revolves around 3 to 3.2%, whereas it improves in non-linear models to 5.1%. The effect of working days is significant and according to the expected signs. The impact is negative 0.195 in the linear model showing a 19.5% fall in wages with one day increase in working days, and 0.189 in the non-linear model showing an 18.9% fall in wages with a single-day rise in working days (quadratic experience term). The impact of daily working hours is also significant and according to perceived signs. The effect in the linear specification is negative 0.063 showing a 6.3% decline in wages with each hour rise in working hours. At the same time, the effect in the non-linear specification is negative -0.065 showing a decline of 6.5% in wages with each hour rise in daily working. The significant negative effects of working days and working hours on wages as assessed for the case of Rahim yar Khan reveals the wage rigidity with fixed wage regimes, which generally prevails in Pakistan, and it also verifies the observations of (Chapela, 2015; Shank, 1986) that per hour wages falls with a rise in a working hour under the condition of the fixed-wage.

Second, to further proceed for the computation of cost of educational deprivation, the next step involved estimation of average wage rate and average annual income for each level of education for rural, urban as well as all areas of Pakistan. The estimates of hourly wages rate confirm our claims that education improves the productivity of the labor for both cases, as per hour wage rates increase with the level of education. For the case of Pakistan, the lowest wage rate per hour was estimated for the population with below primary education, which stands out to be PKR 38.61 for all areas, PKR 48.18 for urban areas, and PKR 34.46 for rural areas. The highest hourly wage rate was estimated for the labor force with Degree and Postgraduate level of education[58], and that was PKR 199.6 for all areas, PKR 214.32 for urban areas, and PKR 171.35 for rural Areas. By accounting for Individual Quality for the case of Rahim Yar Khan, our estimates show more promising results regarding hourly wage rates, matching the wage statistics of the Punjab Government. According to a recent notification[59] by Punjab Government regarding minimum wage for unskilled labor, the Daily Wage rate is defined to be Rs 673.08 per day with eight working hours and Rs 17500 per month with 26 working days (6 working days per week). With these rates, the per hour wage rate for unskilled labor is Rs 84.13. By assuming this a standard and by considering individuals with no education as unskilled labor, our estimated wage rate of Rs: 90.129 for wage earners with below primary level of education is much closer to the state announced wage rate. And our estimated wage rate is exactly the same as per the announcement of the Punjab government's current minimum wage of Rs:17500 per month. Like the case of Pakistan per hour, wage rates increase with the rise in educational level. According to our estimates, the average per hour rate for individuals with primary education is Rs 113.72, with middle education Rs 133, with

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[58] This level of education includes schooling years 14 and above.

[59] Government of Punjab Labor & HR Department Notification Number No.SO(D-II) MW/2011 (P-V) Dated 01-07-2019

matric education average wage rate is Rs 152, with intermediate level is Rs 175, whereas for degree and postgraduate level the average wage rate is 247.57.

Third, the average annual income for every level of education for both cases was computed by multiplying 2496 annual working hours with the relevant wage rate per hour. The estimates again followed the same pattern as it appears for wage rates that total annual income appears to be lowest for individuals with below primary level whereas highest income is associated with the highest level of education. The wage rates and average income level for all levels of education were found higher at Rahim Yar Khan in comparison to average wage rates and income estimates of Pakistan.

Fourth, the income associated with the total employed and unemployed labor force was determined for both cases. For the case of Pakistan, the average income in urban areas for both total as well as the employed labor force is higher than in rural areas. The aggregate potential income associated with the total labor force for all areas of Pakistan was estimated to be PKR 11436 billion for all areas, PKR 5273 billion for urban areas, and PKR 5843 billion for rural areas. The income of the employed labor force was estimated to be PKR 10769 billion for all areas, PKR 5548 billion for rural areas, and PKR 4890 billion for urban areas. Furthermore, the income loss of the unemployed labor force was estimated to be PKR 666 billion for all areas, PKR 291 billion for rural areas, and PKR 383 billion for urban areas of Pakistan. For the case of Rahim Yar Khan, the aggregate total income associated with the total labor force was estimated to be PKR 499.24 billion, the income of the employed labor force was PKR 470.35 billion, whereas income loss due to unemployed labor force was estimated to be PKR 28.89 billion.

Fifth, to explain the cost associated with the uneducated or less educated population, the income of the total, employed, and the unemployed labor force was computed again by assuming six improved educational profiles as explained in table 6.18. The income estimates based on six cases

depicted a substantial change from the income estimates of the original educational profile for the case of Pakistan as well as for the case of Rahim yar Khan. According to the estimates, a promotion of fifty percent of the labor force with a below primary level of education into primary education level enhances the income potential of the current labor force of Pakistan by 1.66% of Pakistan's GDP in 2017. The income change associated with case 2, which requires the promotion of all below primary labor force into the primary level, and case 3, which required proportion of all below middle-level labor force into the middle level, is 3.32% and 6.40% of GDP. These figures, when compared with the current educational infrastructure as shown in chapter 2, section 2.1, are quite achievable if the state seriously considers education as an important matter and focuses aggressively on the improvements in enrolment at the primary and middle level of schooling. The income improvement associated with case 4 is 11.98% of GDP. This case replicates the requirement of Sustainable Development Goal 4.1, requiring a minimum of ten years of schooling for all men and women. Thus, progress towards the educational profile of case 4 at one end ensures the progress towards sustainable development goals and, on the other hand, will ensure a substantial increase in the income of Pakistan, providing the basis for more economic freedom as well as holistic development. In best cases, if Pakistan succeeded in achieving the educational profile of its population according to case 5 and case 6, then changes in income, as well as the freedom to achieve better development, will be great. Like the case of Pakistan, a substantial income rise is observed with the six cases of improved educational profiles for the case of Rahim Yar Khan.

Finally, to further elaborate the intensity of the issue at hand, i.e., to show the loss of income by relying on less-educated labor force since years, the analysis of nine-year from 2009 to 2017 was carried. The Analysis of 2009-17, which was done by discounting the annual income and labor force statistics, depicted a massive opportunity cost of relying on an uneducated or less educated labor force. According to the estimates of 2009-17, Pakistan could have generated an extra income

equivalent to 10% of 2017 GDP if it had the educational profile of case 1 for its employed labor force in the year 2009. Similarly, the aggregate opportunity cost of not having an educational profile of case 2 and case 3 is 20% and 38% of GDP. If Pakistan achieved SDG goal 4 in 2009, then from 2009-17, it could have generated an extra income equivalent to 71% of GDP in 2017. The opportunity cost associated with case 5 and case 6 is much greater than the one explained earlier. This shows that being with the current educational profile if assumed same in the year 2009 cost Pakistan loss of gigantic amount by not having improved educational. The next section discusses how big these losses are by comparing these opportunity costs with some of the big development projects.

7.3 Conclusion and Recommendations

During the whole analysis, research faced various constraints or limitations, which makes it hard to evaluate the concept in all respects with the best technique and with complete data set. A dataset of HIES-PSLM 2018-19, used for the case of Pakistan, lacked various background and abilities-related variables, which, if available, could have made this analysis more rigorous. So, given the unavailability of data regarding background variables, a proxy for individual abilities, and some other instruments for schooling or education, the present study, by relying on available data and OLS as an estimation technique, has comprehensively examined the cost of education deprivation for the case of Pakistan. Similarly, for the case of Rahim Yar Khan, the time and resources constraints restricted us from collecting a larger volume of data, which was essential to distinguish various attributes as mentioned earlier. Furthermore, the subjectivity of the analysis for the assessment of individual quality makes it harder to consider every attribute of individual quality. Under data, time, resources, and technique-related constraints, the present study has successfully highlighted the significance of education towards the individual as well as aggregate level development by working out the massive cost of educational deprivation.

The research shows that Pakistan, as well as Rahim Yar Khan, are facing massive opportunity costs of relying on uneducated or less educated. The opportunity cost of not having a labor force according to the educational profile of case 1 is equivalent to an amount that is thirty times the budgetary allocation for the health and higher education sector of Pakistan according to the recent budget 2020-21. According to a pre-feasibility study conducted by SMEDA[60], a high school franchise with a student capacity of 500 needed PKR 10 million of infrastructure cost with an additional PKR 5 million as annual running cost in 2015. By considering the future value of this amount in the current year, it amounts to be PKR 14 million for infrastructure and PKR 7 million for the annual running cost. Thus, we can build a middle or a high school with a capacity of 500 students and run it for five years for PKR 50 million. Half of this amount may well be enough to construct and run a primary school. According to the Economic Survey of Pakistan 2019, Pakistan has 172000 primary schools, 46700 middle schools, 31400 secondary schools, and 5800 higher secondary schools. The lost income potential of PKR 817 billion, when considered in the school infrastructure context, is the amount through which the state can quintuple the existing stock of schools for primary, middle, secondary, and higher secondary education. Similarly, this amount is enough to have 40 more universities in the current stock of 211 with five years of operational expenditures. This amount is enough to feed more than 45 million poor people for five years according to the per capita monthly cost of food basket of PKR 2800 per month. As per our estimates, Pakistan lost 3.32% of GDP in 2017 by not having the labor force profile of case 2, which requires no one without five years of schooling. This loss is worth an amount through which we can facilitate a tenfold upsurge in the country's whole educational infrastructure as well as a tenfold increase in the current spending on the Ehsaas Portfolio Program dealing with millions of

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[60] Pre-feasibility study for High School, 2015
http://www.commerce.gov.pk/wp-content/uploads/pdf/High-School-Franchise.pdf

poor and less privileged families. The estimated loss is equivalent to 6.40% of GDP in 2017, corresponding to the case 3 educational profile that requires no one without eight years of schooling. This estimated lost income is comparable to the resources required for the development spending as explained for case 2, in addition to the construction of 3000 Km of motorways as well as the construction of Main Line 1 (ML1) railway project on its own basis, which requires PKR 1340 billion. The opportunity cost of not having the education profile according to SDG goal four, i.e., case 4, requiring everyone with at least ten years of education, is equivalent to 11.98% of GDP 2017. This cost is higher than the total budgetary requirements Pakistan needed for its current as well as development spending for the year 2017 (Rs 4750 billion). The real worth of this amount is that Pakistan can build three dams on a large scale in addition to previously explained development spending. The potential opportunity cost of case 5 and case 6 may have more substantial development impacts than the other cases. The loss of income potential, if computed for seven decades, in the light of the present analysis, may well be an eye-opener to the policymakers to realize the massive damage Pakistan has gone through by relying on uneducated or less educated human resources. A glance of this loss is depicted through our estimates of the aggregate opportunity cost of relying on a less productive uneducated, or less educated labor force for the nine years from 2009 to 2017. Our estimates for nine years highlighted the gigantic opportunity cost of thousands of billion rupees by not having an improved education profile like six cases proposed in this research, i.e., case 1 to case 6. The aggregate loss related to Case 1 from 2009-17 is 10% of GDP in the year 2017, an amount enough to run the total educational sector in Pakistan for more than four years. For other educational profiles such as Case 2 to Case 6, the related opportunity cost amount comparable to 21% of GDP related to Case2, 40% of GDP related to Case 3, 75% of GDP related to Case 4, and Gigantic 77% and 118% of GDP related to Case5 and Case 6 respectively. If we consider case 4 only, Pakistan has wasted an income of PKR 36953 billion from 2009-2017 by not having the educational profile of at least ten years of education for

everyone in the labor force. This amount is more than the total foreign debt of Pakistan, $110 billion[61] as per the economic survey of Pakistan. The macroeconomic impacts of these figures are broader and more diverse. An income generation not only offers more individual economic freedom by letting them enjoy wider economic benefits associated with a higher level of earning associated with a higher level of education but also has cyclical impacts on the overall economy. An individual income rise is positively associated with the personal consumption of goods and services. If the income of everyone rises in the society, then a collective rise in aggregate demand led to multiple positive impacts in terms of increase in investment and hence aggregated supply. All these factors at one end led to substantial real income growth but also provides employment opportunities as well as provide worthy revenue generation through an increase in government taxes. A rise in government tax then provides a greater quotient to the state towards its development spending (Ljungqvist & Sargent, 2000; Hayat & Qadeer, 2016; Crossley, 2009; Trebeck & Williams, 2019; Jappelli & Pistaferri, 2017). Furthermore, an increase in education level, when causing an increase in individual income, tend to reduce the income differentials in the society and hence lead to a decline in income inequality as well as poverty (Yang & Qiu, 2016; Tilak, 2002; Brown & Park, 2001).

In the light of findings, it is highlighted that education is the only solution to Pakistan's development problems at all scales, whether its district Rahim Yar Khan or the whole of Pakistan. To reduce poverty, to offer greater economic, social, and political freedom, to induce long term sustainable growth and development, to reduce income as well as social inequality, to enhance productivity, and to deal with various social, economic, and political problems, Pakistan needs to invest heavily on education. This investment, as explained by Becker (1993), will provide highly

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[61] PKR 18040 billion @ the current exchange rate of PKR 164

productive, skilled, and quality human capital to the society, which can turn the fate of a miserable society into a prosperous society.

Evident from a massive accumulation of worthy youth bulge, 6th largest youth population in the world, the window of opportunities is wide open for Pakistan as currently, it is passing through its demographic transition phase. This window of opportunities, as stated by various academics, is open for a limited period, and the youth bulge being created can have one of two states for the future of Pakistan. If educated properly and provided with growth opportunities, this youth bulge will be a demographic dividend for Pakistan and can turn its miseries into long-lasting growth and development as it happened in east Asian countries. But on the other hand, if the state continues with its chronic ignorance towards educating its population, this youth bulge at one side will be an economic burden, and on another side, it will create various social, economic, and political problems. To avoid becoming worthy youth bulge into a demographic disaster and to turn it into a demographic dividend, the state needs to invest aggressively in education. Thus, to bring in millions of out-of-school children for the making of demographic dividend in future and to educate its less educated human resource, Pakistan needs to invest at least 5 % of its GDP every year on education.

