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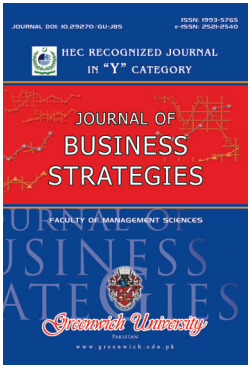

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EDITORIAL NOTE

In Journal of Business Strategies, vol. 18 No. 2 2024 (December, 2024), most of the articles cover the economic and business topics relating to economic growth of a developing country, like Pakistan.

The first article explains "the Impact of foreign direct investment on economic growth of Pakistan", as additional investment increases Gross Domestic Product of a country multiple time and it is true for Pakistan also.

Second article explains "the socio economic determinants of child labor in Agriculture". It examines the socioeconomic conditions, demographic factors and key drivers of child labor in the Agricultural sector in rural Pakistan.

The third research paper examines "the impact of Industry 4.0 technologies on business performance in the field of Pharmacy", Big data, Cyber-physical systems, Internet of Things, and Interoperability.

The fourth paper explains the need to foster youth leadership, innovation, and economic development.

Fifth article has estimated "the relationship between stock liquidity and stock returns" and sixth research paper has discussed "the bridging the employability gap: aligning higher education curricula with industry-required competencies in digital era".

Professor Dr. Shafiq ur Rehman
Editor
Journal of Business Strategies
Greenwich University
Pakistan

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IMPACT OF FOREIGN DIRECT INVESTMENT (FDI) ON ECONOMIC GROWTH OF PAKISTAN (SECTORIAL ANALYSIS)

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ABSTRACT

This study demonstrates the direct relationship between Foreign Direct Investment (FDI) and the economic growth of Pakistan, focusing on the effects of uneven distribution. The agricultural sector has struggled to enhance FDI because of insufficient investment initiatives, slow technology adoption, and resistance to political and administrative changes. The technology-driven sector attracted the most foreign direct investments, aiming to enhance labor productivity, while other industries fail to maximize their potential. Because of regulatory limitations and external disruptions, the service sector has similarly not consistently gained from FDI. Significant macroeconomic factors like inflation, capital formation, and exchange market activity play a key role in determining the utility of an investment, with inflation being the most destabilizing. The study highlighted the necessity of liberal pro-business policies and political stability in the nation to attract FDI. Engaging with China and India clearly illustrates how structured policy strategies, incentives, and infrastructure investments create an avenue for FDI. The findings urge Pakistan to embrace extensive policy reforms focused on modern technology, regulatory adjustments, and investment-friendly measures.

Keywords: *Foreign Direct Investment (FDI), Gross Domestic Product, Foreign Direct Investment for Primary Sector, Foreign Direct Investment for Secondary Sector, Foreign Direct Investment for Services Sector, Gross Fixed Capital Formation, Exchange Rate, Inflation, Gross National Income.*

INTRODUCTION

Foreign direct investment in underdeveloped countries is one of the main sources of economic growth; on the other hand, some aspects of capital formation and gross domestic product growth are also associated, these aspects fluctuating by the country to country geopolitical stability, technological advancement, environmental background, and the geographically. In the framework of FDI perform vibrant character in economic growth, the main objective of this research to evaluate and scrutinize the impact of multiple domestic sectors on FDI on Pakistan's GDP.

These multiple theories interpretations made opinions about connectivity or relationship amongst foreign direct investment with economic growth and these research papers were observed, (Abadata, 2024), (Mohd Thas Thaker, 2024), (Karahan, 2024), (Srinivasan, 2011), (Alfaro, 2003), (Zhang, 2007), (Makki S. S., 2004), (Kinoshita, 2002) and (Borensztein, 1998), an additional. On behalf of sample (V.N., 1996) viewing in this research paper where the literate and skilled workforce is available in those countries concentrating on raised exports rather than replacement of import regulation the foreign direct investment is additionally substantial in these countries. (Zhang, 2007) In this research paper the foreign direct investment plays more significant role where the countries' infrastructure, polices and direction regarding foreign direct investment and trade substantial and well developed. (Kinoshita, 2002) Convey in this study that the country only has positive impact of foreign direct investment when it will be the wholesome allocation of technology to the host country. Similarly (Carkovic, 2005) reported in this associated study that at micro level growth of foreign direct investment major impact preserved as uncertain.

However, in order to draw in international investors, there is evidence these days that host nations provide incentives, and businesses have some concerns. This argument is supported by the fact that, generally speaking, both at the micro and macro levels, there is a lack of experimental support and sign for positive effects that FDI has on the host nation. For instance, (Lipsey, 2002)functioned on small scales and found that it is a beneficial influence, howeverafter studying on the larger scales, he contended that even still there was no reliable relationship amongst growth and foreign direct investment, it is still necessary to look into all the factors and situations that could result in positive spillovers. (Kinoshita, 2002), (Xu, 2000) and (Alfaro,

2003) stated that for FDI to have a favorable impact, well-established financial institutions, significant level of education, and sufficient facilities are essential. (Blomstrom M. &., 2003) According to their literature review, local factors perform an important role in the adoption of modern and foreign skills and technologies, and impacts are neither easy nor automatic.

(Weinhold, 2001) It was determined that throughout the last 20 years, foreign direct investment has grown by more than 17% annually in developing nations. According to prevalent theories in research, foreign direct investment may produce or boost a nation's level of growth in several ways. The country's capital and financial resources are increased by foreign direct investment, which also raises the growth rate of the nation's overall output.

Another important route is through international corporations that are involved with cutting-edge, contemporary research and development. Additionally, multinational firms are a major source of technology transfers and international direct investment. Multinational corporations have been the main drivers of foreign direct investment for the past century. Their assets are larger than those of the majority of economies; in fact, if we look at the 100 largest economies in the world, we find that 51 of them are multinational companies (global business), while the remaining 49 are countries. This startling statistic indicates that these global businesses are in charge of running the world's economies. The combined transactions of the top 200 multinational firms in the world account for more than 25% of global economic activity, or nearly the same as the US GDP ($18 trillion). (Cavanagh, 2000)

History and Background of Pakistan's FDI

FDI in South Asia has an extensive background, however. It clearly began with the East India Company's entry in 1604, when the world was split in two. Shortly after that, the Cold War broke out, which resulted in India joining the Soviet Union and Pakistan joining the American bloc. Pakistan was among the economies with the fastest rates of growth in the 1960s, with a GDP growth rate of over 9% at one point. At that time, Pakistan received assistance from other countries in the form of aid and FDI.

Savings and investment levels are crucial for capital formation and for raising its rate; in fact, greater the level of these two factors, the higher the

level of capital formation. We know that because of the low per capita GDP in developing nations, local savings always fall short of the desired amount. (Khan M. &., 2011)

The World Bank reports that in 2023, Pakistan's gross domestic savings as a percentage of GDP was 6.3818%, which is extremely low. Foreign direct investment is one of several strategies to close the gap between planned investment and domestic savings. (Zaidi, 2004)Economic policy must be permitted in order to draw in foreign investment and increase FDI. To achieve this, government entities can take a variety of actions, such as easing restrictions on financial institutions and providing incentives like tax breaks and tariff reductions. (Zaidi, 2004)

Pakistan experienced instability in politics in the 1990s, but both sides saw hugeFDI in the 2000s; in Pakistan, the majority of these investments went into the banking and telecommunications industries, among other service sectors. In contrast, foreign direct investment was employed in production sectors such as software and autos. However, right after Musharraf's rule, investment left Pakistan, as well as the economy of the country has been struggling ever since. In contrast, India remains one of the world's most developing economies, second only to China.

Trend of FDI over the Prior Ten Years

FDI inflows by country

China is the country that invests the larger amount in Pakistan, according to the below chart. However, we can also observe a noticeable drop in foreign direct investment from the USA, UK, and other western nations, while Middle Eastern FDI varies liable on the political relationship between Pakistan and the Kingdom of Saudi Arab. (Annex Table– I)

Inflows of FDI by Sector

According to the below table, investment in various sectors varies, which is a result of the governments' focus at the time. For example, we can observe a significant amount of capital being invested in the energy industry during the 2013–2017 periods, during the Prime Minister Nawaz Sharif's period, as the governing body placed a strong emphasis on these two industries. We are currently witnessing a resurgence of investment in the oil and gas and electricity sectors. However, the communication (IT & telecom) sector saw a significant decline. (Annex Table – II)

Problem Description and Research Justification

There are numerous examples demonstrating the positive and large effects of FDI on growth rate. For instance, a 1% rise in foreign investment results in a 0.07% rises in China's GDP. (Agrawal, 2011)Research on the effects of FDI by sector shows that it has a good effect on industries such as manufacturing however an adverse effect on the agricultural sector, and the findings in the service industry are not entirely obvious. (Alfaro, 2003)The apparent image provided by this investigation will be contributed to the research in a variety of methods.

Research Objective

The primary goal of the research is to not only figure out how foreign direct investment affects Pakistan's economic growth but also to propose and indicate strategies and measures that can assist government officials in raising the amount of national income, that will raise the standard of living. Since foreign direct investment in the agricultural industry has had an adverse effect in emerging nations, the manufacturing industry is better equipped to incorporate new technologies over all other industries. (Alfaro, 2003),This is mainly a result of insufficient facilities and rising unemployment (in the Punjab region, it is illegal to operate crushing equipment to chop wheat) brought on by the usage of advances in technology in the agricultural sector.when we examine the international economy during the last 30 years, we observe that

China and India are the two nations that are expanding the fastest. During this period of time, the globe experienced an extensive downturn from 2007 to 2009, yet their GDP continued to rise at a rate of 7% to 9%. Foreign direct investment was crucial to both of these nations' development, as evidenced by (Agrawal, 2011), A one percent rise in foreign direct investment within China would result on an additional 0.07% growth in the gross domestic product of China, while a one percent increase in foreign direct investment in India would result in a 0.02% growth in the gross domestic product of India.

LITERATURE REVIEW

Although this proof of foreign direct investment is quite older, we may state the fact the East Indian Company served as the forerunner of current foreign direct investment strategies in the 21st century. Despite their cruel and unforgiving background and objectives, we can't consider these individuals responsible for being the first contemporary company that utilized foreign direct spending to earn financial gain. A study of the literature will provide an accurate depiction regarding the effect of FDI in economic development, however there's several adverse instances as well, which are the result of corrupt behavior and ineffective governance. The globe's objectives and interactions shifted when the Second World War, as well as the League of Nations was founded to encourage harmony and economic development to this purpose. The IMF and the World Bank both were established right after the completion of the World War-II.

(Abadata, 2024) Observe the factors and the effect of the Chinese FDI inflow on the economy of Rwanda. Examines secondary data from 2007 to 2020 obtained from the World Bank and National Statistics of Rwanda by regressing the variables using Stata software. The variables covered include market potential, trade volume, infrastructural development and human resources and found out that although these factors encourage FDI positivity, the net effect on the whole economy of Rwanda is not statistically significant.

(Mohd Thas Thaker, 2024) Examine the impact of FDI on the economic growth of Afghanistan,1990 to 2019time series data was taken anduses as ARDL test to measure the effect of FDI on economic growth and differentiate between the short and long run relationship. Findings indicate the F bound cointegration test authenticates the long run relationship existing between the variables. In both the long-run and short-run results, it is clear that foreign direct investment has critical negative effects on the economic growth in a

prolonged time. On the opposing, trade openness does not have a long run effect on economic rises, but adverse effects are apparent in the short run.

(Karahan, 2024) Investigates the connection from FDI to economic appreciation in RCEP nations within the time frame of 1980–2020, with the help of the Hatemi-J asymmetric causality test specifically dealing with non-linear dynamics. Included in the data are the inward FDI stock to GDP ratio of countries and the GDP per capita data for the countries integrated in the RCEP bloc. The findings suggest that positive FDI shocks significantly explain economic growth, supporting the FDI led growth hypothesis while negative FDI shocks and income shocks on FDI do not seem statistically significant. The study emphasizes the requirement for sustaining growth by enhancing multinational investment and it creates contributions via methodology by applying a non-linear causation approach as opposed to the usual linear approaches.

(Kumari, 2015) Based on the United Nations convention report regarding trade and development the organization reached the conclusion in the research they conducted the fact that an expanded and open economics is more attractive to foreign shareholders, whereas autonomous financial organizations and established facilities are additionally crucial for attracting FDI. India ranked third during foreign investors in the year 2005 and remained among the leading five countries in 2009 over foreign corporations looking for investment opportunities. FDI and GDP have an overall beneficial connection, but inflation and FDI have an adverse connection, with inflation serving as an indication of instability in the economy.

(Agrawal, 2011) In their research on FDI along with its effect upon GDP, they discovered that the it's having an important and beneficial effect on the GDP. They examined data across borders between both India and China while discovered that a 1% rise in FDI would raise GDP of China by 0.07% alongside a 1% raise in FDI would raise GDP of India from 0.02%. China benefits significantly from FDI than India, according to additional research.

(Martínez San Román, 2013) And (Adam, 2009) Although vital facilities such as democratic governance, equitable socioeconomic conditions, higher education, and relaxed financial systems constantly exist in developing nations, contemporary progress concepts recommend that technical breakthroughs be transferred from FDI.

(Balasubramanyam, 1996), (Kumar, 2005) and (Adam, 2009). (Nath, 2005) In addition to transferring technology, additional positive effects on FDI include the acquisition of administrative and organizational abilities, knowledge of the market, and approaches to marketing.

(Adam, 2009) claims that foreign direct investment has two roles in expansion: it boosts economic activity through accumulating investment and increasing the overall measure of manufacturing. However, models of dependency claim that because of its dependence upon foreign investment, FDI has a detrimental outcome upon economic development and financial inequality. Because investment establishes monopolistic in industries such as manufacturing, foreign direct investment additionally contributes towards the inadequate use about finances, indicating that the economic system is not functioning to its full capacity.

(Alfaro, 2003) The research article that the seemed most pertinent to our matter examined nationally representative data to figure out how FDI affected different industries. It discovered that although FDI had a beneficial influence on the manufacturing industry in general, it's had adverse effects on the primary or agriculture industry and the unknown impact on the industry of services.

(Bende-Nabende, 2003) The investigation provided a demonstration for the aforementioned notion. Research discovered it, particularly underdeveloped nations such Thailand and the Philippines, the long-term effects of FDI inflow are substantial and favorable. However, the impacts are detrimental to economy with greater strength, such as Japan and Taiwan. They have additionally come to an understanding of FDI produces a generally good long-term effect upon economies in developing nations, while it results in a detrimental effect on the nations with advanced economies.

(VU, 2009) Throughout this qualitative research, they used sector-specific sets of information gathered from six nations of the OECD. As both established and developing nations, scholars attempted towardsinspect the impacts of FDI on economic expansion by industry. Using across the nation regression, however, they discovered significant FDI has beneficial as well as adverse impacts, depending on whether it's having a direct effect on economic activity or the amount of productivity of workers. Researchers additionally discovered different outcomes in multiple nations as well as industries.

Certain industries experienced beneficial effects, while others experienced adverse consequences. The financial services alongside property sectors experienced notable adverse consequences.The only industries that benefit greatly from FDI are minerals extraction and quarrying. They additionally reached their conclusion that although efficiency varies by sector, FDI is more efficient and labor-productive in particular sectors.

(UNCTAD, 1999) Characteristics like low-cost materials that territorial uniformity was suppressed by the remarkable expansion of internationalization in opposition to unpredictable governing structures and subpar economic governance in underdeveloped countries. Global companies contributed significantly through the economic development of underdeveloped nations by lowering trade obstacles. 100 countries implemented 599 reforms to legalization between 1991 and 1996, but 76 the economy, primarily Asian, only implemented 151 revisions to their legalization strategies in 1997.

(Solow, 1957) claimed within his expansion model (Solow Growth Model) that the investments and technological improvements are actually the key drivers of a nation's long-term financial development, in addition to FDI is an important driver for technological transmission. Despite the work of Solow model's shortcomings, his claimed that these two factors determine a nation's long-term output development. Based to the Solow Growth Model, technical breakthroughs will boost development once a nation has stabilized.Over the past 500 years, the wealthiest nations have had the most innovations, and their economic systems have grown rapidly. When we examine the worldwide economy, we observe that European nations tend to be extraordinary abilities following the middle ages, referred to as the Renaissance. Era, with innovative ideas and contemporary innovations playing a major role in their economic growth. Over the last two centuries, the nation of America has dominated the worldwide economy. Technologies can be lawfully transferred across one nation to another in our global age thanks to foreign direct investment.

(Ali, 2014) Determines that price inflation with FDI could have a detrimental long-term consequence for Pakistan's economy. During his examination, he bases the figures upon Granger causality principle along with the Johannsen co-integration method. The information is utilized between 1972 and 2013.

(Javaid, 2016) The effect that FDI has on Pakistan's GDP is investigated in this article. Data collected by the scholar spans 1966 to 2014. For combined

short-term and long-term outcomes, and autoregressive distributed lag-error correction model (ARDL-ECM) strategy is applied. The study comes to the conclusion that throughout the short and long term, foreign direct investment significantly and favorably affects Pakistan's GDP. During the longer term, inflation and increases in population additionally have a major impact on GDP; finally, trade and gross fixed capital formation have no discernible impact on Pakistan›s economic expansion.

(Khan M. &., 2011) utilized the panel co-integration and Granger causality on data collected from the year 1981 towards 2008 and discovered that throughout the long run, there's proof of an independent causal connection among FDI and GDP, while short-term findings indicate that there is a causal connection in both directions within FDI and GDP. They additionally discovered this, in Pakistan, FDI stimulates expansions in the primary and service sectors while attracting expansion in the industry of manufacturing.

(Khan S. A., 2017) She applied data collected through panel from 1997 to 2016 to examine a sector-wise impact of FDI for worker efficiency. She discovered that there exists an impact that spills over in different industries and that FDI has a positiveinfluence on productivity of workers to various industries in Pakistan.

(Dar, 2016) utilized VECM to examine the sector-wise effects of FDI. They compiled the data considering the researchers were unable to collect the appropriate sector-wise data of FDI in Pakistan, and they also placed the following industries in the main industry: dietary habits, beverages, sugar, nicotine, genuine leather and textiles, paper and cardboard, and rubber and rubber products. The secondary industry included substances and elements, drugs and agricultural products, petroleum-based goods and petroleum purification, minerals and rocks, concrete, elementary metallic substances, solid products, gas exploration and extraction economic categories, heavy and light machinery apart from electrical, electrical appliances, technological devices, automobiles, constructing, power, and lubricants utilized for production and retailing as well as wholesale tourism and travel. shipping, storage and exchanges, and monetary policy businesses. They were unable to determine any correlation across FDI and GDP.

(Khan M. &., 2011) The investment and savings levels are crucial for the creation of capital along with raising its velocity; in fact, the greater the

combination of both of these variables, the greater the amount of the creation of capital. We understand that because of the low average GDP in developing nations, regional savings usually fall short of the desired amount.

METHODOLOGY

Although academics have employed a variety of methods in the past to determine the connection among FDI and economic development within a country like Pakistan, the data from panels have been utilized consistently across every research study (Khan M. &., 2011) and (Dar, 2016). Evaluation of time series is additionally covered in certain publications, although it does not appear in the context of Pakistan (Alfaro, 2003). I concentrated upon the majority of important research that has been published by trustworthy publishers with the objective to obtain the most effective design and prevent undetermined modeling issues. The relationship with GDP and FDI represents one of these more inaccurately assessed ones, particularly when these models have been published.

FDI possesses a complicated and dynamic background in Pakistan; in fact, it currently has a significant impact over the country's economy as well as has links with global politics. Aside beyond that, FDI has always been a significant component of funding to Pakistan. Similar to Pakistan, finding information in poor nations is extremely challenging. As stated within the title for my matter, foreign direct investment has a positive effect upon three main areas: primary, secondary, and services. To accomplish this, I must obtain data pertaining to multiple sectors. For the primary sector, I have looked at food, food packaging, beverages, tobacco & cigarettes, sugar, textiles, paper & Pulp, Leather and leather products, rubber and rubber products, chemicals, petro chemicals, petroleum refining, oil & gas explorations. To identify the secondary sector, I have included compounds and components, pharmaceuticals & OTC products, cosmetics, fertilizers, cement, ceramics, basic metals, metal products, machinery other than electrical, electrical machinery, electronics (consumer & Industrial), transport equipment (automobile, motorcycles, cars, buses, trucks, vans & trial), power (thermal, Hydel & coal based), construction and the services sector, I have included trade, tourism, transport, storage facilities, communication (telecommunications, information technology hardware & software & postal and courier services), financial businesses, social service, personal services and others.

(Khan M. &., 2011) used (Pedroni, 1999) Based on the panel co-integration

approach, they used the panel dynamic least-squares approach to examine the relationship across the different factors and discovered that, in Pakistan FDI stimulates expansion throughout both the primary and service sectors while, in the manufacturing sector, it either magnetizes or results in rises. (Dar, 2016) Have using Vector Error Correction Model (VECM) and panel co-integration for figuring out the connection among economic development and FDI. They discovered that the panel co-integration technique produced data that indicated relationships between FDI and GDP, but they were unable to identify sector-specific connections. Even the primary sector has identified a short-term correlation between FDI and GDP.

Therefore, there are currently many different methods that have been published to determine the relationship and co-integration with FDI and GDP. Since it is outside the purview of my investigations, I will not include every method as well as justification that has been employed throughout the publications; instead, its time concentrate on this estimating method with the assistance of the existing literature.

I employed time series dataset throughout this research, therefore my approach is divided into three sections. There are other methods to determine the unit root in time series data, however I used the Augmented Dicky-Fuller test in this investigation, Johansen co-integration test (CVAR) based on the findings of our unit root test and for examine the long-run relationship between variables in second part &in third step the victor error correction module (VECM) used for short run relation and at last we examine the correlation of GNI and GDP & others.

Augmented Dicky-Fuller Test (ADF)

The ADF test was establishedthrough American statisticians David Dickey and Wayne Fuller in 1979. It is popular statistical technique used to define unit root is existing in a time series model. Howeverit is a regression-based test that is frequently used in econometrics and statistical research and a common starting point in applied macroeconomics, based on null hypothesis that a unit root is existent in the model, the alternative hypothesis is usually stationarity or trend-stationarity (Politis, 2013).

Johansen Cointegration Test (CVAR)

Famous statistician Professor Johansen working in econometrics provide mathematical and statisticalco-integrated vector autoregressive analytical

model in 1995. However, it is a framework that combines co-integration and variables differences to study both short-run and long-run effects in a single model. (Johansen, 1995)

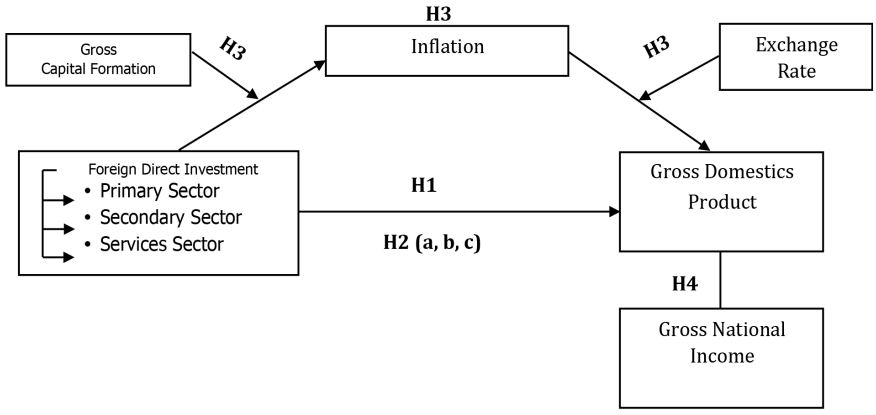
Victor Error Correction Module (VECM)

VECM is an econometrics model use for long run equilibriumconnection and short-term dynamic forces amongst several time series variables. (GRANGER, March, 1987)

Software Applicable

To examine the augmented dickyfuller test (ADF) for regression-based test in a time series module, Johannsen cointegration test for combines cointegration and variables differences to study both short-run and long-run effects in a single model and victor error correction module for long run equilibriumconnection and short-term dynamic forces amongst several time-series variables the EViews 12 version software is apply for findings and results.