In addition to highlighting the importance of education, this research is important in highlighting the areas where findings of our research can contribute towards achieving various Sustainable Development Goals by 2030, as explained by UNDP (2017). Goal 1 and 2 require no poverty and no hunger by the year 2030 by focusing on capacity building as well as empowerment of both men and women over their lives and by ensuring access to natural, technological, and financial resources. When seen in this context, the importance of this research is many folds as it explained the role of education towards empowering all men and women and offer them economic, social, and political freedom to better off their lives. One of the major indicators of poverty is the lower

level of earnings, insufficient to ensure respectable availability of basic needs. In this research, we have shown that a lower level of earnings is associated with a lower level of education, and earnings increase with the increase in education year. In the light of this, if Pakistan wants to eradicate poverty by 2030, it cannot do that without investing in education and without bringing 23 million out-of-school children back to school. According to our estimated, offering only five years of schooling to everyone in the society can push everyone out of poverty as, with five years of schooling, everyone can earn double of the amount that they tend to earn being uneducated. Similarly, offering at least ten years of schooling to everyone in the society, when at one end, will ensure poverty eradication; on the other hand, it will also reduce income as well as non-income inequalities. In the light of our analysis, it is imperative to focus on education, this will not only speed up the journey of Pakistan towards achieving Goal#4, but it will also provide essential resources, both human and economical, to facilitate progress towards other Sustainable development goals by offering more resources with an improved educational profile of the state. These precious resources can only be generated by equally investing in human capital by providing them with essential quantity as well as the quality of education. We have comprehensively highlighted the need for this investment by showing the opportunity costs of not investing in the education of the uneducated.

Contrary to what is required, the actual conditions with respect to education in Pakistan are miserable, as explained in detail in Chapter 2. One of the major reasons behind this miserable situation may be the lack of resources as well as the lack of political will. Given the circumstances in Pakistan, one can easily doubt the intentions of the political leaders behind this situation as keeping people uneducated may be a shield to their persistent political status quo, maintained since the creation of Pakistan. This argument seems valid in the light of poor political awareness as well as freedom and a higher level of political participation by poorly aware uneducated or least educated population as explained in the case of Rahim Yar Khan. Thus, the political quality of

individuals and its major contribution in defining the overall individual quality seems one of the major contributors to the cost of educational deprivation. In order to break the political status quo, to have well-aware and quality human resources, and to generate essential resources for growth, the state needs to invest aggressively in education—state by providing the future generations at least secondary education to facilitate can ensure a sustainable and long-term growth and development.

In addition to investments in education, the state needs to provide necessary infrastructure and physical capital to consume the human capital as human capital without necessary avenues and opportunities may create burden rather than incentives for the state. We have shown this burden in terms of monetary costs related to unemployment as a loss of massive income. This research highlighted the severity of issues related to educational deprivation and provided guidance to the policymakers to focus on the issues discussed in a more targeted manner based on the alarming estimates associated with the lack of education and poor quality of individuals.

Similar to the case of Pakistan, the dilemma facing Rahim Yar Khan, according to this research, is a massive uneducated population. This uneducated population, as explained in research, has the least political awareness but a higher rate of political participation. Being greater in numbers, the political choices of these least aware individuals at one side are protecting and sustaining the political status quo of inefficient, elitist political status quo despite poor political, social, and economic development. On the other hand, their political choices are costing the development of Rahim Yar Khan, which is evident from the persistently poor socio-economic indicators. Our analysis has highlighted the importance of education with the highest degree towards the creation of quality political participants, making quality political choices for efficient political, social, and economic outcomes. With the outcomes of our analysis, if 67 % of the uneducated population in Rahim Yar Khan is given only level 1 education, i.e., primary education,

then their political quality will improve by more than double, and if given level 3(ten years of schooling), then their political quality will improve three times and so on. An improvement in political quality then will make individuals more capable of making quality political choices towards the selection of good quality political leadership for efficient political outcomes, a prerequisite for efficient social and economic outcomes. This could also be the case of Pakistan if examined further according to the framework of Individual Quality as discussed in the case of Rahim Yar Khan. To tackle the deficiencies and to achieve all these sustainable development goals, in the light of our findings, the state needs to focus on the following important areas:

First, it needs to revamp the whole political landscape of Rahim Yar Khan as well as the whole of Pakistan with a strong, influential, and independent inclusive local government system, which encourages participation from a wider part of society rather than a minor political elite. Furthermore, the state needs to eliminate the barrier to entry for a well-educated and rational political class at the provincial as well as national level.

Second, the state needs to provide opportunities, resources, and expertise to facilitate growth and development in an inclusive, participatory framework for which we have explained the need for a fully functional local government system that includes every segment of the society in each phase of the development process, from its planning to its post-implementation evaluations and ownership.

Finally, the state needs to aggressively invest in the educational infrastructure to remove the impeding factors of retaining students at various levels of education, as explained in the previous section. Since we have shown the positive effect of a rise in schooling years without any consideration of the quality of education, this highlighted the need for investments in schooling infrastructure as if the state increased the current infrastructure with the current quality of education; it may still have a substantial impact on the growth and development of Pakistan in the

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future. And if the quality is also improved with the numbers, then these impacts may further be substantial in volume as well as intensity.

Investing in the infrastructure under the huge stress on resources is a great challenge for the state. To cope with this challenge, the state in a strictly resource deficient situation need to devise a mechanism to engage various stakeholders such as private investors, donor agencies, highly qualified unemployed human resource, and the common public in an all-inclusive framework to generate resources in a sustainable manner through rational planning and execution for provision as well as the functioning of educational infrastructure keeping in mind the long-term future needs of Pakistan. One of the best approaches globally adopted to promote education is through Public-Private partnerships for the provision of capital. This system, if applied with proper planning, may create substantial value for the educational system of Pakistan.

To deal with the deficiencies of human resources for the educational sector in Pakistan, one of the key resources in this regard may be the university graduates at various levels, which may be integrated with the current infrastructure. Looking at the current trends, the demand for university education at the higher level is rising due to rising competition in the job market. According to the Higher Education Commission's available data[62] from 2010-2015, every year, on average, 73475 students at bachelor's level, 122725 students at master's degree level, and 14000 students at MS/M. Phil level is completing their degrees in various subjects from Pakistani Universities. Given the chronic fragile economic situations of Pakistan, some of these graduates successfully enter the job market by ending their education at the current level, others on the other hand, with substantial volume/strength, either remained unemployed or transit for further education. This transition, as well as absorption of these graduates by the job market, itself is a

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[62] https://hec.gov.pk/english/universities/Pages/AJK/Graduates-16-years.aspx

huge task for economies like Pakistan as it also involves resources to provide opportunities for jobs as well as for students transiting for higher education.

The state in the current situation is unable to facilitate both in an efficient manner: the state is not able to provide jobs to everyone who wants to do a job and also not able to provide sufficient resources to ensure quality higher education. Given these circumstances involving resource deficiency in the education sector, the state can create a positive space for itself to meet its resource deficiency and to ensure the quality of education through an already available human resource. Those who failed to get a job or those who intend to join further studies can be utilized in the educational system through youth programs and by restructuring the admission criteria of universities. In line with this argument, we suggest a mandatory internship policy for every graduate (whether bachelor, master, or M.Phil.) willing to go for higher education. The mandatory internship involves working in the practical field (mainly the education sector) to have worthy experience before joining the next level of education. According to this policy, every Bachelor student needs to do a mandatory internship of two complete years in a nearby school as a teacher, at any level, under some performance evaluation criteria before joining a master's degree. Similarly, every master's student needs to do a mandatory internship at any higher secondary school or college before applying for M.Phil. or MS degree. In the same way, anyone willing to do a Ph.D. may be required to provide a certificate of service as a teacher at some higher education institution for at least two years. This will not only give them essential experience but will also contribute to the quality of education at public institutions in a cost-effective manner.

Currently, there are three major avenues through which the state is investing in youth: First, through state internship schemes; Second, through youth loan schemes; and third, through academic scholarships and transfer schemes. If we look at the current and previous government,

both the tenures introduced some youth programs such as National Internship Program[63] and the Kamyabjawan program[64], offering working experience to the young graduates in the form of internships at governmental or non-governmental organizations. State offers subsidized startup loans that facilitate entrepreneurship or business investments by young, educated individuals. Third, the state supports underprivileged or bright students for their education at domestic as well as foreign institutes through various comprehensive programs of transfer payments[65] and academic scholarships at the national as well as provincial level.

To make it a viable and efficient system and to ensure the broader participation of graduates, the state can integrate this Mandatory Internship Program as the basic eligibility criteria with its job market opportunities, state-run internship schemes, youth loan schemes, educational scholarship programs, and various youth transfer payment schemes. With this model state only needs to align/restructure her current youth schemes for optimal utilization of scarce resources. In this way, the state only needs to invest in infrastructure and makes partnerships with universities to indulge their graduates in the educational system. Thus, by making mandatory internships as a pre-requisite for admission and scholarship to higher education, for public sector jobs, startup loans, and other state-run youth programs, we can ensure a substantial availability of human resources in the education sector at all levels. Furthermore, in order to ensure quality according to the needs of the educational sector, the state can create an economic sector offering short-medium term (one to three months) teacher pieces of training for the graduates willing to join Mandatory Internship Programs. The state can do this effectively by involving private institutes/trainers to provide essential teaching and contemporary education technology training at subsidized rates. This, at one end, will ensure the quality of graduates entering Mandatory Internship Programs and

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[63] Previous Government 2013-2018
[64] Current Government 2018-2023
[65] BISP/EHSAAS

also creates a job market for the trainers. Also, the state can use its existing training infrastructure or vocational institutes to train internees. If run under a strong evaluation mechanism, this Mandatory Internship Program, will also contribute to the quality of education at serving institutes and also ensure the quality of graduates entering universities for further education by offering them a worthy practical experience gained at two stages, i.e., during teachers training and during practical working. This ultimately adds value in the quality of university intake for higher education as the student joining universities after Mandatory Internship at some school, college, or university will have a reasonable academic experience which will benefits universities in their quality of education.

Given earlier explained constraints and limitations, the research has tried hard to successfully show the cost associated with educational deprivation in a comprehensive manner. To further investigate the issue, the research suggests some future way forward. In the future, more comprehensive data may be collected from districts of varying educational profiles to assess the individual quality and hence impact of education on income generation abilities to explain the differences. Furthermore, the data regarding some good instruments for schooling quality may well be included in the assessment. Due to various complexities involved and the volume of efforts and resources it requires, the assessment of an individual's schooling quality was not considered in this thesis. It may be considered for further analysis to unlock the variations in individual quality based on the variations in educational quality. This will provide opportunities to think beyond the Ordinary Least Square method for the estimation. All the variations in the population considered may be contemplated for future analysis regarding the cost of educational deprivation. Finally, the approach followed in this research may well be used to compute the potential and actual GDP at the district level if the actual labor force for each district is considered with their educational profiles. This can only be achieved through some necessary modifications in the structure of analysis by working out the data issue and constraints related to the estimation technique.

REFERENCES

Abachizadeh, k., Omidnia, S., Hajebi, A., Shekarriz-Foumani, R., Mohseni, M., & Zamankhani, F. (2017). Measuring Self-perceived Social Health of Iranians; Finding from Iran Social Health Survey. *Novelty in Biomedicine, 5*(3).

Abbott, P., & Wallace, C. (2012). Social Quality: A Way to Measure the Quality of Society. *Social Indicators Research, 108*(1), 153-167.

ABELS, G. (2007). Citizen Involvement in Public Policy-making: Does it Improve Democratic Legitimacy and Accountability?The Case of PTA. *Interdisciplinary Information Sciences, 13*(1), 103-116.

Adams, P., Hurd, M. D., McFadden, D., Merrill, A., & Ribeiro, T. (2003, January). Healthy, wealthy, and wise? Tests for direct causal paths between health and socioeconomic status. *Journal of Econometrics, 112*(1), 3–56.

AEPAM. (2015). *Pakistan Educational For All Review Report 2015.* AEPAM.

AEPAM. (2017). *Pakistan Education Statistics 2016-17.* NEMIS-AEPAM.

Akerlof, G. A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics, 84*(3), 488-500.

Albacete, G., & Gema. (2014). *Young People's Political Participation in Western Europe.* Palgrave Studies in European Political Sociology.

Alkire, S., Conconi, A., & Seth, S. (2014). *Multidimensional Poverty Index 2014:Brief Methodological Note and Results.* OPHI.

Allen, D. (2003). *Getting Things Done. The Art of Stress-Free Productivity.* Penguin.

Almlund, M., Duckworth, A. L., Heckman, J. J., & Kautz, T. D. (2011). *Personality Psychology and Economics.* NBER.

Anderson, L. E., & Bolt, S. B. (2015). *Professionalism: Skills for Workplace Success.* Pearson Education, Inc .

Arias, J. J., & Walker, D. M. (2004). Additional evidence on the relationship between class size and student performance. *Journal of Economic Education, 35*(4), 311–329.

Arrow, K. J. (1963). Uncertainty and the Welfare Economics of Medical Care. *The American Economic Review, 53*(5), 941-973.