THEORETICAL FRAMEWORK OF RESEARCH



Hypothesis

Main Hypothesis

1. H1: FDI impacts on the economic growth of Pakistan.

Sectorial Hypothesis

2. H2a: FDI in the primary sector impact on Pakistan's GDP.
3. H2b: FDI in the secondary sector impact on Pakistan's GDP
4. H2c: FDI in the services sector impact on Pakistan's GDP

Supporting Hypotheses:

5. H3a: Exchange rate fluctuations effects of FDI on Pakistan's GDP.
6. H3b: Gross Capital Formation effects of FDI on Pakistan's GDP.
7. H3c: Inflation as mediates the connectionamongst FDI and Pakistan's GDP growth.

Effective Hypothesis

8. H4: Economic growth effects on GNI per capita growth

Research Design

The components of a researcher's chosen research methods and approaches are defined as research design. Minimum bias in data and maximum accuracy in data collecting are requirements for an effective research design. The researcher obtains the expected results with a very low margin of error.

Functional Provisions and Models

I created three distinct functions that look into the outcomes of particular sectors in order to evaluate the sector-wise impact of foreign direct investment on growth. The variables that serve as controls in each model remains the same, while the main variable is changed, Equations given below: -

Model: 1 GDP= B0 + B1Fdi_Pri+ B2GFCF + B3ER + B4Inf + ui
Model: 2 GDP= B0 + B1Fdi_Sec + B2GFCF + B3ER + B4Inf + ui
Model: 3 GDP= B0 + B1Fdi_Ser + B2GFCF + B3ER + B4Inf + ui
Model: 4 GNP= B0 + B1Fdi_All + B2GFCF + B3ER + B4Inf + GDP+ ui

GDP	=	Gross Domestic Product
FDI_Pri	=	Foreign Direct Investment for Primary Sector
FDI_Sec	=	Foreign Direct Investment for Secondary Sector
FDI_Ser	=	Foreign Direct Investment for Services Sector
GFCF	=	Gross Fixed Capital Formation
ER	=	Exchange Rate
Inf	=	Inflation
GNI	=	Gross National Income

COLLECTION OF DATA

Our study will look at how foreign direct investment (FDI) has affected Pakistan's GDP by sector between 2011 and 2023. The World Bank and

World Performance Indicators, an extremely trustworthy data gathering source, with the State Bank of Pakistan are the sources of our statistics.

Gross domestic product (GDP) is the independent variable (IV) in my model for economic growth, and the dependent variables are foreign direct investment (FDI). While inflation, exchange rate (ER) and gross fixed capital formation (GFCF) can lead to multicollinearity. However, we have examining the effectiveness of gross domestic product (GDP) on gross national income (GNI), moreover they have historically had a direct relationship with FDI. The impact of FDI in Pakistan by sector is determined in this study using by using secondary data for the period from 2011 to 2023.

Data sources list as follows:

- State Bank of Pakistan
- Economic survey of Pakistan
- World Bank data base

Variables Briefing and Justification

Gross Domestic Product (GDP)

GDP is a gauge measuring a nation's financial and economic activity. It highlights the total marketplace worth of products and services across a nation's borders over a specific time period. Spending by government agencies directly is included in GDP; however, these expenditures typically increase the economic system's pace of growth. (Keynes, 1936) Through these expenditures, nations build their physical infrastructure and give the population greater healthcare and educational opportunities, which boosts their productivity and capability levels. GDP is frequently employed throughout literature for a stand-in for development in the economy.

Foreign Direct Investment (FDI)

The majority of economists believe that FDI has an important beneficial effect on GDP, whereas a few consider that it may have an adverse effect. FDI is defined to be an investment performed by a nation or someone towards another nation's economy. It differs from direct investments such as portfolio investments that invest directly in the stock exchange. I employed FDI in a variety of sectors to this research. To do the aforementioned, Combined data from these sectors into three main sectors: primary, secondary, and services.

I included exactly the same sectors that were utilized in earlier publications for this collection of data. (Ayesha, Sarfaraz 2017), (Khan & Khan, 2011) and (Daar, Taj, Bhatti 2016)

Gross Fixed Capital Formation (GFCF)

GFCF creation, that encompasses new as well as existing assets of corporations, governments, and individuals, is utilized over local investment. These are also inconsistencies due to the GFCF does not indicate the net values for assets that remain constant throughout the economic system were not disposed ofliquid resources and subsurface assets are not accounted for in GFCF economic reserves; just land worth is.

Exchange Rate (ER)

FDI as well as exchange rates are directly correlated; the higher currency exchange rate, the greater the likelihood of FDI due to the inexpensive price and large profitability. An excessive conversion rate slows GDP development. Throughout our research, we converted US dollars to foreign currencies, and the quantity of the domestic currency delivered for every penny of foreign currency was one value.

Inflation (Inf.)

Inflation may be utilized as a stand-in for macroeconomic turmoil and usually results from by uncertainties. In Pakistan's situation, politically unpredictability led to significant economic instability, particularly in the 1990s, which subsequently effect generated a substantial fall in foreign direct investment. According to the beliefs, destabilization as well as growth in the economy is negatively correlated (Fischer, 1993) and (Bruno and Easterly, 1998). The governing body will allocate additional resources and funds in order to stabilize the economic situation if it experiences uncertainty and that instability keeps getting worse. The rate of inflation per year may be used to regulate it (Ogbuagu, Patricia and Ifionu, 2013). Using inflation to be a stand-in for uncertainties Whenever inflation occurs, lowering the amount of foreign direct investment will raise the value of locally produced inputs, raising the value of manufacturing.

Gross National Income (GNI)

The entire revenue received by a nation's citizens, both inside and outside its borders, for a given time period, such as a year, is known to be the gross national income. It covers all funds received from local businesses as well

as any net income received through overseas sources, such as earnings by foreign business endeavors or funds transferred home by foreigners. Because it includes contributions received by foreigners and does not incorporate recorded salary revenues of foreign employees throughout the country, GNI provides a picture of the financial condition of a country and the wellbeing of its residents. A nation's standard of life is commonly assessed using its GNI per capita. Although gross national income is frequently used in conjunction with other metrics, it does not show or depict any proportion of the difference across the rich and the poor, ecologically friendly aspects, or the general standard of living.

EXPERIMENTAL ANALYSIS

In this phase, we will talk about the findings from the experiment that came through the provided data. In accordance with my methodology, we will evaluate and explain the unit root results in the first stage, in second step we will going to examine and described the results ofaugmented dicky fuller test (ADF) and Johansen cointegration test (CVAR), and at end in third part we analyze the relationshipbetween the variableby Vector Error Correction Model (VECM) and at last we examine the correlation of GNI with GDP and other variables.

Augmented Dickey Fuller Unit Root Test Result Discussion

To find out if the variables in a dataset have a unit root or are stationary, do the group unit root test. With a probability value of 0.7966, for example, the Levin, Lin, and Chu t* test, which is predicated on the idea of a shared unit root process, is unable to rule out the null hypothesis. However, with a probability of 0.2137, the Im, Pesaran, and Shin W-statistic test, which considers individual unit root processes, likewise fails to reject the unit root hypothesis. However, with probabilities of 0.0083 and 0.0107, respectively, the Fisher ADF and PP tests show stationarity at the usual significant levels. These contradictory findings imply that whereas certain variables may be steady, others may not be. Therefore, first differencing or another transformation will be required to ensure stationarity for subsequent econometric research, such as cointegration or regression modeling to examine legitimate correlations between GDP (the dependent variable) and the independent variables. (Annex Table-III)

Johansen's Cointegration Test and Discussionof Primary Sector

The Johansen cointegration test for GDP and FDI_PRI was performed

among 2013 and 2023, taking into account a linear deterministic pattern with a lag interval of 1 to 1 for a total of 11 samples throughout that period. While the tracing statistic for "None" (25.98531) is higher over the crucial value (25.87211) with a p-value of 0.0484, the trace test result shows one co-integrating model at the level of 5%, thus discrediting the null hypothesis of no co-integration. However, at a p-value of 0.2598, the trace statistic (7.902189) for "At most 1" is over the critical threshold (12.51798), indicating that the null hypothesis has not been rejected for at most one co-integration.We do not reject the null hypothesis of at most one co-integration in the case of "At most 1," since the trace statistic (7.902189) is below the critical threshold (12.51798) with a p-value of 0.2598. On the other hand, neither "None" (18.08313 < 19.38704, p = 0.0765) nor "At most 1" (7.902189 < 12.51798, p = 0.2598) reject the null hypothesis at the 5% significance level, indicating that there is no proof of co-integration in the highest eigenvalue test. (Annex Table-IV)

Johansen's Cointegration Test and Discussion of Secondary Sector

Using a linear deterministic trend and a lag interval of 1 to 1, the Johansen co-integration test was applied to GDP and FDI_SEC for the 11-observation period from 2013 to 2023. According to the findings of the trace test, the null hypothesis of no co-integration is not rejected at the 5% significance level by either the "None" hypothesis (21.16372 < 25.87211, p = 0.1726) or the "At most 1" hypothesis (4.149664 < 12.51798, p = 0.7203). As the "None" condition (17.01405 < 19.38704, p = 0.1070) and the "At most 1" condition (4.149664 < 12.51798, p = 0.7203) do not exceed the critical values, the greatest frequency analysis similarly fails in rejecting the null hypothesis. (Annex Table – V)

Johansen's Cointegration Test and Discussion of Services Sector

Using a linear deterministic pattern and a lag duration of 1 to 1, the Johansen cointegration test was utilized to GDP and FDI_SERV, encompassing 11 samples from 2013 to 2023. According to the findings obtained from the trace test, the null hypothesis of no cointegration is not rejected at the significance level of 5% by either the "None" hypothesis (21.44115 < 25.87211, p = 0.1615) or the "At most 1" hypothesis (5.535514 < 12.51798, p = 0.5214). As the "None" condition (15.90564 < 19.38704, p = 0.1493) and the "At most 1" condition (5.535514 < 12.51798, p = 0.5214) do not exceed the critical ranges, the maximum eigenvalue test similarly fails to reject the null hypothesis. (Annex Table – VI)

Vector Error Correction Model (VECM) Result and Discussion of Primary Sector

GDP is the dependent variable in this VAR analysis, whereas FDI PRI is the independent variable, INF is the mediating variable, and ER AVG and GFCF are the moderating variables. The FDI PRI (-1) coefficient on GDP is negative (-5.928559) and not statistically significant, indicating that the prior period's foreign direct investment had little effect on GDP growth in the near future. Inflation is not a significant mediator between FDI and GDP, as evidenced by the mediator, INF (-1), having a weak negative significance effect on GDP (-0.356997). Constant currency exchange rates can promote economic growth, however, as seen by the large positive coefficient (5.547520) of ER AVG (-1) as a moderator on GDP. Although as a moderator, GFCF (-1) has a negative coefficient (-1.554203) in relation to GDP, indicating that historical gross capital creation has no short-term positive impact on GDP. After controlling for levels of equality, the low adjusted R-squared (0.0487) suggests poor predictive ability; the F-statistic suggests that the whole model is not highly significant. The GDP R-squared value is 0.4811, which explains 48% of the fluctuations in GDP. These findings suggest that while FDI and GFCF don't have significant direct effects, exchange rate volatility may be affecting GDP growth. We must carry out more thorough studies, such as mediation and moderation testing or even structural equation modeling, in order to obtain more precise insights. (Annex Table – VII)

Vector Error Correction Model (VECM) Result and Discussion of Secondary Sector

With FDI_SEC as the independent variable, INF as a mediator, and ER_AVG and GFCF as moderators, the VAR analysis examines GDP as the dependent variable. Foreign direct investment in the secondary sector directly boosts economic growth, as evidenced by the positive (6.423498) and statistically significant coefficient for FDI_SEC. Furthermore, inflation (INF) and GDP have a positive correlation (0.770787), indicating that it may influence economic activity and mediate the relationship between FDI and GDP. Among the moderators, ER_AVG (-1) has a positive and substantial correlation with GDP (5.474859), suggesting that exchange rate fluctuations can influence economic growth by either increasing or decreasing the effect of foreign direct investment. However, GDP (-1.763392) is negatively impacted by GFCF (-1), which measures gross capital formation. This implies that past

gross capital formation may be impeding economic expansion, maybe as a result of capital allocation errors or inefficiencies. GDP's R-squared value is 0.545651, meaning that around 54.57% of the variation in GDP can be explained by the factors provided. But when degrees of freedom are taken into consideration, the level of explanation drops, as evidenced by the low adjusted R-squared value of 0.167302. Finally, the F-statistic indicates that the model's overall significance is modest. (Annex Table – VIII)

Vector Error Correction Model (VECM) Result and Discussion of Services Sector

With FDI_SERV as the independent variable, INF as a mediator, and ER_AVG and GFCF as moderators, the VAR results center on GDP as the dependent variable. In terms of GDP, the unconditional dyad's FDI_SERV coefficient is positive (1.324372), indicating that foreign direct investment in services contributes to economic expansion. The t-statistic, however, is rather modest (0.17969), suggesting that this result might not be very important. However, inflation (INF) has a significant positive impact on GDP (0.767392), confirming its function as a mediator in the GDP-FDI relationship. This implies that the way FDI influences economic production can be influenced by inflation patterns. The exchange rate average (ER_AVG) significantly boosts GDP (5.241167) when the moderators are considered, suggesting that changes in exchange rates can spur GDP growth. This emphasizes how crucial currency stability is in boosting or impeding the impact of FDI on economic performance. On the other hand, GFCF has a negative coefficient (-1.579707), indicating that historical levels of capital formation may not always translate into comparable GDP growth results, perhaps as a result of inefficient capital allocation. The model can account for roughly 44.23% of the variation in GDP, according to its R-squared value of 0.442299. Nonetheless, the model's overall explanatory power or possible overfitting are called into question by the modified R-squared (-0.022452). Finally, the F-statistic of 1.101505 indicates that the model is not very significant. (Annex Table – IX)

Correlation of GNI with GDP & others

Some intriguing information regarding the relationship between GNI and other economic factors may be found in the correlation matrix. In this case, GDP is clearly the independent variable, and GNI is the dependent variable. Furthermore, FDI acts as a moderating element, as do inflation (INF), the

average exchange rate (ER_AVG), and gross fixed capital formation (GFCF). A significant positive correlation of 0.9948 between GDP and GNI was discovered, underscoring the importance of GDP in determining national income. It is important to note, nevertheless, that there is a modest negative correlation between GDP and FDI (-0.0314), indicating that foreign direct investment does not substantially contribute to any short-term GDP growth. At -0.0334, FDI has an even lower negative correlation with GNI as a mediator. suggesting that other economic factors may have an impact on its effect on national income. Inflation (INF) has a negative impact on income and economic growth, as evidenced by its significant inverse association with GDP (-0.6034) and GNI (-0.5889). Remarkably, it also has a negative correlation (-0.2739) with foreign direct investment (FDI), indicating that inflation may discourage foreign investment and reduce its ability to promote economic growth. The average exchange rate (ER_AVG), one of the moderating factors, has a positive connection with inflation (0.7321) but a negative correlation with GDP (-0.4190) and GNI (-0.4402). This suggests that exchange rate swings could exacerbate inflationary pressures, which in turn affect income levels. The moderately positive association between GFCF and GDP (0.5375) and GNI (0.5035) indicates that fixed asset investments can boost national income and economic growth. Its negative relationships with ER_AVG (-0.3954) and inflation (-0.7251), however, suggest that ambiguous macroeconomic conditions may be impeding efficient capital investment. In general, GDP shows up as a powerful predictor of GNI, whereas FDI plays a very minor role as a mediator. Inflation has a negative impact on GDP and national income, and changes in the exchange rate appear to make inflationary trends worse. Although capital creation investments are essential for generating income development, they are frequently impacted by erratic macroeconomic variables. The findings' primary conclusion is that increasing investment and promoting economic growth require stable exchange rate and inflation regimes. (Annex Table X)

CONCLUSION

The study's conclusions demonstrate how important foreign direct investment (FDI) is to Pakistan's economic expansion. GDP growth is directly impacted when investment moves into one industry while another has difficulties. But according to the research, agriculture hasn't actually profited from FDI, primarily because it isn't adjusting to new rules and is locked in antiquated technology. The industrial sector, on the other hand, has

experienced tremendous expansion as a result of FDI, drawing investments that have increased output. Sadly, other industries haven't been able to capitalize on the potential that comes with foreign investment. The field that focuses on integrating technology to increase labor efficiency is paradoxically the one that is seeing the most growth in foreign direct investment. Though inconsistent and frequently impacted by shifting regulations and outside shocks, the service industry has benefited somewhat from foreign direct investment. The effectiveness of these investments is also greatly influenced by other macroeconomic factors, such as inflation, capital formation, and currency rate stability, with inflation acting as a significant deterrent. Political stability and pro-business government policies are essential for drawing in and keeping foreign direct investment (FDI), according to historical trends of investment inflows. On the international front, nations like China and India have effectively tapped foreign direct investment (FDI) by means of robust policy frameworks, sector-specific incentives, and infrastructure support.

RECOMMENDATIONS

In order to ensure that foreign direct investment flows in a sustainable manner, the government must implement some investor-friendly policies, such as tax incentives, streamlined regulatory procedures, and eased business operations. We also need to fortify our institutional frameworks to effectively reduce bureaucratic obstacles and combat corruption.

We should concentrate on luring industrial and high-tech sectors that can yield the largest economic returns in order to significantly increase foreign direct investment (FDI). Improving policy support and infrastructure for agriculture is also essential to increase FDI absorption. Additionally, as IT and telecoms are known for their robust growth potential, we must invest in them to revitalize the services industry.

In order to increase our sources of foreign direct investment (FDI), we must strengthen our trade ties with both our neighbors and international economic organizations. Attracting investments in vital sectors such as manufacturing, energy, and infrastructure through a variety of programs, such as the China-Pakistan Economic Corridor (CPEC), should also be a priority.

REFERENCES

Abadata, C. &. (2024). The Determinants of China's Foreign Direct Investment on Economic Growth. *Open Journal of Business and Management*.

Adam, A. A. (2009). Foreign Direct Investment and Stock Market Development: Ghana's Evidence. *International Research Journal of Finance and Economics*, 26, 178-185.

Agrawal, G. &. (2011). Impact of FDI on GDP: A comparative study of china and India. *Internatioan Journal of Business and Management,*.

Alam, S. (2008). Sustainable Development and Free Trade; Institutional Approach. Abing-don-on-Thames: Routledge, *Taylor & Francis Group*.

Alfaro, L. (2003). Foreign Direct Investment and Growth: Does the Sector Matter? *Science and Education*, 1-31.

Ali, S. (2014). Foreign Capital Flows and Economic Growth in Pakistan: An empirical analysis. *World Applied Sciences Journal* , 29 (2), 193-201.

Amin, S. (1974). Accumulation and development: a theoretical model. *Review of African Political Economy,*, 1(1), 9–26.

Balasubramanyam, V. N. (1996). Foreign Direct Investment and Growth in EP and IS Countries. *Economic Journal*, 92-105.

Bende-Nabende, A. &. (2003). The interaction between FDI, output and the spillover variables: Co-integration and VAR analyses for APEC, 1965-1999. . *Applied Economics Letters*. , 10. 165-172.

Blomstrom, M. &. (1996). Is Fixed Investment the key to economic growth. *The Quarterly Journal of Economics*, 269-76.

Blomstrom, M. &. (2003). The Economics of Foreign Direct Investment Incentives, Foreign Direct Investment in the Real and Financial Sector of Industrial Countries. *ResearchGate*, 10.1007/978-3-540-24736-4_3.

Borensztein, J. D.-W. (1998). How does foreign direct investment affect

economic growth? *Journal of International Economics*, 115-135.

Buckley, P. &. (2009). The Internalisation Theory of the Multinational Enterprise: A Review of the Progress of a Research Agenda after 30 years. *Journal of International Business Studies*., 40. 1563-1580. 10.1057/jibs.2009.49.

Carkovic, M. a. (2005). Does Foreign Direct Investment Accelerate Economic Growth. *Scientific Research*.

Cavanagh, S. A. (2000). *THE RISE OF CORPORATE GLOBAL POWER*. Washington, D.C: Institute of agricultural and Trade Policy (IATA).

Conner, K. (1991). A Historical Comparison of Resource-Based Theory and Five Schools of Thought within Industrial Organization Economics: Do We Have a New Theory of the Firm? *Journal of Management*, 121-154.

Dar, A. A. (2016). FDI and Economic Growth in Pakistan: A Sector Wise Multivariate Cointegration Analysis. The Pakistan Development Review. *Pakistan Institute of Development Economics, Islamabad*, 67–88.

Dunning, J. (1993). Multinational Enterprises and the Global Economy. *Scientific Research*.

Dunning, J. H. (1980). Toward an Eclectic Theory of International Production: Some Empirical Tests. *Journal of International Business Studies,*, 11(1), 9–31. http://www.jstor.org/stable/154142.

Granger, R. F. (March, 1987). CO-Integration and Error Correction: Representation, Estimation, And Testing. *Econometrica*, 251-276.

Javaid, W. (2016). Impact of Foreign Direct Investment on Economic Growth of Pakistan. *GoogleScholar*, 48.

Johansen, S. (1995). Likelihood-Based Inference in Cointegrated Vector Autoregressive Models. In S. Johansen, *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*. United Kingdom: Oxford University Press.

Karahan, Ö. a. (2024). The causality relationship between foreign direct investment and economic growth in RCEP countries. *Journal of Economic and Administrative Sciences*, 95-110.

Khan, M. &. (2011). *Foreign Direct Investment and Economic Growth in Pakistan: A Sectoral Analysis*. Islamabad & USA: GoogleScholar.

Khan, S. A. (2017). Impact of Fdi on Economic Growth of Pakistan . *Economics Journal of Pakistan*.

Kinoshita, Y. &. (2002). The location determination of foreign direct investment in transition economies. *google Scholar*, 1-28.

Kirti, R. &. (2016). FDI impact on employment generation and GDP growth in India. *Asian Journal of Economic and Empirical*.

Kumar, N. &. (2005). Foreign Direct Investment, Externalities and Economic Growth in Developing Countries: Some Empirical Explorations. *Research Gate*.

Kumari, R. (2015). Trends and Determinants of Foreign Direct Investment in India: A Study of the Post-liberalization Period. *South Asian Journal of Management*, 22. 95.

Lipsey, R. (2002). Home and Host Country Effects of FDI. *Scientific Research*, 92-93.

Makki S. S., &. S. (2004). Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries. *American Journal of Agricultural Economics*, 795-801.

Martínez San Román, V. B.-R. (2013). The Trade FDI Nexus: Evidence from the European Union. *GoogleScholar*.