Ashenfelter, O., & Rouse, C. (1998). Income, Schooling, and Ability: Evidence from a New Sample of Identical Twins. *Quarterly Journal of Economics, 113*, 253-284.

Bakara, A. A., Osman, M. M., Bachok, S., Ibrahim, M., & Mohamed, M. Z. (2015). Modelling economic wellbeing and social wellbeing for sustainability: a theoretical concept. *Procedia Environmental Sciences, 28*, 286-296.

Balcar, J. (2014). Soft Skills and their Wage Returns: Overview of Empirical Literature. *REVIEW OF ECONOMIC PERSPECTIVES, 14*(1), 3-15.

Bandyopadhyay, S. (2002). An Inquiry into Causes o f Regional Disparities in E conomic growth accross Indian states. *Ph.D. Thesis*. London School o f E conom ics and Political Science, University of London.

Bartlett, M. S. (1937). Properties of sufficiency and statistical tests. *Proceedings of the Royal Society London A, 160*(901).

Beck, A., Crain, A. L., Solberg, L. I., Unützer, J., Glasgow, R. E., Maciosek, M. V., & Whitebird, R. (2011). Severity of Depression and Magnitude of Productivity Loss. *Annals of Family Medicine, 9*(4), 305-311.

Becker, G. S. (1965). A Theory of the Allocation of Time. *The Economic Journal, 75*(299), 493-517.

Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy, 76*.

Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (3rd ed.). Chicago and London: NBER: University of Chicago Press.

Behrman, J., & Birdsall, N. (1983). The Quality of Schooling: Quantity Alone is Misleading. *American Economic Review, 73*, 928-946.

Behrman, J., & Rosenzweig, M. (1999). Ability Biases in Schooling Returns and Twins: A Test and New Estimates. *Economics of Education Review, 73*, 928-946.

Belsley, D., Kuh, E., & Welsch, R. (1980). *Regression Diagnostics: Identifying influential Data and Sources of Collinearity.* New York: John Wiley & Sons.

Belzil, C. (2006). *Testing the Specification of the Mincer Wage.* Centre National de Recherche Scientifique, University of Bonn.

Bennis W. and Townsend, R. (1995). *Reinventing Leadership.* New York: William Morrow.

Bergen, C. W., Bergen, B. V., Stubblefield, C., & Bandow, D. (2012). Authentic tolerance: between forbearance and acceptance. *Journal of Cultural Diversity*.

Berinsky, A. J., & Lenz, G. S. (2011). Education and Political Participation: Exploring the Causal Link. *Polit Behav, 33*, 357-373.

Bhayana, S., & Kakkar, A. (2019). Sustainable development goals, going beyond GDP: India's case. *Indian Journal of Economics and Development*.

Bigoni, M., Bortolotti, S., Parisi, F., & Porat, A. (2014). *Unbundling Efficient Breach.* Coase-Sandor Institute for Law and Economics, University of Chicago.

Black, D. S., Sussman, S., & Unger, J. B. (2010). A Further Look at the Intergenerational Transmission of Violence: Witnessing Interparental Violence in Emerging Adulthood. *Journal of Interpersonal Violence, 25*(6), 1022–1042.

Blackburn, M., & Neumark, D. (1992). Unobserved Ability, Efficiency Wages, and Interindustry Wage Differentials. *The Quarterly Journal of Economics, 107*(4), 1421-1436.

Bleakley, H. (2010). Health, Human Capital, and Development. *Annual Review of Economics, 2*, 283-310.

Booth, D. (1985). Marxism and development sociology: Interpreting the impasse. *World Development, 13*(17), 761-787.

Borjas, G. (2004). *Labor Economics(3rd ed).* New York: McGraw-Hill.

Brese, F., Diazgranados, S., Higdon, J., Isac, M. M., Maslowski, R., Sandoval-Hernandez, A., . . . Werf, G. v. (2015). *Tolerance through education : Mapping the determinants of young*

people's attitudes towards equal rights for immigrants and ethnic/racial minorities in Europe. Luxembourg: European Union.

Brødsgaard, K. E., & Rutten, K. (2017). *From Accelerated Accumulation to Socialist Market Economy in China: Economic Discourse and Development from 1953 to the Present.* Brill.

Brody, R. (1978). The puzzle of political participation in America. In A. King, *The New American Political System.* Washington, DC: American Enterprise Institute.

Broecke, S. (2016). Do skills matter for wage inequality? *IZA World of Labor.*

Brown, P., & Park, A. (2001). Education and poverty in rural China. *Economics of Education Review.*

Browne, M. W., & Cudeck, R. (1993). Alternative Ways of Assessing Model Fit. In K. A. Bollen, & J. S. Long, *Testing Structural Equation Models.* SAGE.

Browne, W. M. (1968). A comparison of factor analytic techniques. *Psychometrika, 33*, 267-334.

Bruhwiler, C., & Blatchford, P. (2011). Effects of class size and adaptive teaching competency on classroom processes and academic outcome. *Learning and Instruction, 21*(1), 95–108.

Bryman, A. (2016). *Social Research Methods.* Oxford University Press.

Butterfield, J. (2010). *Problem Solving and Decision Making.* CENGAGE Learning.

Card, D. (1995). Earnings, Schooling, and Ability Revisited. *Research in Labor Economics, 5.*

Card, D. (1999). The Causal Effect of Education on Earning. In D. Card, *A handbook of labor economics.* Elsevier.

Card, D., & Kruegerl, A. (1992). Does School Quality Matter? Returns to Education and the Characteristics of Public Schools in the United States. *Journal of Political Economy, 100*, 1-40.

Carpini, M. X., & Keeter, S. (1993). Measuring Political Knowledge: Putting First Things First. *American Journal of Political Science, 37*(4), 1179-1206.

Case, C. E., Greeley, A. M., & Fuchs, S. (1989). Social Determinants of Racial Prejudice. *Sociological Perspectives, 32*(4), 469-483.

Cerny, B., & Kaiser, H. (1977). A Study Of A Measure Of Sampling Adequacy For Factor-Analytic Correlation Matrices. *Multivariate Behavioral Research, 43*(7).

Chambers, R. (1997). Responsible Well-being: A Personal Agenda for Development. *World Development, 25*(11).

Chapela, J. G. (2015). Split or straight? Evidence of the effects of work schedules on workers' well-being, time use, and productivity. *SERIEs, 6*(2), 153–177.

Chin, W. W., Gopal, A., & Salisbury, W. (1997). Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation. *Information Systems Research, 8*(4).

Claus, E., & Claus, I. (2016). *A Collection of Surveys on Savings and Wealth Accumulation.* Wiley.

Conge, P. (1988). The concept of political participation: Toward a definition. *Comparative Politics, 20*(2), 241–249.

Costa-Lopes, R., Vala, J., & Judd, C. M. (2012). Similarity and dissimilarity in intergroup relations: Different dimensions, different processes. *Revue internationale de psychologie sociale*.

Crossley, T. F. (2009). Measuring Consumption and Saving: Introduction. *Fiscal Studies, 30*(3/4).

Cuñado, J., & Gracia, F. P. (2012). Does Education Affect Happiness? Evidence for Spain. *Social Indicators Research, 108*(1), 185–196.

Currie, J., & Moretti, E. (2003). Mother's Education and the Intergenerational Transmission of Human Capital: Evidence from College Openings. *Quarterly Journal of Economics, 118*(4), 1495-1532.

Cutler, D. M., & Lleras-Muney, A. (2006). *Education and Health: Evaluating Theories and Evidence.* NBER.

Cutler, D., Deaton, A., & Lleras-Muney, A. (2006). The Determinants of Mortality. *Journal of Economic Perspectives, 20*(3), 97-120.

Davidson, R., & Mackinnon, J. (1993). *Estimation and Inference in Econometrics.* Oxford University Press.

Dee, T. (2004). Are there civic returns to education? *Journal of Public Economics, 88*, 1697-1720.

Deming, D. J. (2017). *The Value of Soft Skills in the Labor Market.* NBER.

Deth, J. W. (2014). A conceptual map of political participation. *Acta Politica, 49*(3), 349–367.

Dhami, M. K., Schlottmann, A., & Waldmann, M. R. (2012). *Judgment and Decision Making as a Skill: Learning, Development, and Evolution.* Cambridge University Press.

Diener, E., & Suh, E. (1997). Measuring Quality of Life: Economic, Social, and Subjective Indicators. *Social Indicators Research*, 189-216.

Douglas, M. J., Conway, L., Gorman, D., Gavin, S., & Hanlon, P. (2001). Developing Principles for Health impact assessment. *Journal Of Public Health Medicine, 23*(2), 148–154.

Dynarsky, S., Hyman, J. M., & Schanzenbach, D. W. (2013). Experimental evidence on the effect of childhood investments on postsecondary attainment and degree completion. *Journal of Policy Analysis and Management, 32*(4), 692–717.

Ellis, A. C. (1917). *The Money Value of Education.* Washington: Department of Interior, Bureau of Education.

Engle, P. L., & Black, M. M. (2008). The Effect of Poverty on Child Development and Educational Outcomes. *Annals of the New York Academy of Sciences, 1136*(1).

Fazal, T. (1999). Religion and Language in the Formation of Nationhood in Pakistan and Bangladesh. *Sociological Bulletin, 48*(1).

Finnigan, R. (2018). Varying weekly work hours and earnings instability in the Great Recession. *Social Science Research, 74*, 96-107.

Fisher, A. G. (1932). Education and relative wages rate. *International Labor Review, 25*, 742-764.

Freund, R. J., Wilson, W. J., & Sa, P. (2006). *Regression Analysis.* Academic Press.

Friedman, D. D. (1990). Chapter 20: The Economics Of Law & Law Breaking . In D. D. Friedman, *PRICE THEORY: An Intermediate Text* . South-Western Publishing Co.

Friedman, D. D. (2001). *Law's Order: What Economics Has to Do with Law and Why It Matters.* Princeton University Press.

Fukuda-Parr, S., & Cid-Martinez, I. (2019). The capability approach and human development. . In M. Nissanke, & J. A. Ocampo, *In The Palgrave Handbook of Development Economics (pp. 441-468).* (pp. 441-468). Palgrave Macmillan, Cham.

GOP. (2016). *Punjab Development Statistics.* Government of Punjab.

GOP. (2017). *Punjab Development Statistics.* Government of Punjab.

Greene, W. (2000). *Econometric Analysis. 4th Edition.* Prentice Hall.

Grenier, G. (2015). The value of language skills: A common language facilitates communication and economic efficiency, but linguistic diversity has economic and cultural value too. *IZA World of Labor*.

Griliche, Z. (1977). Estimating the Returns to Schooling: Some Econometric Problems. *Econometrica, 45*(1), 1-22.

Grossman, M. (1972). On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy, 80*(2), 223-255.

Grossman, M., & Kaestner, R. (1997). Effects of education on health. . In J. .Benhrman, & Stacey, *The social benefits of education* (pp. 69–123). Michigan, USA: University of Michigan Press.

Hahn, R. A., & Truman, B. I. (2015). Education Improves Public Health and Promotes Health Equity. *Int J Health Serv, 45*(4), 657–678.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis.* Prentice-Hall, Inc.

Halim, N., Spielman, K., & Larson, B. (2015). The economic consequences of selected maternal and early childhood nutrition interventions in low- and middle-income countries: a review of the literature, 2000—2013. *BMC Womens Health., 15*.

Hallemeier, J. P. (2006). *Tolerance, Respect, and Charity: A Virtueethical Account of Interaction with the Other.*

Haq, M. U. (1995). *Reflections on Human Development.* New York: Oxford University Press.

Haqqani, H. (2005). *Pakistan: Between Mosque and Military.* Carnegie Endowment for International Peace.

Hay, C. (2007). *Why we hate politics?* Cambridge and Malden, MA: Polity Press.

Hayat, M. A., & Qadeer, H. (2016). SIZE AND IMPACT OF FISCAL MULTIPLIERS. *Pakistan Economic and Social Review, 52*(2), 205-231.

Healy, T., & Cote, S. (2001). *The Well-Being of Nations: The Role of Human and Social Capital. Education and Skills.* OECD Publishing.

Helbling, M. (2014). Opposing Muslims and the Muslim headscarf in Western Europe. *European Sociological Review, 30*(2), 242–257.

Hello, E., Scheepers, P., & Gijsberts, M. (2002). Education and Ethnic Prejudice in Europe: Explanations for cross-national variances in the educational effect on ethnic prejudice. *Scandinavian Journal of Educational Research, 46*(1).

Hofstede, G. H. (2001). *Culture"s Consequences: Comparing Values, Behaviors, Institutions,and Organizations Across Nations.* Sage, Thousand Oaks, CA.

Hooghe, M., & Quintelier, E. (2014). Political participation in European countries: The effect of authoritarian rule, corruption, lack of good governance and economic downturn. *Comparative European Politics, 12*(2), 209–232.

Hsu, Y., & Yuan-fang, C. (2013). An Analysis of Factors Affecting Parents' Choice of a Junior High School. *International Journal of Business, Humanities and Technology, 3*(2).

ICG. (2015). *Women, Violence and Conflict in Pakistan* . International Crisis Group .

Inglehart, R., & Catterberg, G. (2002). Trends in Political Action: The Developmental Trend and the Post-Honeymoon Decline. *International Journal of Comparative Sociology, 43*(3-5), 300-316.

IoM. (2001). *Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences.* Washington (DC): National Academies Press (US).

Isaacowitz, D. M., & Smith, J. (2003). Positive and Negative Affect in Very Old Age. *The Journals of Gerontology, 58*(3), 143–152.