Mohd Thas Thaker, M. B.-H. (2024). The effect of foreign direct investment on economic growth in Afghanistan: an empirical insight. *International Journal of Emerging Markets*.

Nath, H. K. (2005). Trade, Foreign Direct Investment and Growth: Evidence from Transition Economies. *ideas.repec.org/p/shs/wpaper/0504.html*.

Pedroni, P. (1999). Social capital, barriers to production and capital shares: implications for the importance of parameter heterogeneity from a nonstationary panel approach. *Journal of Applied Econometrics,*, 22(2), 429-451.

Politis, E. P. (2013). The Asymptotic Size and Power of the Augmented Dickey-Fuller Test for a Unit Root. In E. P. Politis, *The Asymptotic Size and Power of the Augmented Dickey-Fuller Test for a Unit Root*. USA.

Scott, M. F. (1974). G. L. Reuber Private Foreign Investment in Development. *The Economic Journal*, 725-726.

Solow, R. M. (1957). Technical Change and the Aggregate Production Function. *The Review of Economics and Statistics,*, 39(3), 312–320. https://doi.org/10.2307/1926047.

Srinivasan, P. K. (2011). An empirical investigation of foreign direct investment and economic growth in SAARC nations. *Journal of Asia Business Studies*.

UNCTAD. (1999). Foriegn Direct Investment and Development. *United Nations, New York and Geneva*.

V.N., S. M. (1996). Foreign Direct Investment and Growth in EP and is Countries. *The Economic Journal,*, 92-105.

VU. (2009). FDI sectoral impact on economic gwoth of Pakistan. *MDB Economics Journal*.

Weinhold, D. &.-R. (2001). Causality Tests for Cross-Country Panels: A New Look at FDI and Economic Growth in Developing Countries. *Oxford Bulletin of Economics and Statistics*, 63. 153-71. 10.1111/1468-0084.00214.

Xu, Z. (2000). Financial Development, Investment, and Economic Growth. *Economic Inquiry*, 331-344.

Zaidi, H. (2004, August 09). Snags in the Inflow of FDI. *Down-Business*, p. http://www.down.com/2004/08/09/ebr7htm.

Zhang, J. J. (2007). Multinational Enterprises, Foreign Direct Investment and Trade in China: the Chain of Causality in 1980-2003. *Journal of Asia Business Studies*, 48-57.

Annexure

Table - I

Country	2011 -12	2012 -13	2013 -14	2014 -15	2015 -16	2016 -17	2017 -18	2018 -19	2019 -20	2020 -21	2021 -22	2022 -23	2023 -24
China	126.1	90.6	695.8	340.8	1,048.30	763.2	1,311.90	130.8	846.6	751.6	531.6	432.2	568.2
UK	205.8	633	157	169.6	151.7	215.4	304.6	185	119.1	141	31.8	65	268.2
USA	227.7	227.1	212.1	223.9	15.7	45.7	161.7	88.1	99.2	166.4	249.6	89.3	137.3
Hong Kong	80.3	242.6	228.5	136.2	187	123	183.6	171	190.7	157.2	137.7	101	358.5
Switzerland	129.9	149	209.8	-6.5	59.5	101.7	78.5	21.2	62.8	61.7	146.2	134	28.7
U.A.E.	36.8	22.5	-47.1	235.3	114.6	120.1	-4.4	103.7	-44	115.7	143.9	180.1	87.3
Italy	200.1	199.4	97.6	115.4	105.4	61.5	56.6	51.9	57.4	36.3	34.8	8.6	1.9
Netherlands	22.3	-118.7	5.5	-34.5	29.9	457.6	100.3	69	133.2	96.9	104.1	71.9	71
Austria	69.1	53.3	53.8	24.8	42.7	21.7	27.4	7.6	3.8	1	0	-0.3	-1.7
Japan	29.8	30.1	30.1	71.1	35.4	57.7	59.8	117.3	52.5	-13	-12.3	183	10.9
Turkey	3.3	0.5	7.9	43.4	16.9	135.6	29.8	73.8	26.1	13.4	-0.3	17.6	11.1
Others	-310.5	-73	47.7	-285.7	585.8	303.4	470.5	343	1,076.20	305.7	500.7	173.4	360.2
Total	**820.7**	**1,456.50**	**1,698.60**	**1,033.80**	**2,392.90**	**2,406.60**	**2,780.30**	**1,362.40**	**2,597.50**	**1,820.50**	**1,867.80**	**1,455.80**	**1,901.60**

(https://invest.gov.pk/statistics is the source)

Table - II

Sector	2011 -12	2012 -13	2013 -14	2014 -15	2015 -16	2016 -17	2017 -18	2018 -19	2019 -20	2020 -21	2021 -22	2022 -23	2023 -24
Oil & Gas	629.4	559.6	502	300.5	249	146	372	349.8	311.4	251	195.3	135.1	303.6
Financial Business	64.4	314.2	192.8	256.4	289	297.3	400.3	286.5	274.8	236.4	405.3	275.1	208
Textiles	29.8	13.9	-0.2	43.9	20	15.5	49.7	76.8	37.7	2.6	3.6	11.5	2.4
Trade	25.3	5.1	-3.2	50.6	26.6	32.6	143	76.3	43.2	115.9	79.9	45.3	68
Construction	72.1	47.7	28.8	53.5	36.9	8.3	40.4	70.2	20.9	31.1	36.5	19	15.2
Power	-84.9	26.8	71.4	303.8	1,153.40	716	1,179.50	-323.9	765.6	911.7	737.6	622.6	799.9
Chemicals	30.5	96.3	-47.1	94.9	60.3	88.5	5.4	48.9	24	0.9	29.3	49.7	19.7
Transport	104.6	18.7	44.1	2.7	6.2	166.8	163.5	56.9	-1.5	-93.6	34.8	40.2	-12.8
Communication (IT&Telecom)	-313	-381.7	434.2	62.2	241.4	-49.2	113.5	-55.7	664	117.1	118.9	59.3	-129.9
Others	282.2	873.8	375.2	-103.4	121.3	1,071.20	375.7	739.2	457.4	247.4	226.6	198	627.5
Total	**820.7**	**1,456.4**	**1,698.6**	**1,033.8**	**2,392.9**	**2,406.6**	**2,780.3**	**1,362.4**	**2,597.5**	**1,820.5**	**1,867.8**	**1,455.8**	**1,901.6**

Table - III

Group unit root test: Summary
Series: GDP, FDI_PRI_, FDI_SEC, FDI_SERV_, GFCF, INF_, FDI, ER_AVG_, GNI
Date: 03/14/25 Time: 15:37
Sample: 2011 2023
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.82941	0.7966	9	106
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.79358	0.2137	9	106
ADF - Fisher Chi-square	35.4316	0.0083	9	106
PP - Fisher Chi-square	34.5634	0.0107	9	108

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Table – IV

Date: 03/10/25 Time: 07:03
Sample (adjusted): 2013 2023
Included observations: 11 after adjustments
Trend assumption: Linear deterministic trend (restricted)
Series: GDP FDI PRI
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.806779	25.98531	25.87211	0.0484
At most 1	0.512459	7.902189	12.51798	0.2598

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.806779	18.08313	19.38704	0.0765
At most 1	0.512459	7.902189	12.51798	0.2598

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table – V

Date: 03/10/25 Time: 07:23
Sample (adjusted): 2013 2023
Included observations: 11 after adjustments
Trend assumption: Linear deterministic trend (restricted)
Series: GDP FDI SEC
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.787057	21.16372	25.87211	0.1726
At most 1	0.314250	4.149664	12.51798	0.7203

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.787057	17.01405	19.38704	0.1070
At most 1	0.314250	4.149664	12.51798	0.7203

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table – VI

Date: 03/10/25 Time: 07:34
Sample (adjusted): 2013 2023
Included observations: 11 after adjustments
Trend assumption: Linear deterministic trend (restricted)
Series: GDP FDI_SERV_
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.764482	21.44115	25.87211	0.1615
At most 1	0.395424	5.535514	12.51798	0.5214

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.764482	15.90564	19.38704	0.1493
At most 1	0.395424	5.535514	12.51798	0.5214

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table – VII

Vector Autoregression Estimates
Date: 03/14/25 Time: 19:21
Sample (adjusted): 2012 2023
Included observations: 12 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	GDP	FDI PRI	INF	ER AVG	GFCF
GDP(-1)	-0.318072	0.007010	0.857034	5.547520	0.064563
	(0.38407)	(0.01726)	(0.31067)	(1.11088)	(0.10003)
	[-0.82817]	[0.40604]	[2.75870]	[4.99383]	[0.64541]
FDI PRI (-1)	-5.928559	0.203611	6.791562	7.478270	-2.087778
	(8.52885)	(0.38338)	(6.89883)	(24.6688)	(2.22141)
	[-0.69512]	[0.53109]	[0.98445]	[0.30315]	[-0.93985]
INF (-1)	-0.356997	0.013332	0.969383	3.181846	-0.080079
	(0.24358)	(0.01095)	(0.19702)	(0.70452)	(0.06344)
	[-1.46566]	[1.21762]	[4.92013]	[4.51636]	[-1.26226]
ER AVG (-1)	-0.030830	-0.002351	0.128670	1.404483	-0.013445
	(0.03029)	(0.00136)	(0.02450)	(0.08760)	(0.00789)
	[-1.01793]	[-1.72693]	[5.25205]	[16.0323]	[-1.70430]
GFCF(-1)	-1.554203	0.041048	1.742563	11.40712	-0.030586
	(1.31151)	(0.05895)	(1.06086)	(3.79340)	(0.34159)
	[-1.18505]	[0.69628]	[1.64260]	[3.00710]	[-0.08954]
C	37.04799	-0.323433	-46.77989	-260.0123	18.37776
	(21.2439)	(0.95495)	(17.1838)	(61.4458)	(5.53315)
	[1.74393]	[-0.33869]	[-2.72232]	[-4.23157]	[3.32139]
R-squared	0.481087	0.605703	0.951764	0.991735	0.687442
Adj. R-squared	0.048659	0.277122	0.911567	0.984847	0.426977
Sum sq. resids	33.89573	0.068491	22.17767	283.5703	2.299431
S.E. equation	2.376823	0.106842	1.922571	6.874716	0.619063
F-statistic	1.112525	1.843388	23.67750	143.9854	2.639290
Log likelihood	-23.25756	13.96850	-20.71234	-36.00258	-7.113794
Akaike AIC	4.876260	-1.328084	4.452056	7.000431	2.185632
Schwarz SC	5.118713	-1.085630	4.694510	7.242884	2.428086
Mean dependent	3.780236	0.196411	8.910985	140.9122	15.39434
S.D. dependent	2.436850	0.125663	6.465087	55.84764	0.817803

Determinant resid covariance (dof adj.)	0.408981
Determinant resid covariance	0.012781
Log likelihood	-58.97738
Akaike information criterion	14.82956
Schwarz criterion	16.04183
Number of coefficients	30

Table – VIII

Vector Autoregression Estimates
Date: 03/14/25 Time: 19:46
Sample (adjusted): 2012 2023
Included observations: 12 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	GDP	FDI SEC	INF	GFCF	ER AVG
GDP(-1)	-0.288171	-0.019828	0.770879	0.079789	5.474859
	(0.35035)	(0.02307)	(0.31845)	(0.09818)	(1.09065)
	[-0.82253]	[-0.85963]	[2.42072]	[0.81268]	[5.01980]
FDI SEC(-1)	6.423498	-0.182889	2.713171	1.350831	-1.321446
	(5.42020)	(0.35685)	(4.92674)	(1.51894)	(16.8735)
	[1.18510]	[-0.51252]	[0.55070]	[0.88933]	[-0.07832]
INF (-1)	-0.323513	-0.023177	1.035162	-0.077709	3.209724
	(0.23048)	(0.01517)	(0.20950)	(0.06459)	(0.71751)
	[-1.40363]	[-1.52736]	[4.94111]	[-1.20312]	[4.47341]
GFCF(-1)	-1.763392	0.002833	1.683346	-0.077214	11.46978
	(1.23745)	(0.08147)	(1.12479)	(0.34678)	(3.85227)
	[-1.42502]	[0.03477]	[1.49659]	[-0.22266]	[2.97741]
ER AVG (-1)	-0.028794	0.002986	0.106162	-0.010902	1.388330
	(0.02277)	(0.00150)	(0.02070)	(0.00638)	(0.07089)
	[-1.26443]	[1.99166]	[5.12887]	[-1.70836]	[19.5840]
C	37.05130	0.107705	-42.36293	17.97895	-257.0400
	(19.6581)	(1.29422)	(17.8684)	(5.50892)	(61.1971)
	[1.88479]	[0.08322]	[-2.37083]	[3.26361]	[-4.20020]
R-squared	0.545651	0.493197	0.946668	0.683189	0.991617
Adj. R-squared	0.167027	0.070860	0.902225	0.419180	0.984631
Sum sq. resids	29.67834	0.128639	24.52049	2.330721	287.6196
S.E. equation	2.224048	0.146423	2.021571	0.623260	6.923626
F-statistic	1.441142	1.167782	21.30057	2.587747	141.9414
Log likelihood	-22.46033	10.18665	-21.31488	-7.194890	-36.08765
Akaike AIC	4.743388	-0.697776	4.552480	2.199148	7.014609
Schwarz SC	4.985841	-0.455322	4.794933	2.441602	7.257062
Mean dependent	3.780236	0.218827	8.910985	15.39434	140.9122
S.D. dependent	2.436850	0.151904	6.465087	0.817803	55.84764

Determinant resid covariance (dof adj.)	0.128865
Determinant resid covariance	0.004027
Log likelihood	-52.04794
Akaike information criterion	13.67466
Schwarz criterion	14.88692
Number of coefficients	30

Table – IX

Vector Autoregression Estimates
Date: 03/14/25 Time: 19:58
Sample (adjusted): 2012 2023
Included observations: 12 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	GDP	FDI SERV	INF	GFCF	ER AVG
GDP(-1)	-0.235122	-0.008761	0.767392	0.108562	5.241167
	(0.40253)	(0.01658)	(0.33750)	(0.10339)	(1.08063)
	[-0.58411]	[-0.52835]	[2.27377]	[1.04999]	[4.85011]
FDI SERV (-1)	1.324372	-0.355138	-1.159827	1.448205	-15.06356
	(7.37026)	(0.30361)	(6.17957)	(1.89314)	(19.7863)
	[0.17969]	[-1.16971]	[-0.18769]	[0.76498]	[-0.76131]
INF (-1)	-0.387000	-0.020575	1.004543	-0.088472	3.190059
	(0.24823)	(0.01023)	(0.20813)	(0.06376)	(0.66640)
	[-1.55905]	[-2.01207]	[4.82662]	[-1.38758]	[4.78704]
GFCF(-1)	-1.579707	-0.038853	1.769913	-0.044697	11.50926
	(1.35990)	(0.05602)	(1.14020)	(0.34931)	(3.65081)
	[-1.16163]	[-0.69356]	[1.55228]	[-0.12796]	[3.15253]
ER AVG (-1)	-0.016935	0.001491	0.112479	-0.009298	1.397150
	(0.02288)	(0.00094)	(0.01918)	(0.00588)	(0.06141)
	[-0.74029]	[1.58235]	[5.86438]	[-1.58248]	[22.7502]
C	34.12513	0.840750	-43.46035	17.26934	-255.2461
	(21.6275)	(0.89093)	(18.1335)	(5.55528)	(58.0615)
	[1.57786]	[0.94368]	[-2.39669]	[3.10863]	[-4.39613]
R-squared	0.442299	0.500033	0.944299	0.673292	0.992347
Adj. R-squared	-0.022452	0.083395	0.897882	0.401036	0.985970
Sum sq. resids	36.42937	0.061819	25.60954	2.403530	262.5512
S.E. equation	2.464054	0.101505	2.065976	0.632920	6.615024
F-statistic	0.951690	1.200160	20.34373	2.473008	155.6085
Log likelihood	-23.69007	14.58340	-21.57561	-7.379453	-35.54050
Akaike AIC	4.948346	-1.430566	4.595935	2.229909	6.923417
Schwarz SC	5.190799	-1.188113	4.838389	2.472362	7.165870
Mean dependent	3.780236	0.161787	8.910985	15.39434	140.9122
S.D. dependent	2.436850	0.106022	6.465087	0.817803	55.84764

Determinant resid covariance (dof adj.)	0.288407
Determinant resid covariance	0.009013
Log likelihood	-56.88160
Akaike information criterion	14.48027
Schwarz criterion	15.69253
Number of coefficients	30

Table – X

	GNI	GDP	FDI	INF	ER AVG	GFCF
GNI	1.000000	0.994824	-0.033392	-0.588871	-0.440181	0.503477
GDP	0.994824	1.000000	-0.031431	-0.603438	-0.419042	0.537506
FDI	-0.033392	-0.031431	1.000000	-0.273945	-0.064382	0.005520
INF	-0.588871	-0.603438	-0.273945	1.000000	0.732136	-0.725099
ER ...	-0.440181	-0.419042	-0.064382	0.732136	1.000000	-0.395373
GFCF	0.503477	0.537506	0.005520	-0.725099	-0.395373	1.000000

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SOCIOECONOMIC DETERMINANTS OF CHILD-LABOUR IN AGRICULTURE

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ABSTRACT

This study examines the socioeconomic conditions, demographic factors, and key drivers of child labor in the agricultural sector of Kamber-Shahdadkot District (Warah and Nasirabad talukas) in rural Pakistan. High adult unemployment, overpopulation, low-income large families, parental illiteracy, and lack of education were identified as major contributors to child labor. Data was collected from 100 child laborers (aged 5-14) and their parents/guardians through structured interviews. Findings reveal that 86% of child laborers (mostly aged 10-14) were illiterate, with only 12% having primary education. A staggering 92% lacked technical agricultural training, and 78% worked due to financial constraints preventing school attendance. Families averaged 8.7 members, with 22.5% living in inadequate, muddy homes and lacking basic amenities. Low income hindered socioeconomic mobility, perpetuating child labor. To combat this issue, the study recommends expanding alternative employment opportunities for adults, strengthening government literacy programs, implementing policies to boost rural agro-based industries, enforcing child labor laws and targeting hazardous work conditions, and providing economic incentives to families to offset lost income when children attend school. A multi-stakeholder approach is essential to eliminate child labor and improve socioeconomic conditions in the region.

INTRODUCTION

According to the International Labor Organization (ILO, 2017), any work that is paid or unpaid is done by someone who is below the age of 15 is known as child labor. In Asia and Africa, approximately 200 million

children are engaged in various forms of child labor, with around 8 million of them exposed to hazardous working conditions (Abid et al., 2021). Many developing nations in South Asia, such as Bangladesh, Pakistan, and India, are deeply concerned about the increasing prevalence of child labor. It is ironic that despite the efforts of NGOs, extensive mass media campaigns, government legislation, and funding from UNICEF, child labor continues to rise in these developing countries, accounting for about half of the total child labor worldwide (Fyfe, 2004).

Pakistan is facing serious issues like both high poverty and inflation which ultimately promotes child labor in the country. An estimated 12 million children in Pakistan are engaged in child labor, with about 264,000 of these children working specifically as domestic workers across the country (Rehman, 2023). In Pakistan, the issue of child labor has historical roots dating back to the tenure of Zia Ul Haq. During this time, the encouragement of capitalism led to the establishment of new factories that required more labor. As the wage rate for children was lower, there was an increased demand for child labor (Iqbal et al., 2020). The factory owners, being capitalists, were primarily interested in maximizing output and profits. Consequently, they neglected the negative consequences of employing children and hired as many children as possible to increase their output and profits (Fatima, 2017).

UNICEF (2021) in their report mentioned that around 3.3 million children in Pakistan are involved in child labor where the majority of them belong to the age group of 10 to 14 years. According to Subhadarsani (2014 the main sectors that fascinate child labor are manufacturing, transportation, trade, agriculture, construction, and services. In rural areas, agriculture engages the most children, followed by the services sector whereas, in urban areas, the services sector dominates. Based on each province's culture, different factors affect child labor in the country (Ibupoto et al., 2019). Literature has shown that household societal and economic factors like poverty, lack of resources, and issues such as extended families make the parents unable to provide bread and butter for the entire family (Galdo et al., 2021), and they are forced to send their children to work from an early age (Yameen, 2018). The lack of knowledge about the importance of education among rural people is also the key factor causing the child labor cycle to continue despite its heinous effects on their future (Islam & Hoque, 2022). The research findings of Thelma (2023) revealed that children involved in domestic labor as child workers experienced significantly detrimental effects on their academic performance.

Child labor has a detrimental impact on children's right to education, leading to a lack of skills, diminished human capital, and reduced future earnings (Muhammad et al., 2024). According to the International Labor Organization (ILO), there are about 215 million child workers worldwide, many of whom are employed full-time. Most of these children do not attend school and have no time to socialize. Almost 20 million children of school going age are missing school, while approximately 10 million children are involved in different sectors where the majority is engaged in the agriculture sector (Ahmad et al., 2020).

Child labor in Pakistan hinders education by robbing children of the chance to develop intellectually, psychologically, and morally (Gilani et al., 2022; Shakir et al., 2020). About 12.5 million children are currently involved in labor, which is projected to increase to 16 million due to socioeconomic factors and limited access to education. Furthermore, currently, child labor has affected about 3.3 million children's education (Ishaque et al., 2024). Sindh is the second-largest province after Punjab and is considered the hub of economic activities. Many children under the age of 15 are currently working in brick kilns, auto repair shops, bangle shops, hotels, agriculture, and other sectors. About 4 million children in Sindh are engaged in child labor in various sectors of the province, of which 1.8 million are engaged in agriculture (Wagan et al., 2024).

The children are forced to work in cruel, indecent, and inhumane environments. They are subjected to high levels of violence, including emotional, physical, and sexual abuse where approximately 21 of children are experiencing emotional abuse and nine percent face sexual violence (Iqbal et al., 2021). Another study conducted by Iqbal et al. (2020) revealed that more than half, or 51.1 percent, of child laborers suffered from food insecurity. Additionally, a significant proportion, approximately 15.5 percent, experienced stunted growth, while about 30 percent suffered from wasting.

The available literature has indicated that most school-age children are engaged in various forms of child labor. However, there is no proper research that identifies the root causes and compelling factors that are forcing children and their parents to get involved in child labor. To fill this gap this study was proposed to investigate the situations and conditions for child labor in the agriculture sector, specifically in districts Kamber-Shahdadkot. The specific objectives to explore key demographic features of children working in

agriculture and factors compelling the children to work at such a tender age; and to investigate the socioeconomic conditions of the families of children working in farms in the study area.

Materials and methods

This section prescribes insights into the methodological approaches and analytical techniques used in this research. It includes sampling procedures, data collection, and data analysis methods.

Study area and sampling procedure

The data were collected during filed visits; where the information on age, sex, religion, origin, occupation, working hours, rest time, education, employer abuse, expenditure, working environment, were collected. Through direct observation, the environment of workplaces, ventilation and other workplaces was evaluated. In the first stage, the Kamber-Shahdadkot district was selected, in the second stage two Talukas Naseerabad and Warah were selected, which are considered as rural and agriculture dependent Talukas. In the later stage 50 respondents (child-laborers) from each Taluka were interviewed purposively. Thus, number of 100 respondents including their parents/ guardians were personally interviewed with the help of a comprehensive questionnaire.