J.Salkind, N. (2010). *Encyclopedia of Research Design.* SAGE.

Jappelli, T., & Pistaferri, . (2017). *The Economics of Consumption: Theory and Evidence.*

Joll, C., McKenna, C., McNabb, R., & Shorey, J. (1983). *Developments in Labor Market Analysis.* Routledge.

Jones, J. S. (2019). *Learn to Test for Multicollinearity in SPSS with Data from the English Health Survey (teaching Dataset) (2002).* SAGE Publications.

Joreskog, K. G., & Sorbom, D. (1984). *Advances in factor analysis and structural equation models.* Rowman & Littlefield Publishers.

Kaase, M., & Marsh, A. (1979). Political action: A theoretical perspective. In S. H. Barnes, M. Kaase, & K. R, *Political Action: Mass Participation in Five Western Democracies.*

Kaiser, H. F. (1981). A Revised Measure of Sampling Adequacy for Factor-Analytic Data Matrices. *Educational and Psychological Measurement, 41*(2), 379–381.

Kam, C., & Palmer, C. (2008). Reconsidering the effects of education on political participation. *The Journal of Politics, 70*(3), 612-631.

Karasek, R. a. (1990). *Healthy Work. New York: Basic Books.*

Karim, R., Lindberg, L., Wamala, S., & Emmelin, M. (2018). Men's Perceptions of Women's Participation in Development Initiatives in Rural Bangladesh. *American Journal of Mens Health, 12*(2), 398-410.

Kendrick, J. W. (1961). Some Theoretical Aspects of Capital Measurement. *The American Economic Review, 51*(2), 102-111.

Keyes, C. L. (1998). Social Well-Being. *Social Psychology Quarterly, 61*(2), 121-140.

Klesges, R., Eck, L., Hanson, C., Haddock, C., & Klesges, L. (1990). Effect of obesity, social interactions, and physical environment on physical activity in preschoolers. *Health Psychology, 9*, 435–449.

Kreeft, P. (2007). *A Refutation of Moral Relativism.* Ignatius Press.

Kumar, N. (2017). Self-esteem and its impact on performance. *Indian Journal of Positive Psychology, 8*(2).

Lang, K. (1993). *Ability Bias, Discount Rate Bias, and the Return to Education.* Boston University.

Lasswell, H. D. (1936). *Politics: Who Gets What, When, How.* Whittlesey house, McGraw-Hill book Company, Incorporated.

Lickona, T. (2002). Making sense of tolerance and diversity. *Fourth and Fifth Rs, 8.*

Lickona, T. (2006). *Tolerance, Diversity and Respect of Concience: The Neglected Issue.* New York : Center for the 4th and 5th Rs (Respect and Responsibility).

Link, B. G., & Phelan, J. (1995). Social conditions as the fundamental causes of disease. *Journal of Health and Social Behavior*, 80-94. Retrieved from http://www.jstor.org/stable/2626958

Ljungqvist, L., & Sargent, T. J. (2000). *Recursive Macroeconomic Theory.*

Lleras-Muney, A. (2005). The Relationship Between Education and Adult Mortality in the United States. *Review of Economic Studies, 72*(1), 189-221.

Lock, K. (2000). Health Impact Assessment. *British Medical Journal, 320*(7246), 1395-198.

Löfgren, K.-G., Persson, T., & Weibull, J. W. (2002). Markets with Asymmetric Information: The Contributions of George Akerlof, Michael Spence and Joseph Stiglitz. *he Scandinavian Journal of Economics, 104*(2), 195-211.

López-Rodríguez, L., Cuadrado, I., & Navas, M. (2017). I will help you because we are similar: Quality of contact mediates the effect of perceived similarity on facilitative behaviour towards immigrants. *International Journal of Psychology, 52*(4), 273–282.

M. Shohel, M., & Howes, A. (2019). The relevance of formal and nonformal primary education in relation to health, well-being and environmental awareness: Bangladeshi pupils' perspectives in the rural contexts. . *International journal of qualitative studies on hwalth and wellbeing.*

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*(1), 84-99.

Majeed, G. (2010). Ethnicity and Ethnic Conflict in Pakistan. *Journal of Political Studies, 1*(2), 51-63.

Maluccio, J. (1998). *ENDOGENEITY OF SCHOOLING IN THE WAGE FUNCTION:EVIDENCE FROM THE RURAL PHILIPPINES.* FCND DISCUSSION PAPER NO. 54.

Marmot, M., & Wilkinson, R. (1999). *Social Determinants of Health.* Oxford University Press.

Marschak, J. (1965). The economics of language. *Behavioral Science, 10*(2), 135–140.

Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher order factor models and their invariance across groups. *Psychological Bulletin, 97*(3), 562-582.

Maslow, A. H. (1943). A Theory of Human Motivation. *Psychological Review, 50*(4), 370–396.

McCain, M., Gill, P., Wills, J., & Larson, M. (2004). *Knowledge, Skills, and Abilities of Youth Service Practitioners: The Centerpiece of a Successful Workforce Development System. A Background Paper.* Institute for Educational Leadership.

McCoy, D. C., Zuilkowski, S. S., Yoshikawa, H., & Fink, G. (2017). Early Childhood Care and Education and School Readiness in Zambia. *Journal of Research on Educational Effectiveness, 10*(3).

McDowell, I. (2006). *Measuring Health: A Guide to Rating Scales and Questionnaires.* Oxfor University Press.

McGregor, J. A., & Pouw, N. (2017). Towards an economics of well-being. *Cambridge Journal of Economics, 41*(4), 1123–1142.

Milligan, K., Moretti, E., & Oreopoulos, P. (2003). *Does education improve citizenship? Evidence from the U.S. and U.K.*

Mincer, J. (1974). *Schooling, Experience and Earning.* New York: NBER.

MoF. (2018). *Pakistan Economic Survey 2017-18.* Ministry of Finance.

MoF. (2019). *Pakistan Economic Survey 2019-18.* Ministry of Finance, Government of Pakistan.

Molnar, A. (2013). *Language barriers to foreign trade: evidence from translation costs.*

Mondak, J. J. (1999). Reconsidering the Measurement of Political Knowledge. *Political Analysis, 8*(1), 57-82.

Nagarajan, R., & Prabhu, R. (2015). Competence and capability: A new look. *International Journal of Management, 6*(6), 7-11.

Nasir, A., Chaudhry, A. G., Khan, S. E., & Hadi, S. A. (2015). *BIRADARISM AND RURAL CONFLICT AS A DETERMINANT OF POLITICAL BEHAVIOR: A CASE STUDY OF RURAL PUNJAB.* Pakistan Association of Anthropology.

Nayab, D. (2007). *Demographic Dividend or Demographic Threat in Pakistan?* Pakistan Institute of Development Economics Working .

Nelson, T. E., Clawson, R. A., & Oxley, Z. M. (1997). Media Framing of a Civil Liberties Conflict and Its Effect on Tolerance. *The American Political Science Review, 91*(3), 567-583.

NEMIS-AEPAM. (2018). *Pakistan Education Statistics 2016-17: 25th Annual Publication since 1992-93.* Academy of Educational Planning and Managment, National Education Management Information System (NEMIS). Islamabad.: Premier Publisher. Retrieved from http://library.aepam.edu.pk/Books/Pakistan%20Education%20Statistics%202016-17.pdf

North, D. C. (1990). *Institutions, Institutional Change and Economic Performance.* Cambrige,New York: Cambridge University Press.

North, D. C. (1991). Institutions. *Journal of Economic Perspectives, 5*(1), 97-112.

Nyasulu, B. M. (2014). Role of language in socio-economic development: the semiotics are right. *Journal of Humanities, 23*.

Oberdiek, H. (2001). *Tolerance: Between forbearance and acceptance.* . Rowman & Littlefield.

O'Bryan, M., Fishbein, H. D., & Ritchey, P. N. (2004). Intergenerational Transmission of Prejudice, Sex Role Stereotyping, and Intolerance. *Adolescence, 39*(155), 407-426.

OECD. (2013). *The Skill Outlook 2013:First Results from the Survey.* OECD Publishing.

OECD. (2017). *OECD Skills Outlook 2017: Skills and Global Value Chains.* OECD Publishing.

Ondrik, R. S. (1999). *PARTICIPATORY APPROACHES TO NATIONAL DEVELOPMENT PLANNING* . Asian Development Bank.

OSTROM, E. (2015). *GOVERNING THE COMMONS: The evolution of institutions for collective action.* Cambridge University Press.

Oudenhoven, V., Eisses, J. P., & Anne-Marie. (1998). Integration and assimilation of Moroccan immigrants in Israel and the Netherlands. *International Journal of Intercultural Relations, 22*(3), 293-307.

Paolo, A. D., & Tansel, A. (2013). *Returns to Foreign Language Skills in a Developing Country: The Case of Turkey.* The Research Institute of Applied Economics (IREA).

Parcon, P. (2007). *Develop Your Decision Making Skills.* Lotus Press.

Pateman, C. (2012). Participatory Democracy Revisited. *Perspectives on Politics, 10*(1), 7-19.

Pierce, G., Sarason, B., & Sarason, I. (1996). *Handbook of Social Support.*

Podger, A., & Trewin, D. (2014). *Measuring and Promoting Wellbeing: How Important is Economic Growth?* The Australian National University Press.

Presser, H. B. (1989). Can we make time for children? the economy, work schedules, and child care. *Demography, 26*(4), 523-543.

Prickett, K. C., & Augustine, J. M. (2015). Maternal Education and Investments in Children's Health. *Journal of Marriage and Family, 78*(1).

Psacharopoulos, G., & Patrinos, H. A. (2018). Returns to investment in education: a decennial review of the global literature. *EDUCATION ECONOMICS, 26*(5), 445-458.

Regan, T. L., Burghardt, G., & Oaxaca, R. (2006). *A Human Capital Model of the Effects of Abilities and Family Background on Optimal Schooling Levels.* IZA.

Rehman, A., Jingdong, L., & Hussain, I. (2015). The province-wise literacy rate in Pakistan and its impact on the economy. *Pacific Science Review B: Humanities and Social Sciences, 1*(3).

Rendon, S. (2007). The Catalan premium: language and employment in Catalonia. *of Population Economics, 20*(3), 669-686.

Riddell, W. C. (2006). The Impact of Education on Economic and Social Outcomes: An Overview of Recent. *An Integrated Approach to Human Capital Development.* Canadian Policy Research Networks (CPRN).

Robeyns, I. (2017). *Wellbeing, Freedom and Social Justice: The Capability Approach Re-Examined.*

Robinson, J. A., & Acemoglu, D. (2012). *Why Nations Fail?* Crown Publishing Group.

Rodrik, D. (2000). *Institutions for High-Quality Growth:What they are and how to acquire them?* NBER.

Rook, K. S. (1984). The Negative Side of Social Interaction: Impact on Psychological Well-Being. *Journal of Personality and Social Psychology, 46*(5), 1097-1108.

Rosenstone, S., & Hansen, J. (1993). *Mobilization, participation, and democracy in America.* . New York: Macmillan Publishing Company.

Ross, C. E., & Mirowsky, J. (1999). Refining the association between education and health: The effects of quantity, credential, and selectivity. *Demography, 36*(4), 445-460.

Rubin, J., Taylor, J., Pollitt, A., Krapels, J., & Pardal, M. (2011). *Intolerance in Western Europe: Analysis of trends and associated factors: summary report.* RAND Europe.

Rubin, P. H. (2005). Micro and Macro Legal Efficiency: Supply and Demand. *Supreme Court Economic Review, 13*.

Russell, J., & Cohn, R. (2012). *Variance Inflation Factor.* Book on Demand.

Saito, M. (2003). Amartya Sen's Capability Approach to Education: A Critical Exploration. *Journal of Philosphy of Education, 37*(1), 17-33.

Sathar, Z. A., Royan, R., & Bongaarts, J. (2013). *Capturing Demographic Dividend in Pakistan.* Population Council.

Savedoff, W. D., & Schultz, T. P. (2000). *Wealth from Health: Linking Social Investments to Earnings in Latin America.* Washington DC: IDB.

Savickas, M. L. (2010). Career Studies as Self-Making and Life Designing. *Career Research and Development, 23*.

Schank, T. (2015). Employment effects of longer working hours:Extending work hours may reduce employment in the short term but may increase it in the long term if hourly pay remains constant. *IZA World of Labor*.

Scholtes, P. (2002). *The Leader's Handbook: Making Things Happen Getting Things Done.* McGraw-Hill .

Schuller, T., Preston, J., Hammond, C., Brassett-Grundy, A., & Bynner, J. (2004). *The Benefits of Learning: The impact of education on health,family life and social capital.* London: RoutledgeFalmer.

Schuurman, F. (1993). *Beyond the Impasse: New Directions in Development Theory.* London: ZED Books.

Sen, A. (2003). Development as Capability Expansion. In e. a. Fukuda-Parr S, *Readings in Human Development.* New Delhi and New York: Oxford University Press.

Sen, A., & Dreze, J. (1995). *India : Economic Development and Social Opportunity.* Oxford University Press.

Shallcross, A. J., Ford, B. Q., Floerke, V. A., & Mauss, I. B. (2013). Getting better with age: the relationship between age, acceptance, and negative affect. *Journal of personality and social psychology, 104*(4), 734–749.

Shank, S. E. (1986). Preferred hours of work and corresponding earnings. *Monthly Labor Review, 109*(11), 40-44.

SHARIFF, A., & AHN, N. (1995). Mother's Education Effect on Child Health: An Econometric Analysis of Child Anthropometry in Uganda. *Indian Economic Review, 30*(2).

Siddiqui, J. (2017). *Identity, Gender, and Conflict Drivers in Pakistan.* United States Institute of Peace.

Simon, J. L. (2000). *Developing Decision-making Skills for Business.* M.E Sharp.

Smith, J. P. (2003). *Consequences and Predictors of New Health Events.* NBER Working Paper No. 10063.

Sondheimer, R., & Green, D. (2010). Using experiments to estimate the effects of education on voter turnout. *American Journal of Political Science, 54*(1), 174-189.

SPI. (2018). *Social Progess Index .* Social Progress Imperative.

Stephan, W. G., Diaz-Loving, R., & Duran, A. (2000). Integrated Threat Theory and Intercultural Attitudes: Mexico and the United States. *Journal of Cross-Cultural Psychology, 31*(2), 240–249.

Stigler, G. J. (1962). Information in the Labor Market. *The Journal of Political Economy, Vol. 70, No. 5, Part 2: Investment in Human Beings.*, 94-105.

Stone, R. (2016). ECONOMIC ANALYSIS OF CONTRACT LAW FROM THE INTERNAL POINT OF VIEW. *Columbia Law Review, 116*(8), 2005-2057.

Tabachnick, B. G., & Fidell, L. S. (2019). *Using Multivariate Statistics.* Pearson Education, Inc.

Tamanaha, B. Z. (2007). *A CONCISE GUIDE TO THE RULE OF LAW.* ST. JOHN'S UNIVERSITY , SCHOOL OF LAW. New York: The Social Science Research Network.

Tanaka, J., & Huba, G. (1985). A fit index for covariance structure models under arbitrary GLS estimation. *British Journal of Mathematical and Statistical Psychology, 38,, 38*, 197–201.

Taylor, M. (2010). Does Locus of Control Predict Young Adult Conflict Strategies with Superiors? An Examination of Control Orientation and the Organizational Communication Conflict Instrument. *North American Journal of Psychology, 12*(3), 445–458.

Tenn, S. (2007). The effect of education on voter turnout. *Political Analysis, 15*(4), 446-464.

Teorell, J. (2010). *Determinants of Democratization: Explaining Regime Change in the World, 1972–2006.* Cambridge: Cambridge University Press.

Thiel, H., & Thomsen, S. L. (2013). Noncognitive skills in economics: Models, measurement, and empirical evidence. *Research in Economics, 67*(2), 189-214.

Tilak, J. B. (2002). Education and Poverty. *Journal of Human Development, 3*(2).

TLI. (2018). *THE LEGATUM PROSPERITY INDEX 2018.* The Legatum Institute.

Trebeck, K., & Williams, J. (2019). *The economics of arrival: Ideas for a grown-up economy.*

Tucker, L. R., Koopman, R. F., & Linn, R. L. (1969). Evaluation of factor analytic research procedures by means of simulated correlation matrices. ,. *Psychometrika, 34*, 421-459.

Tyler, T. R., & Darley, J. M. (2000). BUILDING A LAW-ABIDING SOCIETY: TAKING PUBLIC VIEWS ABOUT MORALITY AND THE LEGITIMACY OF LEGAL

AUTHORITIES INTO ACCOUNT WHEN FORMULATING SUBSTANTIVE LAW. *HOFSTRA LAW REVIEW, 28*.

UN. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development.* United Nations.

UN. (2017). *Sustainable Development Goals: Why it matters?* Uniter Nations.

UNDP. (2017). *Pakistan National Human Development Report 2017: Unleashing the Potential of Young Pakistan.* United Nations Development Program, Pakistan.

UNDP. (2018). *HUMAN DEVELOPMENT INDICES AND INDICATORS: 2018 STATISTICAL UPDATE(Technical Notes).* UNDP.

Vanthournout, G., Noyens, D., Gijbels, D., & Bossche, P. V. (2014). The Relationship between Workplace Climate, Motivation and Learning Approaches for Knowledge Workers. *Vocations and Learning, 7*(2), 191-214.

Vanwynsberghe, R., & Herman, A. C. (2015). Education for social change and pragmatist theory: five features of educative environments designed for social change. *International Journal of Lifelong Education, 34*(3).

Velicer, W. F., & Fava, J. L. (1998). Effects of variable and subject sampling on factor pattern recovery. *Psychological Methods, 3*, 231-251.

Verba, S., Schlozman, K. L., Brady, H., & Nie, N. H. (1993). Citizen Activity: Who Participates? What Do They Say? *The American Political Science Review, 87*(2), 303-318.

Verba, S., Schlozman, K., & Brady, H. (1995). *Voice and equality: Civic voluntarism in American politics.* Cambridge: Cambrige University Press.

Verkuyten, M., Yogeeswaran, K., & Adelman, L. (2018). Intergroup Toleration and Its Implications for Culturally Diverse Societies. *Social Issues and Policy Review* .

Volker, M. (2006). Reporting effect size estimates in school psychology research. *Psychology in the Schools, 43*(6), 653-672.

Walsh, J. R. (1935). Capital Concept Applied to Man. *The Quarterly Journal of Economics, 49*(2), 255-285.

Warr, P. (1992). Age and occupational well-being. *Psychology and Aging, 7*(1), 37-45.

Weisberg, S. (2013). *Applied Linear Regression.* New York: John Wiley &Sons.

Weissberg, R. (2008). *Pernicious tolerance: How teaching to "accept differences" undermines civil society. .* Transaction Publishers.

Wheaton, B., Muthén, B., Alwin, D. F., & Summers, G. F. (1977). Assessing Reliability and Stability in Panel Models. *Sociological Methodology, 8*, 84-136.

Whitehead, A. N. (1967). *Aims of Education.* Free Press.

WHO. (2015). *Preventing CHRONIC DISEASES a vital investment.* World Health Organization.

WHO-ECHP. (1999). *Health impact assessment.* World Health Organization European Center for Health Policy.

Widom, C. S., & Wilson, H. W. (2014). Intergenerational Transmission of Violence. *Violence and Mental Health* , 27-45.

Williams, G. (2004). Evaluating Participatory Development: Tyranny, Power and (Re)Politicisation. *Third World Quarterly, 25*(3), 557-578.

Williams, M. V., Baker, D. W., Honig, E. G., Lee, T. M., & Nowlan, A. (1998). Inadequate Literacy Is a Barrier to Asthma Knowledge and Self-Care. *CHEST*, 1008-1015.

Willis, K. (2004). *Theories and Practices of Development.* Routledge.

Wisconsin, U. O. (2008). *Survey of the Health of Wisconsin.* University of Wisconsin School of Medicine and Public Health.

Yang, J., & Qiu, M. (2016). The impact of education on income inequality and intergenerational mobility. *China Economic Review, 37*.

Zhang, W., & Grenier, G. (2013). How can language be linked to economics? A survey of two strands of research. *Language Problems and Language Planning, 37*(3), 203–226.

Zidek, L. (2019). *Centrally Planned Economies: Theory and Practice in Socialist Czechoslovakia.* Routledge.

Zon, S. K., Reijneveld, S. A., Leon, C. F., & Bültmann, U. (2017). The impact of low education and poor health on unemployment varies by work life stage. *International Journal of Public Health, 62*, 997–1006.

Zuilkowski, S. S., Piper, B., Ong'ele, S., & Kiminza, O. (2018). Parents, quality, and school choice: why parents in Nairobi choose low-cost private schools over public schools in Kenya's free primary education era. *Oxford Review of Education,, 44*(2).

Zukin, C., Keeter, S., Andolina, M., Jenkins, K., & Carpini, M. D. (2006). *A New Engagement? Political Participation, Civic Life, and the Changing American Citizen.* Oxford: Oxford University Press.

APPENDICES

A APPENDIX: POPULATION PYRAMID OF PAKISTAN
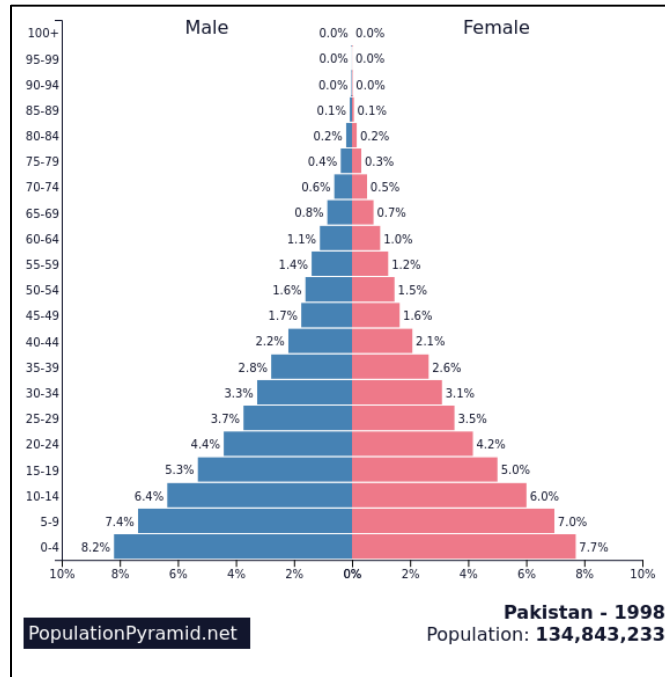
Figure A.1: Population Pyramid of Pakistan 1998
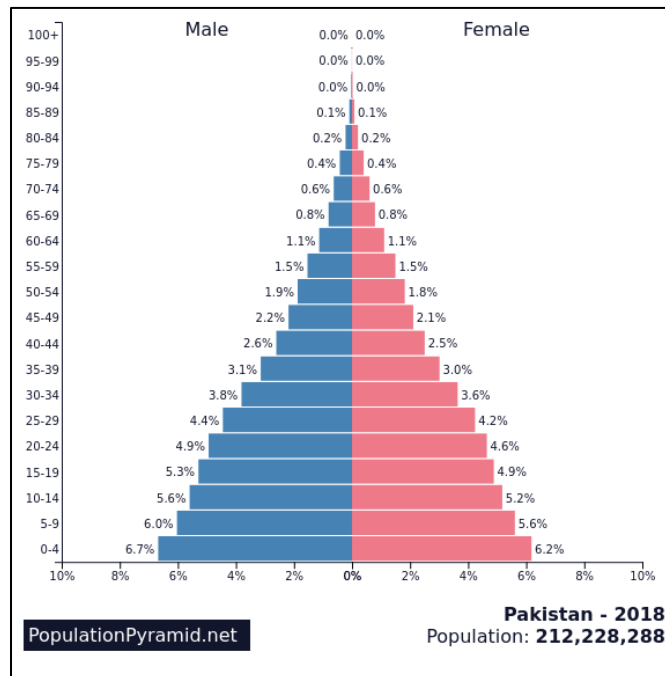
*Figure A.2:*Population Pyramid of Pakistan 2018

B APPENDIX: EDUCATIONAL PROFILE OF PAKISTAN
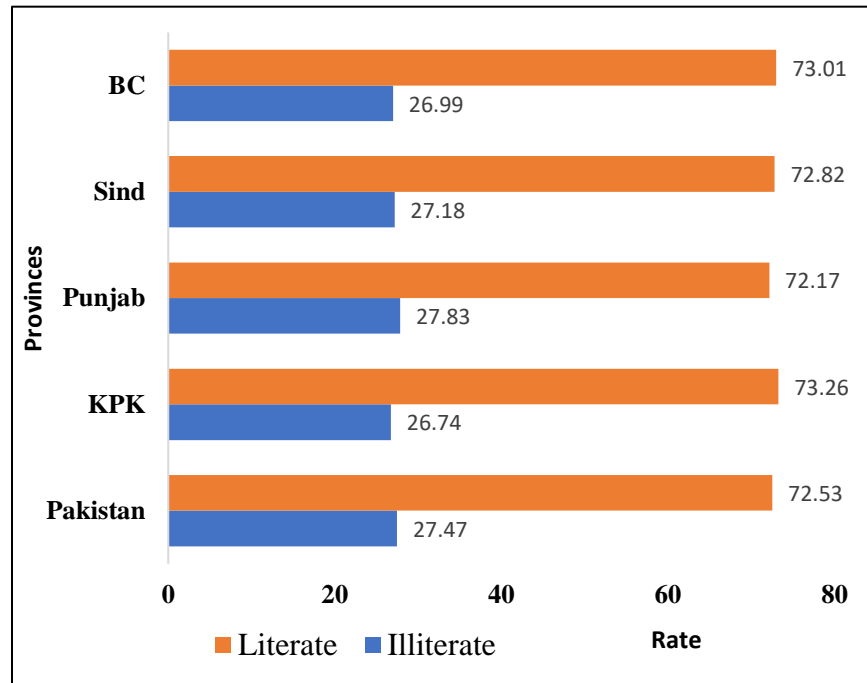
Figure B.1: Literate and Illiterate Population (All Areas, Males)
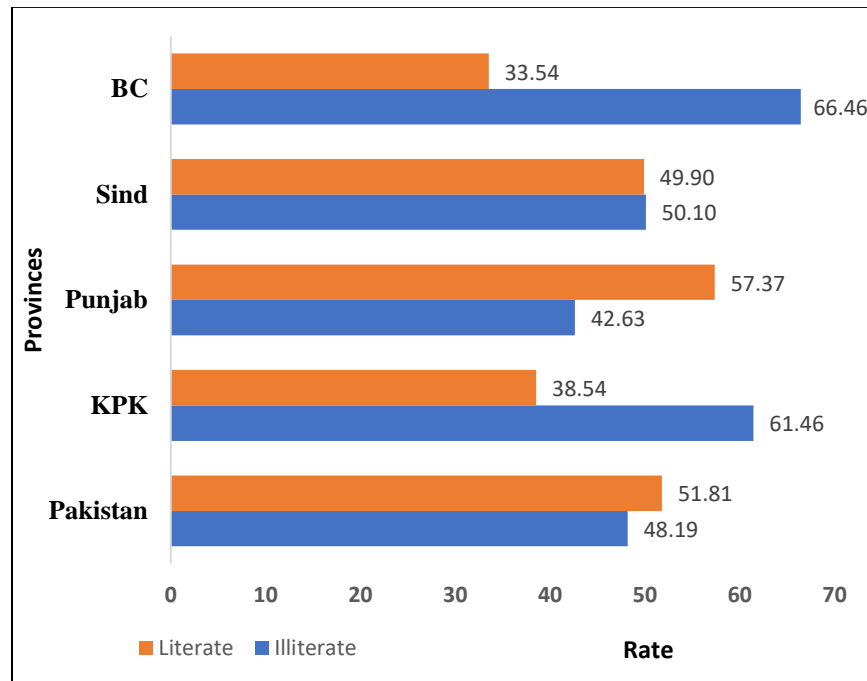
Figure B.2: Literate and Illiterate Population (All Areas, Females)