Questionnaire development

For primary data collection, a detailed questionnaire was designed to have maximum information for the accomplishment of the objectives. The questionnaire was comprised of basic information about household income, health, education, consumption, expenditures, migration, assets, agriculture, effect on his/her resources, and causes of food insecurity. Within primary data the key informants (experts) were selected one from each category; government administration, researchers, social activists, journalists, and senior citizens. The main indicators for research are socioeconomic well-being, economic geography, population pressure, economic activities, physical infrastructure, communication system, available natural resources, basic amenities, choices, etc.

Analytical measures

Data analysis is an important step in transforming research data into significant and in adequate form. A tabulation plan was developed for the presentation of summarized data. Preliminary data analysis such as frequency distribution, descriptive statistics, and exploratory analysis was carried out to

finalize the tabulation plan with the help of Microsoft Excel.

RESULTS AND DISCUSSION

The most important step in scientific research is analyzing and interpreting the data. Without these steps, the goal of scientific research cannot be generalized and predicted. The generalization and conclusion are based on the characteristics and attitudes of the respondents.

Socioeconomic conditions

Table-1: Descriptive statistics of the parents of the children working in agricultural fields

Particular		*Unit*	*Description*
Age		Year	42.5
Family size		Number	8.7
Male members		Number	5.4
Female Members		Number	3.3
Employed family members		Number	5.5
House type	Kacha	Percent	22.5
	Bamboo	Percent	66.5
	Others	Percent	11
Occupation	Agriculturist / farmers	Percent	76
	Livestock and fisheries workers	Percent	10
	Wage Laborer	Percent	06
	Shop keepers	Percent	04
	Tractor driver	Percent	04
Parent's education level	College	Percent	02
	High school	Percent	10
	Primary	Percent	12
	Illiterate	Percent	76

Above table shows that the average age of parents/guardians was 42.5 years, with the family size of about nine persons. As a result, the employed family members in the house were 5.5; on average 22.5 families were living in kacha/muddy homes. Agriculture was their main source of income with 72.2 percent followed by 7.3 percent from livestock and 20.5 percent from other sources. The findings reveal that the parents of the children in the study area were mainly depending on Agriculture. Therefore, livestock, wage labor, and small business were alternative sources of their income. Results revealed that agriculture was their primary sources of income with 76 percent of the

respondents engaged in Agriculture, followed by, livestock and fisheries, daily wages, etc. Majority of the parents had no formal education. Where only two percent of them studies up to college level.

Table-2. Demographic characteristics of children working in agriculture

Description		*Unit*	*Statistics*
Region	Rural	Percent	64
	Urban	Percent	36
Age groups	6-8	Year	03
	9-11	Year	18
	12-14	Year	79
Education level of Children	Primary	Percent	12
	High school	Percent	02
	Never went to school	Percent	86
Technical Skills	Proper trained	Percent	08
	No any training	Percent	92
Activities in which children were involved	Crop cultivation	Percent	78
	Livestock herding	Percent	18
	Fishing	Percent	04

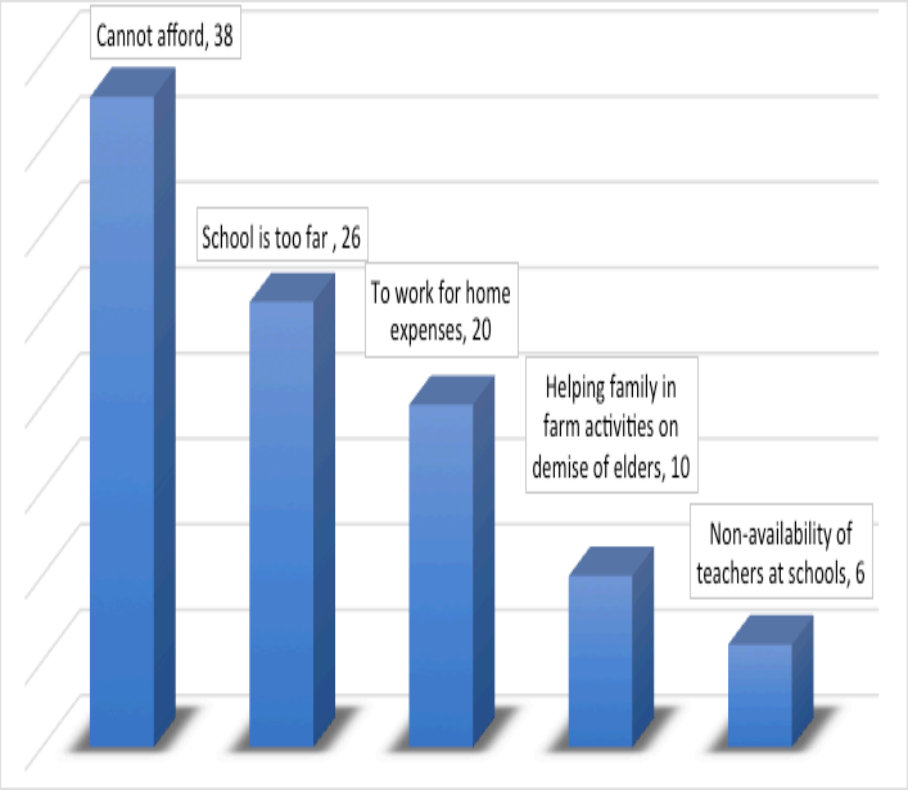
The Table-2 provides the demographic characteristics of the children working in the agriculture sector in the district of Kamber Shahdadkot. It shows the percentage of children in rural and urban areas engaged in this sector. Most children, about 64 percent of children in rural areas, are working in agriculture, while 36 percent are from urban areas. Due to the lack of alternate employment opportunities in rural areas, about 79 percent of children in Sindh are engaged in agriculture (Wagan et al., 2024). It could be seen that majority of the children belonged to the age group of 12 to 14 years, while only 18 percent fall under 09 to 11 years. In a study conducted by (Wagan et al., 2024) in Tando Allahyar about 77 percent of children aged between 11 to 14 years were engaged in agriculture whereas in Punjab about 47.2 percent of children of similar age were found working in agriculture (Ahmad et al., 2020).

Results further show that most of the children never went to school; while only 12 percent had completed primary education and only two percent were enrolled in high school. Similar results were found by (Wagan et al., 2024) where 80 percent of children were illiterate, 15 percent completed their primary level, and only five percent reached middle school. It was also

observed that majority of children were never training for their occupation, that how the work should be carried out at the farms. In most children were engaged in livestock herding, followed by crop cultivation and fishing.

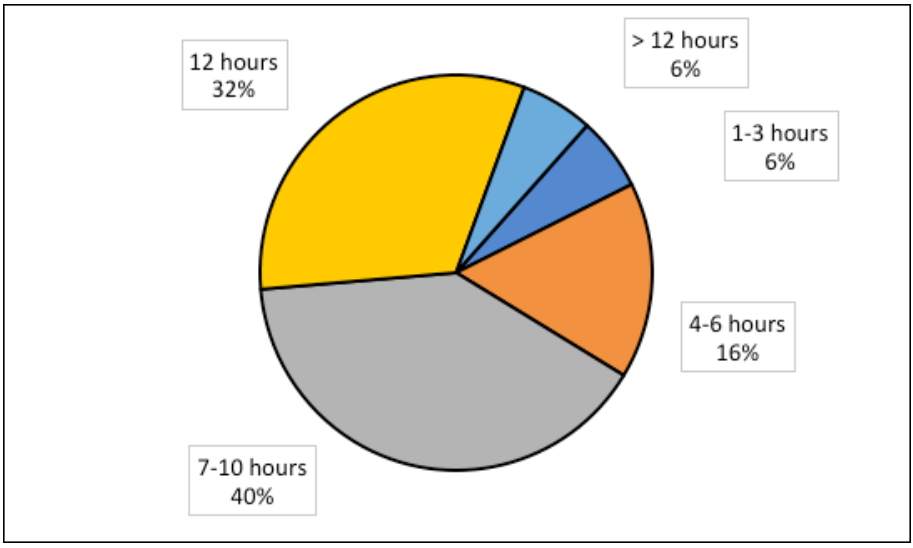
Factors compelling to the children

Figure-1: Reasons for leaving/not attending school by the children



The chart shows reasons for not attending or leaving schools in the study area. About 38 percent of child laborers did not go to schools because they couldn't afford them, 26 percent had schools out of reach, 20 percent had to work to feed their families, 10 percent helped families with farm work due to elders' deaths, and 6 percent faced non-availability of teachers at school. Ibupoto et al. (2019) in their study found that around 45.6 percent in Hyderabad did not attend school because their parents sent them for work, 27.3 percent expressed a lack of interest in going to school, 18.1 percent faced barriers to different schooling systems, and 8.8 percent missed their schooling because of the high cost of education.

Figure-2: Total working hours at workplace of children



The total time spent by these children at their respective workplaces is shown in the above chart. The majority of the children (40%) were found to work for 7-10 hours per day, followed by (32%) who work for the whole week, (16%) work for 4-6 hours, (6%) for more than 12 hours, and for 1-3 hours only, mostly on weekends and in homes. About 52 percent of children were found working for 7 to 10 hours in the Tando Allahyar district (Wagan et al., 20204).

Workplace environment

Table-3: Types of Punishment among child Laborers

Types of punishment		*Percentage*
Punishment at workplace	Yes: punished often	42
	No: not punished yet	58
Punishment type/level	Abusive language/ calling with different names	31
	Deduction of salary	29
	Beating physical/ slapping and mental torture	21
	Increase working hours	19

The table shows the percentage of punishment children forms in the field. 42 percent of children in the study reported that they were punished findings were mentioned by Wagan et al. (2024) in their study, where 39 percent of children reported being punished while working at farms. Further the results

show that about half of the children faced both physical and mental torture, which included verbal abuse and beating. Ahmad et al. (2020) in their study reported that respondents revealed that 13.9 percent of the participants reported experiencing mental torture. 30.5 percent of them stated that they had been subjected to verbal, mental, and physical abuse by the zamindars, landlords, and stewards.

CONCLUSION AND RECOMMENDATIONS

The study found that the average age of children's parents was 42.5 years, with an average family size of 8.7 members (5.7 males and 3.3 females). Most families relied on agriculture, with 5.5 employed members per household working as agricultural laborers. Housing conditions were typically basic (kacha/bamboo-made), and agriculture and livestock were the primary income sources (76%), followed by livestock/fisheries (10%), daily wage labor (6%), and small businesses or shop work (4%). Child labor was heavily influenced by socioeconomic factors, particularly parents' low education and unstable income. A significant 38% of child laborers could not afford education, while 26% had no nearby schools, 20% worked to support family expenses, 10% helped with farm work after elders' deaths, and 6% faced teacher shortages. Parental education played a key role—76% of fathers had no formal schooling, while only 2% had intermediate-level education. The lower the parents' education, the higher the child labor prevalence, highlighting the need for better education access and economic stability to reduce child labor.

To address the issue of child labor in the study area, it is crucial to improve literacy rates to combat illiteracy and reduce child labor. Comprehensive policies should be implemented to expand employment opportunities for rural communities, ensuring parents have viable income sources so they are not compelled to send their children to work. Additionally, non-formal education and job training programs should be provided to enhance parents' earning potential. A strong focus must be placed on eliminating the most severe forms of child labor, particularly those that endanger children's health and safety. Furthermore, child labor laws must be strictly enforced with robust monitoring mechanisms to ensure compliance and accountability. These measures, combined with community engagement, can help create a sustainable solution to eradicate child labor in the region.

REFERENCES

Abid, A., Naqvi, A. B., & Alam, N. (2021). Factors Associated with Child Labour in Punjab Pakistan. *"All papers published in the PROCEEDINGS were accepted after formal peer review by the experts in the relevant field.*, 339.Ahmad, S., Huifang, W., Akhtar, S., Maqsood, S., & Imran, S. (2020). An analytical study of child labour in the agriculture sector of the rural areas of central Punjab, Pakistan. *Sri Lanka Journal of Social Sciences*. 43 (1): 21-37 DOI: https://dx.doi.org/10.4038/sljss.v43i1.7730

Fatima, A. (2017). Child labour in Pakistan: Addressing supply and demand side labour market dynamics. The Economic and Labour Relations Review,28(2),294-311.https://doi.org/10.1177/1035304617690332

Fyfe, A. (2004) Child labour policy option, In Kristoffel, L.and White, B. (eds) *Child labour and education, Revisiting the policy debate*, Amsterdam: Aksant Academic Publishers.

Galdo, J., Dammert, A. C., & Abebaw, D. (2021). Gender Bias in Agricultural Child Labor: Evidence from Survey Design Experiments. *The World Bank Economic Review*, 35(4), 872–891.

Gilani, S. R. S., Zahoor, S., & Iqbal, M. A. (2022). Child labor in Pakistan: Causes, consequences and prevention. *Pakistan Social Sciences Review*, 6(2), 197-208.

Hafeez, A., & Hussain, S. (2019). An empirical analysis of child labor: evidence from Pakistan. *Pakistan Economic Review*, 2(1), 48-64.

Ibupoto, M. H., Mirjat, A. J., Dahar, S. H., & Mahar, S. A. (2019). Child Labor in Agricultural Sector Hyderabad Sindh, Pakistan. *Arts and Social Sciences Journal*, 10(1).

ILO, 2017. International Labour Organization: Methodology of the global estimates of childlabour, 2012-2016.

Iqbal, M., Fatmi, Z., Khan, K. S., Jumani, Y., Amjad, N., & Nafees, A. A. (2020). Malnutrition and food insecurity in child labourers in Sindh, Pakistan: a cross-sectional study. *Eastern Mediterranean Health Journal*, *26*(9), 1087.

Iqbal, M., Fatmi, Z., Khan, K. S., Nafees, A. A., & Amjad, N.

(2020). Recommendations: Putting an end to child labour in Pakistan! *Journal of the Pakistan Medical Association*, 70(7), 1256-1258. https://doi.org/10.5455/JPMA.14951

Iqbal, M., Fatmi, Z., Khan, K., & Nafees, A. (2021). Violence and abuse among working children in urban and suburban areas of lower Sindh, Pakistan. *Eastern Mediterranean health journal*, 27(5), 501-508.

Ishaque, A. T., Rizvie, A. R., & Imtiyas, M. I. (2024). Psychogenic impact of child labour in Pakistan. *JPMA. The Journal of the Pakistan Medical Association*, 74(7), 1407-1407.

Islam, R., & Hoque, M. M. (2022). Trade-off between schooling and labor for children: understanding the determinative factors among rural households in Bangladesh. *Frontiers in Sociology*, *7*, 839231. https://doi.org/10.3389/fsoc.2022.839231

Muhammad, M., Shirazi, N. S., & Kayani, Z. (2024). Parental education and child labour: evidence from Pakistan. *International Journal of Education Economics and Development*, 15(1-2), 285-298.

Rehman, M. A. (2023). How Pakistan's Socioeconomic Problems are Leading to Child Labour. *Research Society of International Law* (RSIL).

Shakir, M., Zulfiqar, Z., Ishfaq, K., & Khan, A. (2020). Determinants of Child Labor: A Case Study of District Sargodha, Pakistan. *Journal of Languages, Culture and Civilization*, 2(1), 47-57.

Subhadarsani, S. (2014). An Economic Perspective of Child Labour in Odisha: A Case Study of Rourkela, National Institute of Technology, Rourkela, Odisha. UNICEF. Child labour in India statistics. Retrieve from http://unicef.in/Whatwedo/21/Child-Labour.

Thelma, C.C. (2023). Effects of Child Labour on Education: A Case of Selected Primary Schools in Lusaka District, Zambia. *International Journal of Research Publication and Reviews,* 4(8):1704-1710

UNICEF report on Child Labor (2021). Available at www.unicef.org

Wagan, H., Panhwar, A., Dost, K., Rais, M. N., Bajkani, J. K., & Solangi, A. W. (2024). Causes of Child Labour in Agriculture in District Tando Allahyar, Sindh, Pakistan within the Framework of the Circular

Economy. *THE ASIAN BULLETIN OF GREEN MANAGEMENT AND CIRCULAR ECONOMY*, 4(1), 184-202.

Yameen, S. (2018). Impacts of Child Labour Working at Hotels & Workshop Sectors in Pakistan. *Developing Country Studies, 8*, 70-81.

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IMPACT OF INDUSTRY 4.0 TECHNOLOGIES ON BUSINESS PERFORMANCE IN THE PHARMACEUTICAL SECTOR OF PAKISTAN

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ABSTRACT

This study examines the impact of industry 4.0 technologies, including Big Data, Cyber-physical systems (CPS), Internet of Things (IoT), and Interoperability on business performance (BP). Primary quantitative data were collected via a structured questionnaire from pharmaceutical firms in Islamabad, Karachi, and Peshawar to assess the adoption and utilization of these technologies on BP. In order to analyze the collected data, Smart PLS was used to examine the relationships between industry 4.0 technologies and BP measures. Based on the analysis, these technologies significantly influence various aspects of business performance, including innovation, productivity and profitability, except BDA has an insignificant impact on profitability and productivity. In addition, the IOT has no impact on innovation, productivity and profitability. This study provides a significant insight for the pharmaceutical sector concerning the industry 4.0 technologies to enhance BP. The findings of this study can be used by the industry stakeholders and pharmaceutical firms to integrate the industry 4.0 technologies in various functions of human resource management, process optimization and strategic

planning to maximize the benefits. In an increasingly digitalized landscape, industry 4.0 technologies adoption can help organizations position themselves in the market for sustained growth and resilience.

Keywords: *Digital Transformation, Business Performance, Industry 4.0, Cyber-Physical Systems, Internet of Things (IoT), Big Data Analytics.*

INTRODUCTION

Digital technologies are changing organizational dynamics and processes in developed and developing countries. Pakistan is also being affected by these digital technologies. Organizations are moving to opt the technological approach to embrace industry 4.0 advancements such as inclusion of big data analytics (Wamba et al., 2017), cyber-physical systems (Lee et al., 2015), the Internet of Things (IoT) (Zhong et al., 2017), and interoperability (Brettel et al., 2014) in various organizational operations. Thus, digital technologies have revolutionized processes and practices (Westerman et al., 2014). Consequently, digital technology integration in various organizational operations and practices might improve efficiency. For instance, cyber-physical systems (CPS) improve manufacturing processes (Lee et al., 2015), whereas IoT devices monitor and improve the quality outcomes (Li et al., 2020). In addition, interoperability enables the seamless data exchange across the value chain and procedures (Brettel et al., 2014).

IoT can help organizations streamline business processes and ensure that safety and regulatory standards will meet the business and customer needs by responding in real time to fulfill all the requirements (Li et al., 2020; Sareen et al., 2021). On the other side, interoperability seamlessly enables communication among various departments in the pharmaceutical sector to improve the research and development process, manufacturing operations, and marketing to facilitate decision making process. This can be achieved through enhancing collaboration between internal and external partners, as a result, visibility and regulatory compliance can be improved while reducing inventory costs and ensuring quality outcomes (Sareen et al., 2021).

Despite the importance of industry 4.0 technologies for organizations, limited studies exist related to industry 4.0 technologies' impact on business performance indicators, including profitability, productivity, and innovation (Gunasekaran et al., 2017; Schwab, 2017). The implementation and use of Industry 4.0 technologies, such as BDA, CPS, IoT, and interoperability,

present unique challenges and opportunities for pharmaceutical companies. However, challenges for the pharmaceutical industry of Pakistan are rising as the landscape becomes more complex with the introduction of new technologies, and demand is increasing. In this scenario, technologies provide a beacon of hope to the industry on many fronts in managing supply chain, human resources, product development, and service delivery. It enables greater efficiency and more innovation within the value chain. Hence, in what way do these digital innovations affect key performance indicators and operational outcomes in Pakistan's pharmaceutical industry?

This indicates a significant knowledge gap regarding industry 4.0 technologies' impact on business performance within the Pakistani context. Therefore, the research objectives of this study assess the impact of industry 4.0 technologies (BDA, CPS, IoT, and interoperability) on key performance indicators, such as productivity, profitability, and innovation, in the Pakistani pharmaceutical sector.

LITERATURE REVIEW

Big Data Analytics Adoption

Big data analytics (BDA) refers to managing and examining large amounts of data. This helps to recognize patterns, relationships, and valuable insights to make informed decisions (Gandomi & Haider, 2015). Thus, digital transformation is reshaping all the major sectors, including pharmaceutical organizations. Digital transformation helps drive efficient operations by managing data across various operations in the pharmaceutical value chain. This aids in monitoring the process in real time to ensure compliance with standards for innovative product development. This will help organizations harness and analyze the data (structured and unstructured) collected from the internal and external stakeholders in order to offer products and services in line with end users' needs. This helps organizations to seize opportunities to optimize pharmaceutical operations from assessment to discovery, development, as well as clinical trials and marketing to meet the organizational goals and customer needs (Wamba et al., 2017). Therefore, BDA can transform the organizational process by examining the data to observe market trends and patterns to forecast the risks and opportunities in the market related to new technologies, products, and competitors. Likewise, it seems to be a strategic approach to be innovative by integrating the data analytics and algorithms and IoT to deliberate and analyze data to forecast

utilizing the ample amount of data (Wortmann & Flüchter, 2015). Moreover, organizations must invest to protect the data from potential coercions on the other side for better business performance outcomes (Zhang et al., 2016).

IoT Utilization

The Internet of Things (IoT) comprises of organized devices entrenched with software as well as sensors, actuators, and connectivity (Xu et al., 2014). IoT has become a transformative force across various industries, including pharmaceuticals, to communicate seamlessly between objects, which in turn leads to optimizing processes, enhancing efficiency, and improving decision making (Li et al., 2020). Therefore, IoT implementation in the pharmaceutical sector can help manufacturing, supply chain, and drug development processes by effectively exchanging data. For instance, according to Sareen et al. (2021), in the development of drugs and drug manufacturing, IoT sensors can monitor and control the environmental influences during the procurement of material and production to ensure the quality product is produced complying with the regulatory standards. Additionally, Ding et al. (2020) elaborated that IoT-enabled devices in the pharmaceutical sector can help to monitor the products from the beginning till the end throughout the supply chain to mitigate risk related to counterfeiting by ensuring the timely delivery of drugs to the end users (Li et al., 2020).

Cyber-Physical Systems

Physical systems integration represents a new paradigm in the field of engineering and technology, and it is shifting the organizational processes by enabling the real-time monitoring and mitigation of risk that falls under the category of Cyber-Physical Systems (CPS) (Lee, 2008). Furthermore, Rajkumar et al. (2010) explained that CPS bridges the gap between computation and communication, machines and processes implemented in engineered systems. However, the integration of these components in an engineered system is facilitated through a network of actuators, sensors, and embedded systems to process the real time data in order to mitigate risk and make adjustments in the system to make informed decisions within the organization (Baheti & Gill, 2011). Thus, CPS can transform and revolutionize numerous operations, from the manufacturing of drugs to quality control and supply chain management (Lasi et al., 2014). Accordingly, CPS monitors and controls critical parameters to comply with the regulatory standards in the manufacturing process (Singh et al., 2019), yet also reduces the risk of

counterfeiting and ensures the integrity of medicines (Ding et al., 2020) as well as collect and analyze patient data to facilitate personalized treatment plans leading to improve patient outcomes and hence the organizational performance (Lee & Seshia, 2016). The implementation of CPS in pharmaceutical organizations needs an inclusive way by having technological infrastructure, a data integration system, and an intact change management process for improved efficiency (Brettel et al., 2014). So, organizations are now investing in a robust system for developing CPS infrastructure by developing data analytics capabilities to foster the innovative culture and productivity by leveraging transformative technology (Hermann et al., 2016).