Source: Pakistan Labor Force Survey, 2018

C APPENDIX: OVERALL EDUCATIONAL PROFILE OF PAKISTAN

Table C.1: Distribution of Population by Literacy and level of Education (Urban Areas)

	Pakistan			KPK			Punjab			Sind			Baluchistan		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	23.45	17.84	29.41	33.21	19.60	46.69	22.85	19.07	26.69	21.58	15.73	28.31	31.54	15.83	49.93
Literate	76.55	82.16	70.59	66.79	80.40	53.31	77.15	80.93	73.31	78.42	84.27	71.69	68.46	84.17	50.07
No Formal Education	2.19	2.40	1.97	0.30	0.28	0.32	1.77	1.90	1.64	3.21	3.45	2.93	3.16	3.98	2.19
Formal Education	74.35	79.76	68.61	66.49	80.12	52.99	75.38	79.03	71.66	75.21	80.82	68.76	65.31	80.19	47.87
Below Primary	6.44	7.08	5.75	6.37	8.17	7.59	6.14	6.81	5.45	6.38	6.83	5.86	12.19	13.72	10.38
Primary but below middle	16.89	17.43	16.32	16.46	18.78	14.16	17.45	17.80	17.10	15.90	16.31	15.44	18.27	20.17	16.05
Middle but below Matric	13.95	15.72	12.08	11.68	15.01	8.38	15.76	17.83	13.65	11.55	12.45	10.51	12.28	16.05	7.88
Matric but below Inter	16.73	18.04	15.35	13.66	17.06	10.30	16.99	18.06	15.91	17.46	18.48	16.28	11.65	15.12	7.59
Inter but below Degree	9.54	9.71	9.35	8.00	9.69	6.32	8.59	8.28	8.92	11.88	12.27	11.43	5.30	7.13	3.15
Degree & Postgraduate	10.81	11.78	9.77	10.32	12.41	8.24	10.44	10.26	10.63	12.04	14.47	9.24	5.62	8.01	2.83

Table C.2: Distribution of Population by Literacy and level of Education (Rural Areas)

	Pakistan			KPK			Punjab			Sind			BC		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	46.66	33.69	59.53	47.27	28.43	64.75	43.12	33.50	52.20	55.89	39.90	74.30	49.55	31.14	73.21
Literate	53.34	66.31	40.47	52.73	71.57	35.25	56.88	66.50	47.80	44.11	60.10	25.70	50.45	68.86	26.79
No Formal Education	1.14	1.35	0.94	0.79	1.00	0.59	1.05	1.12	0.98	1.46	1.82	1.05	2.31	2.93	1.52
Formal Education	52.20	64.96	39.54	51.94	70.56	34.66	55.83	65.38	46.82	42.64	58.28	24.65	48.14	65.93	25.28
Below Primary	8.04	9.99	6.11	7.85	10.25	5.62	7.87	9.42	6.41	7.68	9.88	5.15	11.87	14.68	8.24
Primary but below middle	17.92	20.99	14.87	16.96	21.23	13.00	18.88	20.96	16.91	16.57	20.82	11.68	15.97	21.04	9.47
Middle but below Matric	10.68	13.86	7.53	9.81	13.77	6.13	12.73	16.06	9.60	5.90	8.15	3.31	8.84	13.02	3.47
Matric but below Inter	8.95	11.82	6.10	9.45	13.73	5.48	9.89	12.26	7.65	6.22	9.37	2.61	6.73	10.09	2.40
Inter but below Degree	3.68	4.68	2.68	4.18	6.22	2.29	3.52	3.69	3.35	3.92	6.20	1.29	2.64	3.78	1.19
Degree & Postgraduate	2.93	3.63	2.24	3.69	5.35	2.15	2.94	2.99	2.90	2.35	3.87	0.60	2.09	3.31	0.51
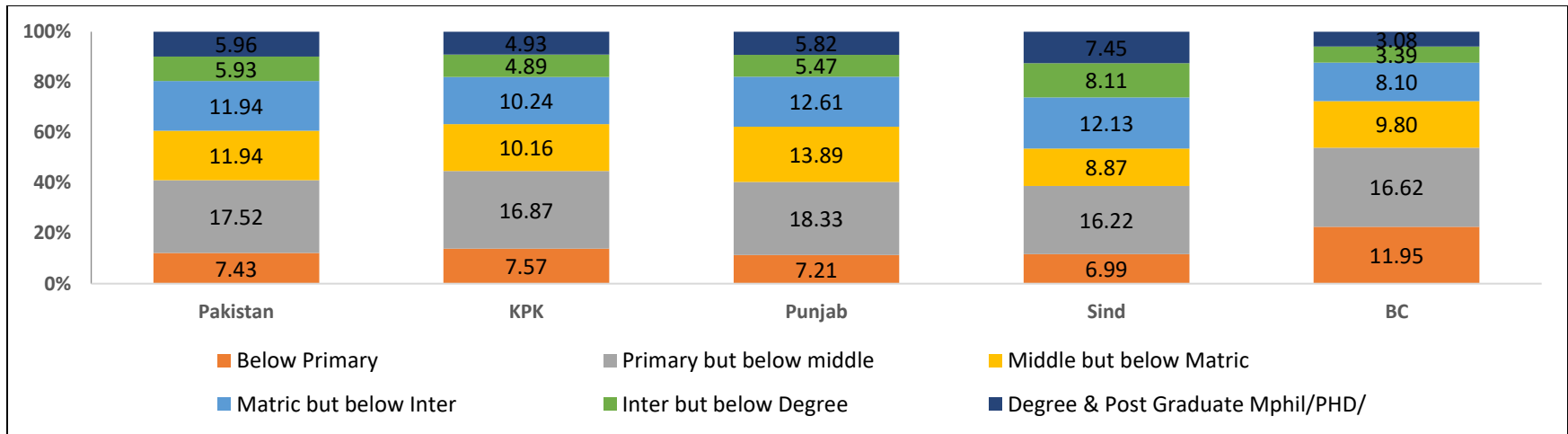
Figure C.1: Distribution of Population by Level of Education (All Areas, Both Sex)
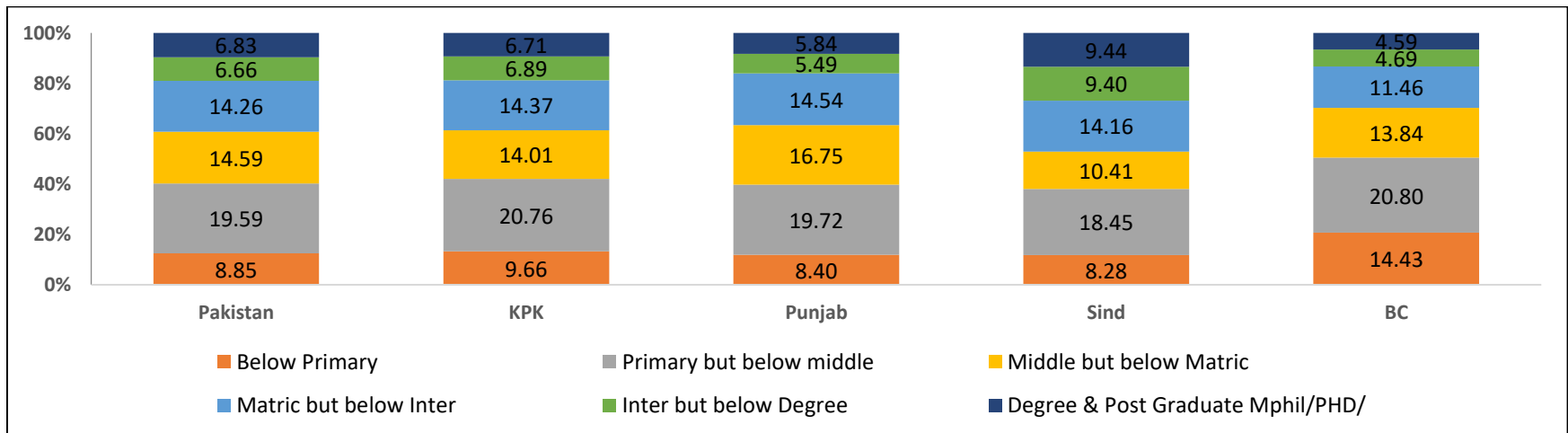
Figure C.2: Distribution of Population by Level of Education (All Areas, Males)

238
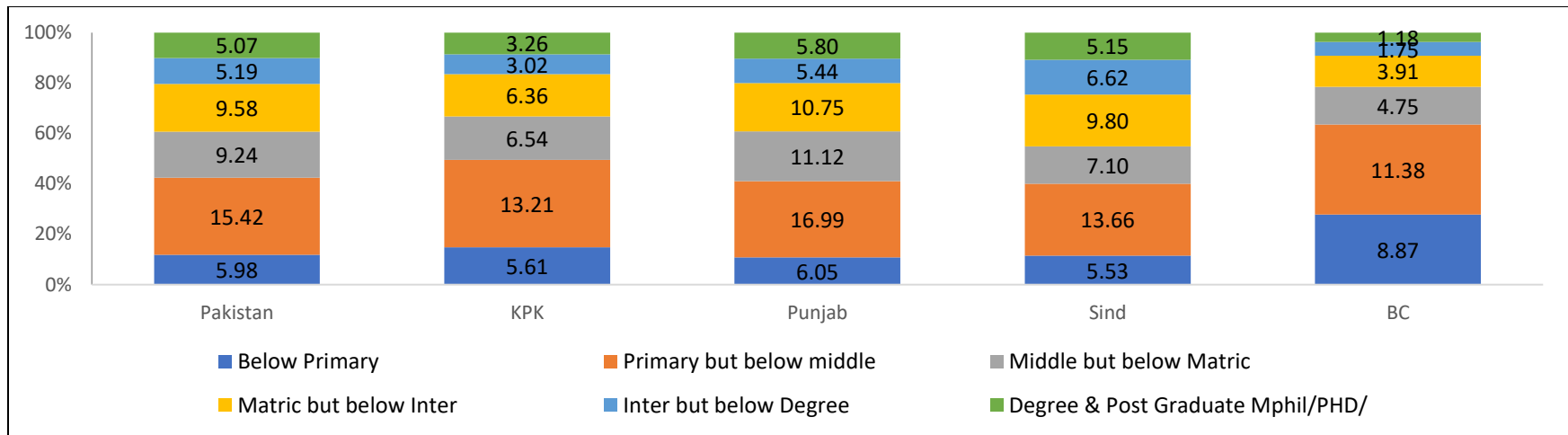
Figure C.3:Distribution of Population by Level of Education (All Areas, Females)

Sources for Appendix C: Pakistan Labor Force Survey, 2018

D APPENDIX: SAMPLING UNITS

Table D.1: Distribution of respondents by the level of education

MALE	Less Than Primary	Primary	Middle	Matric	Intermediate	Bachelor	Masters and Higher	Total
25 -- 29	15	27	22	23	9	5	2	102
30 -- 34	13	23	17	15	6	4	2	79
35 -- 39	8	15	14	11	3	2	1	56
40 -- 44	8	13	11	10	3	2	1	48
45 -- 49	7	11	7	7	2	2	1	36
50 -- 54	6	9	6	5	2	1	1	30
55 -- 59	4	6	4	3	1	1	1	20
Total	61	103	82	75	26	17	8	372
FEMALE	Less Than Primary	Primary	Middle	Matric	Intermediate	Bachelor	Masters and Higher	
25 -- 29	1	1	1	1	1	1	1	7
30 -- 34	1	1	1	1	1	1	1	7
35 -- 39	1	1	1	1	1	1	1	7
40 -- 44	1	1	1	1	1	1	1	7
45 -- 49	1	1	1	1	1	1	1	7
50 -- 54	1	1	1	1	1	1	1	7
55 -- 59	1	1	1	1	1	1	1	7
Total	7	7	7	7	7	7	7	49
Grand Total	68	110	89	82	33	24	15	421

Table D.2: List of Union Councils Visited for Survey

S.No	Tehsil	Union Council Name	S.No	Tehsil	Union Council Name	S.No	Tehsil	Union Council Name	S.No	Tehsil	Union Council Name
1	RYK	ABADPUR	32	RYK	U.C-B Rahim Yar Khan	63	LP	TRINDA GURGAJ	94	SA	U.C-F SADIQABAD
2	RYK	AKRAMABAD	33	RYK	U.C-C Rahim Yar Khan	64	LP	TRINDA MUHAMMAD PANNAH	95	KP	AZIM SHAH
3	RYK	AMIN GARH	34	RYK	U.C-D Rahim Yar Khan	65	LP	ZAFAR ABAD	96	KP	BGHO BAHAR
4	RYK	AMIN GARH.	35	RYK	U.C-E Rahim Yar Khan	66	SA	ADAM SOHABA	97	KP	CHACHRAN SHARIF
5	RYK	BADLI SHARIF	36	RYK	U.C-F Rahim Yar Khan	67	SA	AHMADPUR LAMMA	98	KP	CHAK NO.45/P
6	RYK	BAHDIPUR QURESHIAN	37	RYK	U.C-G Rahim Yar Khan	68	SA	AHMEDPUR LAMA (URBAN)	99	KP	CHANDIA.
7	RYK	BAHISHTI	38	RYK	U.C-H Rahim Yar Khan	69	SA	BHONG	100	KP	DINPUR SHARIF
8	RYK	BULAQI WALI	39	RYK	U.C-I Rahim Yar Khan	70	SA	BHUTTA WAHAN	101	KP	GHARI IFTIKHAR KHAN
9	RYK	CHAK NO.105/P	40	RYK	WAH KHUNA	71	SA	CHAK NO.160/P	102	KP	GHAZIPUR
10	RYK	CHAK NO.139/P	41	LP	AHMAD ALI LAR	72	SA	CHAK NO.173/P	103	KP	GHENA LAR (H.Q.JANGI)
11	RYK	CHAK NO.228/P	42	LP	ALLAH ABAD.	73	SA	CHAK NO.264/P	104	KP	ISLAM GARH
12	RYK	CHAK NO.51/P	43	LP	AMINABAD	74	SA	DHANDI	105	KP	JAJJA ABBASIAN
13	RYK	CHAK NO.84/P	44	LP	CHAK NO.10 ABBASIA	75	SA	DRIGRA	106	KP	JETHA BHUTTA
14	RYK	DAARI AZIM KHAN	45	LP	CHAK NO.178/7-R	76	SA	GOTH JANGOO	107	KP	JHORAN
15	RYK	GALOR MASU KHAN	46	LP	CHAK NO.42 ABBASIA	77	SA	JAMAL DIN WALI	108	KP	KOTLA PATHAN
16	RYK	HAJIPUR	47	LP	CHAK NO.46 ABBASIA	78	SA	KOT SANJAR KHAN	109	KP	LATKI
17	RYK	KOT MEHDI SHAH	48	LP	CHAK NO.68 ABBASIA	79	SA	MACHKA	110	KP	MARI ALLAH BACHAYA
18	RYK	KOT SAMABA	49	LP	CHANJNI	80	SA	MOHIB SHAH	111	KP	MUD BHOORA
19	RYK	MAU MUBARIK	50	LP	DESHTI	81	SA	MUHAMMADPUR	112	KP	MUEENABAD
20	RYK	MIAN WALI QURESHIAN	51	LP	DULLI KABIR KHAN	82	SA	NAWAZABAD	113	KP	NAWAN KOT
21	RYK	MIANWALI SHEIKHAN	52	LP	GHOOKA	83	SA	RAHIMABAD	114	KP	NEEL GARH
22	RYK	MURTAZABAD	53	LP	GUL MUHAMMAD LANGAH	84	SA	RANJEH KHAN	115	KP	QADIRPUR.
23	RYK	RAHIMYRA KHAN DEH	54	LP	HAYAT LAR	85	SA	RASOOLPUR.	116	KP	SEHJA
24	RYK	RAJANPUR	55	LP	JAN PUR	86	SA	ROSHAN BHAIT	117	KP	U.C-A KHAN PUR
25	RYK	SHAHPUR.	56	LP	JHOKE GULAB SHAH	87	SA	SADIQABAD DEH	118	KP	U.C-B KHAN PUR
26	RYK	SHAREEN (KOT KARAM KHAN	57	LP	KHAN BELA	88	SA	SANJARPUR	119	KP	U.C-C KHAN PUR
27	RYK	SONAK	58	LP	LIAQATPUR	89	SA	U.C-A SADIQABAD	120	KP	U.C-D KHAN PUR
28	RYK	THUL KHAIR	59	LP	MUHAMMAD DAHA	90	SA	U.C-B SADIQABAD	121	KP	U.C-E KHAN PUR
29	RYK	TIBI GUL MUHAMMAD	60	LP	MULA MUSANI	91	SA	U.C-C SADIQABAD	122	KP	ZAHIR PIR
30	RYK	TRANDA SAWAY KHAN	61	LP	PACCA LARAN	92	SA	U.C-D SADIQABAD			
31	RYK	U.C-A Rahim Yar Khan	62	LP	SHEDANI SHARIF	93	SA	U.C-E SADIQABAD			

Tehsil Codes		
RYK	Rahim Yar Khan	
LP	Liaqatpur	
SA	Sadiqabad	
KP	Khanpur	

Green band means that union council was selected for data collection

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E APPENDIX: COMPLETE SURVEY ITEMS

Table E.1: Items for Economic Awareness Assessment

Item Code	Item
EA 1	Current Interest Rate as announced by S.B. P
EA 2	Current Rate of Inflation in Pakistan
EA 3	Minimum Wage Level as per budget 2018-19:
EA 4	Tax-free per month Income Level
EA 5	Current General Sales Tax
EA 6	State Announced Wheat Support Price
EA 7	Name of Main stock exchange in Pakistan
EA 8	Pakistan's Total Foreign Debts
EA 9	Which sector has the largest contribution in National Income
EA 10	Which sector of the economy has been given most of the resources in budget 2018-19

Table E.2: Items for Functional Communication Skill Assessment

Item Code	Item
FC1	To identify the barriers to effective communication if someone does not understand your message
FC2	To assess the body language of others while communicating.
FC3	To identify the difference between passive, aggressive, and assertive communication and behaviors.
FC4	To reflect on what you are going to say and how it might be received before speaking.
FC5	To use multiple methods/languages while communicating with a group with the member from varying age brackets and cultural backgrounds.

Table E.3: Items for Work and Productivity Skill Assessment

Item Code	Item
WPS 1	Set realistic work targets
WPS 2	Motivated for timely completion of work.
WPS 3	Keep a record of work activities to understand the time utilization.
WPS 4	Do not lose focus on assigned work despite disruptions and setbacks
WPS 5	Keep information, documents, and items sorted to avoid time wastage

Table E.4: Items for Decision Making Skill Assessment

Item Code	Item
DMS 1	Take time to analyze and determine the real issue/problem from every angle before starting a decision-making process
DMS 2	Determine the factors most important for the decision, and then use those factors to evaluate choices.
DMS 3	Consider a variety of potential solutions before making any decision.
DMS 4	Evaluate the risks associated with each alternative before deciding.
DMS 5	Consider inputs from other stakeholders/ colleagues while deciding a solution
DMS 6	I stuck with the decision once I finalize one and remained satisfied with the outcomes

Table E.5: Items for Health Assessment

Item Code	Item
H1	How many episodes of illness have you had in the last five years that last more than three months?
H2	How often do you feel good about your own physical appearance
H3	How often do you feel free of physical pain
H4	How often do you feel physically healthy
H5	How often do you have good night sleep of at least (7-8 hours)
H6	How often are you able to handle Negative Emotions, depression, and Anxiety in a positive manner?
H7	How often do you feel high self-esteem and happiness with yourself?
H8	How often do you feel isolated in your personal, social as well as professional life?

Table E.6: Items for Tolerance Assessment

Item Code	Item
T1	How acceptable is for you the education and labor force participation of females?
T2	How acceptable is it for you female Political Participation at every level of politics?
T3	How acceptable is for you the coexistence of people from different Ethnicities and Income Groups?
T4	How acceptable is it for you the coexistence of people from different religions (i.e., Muslim/Hindu/Christians/Sikh etc.)?
T5	How acceptable is for you the coexistence of people from different sects in Islam (Shia/Sunni/Deobandi etc.)?
T6	How acceptable is it for you, equal opportunities of education, employment, and political participation for minorities?
T7	How acceptable is for you the freedom of religious practices by other sects and minorities?
T8	How acceptable is it for you the views of others completely opposite to yours?

Table E.7: Items for Law-Abidance Assessment

Item Code	Item
L1	What chances are there for you to report the violence and violations of basic human rights?
L2	What chances are there for you to report the misuse of authority or corruption of public servants?
L3	What chances are there for you to report the Tax evasion?
L4	What chances are there for you to report the theft of Utilities (Electricity/Gas/Water)?
L5	What chances are there for you to report the child abuse?
L6	What chances are there for you to report the violations of political freedom/rights of females and minorities?
L7	What chances are there for you to report the Injustice or violation of property rights?
L8	What chances are there for you to report the criminal activities and Illegal Practices (Gambling/Trade of Alcohol/ etc.)]

Table E.8: Items for Awareness of Political System Assessment

Category	Item
Composition	[Total No of seats in National Assembly]
	[General Seats in National Assembly]
	[Minority Seats in National Assembly]
	[Women Reserve Seats in the National Assembly]
	[No of National Assembly Seats in Your District]
	[Total No of seats in Provincial Assembly of your province]
	[No of Provincial Assembly Seats in your District]
	[Total no of seats in Senate of Pakistan]
Stakeholders	[Name of the Opposition Leader in last Assembly.]
	[Name of the Speaker in last National Assembly]
	[Name of the Chairman Senate]
	[Name of Governor in your Province]
Functional Attributes	[Tenure of a Member National Assembly]
	[Minimum Age for the member of National Assembly]
	[Tenure of a Senator]
	[SMS Code to know your voter's profile]
	[Minimum age of voter]

Table E.9: Items for Awareness of Political System Assessment

Item Code		Item Statement
Health	H1	How many episodes of illness have you had in the last five years that last more than three months?
	H5	How often do you have good night sleep of at least (7-8 hours)
	H6	How often are you able to handle Negative Emotions, depression, and Anxiety in a positive manner?
	H8	How often do you feel not isolated in your personal, social as well as professional life?
Tolerance	T1	How acceptable is for you the education and labor force participation of females?
	T4	How acceptable is it for you the coexistence of people from different religions (i.e. Muslim/Hindu/Christians/Sikh etc.)?
	T6	How acceptable is it for you, equal opportunities of education, employment, and political participation for minorities?
	T8	How acceptable is it for you the views of others completely opposite to yours?
Law Abidance	L1	What chances are there for you to report the violence and violations of basic human rights?
	L5	What chances are there for you to report the child abuse?
	L7	What chances are there for you to report the Injustice or violation of property rights?
	L8	What chances are there for you to report the criminal activities and Illegal Practices in your surroundings?

F APPENDIX: INDIVIDUAL QUALITY ASSESSMENT TABLES

Table F.1: Percentage of Individuals Unawares of National Political Representatives

Level of Education	National Representative		
	President	**Prime-Minister**	**Chief Minister Punjab**
Level 0	55	22	70
Level 1	52	7	46
Level 2	36	6	39
Level 3	35	7	29
Level 4	8	-	-
Level 5	7	-	-
Level 6	-	-	-

*Percentage of individuals surveyed who were unaware of all four attributes.

Table F.2: Percentage of Individuals Unawares of Overall Political System

Category	Attribute	Individuals Not Aware (% of Total*)
Composition	[Total No of seats in National Assembly]	74
	[General Seats in National Assembly]	93
	[Minority Seats in National Assembly]	93
	[Women Reserve Seats in the National Assembly]	94
	[No of National Assembly Seats in Your District]	92
	[Total No of seats in Provincial Assembly of your province]	92
	[No of Provincial Assembly Seats in your District]	92
	[Total no of seats in Senate of Pakistan]	91
Stakeholders	[Name of the Opposition Leader in last Assembly.]	63
	[Name of the Speaker in last National Assembly]	68
	[Name of the Chairman Senate]	74
	[Name of Governor in your Province]	62
Functional Attributes	[Tenure of a Member National Assembly]	79
	[Minimum Age for the member of National Assembly]	86
	[Tenure of a Senator]	91
	[SMS Code to know your voter's profile]	91
	[Minimum age of voter]	32

* % of total number of respondents for this study.