Interoperability

Among the major components of digital transformation, interoperability is a vital aspect. It includes the ability of various systems, devices, or applications to acquire, exchange, and communicate data without any interruption (IEEE, 2004). Interoperability ensures the efficient flow of information for collaboration and communication among key stakeholders to make informed decisions (Brettel et al., 2014). According to Sareen et al. (2021), interoperability fosters transparency and reduces error, improving business outcomes such as productivity in operational, business and supply chain contexts. In addition, the inclusion of various dimensions of interoperability in organizational operations can improve the business performance, including technical (the ability to exchange data), semantic (interpret the meaning of data), and organizational (to collaborate effectively among stakeholders) (HIMSS, 2020). However, it requires standardized data, protocols, and a robust governance framework within the organization for efficient implementation (Eichelberg et al., 2019).

Digital Transformation, Productivity, Profitability and Innovation

Concerning business performance (BP), productivity, profitability and innovation are among the most vital indicators. Accordingly, productivity refers to the output produced per employee over a fixed period as per the plan (Syverson, 2011). Productivity seems to be a critical indicator and a fundamental driver considered for BP. In the Pharmaceutical setup, productivity can be measured in various ways, such as drug development speedily to cater to customers' needs, improved output, quality, and customer service. In the realm of technological transformation, acquiring and leveraging technology can amplify the innovation process for process optimization

to attain the maximum output using minimum resources (OECD, 2015). Industry 4.0 technologies emerge as a potential way to improve productivity, profitability and innovation in all sectors, including pharmaceutical. For instance, BDA allows organizations to gain insights from the data to make informed decisions in order to streamline the processes leading to improved productivity and performance (Wamba et al., 2017). On the other side, IoT helps to monitor and control the manufacturing process in real time. It enables predictive maintenance as well as lessens the downtime, which in turn optimizes the production efficiency and profitability (Wortmann & Flüchter, 2015), while automation of process can add value to the performed activities, further boosting productivity by inclusion of innovative products (Frey & Osborne, 2017).

Furthermore, profitability refers to the profit margin or return on investment and is seen as a crucial indicator in determining the business performance (Titman & Martin, 2011). According to Ross et al. (2013), profitability is a comprehensive view of a firm's ability to produce profits that surpass its expenses, which shows efficiency in cost management. An organization's main focus is to achieve the profitability goal. This endeavour is influenced by numerous factors such as market dynamics, regulatory environment, innovation and operational efficiency (Kaplan & Norton, 1992). Therefore, digital transformation like BDA, IoT, CPS and Interoperability has presented new opportunities, which in turn enhances profitability and innovation (Gunasekaran et al., 2017; Westerman et al., 2014).

In addition, another indicator of BP includes innovation which encompasses the creation and development of ideas, products and services of a unique nature to gain a competitive edge over others (Pisano, 2015). Innovation in the pharmaceutical sector offers opportunities to develop new drugs, streamline clinical trials, and personalize medicine utilizing BDA (Wamba et al., 2017) and digital technologies (Harrer et al., 2019), leading to transform the process and result in better outcomes such as profitability and productivity (Goyanes et al., 2019). However, limited research exists in this regard. Thus, to fill this gap, following hypotheses were framed. Figure 1 shows the research framework.

H1a: BDA significantly influences Productivity.
H1b: BDA significantly influences Profitability.
H1c: BDA significantly influences Innovation.

H2a: CPS significantly influences Productivity.
H2b: CPS significantly influences Profitability.
H2c: CPS significantly influences Innovation.
H3a: IoT significantly influences Productivity.
H3b: IoT significantly influences Profitability.
H3c: IoT significantly influences Innovation.
H4a: Interoperability significantly influences Productivity.
H4b: Interoperability significantly influences Profitability.
H4c: Interoperability significantly influences innovation.

RESEARCH FRAMEWORK

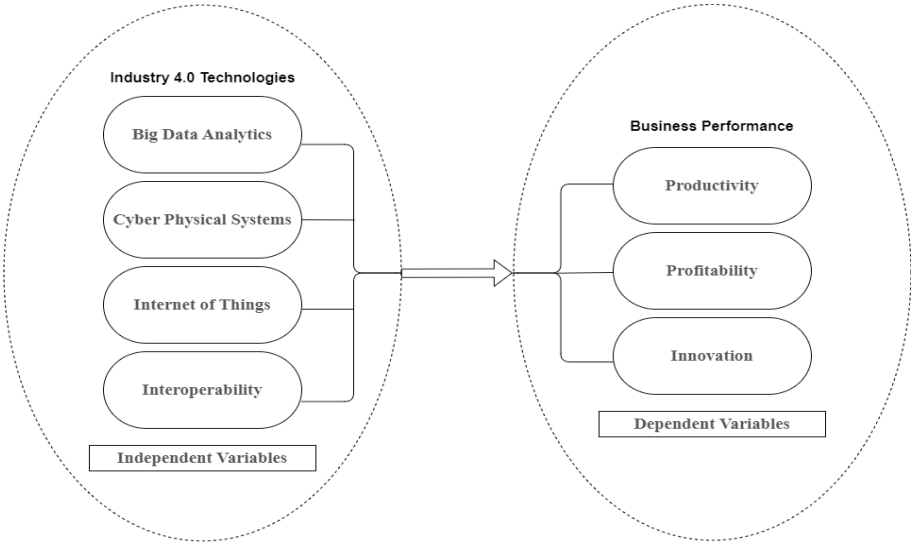

Figure 1: Research Framework

METHODOLOGY

A quantitative research approach was used to examine the influence of industry 4.0 technologies on business performance in the pharmaceutical sector in Pakistan across Karachi, Islamabad, and Peshawar. This includes individuals involved in operations, supply chain, manufacturing, quality assurance, research and development (R&D), and other key departments where digital transformation initiatives are likely to be implemented. A structured questionnaire was used for data collection. The causal element of the research design aims to uncover potential cause-and-effect relationships between industry 4.0 technologies and business performance. A total of 500 employees were disseminated, however, 320 responses were received. After

assessment, only 309 responses were appropriate, which have been utilized to generate the results. Smart PLS was used for analysis.

DATA ANALYSIS AND RESULTS

Table 1 shows the demographic details of the respondents.

Table 1: Demographics

Demographics		Frequencies	Percentages %
Gender	Male	170	55.01%
	Female	139	44.98%
Age	Less than 30 years	124	40.12%
	30 to 45 years	98	31.71%
	More than 45 years	87	28.15%
Education	Undergraduate	105	33.98%
	Graduate	95	30.74%
	Postgraduate	109	35.27%
Annual Income	Less than 500,000	134	43.36%
	500,000 to 1,000,000	102	33.01%
	More than 1,000,000	73	23.62%
Position	Junior Staff	109	35.27%
	Mid-Level Management	123	39.80%
	Senior Management	77	24.91%
Department	Operations	34	11.00%
	Supply Chain	130	42.07%
	R&D	48	15.53%
	Quality Assurance	14	4.53%
	Other	83	26.86%
Size of Company	Small: <50 employees	130	42.07%
	Medium: 50-250	126	40.77%
	Large: >250	53	17.15%
Experience	0-5	165	53.39%
	6-10	134	43.36%
	11-15	9	2.91%
	16+	1	0.32%

RELIABILITY AND VALIDITY

Following table presents the reliability and validity analysis for scales used in the study.

Table 2: Reliability and Validity

Construct	Cronbach Alpha	Composite Reliability	Indicator	Outer loadings
BDA	0.857	0.857	BDA-1	0.886
			BDA-2	0.892
			BDA-3	0.867
IOT	0.884	0.885	IOT-1	0.889
			IOT-2	0.925
			IOT-3	0.889
CPS	0.797	0.801	CPS-1	0.833
			CPS-2	0.848
			CPS-3	0.846
INT	0.890	0.890	INT-1	0.920
			INT-2	0.917
			INT-3	0.880
IN	0.734	0.773	IN-1	0.649
			IN-2	0.889
			IN-3	0.875
P	0.731	0.781	P-1	0.886
			P-2	0.865
			P-3	0.653
PR	0.825	0.857	PR-1	0.819
			PR-2	0..71
			PR-3	0.883

As per table 2, there is no issue of reliability and validity. All scales have Cronbach's Alpha values above 0.80, which is well above the acceptable threshold of 0.70, confirming that the questionnaire is reliable and valid as the scales are consistent in measuring the constructs they are intended to measure.

DISCRIMINANT VALIDITY

Discriminant validity was assessed using Fornell-Larcker criterion. As per the criterion, the square root of the Average Variance Extracted (AVE) for each construct should surpass the highest correlation with any other construct in the model. The table below summarizes the Fornell-Larcker criterion results.

Table 3: Discriminant Validity

	BDA	CPS	IN	INT	IOT	P	PR
BDA	0.882	-	-	-	-	-	-
CPS	0.523	0.901	-	-	-	-	-
IN	0.615	0.687	0.843	-	-	-	-
INT	0.588	0.595	0.787	0.906	-	-	-
IOT	0.669	0.797	0.683	0.627	0.812	-	-
P	0.513	0.626	0.825	0.695	0.630	0.808	-
PR	0.401	0.462	0.565	0.516	0.402	0.636	0.859

Another method to assess discriminant validity is through cross-loadings. Each item should load highest on its corresponding construct compared to other constructs. The table below presents the cross-loadings for all items.

Table 4: Cross Loadings

	BDA	CPS	IN	INT	IOT	P	PR
BDA-1	**0.886**	0.466	0.560	0.518	0.569	0.456	0.378
BDA-2	**0.892**	0.476	0.537	0.501	0.583	0.424	0.372
BDA-3	**0.867**	0.441	0.530	0.536	0.620	0.478	0.308
CPS-1	0.479	**0.889**	0.590	0.556	0.768	0.569	0.376
CPS-2	0.484	**0.925**	0.614	0.518	0.744	0.576	0.454
CPS-3	0.451	**0.889**	0.653	0.536	0.645	0.548	0.417
IN-1	0.570	0.540	**0.833**	0.794	0.560	0.613	0.448
IN-2	0.480	0.622	**0.848**	0.611	0.584	0.722	0.477
IN-3	0.496	0.580	**0.846**	0.560	0.584	0.767	0.509
INT-1	0.529	0.547	0.690	**0.920**	0.581	0.645	0.446
INT-2	0.505	0.517	0.697	**0.917**	0.525	0.639	0.468
INT-3	0.562	0.551	0.751	**0.880**	0.596	0.604	0.487
IOT-1	0.706	0.381	0.420	0.437	**0.649**	0.399	0.248
IOT-2	0.509	0.683	0.605	0.554	**0.889**	0.564	0.329
IOT-3	0.482	0.815	0.615	0.530	**0.875**	0.555	0.387
P-1	0.455	0.612	0.758	0.666	0.567	**0.886**	0.480
P-2	0.428	0.508	0.700	0.575	0.569	**0.865**	0.427
P-3	0.358	0.363	0.516	0.408	0.365	**0.653**	0.726
PR-1	0.296	0.306	0.402	0.339	0.278	0.490	**0.819**
PR-2	0.405	0.471	0.557	0.532	0.407	0.570	**0.871**
PR-3	0.310	0.381	0.468	0.420	0.325	0.568	**0.883**

COLLINEARITY STATISTICS (VIF)

Table 5 shows the collinearity statistics. The collinearity statistics (VIF)

reveal that all constructs exhibit acceptable levels, as all VIF values are below the critical threshold of 5, which indicates no collinearity issue.

Table 5: VIF

CONSTRUCT		VIF
BDA	BDA-1	2.166
	BDA-2	2.317
	BDA-3	2.002
CPS	CPS-1	2.464
	CPS-2	3.066
	CPS-3	2.323
IN	IN-1	1.507
	IN-2	1.858
	IN-3	1.897
INT	INT-1	3.218
	INT-2	3.138
	INT-3	2.130
IOT	IOT-1	1.200
	IOT-2	2.057
	IOT-3	1.962
P	P-1	1.827
	P-2	1.827
	P-3	1.217
PR	PR-1	1.966
	PR-2	1.674
	PR-3	2.295

PATH ANALYSIS

As per the results, all the proposed hypotheses were accepted as P value is less than 0.05, as mentioned in table 6, except the link between BDA, P and PR along with IOT with IN, P and PR as the P value is greater than 0.05

Table 6: Hypotheses Testing

	Original sample	Sample mean	Standard deviation	T statistics	P values
BDA -> IN	0.135	0.135	0.048	2.820	0.005
BDA -> P	0.033	0.034	0.061	0.539	0.590
BDA -> PR	0.138	0.138	0.072	1.926	0.054
CPS -> IN	0.262	0.264	0.065	4.039	0.000
CPS -> P	0.223	0.223	0.074	3.003	0.003
CPS -> PR	0.301	0.297	0.091	3.328	0.001
INT -> IN	0.513	0.513	0.048	10.741	0.000
INT -> P	0.450	0.448	0.055	8.188	0.000
INT -> PR	0.350	0.349	0.068	5.113	0.000
IOT -> IN	0.062	0.061	0.080	0.771	0.441
IOT -> P	0.149	0.150	0.081	1.834	0.067
IOT -> PR	-0.150	-0.144	0.100	1.502	0.133

DISCUSSION AND CONCLUSION

In this study, we delve to examine the impact that industry 4.0 technologies have on business performance within the pharmaceutical sector of Pakistan. Through empirical evidence in this research, we unravel that industry 4.0 digital technologies stimulate and nurture a culture of innovation within pharmaceutical enterprises (Pisano, 2015). As per the results, BDA significantly affects innovation and has no impact on productivity and profitability. On the other side, CPS and interpretability significantly affect innovation, productivity and profitability. However, IoT has an insignificant influence on innovation, productivity and profitability.

This indicates that leveraging these industries 4.0 technologies can help in transforming the pharmaceutical sector's business performance indicators to achieve operational efficiency and strategic agility to navigate complex market dynamics with resilience and adaptability to innovate (Frey & Osborne, 2017) and improves profitability and productivity within the pharmaceutical sector in an increasingly digitalized landscape (Titman & Martin, 2011).

It is concluded that digital (industry 4.0) technologies significantly affect the business performance indicators in the Pakistani pharmaceutical sector. Through analysis, it has become evident that these technological advancements significantly contribute to fostering innovation and enhancing productivity and profitability. In order to harness the digital transformation benefits, pharmaceutical companies must adopt a comprehensive and

integrated approach for technological adoption by taking strategic initiatives through fostering collaboration to nurture talent. It is possible through continuous learning and development programs and perpetually striving for operational excellence, sustained growth, competitiveness, and resilience in the evolving digital technologies.

RECOMMENDATIONS AND LIMITATIONS

In light of this research, pharmaceutical organizations must recognize that the journey toward digital transformation is not a singular event but an ongoing process of adaptation and evolution. Managers must foster a culture of innovation and agility to facilitate the continual exploration and integration of emerging digital technologies within the organizational processes. Furthermore, managers must foster a collaborative environment to interact with external stakeholders to become innovative and more competitive by utilizing information and data. It is possible when a supportive ecosystem is built, which helps in digital transformation.

Additionally, it is imperative to build infrastructure that supports the integration of digital technologies. Ultimately, implementing digital transformation is seen as a strategic move to be proactive in adopting a holistic approach to innovation. In this way, pharmaceutical companies can position themselves as leaders in the digital era, driving positive outcomes for their businesses, leading to a better healthcare ecosystem and society for a more sustainable future.

This research is limited to pharmaceutical companies in Pakistan. Future researchers may conduct this study in other service sectors to broaden the scope of industry 4.0 digital technologies studies. Moreover, this research is limited to examining the role of BDA, IoT, CPS and interoperability on business performance indicators. Future researchers may study the role of artificial intelligence (AI) in optimizing business performance indicators.

REFERENCES

Baheti, R., & Gill, H. (2011). Cyber-physical systems. *The Impact of Control Technology, 12*(1), 161-166.

Brettel, M., Friederichsen, N., Keller, M., & Rosenberg, M. (2014). How virtualization, decentralization and network building change the manufacturing landscape: An Industry 4.0 perspective. *International Journal of Mechanical, Industrial Science and Engineering, 8*(1), 109-114.

Ding, L., Li, S., Li, D., & Ooi, B. C. (2020). A survey of Internet of Things: Systems, applications and challenges. *IEEE Network, 34*(1), 1-9.

Eichelberg, M., Aden, T., Riesener, M., & Mezgár, I. (2019). The role of interoperability standards in the digital transformation of the process industry. *Computers in Industry, 108*, 56-67.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change, 114*, 254-280.

Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. *International Journal of Information Management, 35*(2), 137-144.

Goyanes, A., Wang, J., Buanz, A., Martinez-Pacheco, R., & Telford, R. (2019). 3D printing for personalized medicine: A review of current technologies and future applications. *Advanced Drug Delivery Reviews, 146*, 247-268.

Gunasekaran, A., Papadopoulos, T., & Dubey, R. (2017). The impact of big data analytics on operational efficiency and organizational productivity: A systematic literature review. *Operational Research, 17*(2), 287-322.

Harrer, S., Shah, P., Antony, B., & Huynh, T. (2019). Artificial intelligence for clinical trial design. *Trends in Pharmacological Sciences, 40*(8), 577-591.

Hermann, M., Pentek, T., & Otto, B. (2016). Design principles for Industrie 4.0 scenarios. In *2016 49th Hawaii International Conference on*

System Sciences (HICSS) (pp. 3928-3937). IEEE.

HIMSS. (2020). *HIMSS interoperability definition*. HIMSS.

IEEE. (2004). *IEEE standard computer dictionary: A compilation of IEEE standard computer glossaries*. Institute of Electrical and Electronics Engineers.

Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard—measures that drive performance. *Harvard Business Review, 70*(1), 71-79.

Lasi, H., Fettke, P., Kemper, H. G., Feld, T., & Hoffmann, M. (2014). Industry 4.0. *Business & Information Systems Engineering, 6*(4), 239-242.

Lee, E. A. (2008). Cyber physical systems: Design challenges. In *2008 11th IEEE International Symposium on Object and Component-Oriented Real-Time Distributed Computing (ISORC)* (pp. 363-369). IEEE.

Lee, E. A., & Seshia, S. A. (2016). *Introduction to embedded systems, a cyber-physical systems approach*. MIT Press.

Li, Y., Li, K., Li, D., & Cheng, X. (2020). Internet of Things (IoT) for drug development: Opportunities, challenges and future directions. *Drug Discovery Today, 25*(1), 10-17.

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing—The business perspective. *Decision Support Systems, 51*(1), 176-189.

Mell, P., & Grance, T. (2011). The NIST definition of cloud computing. *National Institute of Standards and Technology, Special Publication 800-145*.

OECD. (2015). *The future of productivity*. OECD Publishing.

Pisano, G. P. (2015). You need an innovation strategy. *Harvard Business Review, 93*(6), 44-54.

Rajkumar, R., Lee, I., Sha, L., & Stankovic, J. (2010). Cyber-physical systems: The next computing revolution. In *Proceedings of the 47th Design Automation Conference* (pp. 731-736). ACM.

Ross, S. A., Westerfield, R. W., & Jaffe, J. F. (2013). *Corporate finance* (10th ed.). McGraw-Hill Irwin.

Sareen, A., Agarwal, P., & Singh, A. (2021). Internet of things (IoT) in pharmaceutical supply chain: A structured literature review and research agenda. *Production Planning & Control, 32*(14), 1135-1163.

Singh, S., Kumar, R., & Singh, P. K. (2019). Cyber-physical systems for pharmaceutical manufacturing: A review. *Journal of Pharmaceutical Innovation, 14*(3), 232-243.

Syverson, C. (2011). What determines productivity? *Journal of Economic Literature, 49*(2), 326-365.

Titman, S., & Martin, J. D. (2011). *Valuation: The art and science of corporate investment decisions* (4th ed.). Pearson Education.

Wamba, S. F., Akter, S., Edwards, A., Chopin, G., & Gnanzou, D. (2017). How 'big data' can make big impact: Findings from a systematic review and a longitudinal case study. *International Journal of Production Economics, 191*, 355-371.

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Press.

Wortmann, F., & Flüchter, K. (2015). Internet of things. *Business & Information Systems Engineering, 57*(3), 221-224.

Xu, L. D., He, W., & Li, S. (2014). Internet of things in industries: A survey. *IEEE Transactions on Industrial Informatics, 10*(4), 2233-2243.

Zhang, Z. K., Cho, M. C. Y., Wang, C. W., Hsu, C. W., Chen, C. C., & Shieh, S. (2016). IoT security: Ongoing challenges and research opportunities. In *7th International Conference on the Internet of Things (IoT)* (pp. 1-8). IEEE.

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ENTREPRENEURIAL MINDSET AMONG YOUTH: ASSESSING READINESS FOR LEADERSHIP AND INNOVATION

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ABSTRACT

The need to foster youth leadership, innovation, and economic development is contingent on having an entrepreneurial mindset. This study aimed to measure young individuals‘ readiness towards entrepreneurial leadership, in terms of their perceptions, abilities and challenges. Using a thematic analysis all key themes from the speeches included financial constraints, the role of education as a leader, the potential for leadership, and the need for innovation. They are also found to be resourceful and have high leadership potential and interest in entrepreneurship, but are faced with challenges of access to capital and the regulation business, as well as a lack of access to practical education in entrepreneurship. Respondents indicated the need for mentorship programs, experiential learning and policy support for readiness and embrace of entrepreneurial behavior. Therefore according to the study, entrepreneurship education and the surrounding ecosystem play a major role in the shaping of youth-driven innovation and business creation. It contributes by discussing policy intervention, curriculum reform, and support for strategic motions that could rally a strong youth entrepreneurial culture. As such, future research must investigate what are the long-term results of entrepreneurship education on youth business success and their involvement in the development of the economy.

Keywords*: Entrepreneurial Mindset, Youth Entrepreneurship, Leadership, Innovation, Entrepreneurship Education, Economic Development*

INTRODUCTION

The entrepreneurial mindset is becoming increasingly an important determining factor for economic growth, leadership development, and

creativity. It is youth entrepreneurship that contributes a great deal to the formation of economies through the promotion of creativity, job creation, and competitiveness (Hisrich 2 et al, 2017). In the era of globalization and high technology, youth are in demand for characteristics of being an entrepreneur, namely flexibility, having the potential to take risks, and being proactive in detecting problems (Kuratko, 2016). Although a lot is being talked about in entrepreneurship education and policy formulation, the extent to which youth are ready for leadership and innovation remains a question worth asking.

Entrepreneurial mindset refers to a collection of cognitive and behavioral inclinations that lead people to find opportunities, face uncertainty, and engage in new activities (Neck, Greene, & Brush, 2019). It includes the ability to think critically, all of which are needed to navigate an increasingly complex business environment. This requires young people to develop entrepreneurial competencies to fit into the new demands of the global economy, therefore transitioning from traditional employment models to more dynamic and self-directed careers (Gibb, 3332). Youth's ability to take up the entrepreneurial potential directly affects the economic development and progress of a society, primarily in emerging economies that face constrained job markets (Audretsch, Keilbach, & Lehmann, 2006).

Entrepreneurship involves leadership and innovation. Entrepreneurial leaders are capable of mobilizing resources and thinking strategically and they have a vision (Bagheri & Pihie, 2010). In the case of youth, some of the factors that contribute to being leadership-ready are educational experience, exposure to entrepreneurial role models, and access to financial and social capital (Rae, 2007). Additionally, innovation acts as an impetus for the process of economic transformation by encouraging youth entrepreneurs to come up with innovations that would fill existing market gaps and societal challenges (Schumpeter, 1934). In light of these factors, it is necessary to assess youth's preparedness to take up entrepreneurial leadership and innovation.