Table F.3: Income and Political Freedom by Level of Education

Education	Economic Attribute		Level of Freedom		
	Monthly Income	Wage rate	Economic	Non-Economic	Overall
Level 0	15987.76	82.21	0.209	0.293	0.251
Level 1	25023.81	123.40	0.519	0.614	0.566
Level 2	23273.28	114.33	0.427	0.440	0.433
Level 3	54974.07	253.65	0.617	0.668	0.643
Level 4	32422.22	167.87	0.819	0.840	0.830
Level 5	41241.38	236.22	0.871	0.808	0.839
Level 6	99862.75	564.18	0.785	0.761	0.773

Sources: Data collected for this study

Table F.4: Individual Responses for Conventional Political Participation (%)

Education	Q1: What chances are there for you to Vote in next elections?				
	0-No Chance	1-Minor Chance	2-Moderate Chance	3-High Chance	4-Definitly
0	12.24	6.12	2.04	10.20	69.39
1	8.57	8.57	5.71	28.57	48.57
2	3.66	1.22	1.22	21.95	71.95
3	2.47	2.47	3.70	29.63	61.73
4	0.00	0.00	0.00	11.11	88.89
5	3.45	3.45	6.90	10.34	75.86
6	0.00	2.94	5.88	16.99	74.18
Education Level	**Q2: What chances are there for you to campaign in an election for some political party/leader?**				
	0-No Chance	1-Minor Chance	2-Moderate Chance	3-High Chance	4-Definitly
0	46.94	4.08	4.08	12.24	32.65
1	41.90	22.86	9.52	19.05	6.67
2	51.22	7.32	7.32	23.17	10.98
3	48.15	9.88	7.41	20.99	13.58
4	22.22	13.89	8.33	38.89	16.67
5	20.69	0.00	6.90	48.28	24.14
6	39.87	5.88	14.71	5.88	33.66
Education Level	**Q3: What chances are there for you to donate to some political party/leader.**				
	0-No Chance	1-Minor Chance	2-Moderate Chance	3-High Chance	4-Definitly
0	63.27	6.12	2.04	8.16	20.41
1	60.95	16.19	4.76	11.43	6.67
2	71.95	3.66	4.88	14.63	4.88
3	67.90	9.88	1.23	7.41	13.58
4	44.44	13.89	0.00	22.22	19.44
5	48.28	3.45	6.90	24.14	17.24
6	48.69	11.44	8.82	5.88	25.16

Table F.5: Individual Responses for Unconventional Political Participation (%)

Education Level	Q1: What chances are there for you to participate in a protest against political issues?				
	0-No Chance	1-Minor Chance	2-Moderate Chance	3-High Chance	4-Definitly
0	34.69	4.08	6.12	4.08	51.02
1	43.81	21.90	16.19	8.57	9.52
2	43.90	9.76	7.32	18.29	20.73
3	53.09	11.11	6.17	12.35	17.28
4	41.67	11.11	5.56	16.67	25.00
5	37.93	3.45	6.90	20.69	31.03
6	28.76	5.88	11.44	14.38	39.54
Education Level	**Q2: What chances are there for you to lead your community to convey political problems to the concerned political authorities?**				
	0-No Chance	1-Minor Chance	2-Moderate Chance	3-High Chance	4-Definitly
0	34.69	8.16	6.12	4.08	46.94
1	18.10	18.10	9.52	31.43	22.86
2	30.49	8.54	4.88	28.05	28.05
3	23.46	2.47	6.17	32.10	35.80
4	8.33	0.00	0.00	36.11	55.56
5	3.45	3.45	3.45	34.48	55.17
6	11.44	0.00	5.88	23.20	59.48

G APPENDIX:

Table G.1: Pakistan Labor Force Statistics 2018-2019

Labor Force (LF) Statistics	All Areas			Rural			Urban		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Population of Pakistan (Millions)	207.91	105.68	102.27	132.04	66.55	65.43	75.91	39.11	36.78
Population (10+) (Millions)	148.82	75.12	73.77	91.60	45.57	45.95	57.24	29.48	27.73
LFP (% of Population 10+)	44.28%	67.99%	20.14%	47.14%	68.84%	25.61%	39.71%	66.68%	11.09%
Unemployment (% of Population 10+)	5.79%	5.07%	8.27%	5.03%	4.72%	5.85%	7.23%	5.62%	17.53%
Total Labor Force (10 +)	65.90	51.07	14.86	43.18	31.37	11.77	22.73	19.66	3.08
Unemployed Labor Force (10 +)	3.82	2.59	1.23	2.17	1.48	0.69	1.64	1.10	0.54
Employed Labor Force (10 +)	62.08	48.48	13.63	41.01	29.89	11.08	21.09	18.55	2.54
Source: Table 15 Pakistan Labor Force Survey 2018-19									

Table G.2: Total, Employed and Unemployed Labor Force (10 +) (Millions)

Education Group	Total Labor Force			Employed Labor Force			Unemployed LF		
	All	Rural	Urban	All	Rural	Urban	All	Rural	Urban
Total	65.90	43.18	22.73	62.08	41.01	21.09	3.82	2.17	1.64
Below Primary	30.78	24.11	7.29	29.00	22.90	6.76	1.78	1.21	0.53
Primary but below middle	11.55	7.74	3.84	10.88	7.35	3.56	0.67	0.39	0.28
Middle but below Matric	7.87	4.61	3.17	7.41	4.38	2.94	0.46	0.23	0.23
Matric but below Inter	7.87	3.86	3.80	7.41	3.67	3.53	0.46	0.19	0.27
Inter but below Degree	3.91	1.59	2.17	3.68	1.51	2.01	0.23	0.08	0.16
Degree & Postgraduate	3.93	1.27	2.46	3.70	1.20	2.28	0.23	0.06	0.18
Source: Table 3 Pakistan Labor Force Survey 2018-19									

Table G.3: Income Estimates of Six Proposed Cases-Pakistan (PKR Billion)

Cases	Total Labor Force			Employed Labor Force			Unemployed Labor Force		
	All Areas	Rural	Urban	All Areas	Rural	Urban	All Areas	Rural	Urban
Original Profile	11436	5843	5273	10769	5548	4890	666	291	383
Case 1	12302	6473	5462	11586	6146	5065	717	322	397
Case2	13169	7103	5650	12402	6745	5239	767	354	411
Case3	14787	8155	6064	13926	7743	5623	860	407	441
Case 4	17700	10262	6863	16671	9745	6364	1029	513	499
Case 5	17857	10041	6611	16210	9535	6130	1001	502	481
Case 6	21271	12565	7803	20038	11934	7240	1233	631	563

Table G.4: Income Differential of Six Proposed Cases from Original Profile-Pakistan (PKR Billion)

Cases	Total Labor Force			Employed Labor Force			Unemployed Labor Force		
	All Areas	Rural	Urban	All Areas	Rural	Urban	All Areas	Rural	Urban
Original Profile	0	0	0	0	0	0	0	0	0
Case 1	867	630	188	817	599	175	50	32	14
Case2	1733	1260	377	1633	1197	349	100	63	27
Case3	3351	2312	790	3157	2196	733	194	116	57
Case 4	6264	4419	1589	5902	4197	1474	363	222	116
Case 5	6421	4198	1338	5440	3987	1240	334	211	98
Case 6	9836	6722	2530	9269	6386	2350	567	341	180

Table G.5: Income Estimate of Total Labor Force 2009-17 Pakistan (All Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	11436	12302	13169	14787	17700	17857	21271
2016	10174	10945	11716	13155	15747	15887	18925
2015	9052	9738	10424	11704	14010	14134	16837
2014	8053	8663	9274	10413	12464	12575	14979
2013	7165	7708	8251	9264	11089	11188	13327
2012	6374	6857	7340	8242	9866	9954	11857
2011	5671	6101	6531	7333	8778	8855	10549
2010	5045	5428	5810	6524	7809	7879	9385
2009	4489	4829	5169	5804	6948	7009	8349

Table G.6: Income Estimate of Total Labor Force 2009-17 Pakistan (Rural Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	5843	6473	7103	8155	10262	10041	12565
2016	5198	5759	6320	7255	9130	8933	11179
2015	4625	5124	5622	6455	8122	7947	9946
2014	4115	4558	5002	5743	7226	7071	8848
2013	3661	4055	4450	5109	6429	6291	7872
2012	3257	3608	3959	4545	5720	5597	7004
2011	2897	3210	3523	4044	5089	4979	6231
2010	2578	2856	3134	3598	4527	4430	5544
2009	2293	2541	2788	3201	4028	3941	4932

Table G.7: Income Estimate of Total Labor Force 2009-17 Pakistan (Urban Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	5273	5462	5650	6064	6863	6611	7803
2016	4692	4859	5027	5395	6106	5882	6942
2015	4174	4323	4472	4800	5432	5233	6176
2014	3714	3846	3979	4270	4833	4656	5495
2013	3304	3422	3540	3799	4300	4142	4889
2012	2939	3044	3149	3380	3825	3685	4350
2011	2615	2709	2802	3007	3403	3279	3870
2010	2327	2410	2493	2675	3028	2917	3443
2009	2070	2144	2218	2380	2694	2595	3063

Table G.8: Aggregate Additional Income of Total Labor Force 2009-17 Pakistan (All Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	867	1733	3351	6264	6421	9836
2016	0	771	1542	2981	5573	5713	8751
2015	0	686	1372	2652	4958	5083	7785
2014	0	610	1221	2360	4411	4522	6926
2013	0	543	1086	2099	3925	4023	6162
2012	0	483	966	1868	3492	3579	5482
2011	0	430	860	1662	3107	3184	4878
2010	0	382	765	1478	2764	2833	4339
2009	0	340	680	1315	2459	2521	3861
2009-17	**0**	**5112**	**10225**	**19768**	**36953**	**37880**	**58020**

Table G.9: Aggregate Additional Income of Total Labor Force 2009-17 Pakistan (Rural Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	630	1260	2312	4419	4198	6722
2016	0	561	1121	2057	3931	3735	5981
2015	0	499	998	1830	3498	3323	5321
2014	0	444	888	1628	3112	2956	4734
2013	0	395	790	1448	2769	2630	4212
2012	0	351	703	1289	2463	2340	3747
2011	0	313	625	1146	2191	2082	3334
2010	0	278	556	1020	1950	1852	2966
2009	0	247	495	907	1735	1648	2639
2009-17	**0**	**3717**	**7435**	**13637**	**26067**	**24763**	**39655**

Table G.10: Aggregate Additional Income of Total Labor Force 2009-17 Pakistan (Urban Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	188	377	790	1589	1338	2530
2016	0	168	335	703	1414	1190	2251
2015	0	149	298	626	1258	1059	2002
2014	0	133	265	557	1119	942	1781
2013	0	118	236	495	996	838	1585
2012	0	105	210	441	886	746	1410
2011	0	93	187	392	788	663	1255
2010	0	83	166	349	701	590	1116
2009	0	74	148	310	624	525	993
2009-17	**0**	**1111**	**2221**	**4662**	**9376**	**7891**	**14923**

Table G.11: Income Estimate of Employed Labor Force 2009-17 Pakistan (All Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	10769	11586	12402	13926	16671	16210	20038
2016	9581	10308	11034	12390	14832	14421	17828
2015	8524	9170	9817	11023	13195	12830	15861
2014	7584	8159	8734	9807	11740	11415	14111
2013	6747	7259	7770	8725	10445	10156	12554
2012	6003	6458	6913	7763	9292	9035	11169
2011	5341	5745	6150	6906	8267	8038	9937
2010	4751	5112	5472	6144	7355	7152	8841
2009	4227	4548	4868	5466	6544	6363	7866

Table G.12: Income Estimate of Employed Labor Force 2009-17 Pakistan (Rural Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	5548	6146	6745	7743	9745	9535	11934
2016	4936	5468	6001	6889	8670	8483	10617
2015	4391	4865	5339	6129	7713	7547	9446
2014	3907	4328	4750	5453	6862	6714	8404
2013	3476	3851	4226	4851	6105	5974	7477
2012	3092	3426	3760	4316	5432	5315	6652
2011	2751	3048	3345	3840	4832	4728	5918
2010	2448	2712	2976	3416	4299	4207	5265
2009	2178	2413	2648	3039	3825	3743	4684

Table G.13: Income Estimate of Employed Labor Force 2009-17 Pakistan (Urban Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	4890	5065	5239	5623	6364	6130	7240
2016	4351	4506	4661	5003	5662	5454	6441
2015	3871	4009	4147	4451	5037	4852	5731
2014	3444	3567	3690	3960	4482	4317	5099
2013	3064	3173	3283	3523	3987	3841	4536
2012	2726	2823	2920	3134	3547	3417	4036
2011	2425	2512	2598	2789	3156	3040	3590
2010	2158	2235	2312	2481	2808	2705	3194
2009	1920	1988	2057	2207	2498	2406	2842

Table G.14: Additional Income of Employed Labor Force 2009-17 Pakistan (All Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	817	1633	3157	5902	5440	9269
2016	0	726	1453	2809	5251	4840	8246
2015	0	646	1293	2499	4671	4306	7337
2014	0	575	1150	2223	4156	3831	6527
2013	0	512	1023	1978	3697	3409	5807
2012	0	455	910	1760	3290	3033	5167
2011	0	405	810	1566	2927	2698	4597
2010	0	360	721	1393	2604	2400	4089
2009	0	321	641	1239	2317	2136	3638
2009-17	**0**	**4817**	**9634**	**18624**	**34813**	**32093**	**54678**

Table G.15: Additional Income of Employed Labor Force 2009-17 Pakistan (Rural Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	599	1197	2196	4197	3987	6386
2016	0	533	1065	1953	3734	3547	5681
2015	0	474	948	1738	3322	3156	5055
2014	0	422	843	1546	2956	2808	4497
2013	0	375	750	1376	2630	2498	4001
2012	0	334	667	1224	2339	2222	3560
2011	0	297	594	1089	2081	1977	3167
2010	0	264	528	969	1852	1759	2817
2009	0	235	470	862	1647	1565	2507
2009-17	**0**	**3531**	**7062**	**12952**	**24758**	**23518**	**37670**

Table G.16: Additional Income of Employed Labor Force 2009-17 Pakistan (Urban Areas)

Year	Original	Case1	Case2	Case3	Case4	Case5	Case6
2017	0	175	349	733	1474	1240	2350
2016	0	155	311	652	1311	1103	2091
2015	0	138	276	580	1167	982	1860
2014	0	123	246	516	1038	873	1655
2013	0	109	219	459	923	777	1472
2012	0	97	195	408	822	691	1310
2011	0	87	173	363	731	615	1165
2010	0	77	154	323	650	547	1037
2009	0	69	137	288	579	487	922
2009-17	**0**	**1030**	**2060**	**4323**	**8694**	**7315**	**13862**