Growing evidence is emerging on the role of education in creating readiness for entrepreneurship among youth (Fayolle & Gailly, 2015). The entrepreneurship education programs are meant to develop critical thinking, opportunity recognition, and strategic decision-making (Pittaway & Cope, 2007). Yet, there are barriers of inequality in the quality of education, access to mentorship and socio-economic status that limit the development of entrepreneurial capabilities among young people (Henry, Hill, & Leitch,

2005). There is a need to explore the potential effectiveness of entrepreneurship education in promoting an entrepreneurial mindset, especially in developing countries where youth unemployment persists (World Bank, 2020).

What is important despite the focus on fostering entrepreneurship among youth is that there are challenges. Key barriers to be overcome by aspiring young entrepreneurs (OECD, 2017) include limited access to financial resources, regulatory constraints as well as risk aversion. Furthermore, young people's consideration of getting involved in entrepreneurial activities is affected by cultural perceptions of entrepreneurship as a viable career path (Thornton, Ribeiro-Soriano, & Urbano, 2011). An understanding of these challenges is key for designing targeted interventions aimed at improving the potential for entrepreneurial readiness and leadership.

The major objective of this study is to evaluate the entrepreneurial mindset of youth and to review their preparedness to be leaders and innovators. Using factors contributing to or hindering entrepreneurial preparedness, this research is aimed at aiding authorities in educational institutions, policy makers, and business support organizations on how to enhance youth entrepreneurship.

LITERATURE REVIEW

Theoretical Foundations of Entrepreneurial Mindset

Several frameworks support the development of an entrepreneurial mindset for the youth. The Theory of Planned Behavior (TPB) of Ajzen (1991) is one of the more relevant. The three important aspects that shape entrepreneurial intention are attitude toward behavior, subjective norms, and perceived behavioral control. Individuals with a positive attitude toward entrepreneurship as well as encouragement from society and family as well as a high sense of self-efficacy are more likely to engage in entrepreneur initiatives (Krueger, Reilly, & Carsrud, 2000). Under this theory, it is emphasized that creating a supportive environment and confidence to enhance young people's entrepreneurship capacities is necessary.

An additional important theoretical perspective is Schumpeter's Theory of Innovation (1934) which concentrates on entrepreneurs as innovators and creative destroyers. Economic transformation and job creation require innovation-driven entrepreneurs among youth. According to Schumpeter (as cited in Drucker, 1985), today's market makes it necessary for young people to be equipped with the skills in problem-solving, strategic vision, and innovativeness to compete.

Education and skill development are also studied from the perspective of Human Capital Theory (Becker, 1964). According to this theory, educated and more knowledgeable individuals have a higher potential to become entrepreneurs. The empirical work shows that there is support for the notion that entrepreneurial education enhances youth readiness by fostering leadership qualities, creativity, and adaptability (Martin, McNally, Kay, 2013).

RESULTS AND DISCUSSION

A key thematic analysis of the data was made regarding the entrepreneurial mindset among youth. Among these themes are perceived barriers to entrepreneurship, issues of education, having leadership potential, and possessing innovative capabilities.

Perceived Barriers to Entrepreneurship

Several respondents highlighted financial constraints and lack of access to capital as particularly significant challenges. 'Launching a business is tough as banks and investors are hesitant in funding young entrepreneurs,' said one participant. Also, regulatory hurdles were mentioned as a deterrent and one respondent indicated, 'The bureaucracy involved prevents many potential entrepreneurs from pursuing their business ideas'. Unverfährt's findings are consistent with other research (OECD, 2017) that demonstrates that there are high financial and regulatory barriers to youth entrepreneurship.

Role of Education in Entrepreneurial Mindset

Education was emphasized by many participants about their journey to the entrepreneurial perspective. An interviewee stated, "Our university teaches us theoretical knowledge but the practical exposure to entrepreneurship is limited." One of the respondents noticed that 'Mentorship programs and internships would help to bridge the gap between academic learning and real-world business challenges.' The results here correspond with research highlighting that experiential learning is pivotal in creativity related to the development of entrepreneurial skills (Fayolle & Gailly, 2015).

Leadership Potential and Entrepreneurial Readiness

A theme that emerged was leadership, where respondents were confident and willing to take initiative. Entrepreneurship is not limited to business as one participant stated, 'Entrepreneurship is to do with leading people and to take up challenges.' Some interviewees though pointed the need for more and better leadership training, especially concerning decision-making and

risk management. This, however, means that leadership development forms a hallowed ground of entrepreneurship education (Bagheri & Pihie, 2010).

Innovation as a Driver of Youth Entrepreneurship

One discovered innovation exists as a key factor influencing youth entrepreneurship. "We have to think about things differently than we have and to look for digital transformation to keep up in business," said one person. 'A venture can only succeed when there is creative problem solving, particularly in this era of fast-paced changes in the economy,' another participant added. In line with Schumpeter's Theory of Innovation, it is based on the fact that an entrepreneur drives changes in the economy (Schumpeter, 1934).

The results imply that although young people have leadership potential and entrepreneurship desire, financial obstacles, poor practical education, and regulatory issues prevent them from being ready. Policy interventions, education reforms, and mentorship programs aimed at addressing these gaps may promote youth entrepreneurship and innovation. Future research will need to identify the long-term effect of providing entrepreneurship education and mechanisms of support on youth business success.

CONCLUSION

The findings of this study highlight that youth exhibit significant potential for entrepreneurship, leadership, and innovation. However, they are not fully engaged in entrepreneurial activities due to several barriers, financial constraints, regulatory challenges, and gaps in entrepreneurship education. Therefore, it points out the need to encourage an entrepreneurial mindset by implementing targeted intervention in the form of educational improvement, mentorship programs, and accessible sources of finance. Moreover, leadership development should be included as a component of entrepreneurship education so that the young ones can manage the risks and drive innovations effectively. All these challenges need to be addressed to harness the entrepreneurial youth potential of the rest of the population, which will contribute positively to economic growth and job creation.

Implications

The study has several implications for policymakers, educators, and business support organizations.

1. Universities and training centers: There is a need to integrate practical entrepreneurship education that blends the learning of theoretical

knowledge with experiential learning, mentorship, and exposure to the real world. Rather the programs should emphasize leadership development, risk-taking, and innovation.

2. Governments, in the form of policymakers need to implement policies that offer financial assistance to them, reduce restrictions against them, and create a business-friendly environment for them. Venture capital and startup incubators can foster youth participation in entrepreneurship but are encouraged.
3. Networking, training, and other support services are essential for entrepreneurs; they need help understanding the complexity of the business landscape; business support organizations should therefore offer networking opportunities, training programs as well as other support services that would facilitate the success of the young entrepreneurs in the world of business.
4. The society‘s attitude should be changed to a point where entrepreneurship is considered as an option worth living and not a last resort.

Future Recommendations

Following the findings of this study, these recommendations are suggested for further research and practical initiatives in building upon the findings:

1. Future research should examine the long-term effects of entrepreneurship education and policy interventions on the long-term success of youth entrepreneurial initiatives.
2. Gender-Specific Research: Young women are different from young men when it comes to the entrepreneurial mindset, so apart from the whole, the barriers and opportunities of women in entrepreneurship can be comprehended.
3. Digital Transformation: The applications of digital transformation, artificial intelligence, blockchain, and similar technologies to enhance youth entrepreneurship are a variable of overlying interest that will greatly be effective to their entrepreneurial strategies in the future.
4. Comparative Studies: Comparative studies, on either side of the country or within different country settings, may provide a wider scope for learning best practices and challenges in the field of youth entrepreneurship.

Addressing these aspects will help future research to better prepare the youth for entrepreneurship, leadership, and innovation in a changing today’s ever-changing economic landscape.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Audretsch, D. B., Keilbach, M., & Lehmann, E. (2006). *Entrepreneurship and economic growth.* Oxford University Press.

Bagheri, A., & Pihie, Z. A. L. (2010). Entrepreneurial leadership learning: In search of missing links. *Procedia - Social and Behavioral Sciences, 7*, 470-479.

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education.* University of Chicago Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Drucker, P. F. (1985). *Innovation and entrepreneurship: Practice and principles.* Harper & Row

Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management, 53*(1), 75-93.

Gibb, A. (2002). In pursuit of a new 'enterprise' and 'entrepreneurship' paradigm for learning: Creative destruction, new values, new ways of doing things, and new combinations of knowledge. *International Journal of Management Reviews, 4*(3), 233-269.

Henry, C., Hill, F., & Leitch, C. (2005). *Entrepreneurship education and training: Can entrepreneurship be taught?* Ashgate Publishing.

Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2017). *Entrepreneurship.* McGraw-Hill Education.

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15*(5-6), 411-432.Kuratko, D. F. (2016). *Entrepreneurship: Theory, process, and practice.* Cengage Learning.

Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business*

Venturing, 28(2), 211-224.

Neck, H. M., Greene, P. G., & Brush, C. G. (2019). *Teaching entrepreneurship: A practice-based approach.* Edward Elgar Publishing.

OECD. (2017). *Youth entrepreneurship and local development in Europe.* OECD Publishing.

Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal, 25*(5), 479-510.

Rae, D. (2007). Connecting enterprise and graduate employability: Challenges to the higher education culture and curriculum? *Education + Training, 49*(8/9), 605-619.

Schumpeter, J. A. (1934). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle.* Harvard University Press.

Thornton, P. H., Ribeiro-Soriano, D., & Urbano, D. (2011). Socio-cultural factors and entrepreneurial activity: An overview. *International Small Business Journal, 29*(2), 105-118.

World Bank. (2020). *World development report 2020: Trading for development in the age of global value chains.* World Bank Publications.

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THE RELATIONSHIP BETWEEN STOCK LIQUIDITY AND STOCK RETURNS

(EVIDENCE FROM THE PAKISTAN STOCK EXCHANGE)

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ABSTRACT

The purpose of the proposed study is to find out the association between the stock liquidity and stock returns within the Pakistan Stock Exchange, focusing on firms in the textile sector and utilizing a quantitative research approach. The study examines secondary data from 41 listed firms from January 1, 2014, to June 26, 2024. This study espouses a panel data tactic to explore the influences of skewness and kurtosis of stock returns, stock price, firm size, and stock return volatility on stock liquidity. The turnover ratio, projected by Datar et al. (1998), is employed as a degree of liquidity owed to its efficiency and data availability. Stock returns are restrained by kurtosis and skewness to apprehension the distributional features of returns. The consequences signify a noteworthy association among stock returns and stock liquidity. Indeed, stocks with higher skewness and kurtosis of returns incline to parade increased liquidity, reflecting a predilection for stocks with hypothetically higher returns and extreme return designs. A negative connexion between stock price and liquidity proposes that higher-priced stocks have lower liquidity, likely due to reduced availability for trading. Conversely, larger firms display higher liquidity, accredited to their greater

market existence and investor sureness. Moreover, lower volatility in stock returns associates with higher liquidity, prominence the constancy within the segment. This research highpoints a profounder and stronger considerate for investors, portfolio managers, risk managers, and policymakers. Investors can leverage this knowledge to construct well-diversified portfolios that balance risk and return. Portfolio managers can optimize investment strategies by allocating capital to assets with desired liquidity characteristics. Risk managers can develop robust frameworks to capture potential price fluctuations, while financial institutions can accurately price financial securities. Policymakers can formulate regulations to enhance market liquidity and stability. Overall, this research directs to a deeper understanding of the dynamics between stock returns and liquidity in an emerging market context, offering practical implications for enhancing financial decision-making and market efficiency.

Keywords: *Stock Price, Liquidity, Stock Returns.*

INTRODUCTION

The stock market enables the fund's transfer from creditors to debtors, drives investment, and flourish economic growth (Rose & Marquis, 2008Precisely, it will command investors to divide a part of the firm's profitability. The variation of price indices positively drives the confidence of individual and potential investors impacting the overall economy. As, stock indices sharpens, public commitment in the economy also enhances, forwarding to an increased number of investors in the market. The Pakistani Stock Exchange (PSX), a major player in South Asia's financial landscape, serves as a vital platform for capital mobilization. It facilitates investment opportunities for individuals and institutions, boasting over 1.8 million active investor accounts as of December 2023. However, the relationship between stock liquidity and returns within the PSX remains an under-explored territory compared to developed markets. This gap in knowledge hinders the development of efficient investment strategies, effective risk management practices, and accurate pricing of financial securities in Pakistan.

Stock liquidity is defined as buying and selling security of security rapidly

without any significant impact on price and without incurring high transaction costs (Balasemi et al., 2015). Stock liquidity is a very crucial factor for all stakeholders. In addition, market volatility can be measured by one of the most important variable counts as stock liquidity. Moreover, It is also known as a foundation of an efficient financial market. It promotes for efficient price determination, lower transaction costs, and stabilized market (Amihud et al., 2005).

Specifically, the prevalence of liquidity for investors, incorportaes their profit-oriented strategy. Liquidity is positively associated with stock return (Amihud & Mendelson, 1986) (Bradrania & Peat, 2014) (Brennan & Subrahmanyam, 1996) (Chang et al., 2010) and will definitely be a consideration for investors in throwing rational decision (Bradrania & Peat, 2014) (Cao & Petrasek, 2014). Stock return can be defined as a probability distribution of a stock's price changes over a specific period. It encompasses not only the average return but also the risk associated with an investment. For the purposes of risk reduction, portfolio rationalisation, and appraisal pricing, the universal distribution of stock returns is crucial. The skewness and kurtosis of the gains rallocation can be used to gauge its direction. The distribution's skewness quantifies the relative likelihood of both positive and negative benefits. Kurtosis, which shows the likelihood of stock price fluctuations, analyses the trend of the distribution's tails (Ivanovski et al., 2015) Amihud (1982),

In the context of Pakistan, the Pakistan Stock Exchange is a key component of the country's financial market, playing a crucial role in capital formation and economic growth. Understanding the relationship between stock liquidity and the distribution of returns in the PSX is of great importance for investors, portfolio managers, and policymakers. This study investigates the relationship between stock liquidity and stock returns (as measured by skewness and kurtosis) for 41 textile firms listed on the Pakistan Stock Exchange between January 2014 and June 2024.

1.1Research Gap

Literature streams show that a huge portion of studies on stock market liquidity and returns are conducted in most of the developed countries while the gap exists in developing countries specifically in Asia region.Therefore, the proposed research gap highlights the need to investigate the relationship between stock liquidity and returns in the PSX, focusing on the specific

characteristics and dynamics of the Pakistani market. This study aims to examine the relationship between the liquidity of a stock and the returns of Companies listed on the Pakistan Stock Exchange.

1.2Significance of the Study

Considerate the rapport between liquidity and stock returns is vital for numerous investors inside the Pakistani financial system. Investors can customized this information to construct well-diversified portfolios that balance risk and return budding. Portfolio managers can exploit it to enhance their speculation strategies by assigning capital to assets with the anticipated liquidity and return features. Risk managers can hire it to develop vigorous agendas that sufficiently seizure the latent for price variations related with numerous investment choices. Lastly, financial institutions can employ this data to exactly price financial derivatives like options and futures, which are sensitive to both liquidity and return distribution. Additionally, policymakers can utilize this knowledge to develop effective regulations and policies aimed at enhancing market liquidity and stability.

Research Problem

The correlation between liquidity and stock performance is crucial. The relationship between liquidity and stock returns in developed markets has been the subject of numerous research. A fundamental connection was made by Amihud (1982), who showed that less liquid equities usually have greater expected returns to make up for the risk of illiquidity. According to Amihud et al. (2005), liquidity forecasts future profits. Furthermore, Baker and Stein (2004) demonstrate that stock returns and liquidity are positively correlated. Likewise, Chordia et al. (2001) discovered a favourable correlation between illiquidity premiums and return volatility, highlighting the inherent risk associated with less liquid assets (Chordia, Roll, & Subrahmanyam, 2008). These findings suggest that investors in developed markets demand a premium for holding fewer liquid stocks, reflecting the potential for higher transaction costs and difficulty in exiting positions when desired. Therefore, there is a need for a thorough empirical study to recheck the existing relationship between these variables. This is aimed to fill this gap.

Research Objectives

The main objectives of this study are as follows:

1. To examine the relationship between stock liquidity and stock returns (measured by kurtosis and skewness) in the Pakistan Stock Exchange.

2. To investigate the impact of stock returns volatility on the liquidity of stock in the Pakistan Stock Exchange.
3. To investigate the impact of the size of the firm on the liquidity of stock in the Pakistan Stock Exchange.
4. To evaluate the impact of the stock price on liquidity of stock in the Pakistan Stock Exchange.

1.5 Research Questions

To achieve the above objectives, the study will address the following research questions:

1. Is there a significant relationship between stock liquidity and stock returns in the Pakistan Stock Exchange?
2. Does Stock returns volatility affect the stock liquidity in the Pakistan Stock Exchange?
3. Does firm size affect the stock liquidity in the Pakistan Stock Exchange?
4. Does Stock price affect the stock liquidity in the Pakistan Stock Exchange?

LITERATURE REVIEW

2.1 Theoretical Framework

Empirical studies have also supported the liquidity premium theory. For example, Wati and Utama (2024) concluded in a study that stock price volatility (STDV) has a considerable negative impact on firm value, signaling that increase in stock price volatility increases investment risk and declines investor's behavior. Febrianti & Saadah (2023) conducted a study on international markets. They utilized the Amihud measurement as a liquidity measure to explore the impact of liquidity on stock returns across G7 countries and found a positive correlation between liquidity and stock returns. This underscores the significance of liquidity in shaping stock return dynamics on an international scale. Xie et al. (2022) have established a theoretical link between stock price, share volume, and stock return with stock liquidity and found a positive association with stock liquidity through the inventory channel. Meidiaswati & Arif (2022) also noted a positive effect of liquidity on stock returns in the miscellaneous industrial sector on the Indonesia Stock Exchange.

Daryaei & Fattahi (2021) further emphasized that companies tend to improve stock liquidity to enhance returns and company value. Zhang et al. (2021) examined the relationship between liquidity, stock returns, and

investor risk aversion, particularly focusing on the variance risk premium. Their findings help to understand how investor behavior and risk preferences interact with liquidity to shape stock market outcomes. Studies by Sethy and Tripathy (2024) suggest that higher return volatility tends to reduce stock liquidity. Supporting that (Budhathoki et al, 2024) conducted a study in which results highlighted that trading volume, a proxy of liquidity, affecting stock returns positively in Nepalese commercial banks. Furthermore, asset growth and return on assets show a weakly favorable link with stock returns in Nepal. Similarly, when taking into account the international financial liquidity element, Lee (2011) and Liu (2006) found that liquidity had a positive and significant impact on the predicted return. According to Papavassiliou's (2013) research on liquidity pricing in the Greek stock market, shocks occur because liquidity has a big impact on portfolio diversification. According to V. Maurice and Stephen (2015), the average cross-sectional stock return variation before and after removing noise from the closing price caused by microstructure is captured by systematic liquidity risk. Illiquidity shocks and return and volatility in many markets and assets are significantly correlated (Andrikopoulos, Timotheos, & Vasiliki, 2014).

Additively, Naik & Reddy (2021) emphasized the role of institutional ownership in determining a positive relationship between liquidity and stock returns. Additionally, they pointed out that liquidity influences expected returns by determining the relationship between expected returns and volatility. Nugroho & Pristiana (2021) also highlighted the importance of liquidity in determining stock prices, noting a positive relationship between excess returns and liquidity.

In the other dimension, Gushendri and Yunita(2024) commented a negative and significant relationship between stock liquidity and company size, profitability, leverage, growth, inflation, and dividend policy among non-financial firms listed on the IDX30.Moreover, Assagaf & Kartikasari (2019) highlighted that liquidity significantly moderates the relationship between profitability and stock returns. Abdullahi & Fakunmoju (2019) linked market liquidity and macroeconomic factors with stock returns, emphasizing the importance of liquidity in this relationship. Sitorus et al. (2019) explored the connection between company size growth, stock liquidity, and stock returns, emphasizing the role of mispricing. Stere-czak (2017) discussed different forms of illiquidity risk and their impact on stock returns. Additionally,

Isshaq & Faff (2016) showed the positive impact of stock liquidity risk on the earnings-return relationship. Singh et al. (2015) found a correlation between stock market liquidity and firm performance. Tripathy & Ahluwalia (2015) discussed the positive relationship between a stock's uncertainty elasticity of liquidity and its expected return. Batten & Vo (2014) noted a strong seasonal component in the liquidity-stock return association, revealing a positive relationship in January.

Moreover, Kilonzo and Nkuru(2024) accentuated a notable contact of liquidity on the share returns of the agricultural firms whie it a profound negative interaction of profitability on share returns in this sector. Emerging markets have lower stock liquidity, compared to developed economies (D, Lesmond, 2005). However, the negative link between liquidity and returns is not established in these emerging markets. Rouwenhorst (1999) suggested that returns in emerging markets cannot be explained by liquidity. A study by Amihud and Levi (2022) suggested that stocks with illiquidity tend to offer potentially higher stock returns. This implies that some of the expected excess return on stock might be a reward for dealing with its less liquid nature. Interestingly, Amihud's research found that both anticipated and unanticipated illiquidity mattered in the past. However, Harris and Amato (2019) argued that only unexpected illiquidity seems to be linked to overall market movements. Furthermore, they criticize Amihud's methods for measuring liquidity, suggesting simpler alternatives might be equally effective.

Wang et al. (2021) examined the relationship between liquidity and return distribution, focusing on firms listed on the London Stock Exchange between 2002-2018. Their study contributes to understanding how liquidity influences the distribution of returns in the stock market. (Wang, A., 2021) suggests that stocks with high asymmetry are less liquid. Wang's (2021) investigation into the empirical relationship between return distribution and liquidity also revealed a negative impact of kurtosis on a stock's liquidity. Loukil et al. (2010) also examined the return-liquidity relationship and found evidence of a substantial positive premium for companies with low trading frequency and a strong price effect. This research also suggests that investors value stocks with lower spreads. The relationship between stock returns and potential execution delays is non-linear. Finally, Loukil et al. (2010) highlighted the need for a premium to compensate for historical cumulative liquidity risks,

which include the impact of high prices, low turnover, and the potential for significant execution delays.

2.2 Conceptual Framework

The constructed model has theoretically and practically evidenced in previous studies interconnecting stock liquidity to market and firm oriented variables. Kurtosis and Skewness indicate risks and return un-uniformity which may determine the relation between investor's behaviour and market collinearity by linking liquidity(Wang and Yadav, 1995) (Bali et al, 2011) (Bekaert et al, 2011) (Asmussen, 2022) (Benuzzi and Ploner, 2024) recommended mathematically proof of interrelation of the selected variables. In the other dimension, (Fama and French, 1993) (Chordia et al, 2001) (Karanasos et al, 2022) emphasized that size of the firm has positive relation with liquidity of the firm because firm with a huge capital may attract the number of investors and which can make the market highly efficient for the potential investors.

Return volatility as another independent variable in the proposed model presents uncertainity and declining trend in trade volume of any stock, therefore negative relation with liquidity of the stock liquidity (Pastor & Stambaugh, 2003; Chordia et al., 2001) (Uremadu and Efobi) (2012). Collectively, these factors provide a robust foundation for modeling liquidity as a function of stock-specific statistical and financial attributes.

The conceptual framework used in this study is described as follows:

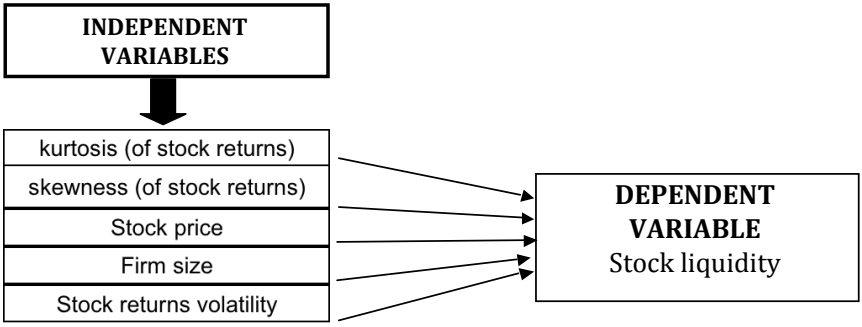

Figure 01- Conceptual Framework

2.3 Hypotheses Development

1. Stock Liquidity and Skewness:

H_1: There is a significant impact of Skewness of stock returns on the

liquidity of stock.

2. **Stock Liquidity and Kurtosis:**
   H_2: There is a significant impact of Kurtosis of stock returns on the liquidity of stock.
3. **Stock Liquidity and Price:**
   H_3: There is a significant impact of the price of the stock on the liquidity of the stock.
4. **Stock Liquidity and Size of Firm:**
   H_4: There is a significant impact of the size of the firm on the liquidity of stock.
5. **Stock Liquidity and Stock Returns Volatility:**
   H_5: There is a significant impact of Stock returns volatility on the liquidity of stock.

RESEARCH METHODOLOGY

3.1. Data Profile

The study uses a quantitative research approach. The sample of this study includes 41 listed firms on the Pakistan Stock Exchange. These firms belong to the textile sector. This study uses daily data on closing value and the trading volume series of each firm from January 01, 2014, to June 26, 2024. These secondary data have been collected from the database of scstrade.com. The study employs a panel data analysis to estimate the relationship between stock liquidity and stock returns in the PSX and regression analysis has been conducted to examine the relationship between stock liquidity and stock returns.

3.2 Measurement of Stock Liquidity

Stock liquidity is a complex variable due to its various interpretations and the inability to directly measure it. In previous studies, researchers have used different proxies to measure liquidity. This study utilizes the trading volume turnover ratio, proposed by Datar et al. (1998) as a liquidity measure. This method has been employed in previous research (Aitken & Forde, 2003; Barinov, 2014; Prommin et al., 2014). The turnover ratio's advantage lies in its use of readily available data, unlike other methods that require data that is unavailable in the Pakistani market for extended periods (bid-ask data, transaction/quote details). Additionally, the turnover ratio surpasses other techniques (Roll 1984, LOT, Amihud 2002, Effective Tick Spread) in its strong correlation with actual stock liquidity. Therefore, considering both

data accessibility and effectiveness in capturing liquidity, the turnover ratio by Datar et al. (1998) is a suitable choice for this study. The formula and calculation method for the turnover ratio are as follows,

$$\textbf{Turnover rate} = \frac{\textit{No of shares traded}}{\textit{No of outstanding shares}}$$

3.3 Measurement of Stock Returns

In this study, stock returns are measured by kurtosis and skewness to capture the distributional characteristics of returns. Stock returns will be calculated by taking the log difference of the daily closing price of stock. The following equation can be used to find the stock returns.

$$\textbf{Stock return} = \ln(P_n) - \ln(P_{n-1})$$

Where P_n represents the current closing price of the given stock and P_{n-1} represents the previous day's closing price of the given stock.

3.3.1 Skewness and Kurtosis of Returns

Skewness quantifies the asymmetry of the distribution, with negative skewness indicating a higher probability of positive returns and positive skewness indicating a higher probability of negative returns. Following Hutson et al. (2008), the traditional test for the skewness of returns on a financial asset, *i*, is calculated using the following formula.

$$\text{Skewness} = \frac{E\,(x_t^i - x^i)^3}{\sigma_i^3}$$

Where x_t^i is the return on investment *i* at time *t*, and σ_i is the standard deviation.

Kurtosis measures the shape of the tails of the distribution, with higher kurtosis indicating a higher probability of extreme values. Following Ivanovski et al. (2015) Kurtosis is calculated using the following formula,

$$\text{Excess Kurtosis} = \frac{E\,(x_t^i - x^i)^4}{\sigma_i^4} - 3$$

Where x_t^i is the return on investment *i* at time *t*, and σ_i is the standard deviation.

3.4. Stock Prices

Stock price and liquidity are organised, with indication from several studies supportive this association. Wang et al. (2020) accentuate that an upsurge in stock price data gratified can augment stock liquidity, leading to amended interior novelty inducements within initiatives. Additionally, Lisdawati et al. (2022) established that liquidity ratios have a noteworthy influence on stock prices, additional underpinning the joining between stock price and liquidity. In supposition, the communal indication from these studies ropes the concept that stock price arrangements effect liquidity stages, which in shot can influence stock returns. The stock price variable cast-off in this study is the final price of apiece stock.

3.5. Stock Returns Volatility

The stock returns volatility represents variation in stock returns from their mean. It plays a significant role in influencing stock liquidity. Studies by Sethy and Tripathy (2024) suggest that higher return volatility tends to reduce stock liquidity. Moreover, the study by Viratama et al. (2022) found that stock returns volatility has a positive effect on stock liquidity in the Indonesia Stock Exchange. This implies that as stock returns become more volatile, there is an increase in stock liquidity.

Statistically, it is calculated by the standard deviation of stock returns. The formula for the standard deviation of stock returns is given by,

$$\sigma_{i,t} = \frac{\Sigma\left(x_t^i - \overline{x^i}\right)^2}{N}$$

Where x_t^i is the return on investment *i* at time *t*, and *N* is the total number of observations in the population.

3.6. Size of Firm

Market capitalization is a significant metric for measuring the size of a firm due to its unique characteristics and implications. Other metrics like total assets, sales, and earnings are commonly used to measure firm size. In various studies, market capitalization is widely utilized as a proxy for firm size because it stands out as the only market-based metric (Roosmawarni et al., 2023). Moreover, market capitalization is price-sensitive and reflects a firm's intrinsic value in an efficient capital market, making it an important measure that adjusts according to market conditions. The selection of

market capitalization as a measure of firm size is further reinforced by its relationship with stock returns and the growth potential of firms based on economies of scale (Hsieh et al., 2012). Larger firms with higher market capitalization typically have greater access to capital markets for external financing, indicating a relationship between firm size and financial leverage (Oliveira et al., 2006).

Moreover, market capitalization has been associated with identifying stock market bubbles and the impact of external factors such as the COVID-19 outbreak on stock market performance (Kumar et al., 2021) (Mizuno et al., 2019). In conclusion, market capitalization serves as a valuable proxy for measuring the size of a firm due to its market-driven nature, price sensitivity, and implications for financial performance, capital structure decisions, and access to capital markets.

Statistically size of the firm is calculated as the natural logarithm of the market capitalization.

$$\text{Size of firm} = \ln(M_{i,t})$$

Where $M_{i,t}$ is market capitalization for stock *i* at time *t*, which is calculated as the number of shares traded multiplied by the daily closing price of the stock

3.7 Empirical Model

Based on the discussion given above, the empirical model of this study is given as under.

$$L_{i,t} = \alpha + \beta_1(SK_{i,t}) + +\beta_2(KR_{i,t}) + \beta_3(P_{i,t}) + \beta_4(S_{i,t}) + \beta_5(SD_{i,t}) + \varepsilon$$

Where $L_{i,t}$ denotes liquidity for stock *i* at time *t*, which is the dependent variable and is measured as the trading volume turnover ratio. $SK_{i,t}$ which is skewness of stock *i* at time *t*. $KR_{i,t}$ is the return kurtosis of stock *i* at time *t*. $P_{i,t}$ denotes price which is the natural logarithm of the daily closing price of stock *i*. $S_{i,t}$ denotes the size of the firm which is the natural logarithm of the market capitalization of stock *i* at time *t*. $SD_{i,t}$ is the stock returns volatility at time *t*, which is calculated as the standard deviation of daily returns and ε ε is the random error in the model.

Table I- Variables and their measurement

Variables Name	Symbol	Measurement	Reference
Stock liquidity	*L*	Trading volume turnover ratio	Datar et al. (1998)
Skewness of returns	*SK*	Cross-sectional skewness of return series of each day.	Hutson et al. (2008)
Kurtosis of returns	*KR*	Coefficient of kurtosis of return series of each day	Ivanovski et al. (2015)
Stock Price	*P*	Natural logarithm of the daily closing price of each stock	(Sitorus & Elinarty, 2017) (H. Wang et al., 2020) (Lisdawati et al., 2022)
Size of firm	*S*	Natural logarithm of the market capitalization of each stock where market capitalization is calculated as the number of shares traded multiplied by the share price	(Roosmawarni et al., 2023) (Hsieh et al., 2012) (Kumar et al., 2021) (Mizuno et al., 2019)
Stock returns volatility	*SD*	Cross-sectional standard deviation of daily returns	(Sethy & Tripathy, 2024) (Viratama et al., 2022)

Source: Authors' Desk

DATA ANALYSIS AND FINDINGS

In this part of our study, the relationship between stock liquidity and stock returns is addressed empirically. For this purpose, some pre-diagnostics on the data have been performed. This includes the presentation of descriptive statistics such as averages and standard deviation which help find any outlier in the dataset so that it can be addressed accordingly. The pre-diagnostics also include exploring the variance inflation factor among various variables to avoid the probability of spurious results. It is recommended to have no strong or perfect correlation between the two variables in the dataset. Another important test is the unit root test for the panel data statistics in the last part of the pre-diagnostic. For this purpose, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, are suitable panel data unit root tests for an unbalanced panel.

The pooled OLS is used to check whether it is appropriate for estimates using the Bruesh-Pagan test. If the data is not suitable for Pooled OLS estimates, the fixed and random effect models are employed using the Hausman specification test that provides the best of Fixed or Random Effect Models. Once the selection of pooled, fixed, or random effect model is done, the robustness of

the model is tested by checking if the estimates are serially correlated with the error terms and if they are heteroscedastic. After considering all aspects of robust estimates, the relationship between stock liquidity and stock returns is explored. The impact of different variables on the stock liquidity of the sample companies is described by using the suitable panel data model.

4.1Descriptive Statistics

The empirical strategy, first, involves the selection of a sample of companies according to the availability of data. Unbalanced panel data is used for a sample of 41 textile companies over 10 years. More specifically, for the period from January 01, 2014, to June 26, 2024. The selection of 41 textile companies is based on the availability of data from several sources. The sample companies are listed in Appendix 1. The descriptive statistics of the variables used are presented in Table II below:

Table II- Descriptive statistics of variables

Variables	Obs	Mean	Std. Dev.	Min	Max
Stock liquidity	70295	94539.176	184217.72	0	999610
Kurtosis of returns	75555	2.076	3.304	-1.346	32.55
Cross-sectional skewness of returns	75555	0.265	1.09	-5.387	5.574
Price	75702	78.409	175.934	0.39	2104.28
Size of firm	75702	2976355.2	10490210	0	3.335e+08
Cross-sectional SD	75702	0.048	0.028	0.019	0.837

Table-II shows that just stock liquidity has a large standard deviation value. In general, there is no universal benchmark to determine whether a standard deviation is high or low, as the context and the nature of the variable under consideration matter. A high or low standard deviation is relative to the specific dataset and the research context. However, comparing the standard deviation with the mean and standard deviation can help in better understanding the data. One possible reason for a large amount of standard deviation could be the presence of an outlier. Descriptive statistics allow us to move for calculating the correlation matrices.

4.2Multicollinearity Detection

The multicollinearity test in panel data analysis verifies if there is a high correlation among two or more independent variables in a panel regression model. This high correlation can lead to issues in estimating the model

coefficients accurately, as it becomes difficult to disentangle the individual effects of the correlated variables on the dependent variable. The presence of multicollinearity can, thus, result in unstable parameter estimates and reduce the reliability of the model. Therefore, it is crucial to detect multicollinearity in panel data analysis to ensure the validity and reliability of the model's results. Identifying multicollinearity allows researchers to address the issue by either removing or combining the highly correlated variables or by applying statistical techniques like ridge regression or principal component analysis, which can handle multicollinearity. Multicollinearity is identified by using collinearity diagnostics such as the Variance Inflation Factor (VIF), tolerance, and condition number. These diagnostic tools help identify potential multicollinearity issues among the independent variables and provide a basis for making informed decisions on the inclusion or exclusion of variables in the model. Table III shows the results of the multicollinearity test.

Table III- Collinearity Diagnostics

Variables	VIF	Tolerance
Kurtosis of returns	1.42	0.7066
Cross-sectional skewness of returns	1.16	0.8643
Price	1.00	0.9986
Size of firm	1.00	0.9986
Cross-sectional SD	1.34	0.7437

Mean VIF = 1.18
Condition Number = 5.5699
Det (correlation matrix) =0.6523

With Table III, the following interpretation can be extracted:

4.2.1 Variance Inflation Factor (VIF): VIF measures the inflation in the variance of the coefficient estimates due to multicollinearity. A VIF value greater than 5 is often considered an indication of multicollinearity and in such cases, the variable is not included in the model (Salmerón, García, & García, 2018). In the output, all the VIF values are below 5, with the highest being 1.42 for kurtosis of returns. The mean VIF is 1.18, suggesting that multicollinearity is well below the benchmark.

4.2.2 Tolerance: Tolerance is the inverse of VIF and represents the proportion of the variance of the independent variable that is not explained by the other variables in the model. Lower values of tolerance (below 0.1 or 0.2) indicate potential multicollinearity issues (O'Brien, 2007; Salmerón et

al., 2018). In the output, all tolerance values are above 0.1, suggesting that multicollinearity is not a severe problem.

4.2.3 Condition Number: The condition number is a summary statistic that measures the sensitivity of the regression model to small changes in the data. A condition number above 30 is often considered a sign of severe multicollinearity (Salmerón et al., 2018). In the output, the condition number is 5.5699, which indicates that multicollinearity is not a significant concern.

Overall, the collinearity diagnostics suggest that multicollinearity is not a major issue in this regression model, and the parameter estimates are likely to be stable and reliable.

4.3 The Unit Root Test

One of the uses of the Unit root test is to find whether the series under consideration is stationary or has a unit root. For a model to be non-spurious, the variables must be stationary (Marmol, 1995, 1996; Noriega & Ventosa-Santaulària, 2007). Since fundamentals are macroeconomic variables and subject to random fluctuations characterized by the presence of a stochastic trend that can influence the statistical behavior of estimators, the first step in estimating Parameters of the fundamentals calls for determining the order of integration of the different series. Among the appropriate unit root tests, we used the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, using Fisher transformations at lag 0 for variables. Table-IV summarizes the results of the stationarity test for the panel.

Table IV- Panel Unit Root Test Results

Variables	ADF-Fisher lags(0)		PP-Fisher lags(0)	
	Z-Statistics	Prob.*	Z-Statistics	Prob.*
Stock liquidity	-52.0016	0.0000***	-52.0016	0.0000***
Kurtosis of returns	-52.0311	0.0000***	-52.0311	0.0000***
Cross-sectional skewness of returns	-52.0311	0.0000***	-52.0311	0.0000***
Price	-1.5783	0.0572**	-1.5783	0.0572**
Size of firm	-51.9583	0.0000***	-51.9583	0.0000***
Cross-sectional SD	-52.0311	0.0000***	-52.0311	0.0000***

The VIF and Tolerance values for the independent variables indicate minimal to no multicollinearity issues in the regression model. Specifically, the variables “Kurtosis of returns” and “Stock returns volatility” have VIF

values of 1.42 and 1.34, respectively, suggesting low to moderate correlations with other predictors but within acceptable limits. Tolerance values for all variables are close to 1 (ranging from 0.7066 to 0.9986), indicating that each variable contributes largely unique variance to the model without being excessively influenced by multicollinearity. These findings support the reliability of interpreting the effects of "Cross-sectional skewness of returns," "Price," "Size of the firm," and the other variables on the dependent variable, ensuring robust and accurate regression results.

4.4VCE Robust Regression Analysis

Considering the results of unit root tests, we move towards estimating the relationship between the variables. The methodology used is panel data regression, combining cross-section data with time series. Results are reported for pooled ordinary least squares (OLS), fixed effect, and random effect estimates. The analysis focuses on the estimate of Pooled OLS by Breusch and Pagan Lagrangian multiplier test for random effects, which identifies whether the Pooled OLS regression is suitable for the estimate or whether we should move to the selection of fixed or random effect models. The null hypothesis of no panel effect is rejected (p-value in both samples is <5%), showing that pooled OLS is unsuitable. This allows us to conclude whether the model of fixed effect is more appropriate than the OLS model with stacked data; by the Hausman test (random effect vs fixed effect), which assesses whether there are unobserved effects that do not vary in time and are correlated with explanatory variables.

VCE robust regression is a statistical technique that ensures more reliable results in regression analysis. Regular regression assumes constant variance in the data, but VCE robust is less sensitive to this assumption (heteroscedasticity) and others, providing more accurate standard errors for the coefficient estimates. This translates to more trustworthy confidence intervals and strengthens the overall conclusions drawn from the analysis.

Table V- Results for pooled OLS, fixed effects, random effects, and VCE robust regression adjustment models

VARIABLES	(1) Pooled OLS	(2) Fixed Effects	(3) Random Effects	(4) VCE Robust
Kurtosis of returns	-1,119***	-1,119***	-1,119***	-1,119***
	(161.6)	(161.5)	(161.6)	(314.1)

Cross-sectional skewness of returns	4,987***	4,991***	4,987***	4,987***
	(440.4)	(440.2)	(440.4)	(970.3)
Price	-48.17***	-46.24***	-48.17***	-48.17
	(6.157)	(6.215)	(6.157)	(33.44)
Size of firm	0.0103***	0.0103***	0.0103***	0.0103***
	(5.96e-05)	(5.97e-05)	(5.96e-05)	(0.00210)
Cross-Sectional SD	-44,296**	-44,558**	-44,296**	-44,296
	(21,300)	(21,293)	(21,300)	(38,780)
Constant	63,537***	68,423***	63,537***	63,537***
	(8,664)	(1,131)	(8,664)	(11,389)
Observations	70,155	70,155	70,155	70,155
R-squared		0.301		
Number of company	41	41	41	41
chibar2(01)	4.924e+06		4.905	
Prob > chibar2	0		0.297	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The result of the above analysis shows that all the independent variables (cross-sectional skewness, kurtosis, price, size, and cross-sectional standard deviation) have a statistically significant relationship with stock liquidity at the 1% level of significance (denoted by ***). The Positive coefficients of kurtosis and cross-sectional skewness of returns suggest that stocks with skewed data distributions (more data points towards positive returns) and higher kurtosis (fatter tails) tend to be more liquid. The positive coefficient of size suggests that larger firms (presumably with a larger market capitalization) tend to have more liquid stocks, likely due to easier access to financial markets. The negative coefficient of price indicates that higher stock prices are associated with lower liquidity. This makes sense because expensive stocks might have a smaller portion readily available for trading. The negative coefficient of Cross-Sectional Standard Deviation (Stock Return Volatility) implies that lower volatility in stock returns across companies is associated with higher liquidity. This suggests that companies within a sector with more consistent return patterns might have more liquid stocks. Moreover, Standard errors in parentheses provide the precision of these estimates. The R-squared value of 0.301 indicates that the model explains approximately 30.1% of the variance in liquidity, suggesting moderate explanatory power.

CONCLUSION

This study investigated the empirical relationships between stock liquidity and stock returns within the Pakistan Stock Exchange, exploring the influences of skewness and kurtosis of returns, stock price, firm size, and stock returns volatility. Through rigorous panel data and regression analyses spanning a sample of 41 textile sector firms from January 2014 to June 2024, the analysis reveals several key insights regarding stock liquidity and stock returns:

Firstly, both skewness and kurtosis of stock returns significantly influence stock liquidity. Stocks with positively skewed returns (more data points towards positive returns) tend to exhibit higher liquidity levels, reflecting investor preference for potentially higher returns and increased trading activity. Similarly, higher kurtosis (fatter tails) in stock returns is associated with higher liquidity, suggesting that stocks with more extreme return patterns are also more liquid. Conversely, a negative relationship is observed between stock price and liquidity, indicating that higher stock prices are associated with lower liquidity. This relationship suggests that expensive stocks may have a smaller portion readily available for trading, impacting liquidity negatively.

Conversely, a positive relationship is found between firm size and stock liquidity, indicating that larger firms tend to have more liquid stocks. This is likely due to larger firms having greater market presence, better access to financial markets, and possibly higher investor confidence. Additionally, lower stock returns volatility (measured by cross-sectional standard deviation) is associated with higher stock liquidity. Companies with more stable return patterns are perceived as less risky and thus attract more trading activity, thereby enhancing liquidity.

In summary, the findings help in understanding the multifaceted nature of stock liquidity in the PSX, influenced by not only traditional financial metrics like firm size and stock price but also by the statistical properties of stock returns such as skewness, kurtosis, and volatility. These insights are crucial for investors, policymakers, and market regulators aiming to understand and potentially enhance liquidity in Pakistan's stock market. It offers practical guidance for stakeholders, helping to enhance market efficiency and investor confidence in the Pakistan Stock Exchange.

REFERENCES

Abdullahi, I. B., & Fakunmoju, S. K. (2019). Market liquidity and stock return in the Nigerian Stock Exchange market. Binus Business Review, 10(2), 87–94. https://doi.org/10.21512/bbr.v10i2.5588

Amihud, Y., & Mendelson, H. (1986). Asset pricing and the bid-ask spread. *Journal of Financial Economics, 17*(2), 223–249. https://doi.org/10.1016/0304-405X(86)90065-6

Amihud, Y., Mendelson, H., & Pedersen, L. H. (2005). Liquidity and asset prices. Foundations and Trends in Finance, 1(4), 269–364. https://doi.org/10.1561/0500000003

Assagaf, A., & Kartikasari, D. (2019). Determinants of stock returns with liquidity as moderators: Empirical study in Indonesia Stock Exchange. Advances in Social Science, Education, and Humanities Research. https://doi.org/10.2991/icaess-19.2019.64

Baker, M., & Stein, J. C. (2004). Market liquidity as a sentiment indicator. Journal of Financial Markets, 7(3), 271–299. https://doi.org/10.1016/j.finmar.2003.11.005

Balasemi, N., Veiseh, S., & Malgharani, A. (2015). Relationship between liquidity and stock returns considering company's life cycle: The case study of Tehran Stock Exchange-listed Companies. Walia Journal, 31, 85–91.

Bekaert, G., Harvey, C. R., & Lundblad, C. T. (2007). Liquidity and expected returns: Lessons from emerging markets. *Review of Financial Studies, 20*(6), 1783–1831. https://doi.org/10.1093/rfs/hhm030

Bradrania, M. R., & Peat, M. (2014). Characteristic liquidity, systematic liquidity, and expected returns. Journal of International Financial Markets, Institutions & Money, 33, 78–98. https://doi.org/10.1016/j.intfin.2014.07.013

Brennan, M. J., & Subrahmanyam, A. (1996). Market microstructure and asset pricing: On the compensation for illiquidity in stock returns. Journal of Financial Economics, 41(3), 441–464. https://doi.org/10.1016/0304-405x(95)00870-k

Budhathoki, P. B., Bhattarai, G., & Dahal, A. K. (2024). The impact of liquidity on common stocks returns: Empirical insights from commercial banks in Nepal. *Banks and Bank Systems, 19*(1), 148–156.

Chordia, T., Roll, R., & Subrahmanyam, A. (2000). Commonality in liquidity. *Journal of Financial Economics, 56*(1), 3–28. https://doi.org/10.1016/S0304-405X(99)00057-4

Chordia, T., Roll, R., & Subrahmanyam, A. (2001). Market liquidity and trading activity. the Journal of Finance, 56(2), 501–530. https://doi.org/10.1111/0022-1082.00335

Chung, K. H., & Chuwonganant, C. (2012). Regulation NMS and market quality. *Financial Management, 41*(2), 285–317. https://doi.org/10.1111/j.1755-053X.2012.01184.x

Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and Security Market under- and overreactions. the Journal of Finance, 53(6), 1839–1885. https://doi.org/10.1111/0022-1082.00077

Daryaei, A. A., & Fattahi, Y. (2021). Stock liquidity and stock return: an asymmetric impact of institutional ownership approach. Corporate Governance, 22(4), 781–797. https://doi.org/10.1108/cg-03-2021-0119

Datar, V. T., Naik, N. Y., & Radcliffe, R. (1998). Liquidity and stock returns: An alternative test. Journal of Financial Markets, 1(2), 203–219. https://doi.org/10.1016/s1386-4181(97)00004-9

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Gushendri, A. H. E., & Yunita, I. (2024). Determinants of stock liquidity during COVID-19: Evidence from Indonesian listed firms. *International Journal of Science, Technology & Management, 5*(6), 1298–1303.

Hsieh, H., Hodnett, K., & Van Rensburg, P. (2012). Fundamental indexation for global equities: Does firm size matter? Journal of Applied Business Research, 28(1), 105. https://doi.org/10.19030/jabr.v28i1.7154

Husnain, M., Hashmi, A. M., & Ahmad, M. (2021). Determinants of Stock Market Liquidity: Auto Regressive Distributed Lag Based Evidence from the Emerging Equity Market. Journal of Business and Social Review in Emerging Economies, 7(3), 737–749. https://doi.org/10.26710/jbsee.v7i3.1914

Isshaq, Z., & Faff, R. (2016). Stock liquidity risk and the cross0sectional Earnings-Returns relationship. Journal of Business Finance & Accounting, 43(9–10), 1121–1141. https://doi.org/10.1111/jbfa.12209

Ivanovski, Z., Stojanovski, T., & Narasanov, Z. (2015). VOLATILITY AND KURTOSIS OF DAILY STOCK RETURNS AT MSE. UTMS Journal of Economics, 6, 209–221.

Karanasos, M., Yfanti, S., & Hunter, J. (2022). Emerging stock market volatility and economic fundamentals: The importance of US uncertainty spillovers, financial and health crises. *Annals of Operations Research, 313*, 1077–1116. https://doi.org/10.1007/s10479-020-03837-4

Kilonzo, E. N., & Nkuru, F. (2024). Moderating effect of tax on firms' liquidity, profitability and share returns of agricultural firms listed at Nairobi Securities Exchange. *Asian Journal of Economics, Finance and Management, 6*(1), 263–272.

Lisdawati, L., Nurita, E., & Akbar, A. (2022). EFFECT OF LIQUIDITY RATIO AND SOLVENCY RATIO ON STOCK PRICES IN PT KALBE FARMA TBK. International Journal of Economy, Education, and Entrepreneurship, 2(1), 120–127. https://doi.org/10.53067/ije3.v2i1.51

Loukil, N., Zayani, M. B., & Omri, A. (2010). Impact of liquidity on stock returns: an empirical investigation of the Tunisian stock market. Macroeconomics and Finance in Emerging Market Economies, 3(2), 261–283. https://doi.org/10.1080/17520843.2010.498137

Marozva, G. (2019). Liquidity and stock returns: New evidence from Johannesburg Stock Exchange. The Journal of Developing Areas, 53(2), 79–90. https://doi.org/10.1353/jda.2019.0022

Meidiaswati, H., & Arif, F. (2022). The effect of financial performance and firm size on stock return in miscellaneous industrial sector on the Indonesia Stock Exchange. Ekspektra, 6(1), 58–65. https://doi.org/10.25139/ekt.v6i1.4665

Naik, P., & Reddy, Y. V. (2021). Stock Market Liquidity: A Literature review. SAGE Open, 11(1), 215824402098552. https://doi.org/10.1177/2158244020985529

Noriega, A. E., & Ventosa-Santaulària, D. (2007). Spurious regression and trending variables*. Oxford Bulletin of Economics and Statistics, 69(3), 439–444. https://doi.org/10.1111/j.1468-0084.2007.00481.x

Oliveira, L., Rodrigues, L. L., & Craig, R. (2006). Firm-specific determinants of intangibles reporting: evidence from the Portuguese stock market. Journal of Human Resource Costing & Accounting/Journal of HRCA, 10(1), 11–33. https://doi.org/10.1108/14013380610672657

Pastor, L., & Stambaugh, R. F. (2003). Liquidity risk and expected stock returns. *Journal of Political Economy, 111*(3), 642–685. https://doi.org/10.1086/374184

Roll, R. (1984). A simple implicit measure of the effective Bid-Ask spread in an efficient market.the Journal of Finance, 39(4), 1127–1139. https://doi.org/10.1111/j.1540-6261.1984.tb03897.x

Singh, T., Gupta, M., & Sharma, M. (2015). Stock market liquidity and firm performance. Accounting, 29–36. https://doi.org/10.5267/j.ac.2015.11.003

Sitorus, T., Pangkato, I. W., Setyabudi, C. M., & Lubis, R. (2019). Company size growth, stock liquidity and return of stock: Role of mispricing. International Journal of Trade, Economics and Finance, 10(3), 67–72. https://doi.org/10.18178/ijtef.2019.10.3.640

Stere-czak, S. (2017). Stock market liquidity and returns on the Warsaw Stock Exchange: An introductory survey. Finanse, Rynki Finansowe, Ubezpieczenia, 86, 363–374. https://doi.org/10.18276/frfu.2017.86-30

Tripathy, T., & Ahluwalia, E. (2015). Day long effect of liquidity on stock return: an empirical investigation in a day of political and economic

importance in India. International Journal of Economics and Finance, 7(10). https://doi.org/10.5539/ijef.v7n10p204

Uremadu, S. O., & Efobi, R. U. (2012). The impact of capital structure and liquidity on corporate returns in Nigeria: Evidence from manufacturing firms. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 2*(3), 1–16.

Wang, A., Hudson, R., Rhodes, M., Zhang, S., & Gregoriou, A. (2021). Stock liquidity and return distribution: Evidence from the London Stock Exchange. Finance Research Letters, 39, 101539. https://doi.org/10.1016/j.frl.2020.101539

Wati, R. S., & Utami, D. E. (2024). Profitability, liquidity, and stock volatility as determinants of firm value in the coal sector period 2019–2023. *Al Tijarah, 10*(1), 91–102.

Xie, L., Jin, Y., & Mo, C. (2022). Predictive and contemporaneous power of the determinants of stock liquidity. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.912159

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BRIDGING THE EMPLOYABILITY GAP: ALIGNING HIGHER EDUCATION CURRICULA WITH INDUSTRY-REQUIRED COMPETENCIES IN THE DIGITAL ERA

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ABSTRACT

The persistent mismatch between higher education outputs and industry expectations has become a critical concern in today's labor market. This study investigates the employability gap among newly graduated students in Karachi, Pakistan, focusing on the alignment between academic curricula and industry-required competencies. A quantitative, descriptive-correlational research design was employed, utilizing structured questionnaires to collect data from 118 respondents, including recent graduates, educators, and industry professionals. Descriptive statistics and inferential analysis, including Chi-Square tests and Pearson correlation, revealed a significant skills gap, particularly in soft skills such as communication, teamwork, and leadership. Moreover, a strong positive correlation was found between curriculum alignment and graduate industry readiness, affirming that updated, industry-driven curricula enhance employability. Findings highlight the urgent need for curriculum reform, integration of experiential learning, and stronger academia-industry collaboration. The study concludes that bridging the skills gap is essential not only for individual career success but also for national economic development. Recommendations include embedding soft skills and digital literacy into academic programs, establishing structured internships, and adopting continuous feedback mechanisms from industry stakeholders. This research provides critical insights for policymakers, educators,

and employers aiming to develop a workforce fit for the demands of the digital economy.

Keywords: *Graduate Employability, Skills Gap, Higher Education Curriculum, Industry Collaboration*

INTRODUCTION

The needs of the labor force have changed significantly in the fast-changing world economy. Graduates now need to be not just technically skilled but also capable of critical thinking, teamwork, leadership, and digital adaptability (World Economic Forum, 2020). Many graduates, however, find it difficult to move from academic settings to industry environments since there is a mismatch between educational curricula and market needs (Yorke, 2006). Traditionally concentrated on teaching academic knowledge, higher education institutions (HEIs) are coming under more and more pressure to provide students with employability skills. Research, meanwhile, indicates that many graduates are still unprepared for real-world work settings despite better academic credentials (McFadden, 1999). Resolving this problem is essential for increasing job rates, improving economic production, and guaranteeing that educational expenditures provide significant benefits for people and society. Developing nations like Pakistan suffer a particularly severe form of this issue, in which the disparity between university education and industrial demands causes youth unemployment and economic stagnation (HEC, 2022). Therefore, matching higher education to business expectations is now required rather than optional.

Problem Statement

Despite achieving academic qualifications, a significant number of graduates are unable to secure suitable employment due to a skills mismatch. The disconnect between educational training and industry expectations leads to underemployment, job dissatisfaction, and reduced organizational productivity (Kanungo, 1992). While industries require graduates to possess problem-solving abilities, teamwork skills, adaptability, and digital competence, many HEIs still emphasize traditional theoretical knowledge over practical competencies (Cranmer, 2006).

This gap between academic curricula and industry requirements not only affects individual career trajectories but also has wider economic implications, such as increased unemployment rates and reduced global competitiveness (Morley, 2007). Consequently, urgent reforms in educational policy,

curriculum design, and pedagogical strategies are necessary to address this issue effectively.

Research Objectives

This research aims to:

- Analyze the existing gap between academic preparation and industry expectations.
- Identify the key competencies most valued by employers in the current digital economy.
- Assess the role of higher education institutions in preparing graduates for the workplace.
- Propose strategic interventions to align academic training with industry demands.

Research Questions

The study seeks to answer the following questions:

1. What specific competencies are most demanded by employers in today's industries?
2. To what extent do current higher education curricula align with these competencies?
3. What role do educators and institutions play in bridging the skills gap?
4. How can curriculum reform effectively address industry requirements and enhance graduate employability?

Significance of the Study

This study is critical for a broad spectrum of stakeholders. For students, it highlights the competencies necessary for successful career transitions. For educators and academic institutions, it provides actionable insights into curriculum design and pedagogical reforms. Employers benefit from a more competent and productive workforce, while policymakers can leverage the findings to initiate educational reforms aimed at enhancing national economic competitiveness (Denholm, 2004).

Ultimately, narrowing the skills gap will lead to lower unemployment rates, higher job satisfaction, and increased economic output, benefiting both individuals and society at large (Foss, 2021).

Hypotheses

Based on the research objectives, the study posits the following hypotheses:

- **H1:** There is a significant skills gap between graduate capabilities and industry requirements.

- **H2:** Integration of industry-specific competencies into curricula significantly enhances graduate employability.
- **H3:** Incorporating digital literacy and soft skills into academic programs reduces the employability gap.

Scope and Limitations

The study focuses primarily on newly graduated students from public and private universities in Karachi, Pakistan, particularly those in education and business-related programs. It acknowledges that employability requirements may vary across industries and regions, thus findings may not be universally generalizable. The research relies on self-reported data, which may introduce biases, and is cross-sectional, capturing perceptions at a single point in time. Despite these limitations, the findings provide valuable insights applicable across multiple educational and professional contexts.

LITERATURE REVIEW

Over the last two decades, the literature on employability gaps between academic preparation and industry needs has grown considerably. Several studies conducted in different nations have shown consistent trends: graduates frequently lack the practical, transferable, and digital skills needed for quick employment. Key areas pertinent to the subject are critically examined in this literature review, including the changing notion of employability, the recognized skills gap, academic curriculum shortcomings, employer expectations, integration of soft skills, the part of experiential learning, and efforts toward curriculum changes.

Concept of Employability

Employability is dynamic and always developing, not a fixed idea; it changes with the needs of the job market (Yorke, 2006). Defined by Knight and Yorke (2003), employability is "a set of achievements–skills, understandings, and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations." Now, employability includes not only technical knowledge but also critical thinking, problem-solving, flexibility, and interpersonal skills (Harvey, 2005). Fugate et al. (2004) define employability as a psychosocial construct made up of career identity, personal adaptability, and social and human capital. This wide definition implies that employability should be a natural component of a student's educational path rather than just a destination following graduation.

Skills Gap: Evidence from Research

Research have regularly shown a gap between what universities teach and what businesses need. For example, Andrews and Higson (2008) discovered that European graduates lacked abilities like problem-solving, communication, and teamwork – qualities very valued by companies. According to McQuaid and Lindsay (2005), the "skills gap" results from universities not quickly adjusting to fit market demands.

The World Economic Forum (2020) underlined that technological developments call for a recalibration of higher education curricula toward future skills including analytical thinking, creativity, active learning, resilience, and stress tolerance. Many academic programs, particularly in developing countries, lag in reacting to these changes (Foss, 2021).

A Higher Education Commission (HEC, 2022) study in Pakistan found that just 40% of graduates were immediately employable, mostly because of the lack of industry-relevant skills and practical exposure.

Academic Curriculum Deficiencies

The traditional academic curriculum, with its heavy focus on theoretical knowledge, often overlooks the skills critical for workplace success (Crebert et al., 2004). Little (2001) found that university courses tended to prioritize knowledge acquisition over skill development.

Al-Azawei et al. (2019) argued that rigid curriculum structures hinder institutions' ability to adapt to rapidly changing industrial requirements. As a result, students graduate with degrees that are impressive academically but lack practical application, leading to underemployment or job mismatch (Tomlinson, 2017).

Moreover, in developing countries, outdated teaching methodologies, lack of integration with industries, and insufficient internship opportunities exacerbate the employability gap (Nabi & Bagley, 1999).

Employers' Perspectives on Graduate Competencies

Employers increasingly look for "business-ready" graduates with both technical and soft skills. Studies by Maes et al. (1997) and Martell (1994) demonstrated that communication skills, leadership abilities, and teamwork are often rated more critical by employers than academic excellence.

According to the National Association of Colleges and Employers (NACE, 2019), employers ranked problem-solving skills, ability to work in a team,

communication skills (both written and verbal), and leadership as the top attributes they seek in job candidates.

A study by Finch et al. (2013) found that employers placed higher importance on practical experience, internships, and evidence of competencies developed through real-world projects than on university prestige or GPA.

The Role of Soft Skills

Soft skills are increasingly recognized as essential for workplace success (Robles, 2012). The critical soft skills identified in the literature include communication, teamwork, adaptability, emotional intelligence, leadership, and work ethic.

Andrews and Higson (2008) argued that while technical competencies can often be taught on the job, soft skills are harder to develop post-graduation, making their acquisition during university education crucial. Cobo (2013) emphasized the importance of transferable skills, suggesting that these abilities enable graduates to adapt to different job roles and evolving market conditions.

However, research shows that universities rarely assess or systematically develop these skills, leading to significant gaps in graduate readiness (Yorke & Knight, 2006).

Integration of Digital Literacy

Digital literacy has emerged as a fundamental requirement across industries (World Economic Forum, 2020). Basic digital skills are no longer sufficient; employers demand competencies in data analytics, digital marketing, cybersecurity, and cloud computing (Ng, 2012).

Despite this, many university curricula do not sufficiently embed digital literacy across disciplines. Margaryan et al. (2011) found that although students use technology extensively in their personal lives, their use of digital tools for academic or professional purposes is often limited.

Integration of digital tools into teaching, the promotion of digital problem-solving projects, and partnerships with tech industries are recommended to address this gap (Redecker et al., 2012).

Experiential Learning and Industry Collaboration

Experiential learning methods, such as internships, industry projects, cooperative education, and simulations, have been shown to enhance employability (Kolb, 1984).

Cranmer (2006) noted that graduates who engaged in structured work-integrated learning experiences reported smoother transitions into the workforce. Similarly, Jackson (2015) argued that experiential learning significantly improves graduates' confidence and job-readiness.

Moreover, increased collaboration between universities and industries through guest lectures, curriculum co-design, and industrial placements bridges the perception gap between academia and employers (Knight & Yorke, 2003).

However, effective industry-academia collaboration remains a challenge in many contexts due to differing priorities and operational timelines (McMurray et al., 2016).

Curriculum Reforms and Best Practices

Several educational systems have adopted reforms to close the employability gap. For example:

- **Australia's Work-Integrated Learning Programs** have integrated internships and real-world projects as compulsory components of degrees (Patrick et al., 2009).
- **The UK's Graduate Employability Framework** emphasizes embedding employability skills across all academic programs (Cole & Tibby, 2013).
- **Singapore's SkillsFuture Initiative** encourages lifelong learning and industry-driven curriculum updates (Tan, 2016).

Best practices include embedding transferable skills into disciplinary curricula, offering cross-disciplinary modules on entrepreneurship and leadership, and involving industry in curriculum design and assessment (Bridgstock, 2009).

In Pakistan, initiatives like the Prime Minister's Kamyab Jawan Program aim to enhance youth employability but still face challenges in aligning higher education policies with industry needs (HEC, 2022).

Critiques and Emerging Trends

While competency-based education and experiential learning approaches are highly praised, critics warn against overly instrumental views of education focused solely on employability (Tomlinson, 2012). A balanced approach is necessary, ensuring graduates are not just job-ready but also socially responsible, ethical, and capable of lifelong learning.

Emerging trends, such as the emphasis on entrepreneurial mindsets (Fayolle & Gailly, 2015) and hybrid skill sets combining humanities with technology (Bakhshi et al., 2017), suggest that the future of employability will demand more interdisciplinary thinking.

Moreover, the COVID-19 pandemic has accelerated the need for digital skills, remote work capabilities, resilience, and adaptability, reshaping employability frameworks globally (ILO, 2021).

Summary

The literature underscores the critical need for higher education institutions to reform curricula by embedding practical skills, soft skills, and digital literacy. Stronger industry-academia collaboration, experiential learning opportunities, and proactive curriculum updates are essential strategies to bridge the employability gap. However, educational reforms must maintain a balance between producing employable graduates and fostering well-rounded individuals capable of contributing to society beyond economic measures.

While many challenges persist, ongoing research and policy initiatives globally offer promising models for aligning educational outcomes with the dynamic needs of the modern workforce.

RESEARCH METHODOLOGY

Research Design and Approach

Employing a descriptive-correlational research design, this paper took a quantitative research approach. Primary data from newly graduated students, industry professionals, and Karachi teachers was gathered using a structured questionnaire made up of 27 close-ended questions. The questionnaire emphasized measuring employability skills, spotting perceived skill gaps, and judging the correspondence between academic training and industry needs. Allowing for measurable analysis, a five-point Likerr scale gauged respondents' degrees of agreement. While correlation study investigated links between graduates' skills and employers' expectations, descriptive statistics were used to summarize results.

Data Gathering and Sampling Approach

The target population was made up of recent public university graduates, private school teachers, and industry employers in District South, Karachi. Stratified random sampling was used to choose 118 people to guarantee

varied representation across academic and business sectors. Over a two-month period, an online survey – Google Forms–collected data. Emails and academic-professional networks invited participants. Responses were kept private and informed consent was acquired. The online approach allowed for broad reach and quick data collection throughout the study period.

Data Analysis and Instrument Reliability

A pilot study confirmed the dependability of the questionnaire, which produced a Cronbach's Alpha of 0.796, suggesting good internal consistency. Data analysis was done with SPSS software. While cross-tabulation and correlation study found links between industry needs and educational preparation, descriptive analyses–frequies, percentages, means–gave a statistical picture of respondent demographics and opinions. Throughout the study, ethical standards including voluntary participation, anonymity, and data security were upheld.

DATA ANALYSIS

Results of the quantitative data gathered via structured questionnaires run among newly graduated students, teachers, and industry professionals are presented here. Descriptive statistics and cross-tabulations were used to analyze the data in order to investigate variations between academic and industry views on employability skills and competencies. Results are shown in line with APA 7th Edition guidelines; analysis was done using SPSS software.

Demographic Profile of Respondents

Table 1 Respondents' Professional Affiliation **Affiliation**	**Frequency**	**Percentage**
Academia	86	73.5%
Industry	30	25.6%
Missing Responses	2	0.9%
Total	**118**	**100%**

The majority of respondents (73.5%) were from academia, with 25.6% representing industry professionals. This distribution ensures a diverse perspective in analyzing the skills gap, with slightly greater representation from educational institutions. Respondents were asked whether a skills gap existed between what students learn and what industries require. The results indicated a strong consensus regarding the presence of a skills gap.

Table 2
Perception of Skills Gap Between Academia and Industry

Response Category	Academia (n = 86)	Industry (n = 30)	Total (n = 116)
Strongly Disagree	3 (3.5%)	0 (0.0%)	3 (2.6%)
Disagree	8 (9.3%)	1 (3.3%)	9 (7.8%)
Neutral	11 (12.8%)	6 (20.0%)	17 (14.8%)
Agree	47 (54.7%)	13 (43.3%)	60 (51.7%)
Strongly Agree	17 (19.8%)	9 (30.0%)	26 (22.4%)

More than 74% of respondents agreed or strongly agreed that a skills gap exists between graduate competencies and industry needs. This strong consensus across both sectors validates the study's premise regarding the employability gap. A significant finding related to the absence of critical soft skills (teamwork, leadership, communication) among fresh graduates.

Table 3
Soft Skills Deficiency in Graduates

Response Category	Academia (n = 85)	Industry (n = 29)	Total (n = 114)
Strongly Disagree	3 (3.5%)	1 (3.4%)	4 (3.5%)
Disagree	16 (18.8%)	2 (6.9%)	18 (15.8%)
Neutral	16 (18.8%)	2 (6.9%)	18 (15.8%)
Agree	35 (41.2%)	17 (58.6%)	52 (45.6%)
Strongly Agree	15 (17.7%)	7 (24.1%)	22 (19.3%)

Approximately 65% of respondents either agreed or strongly agreed that graduates lack essential soft skills such as communication, teamwork, and leadership. Industry professionals reported slightly higher concern levels compared to academic participants, emphasizing the critical need for soft skill development. When asked about the need for additional training before graduates join the workforce, responses highlighted the necessity of supplementary programs.

Table 4
Need for Additional Training and Preparatory Courses

Response Category	Academia (n = 84)	Industry (n = 29)	Total (n = 113)
Strongly Disagree	5 (6.0%)	1 (3.4%)	6 (5.3%)
Disagree	4 (4.8%)	1 (3.4%)	5 (4.4%)
Neutral	16 (19.0%)	0 (0.0%)	16 (14.2%)
Agree	44 (52.4%)	20 (69.0%)	64 (56.6%)
Strongly Agree	15 (17.9%)	7 (24.1%)	22 (19.5%)

Over 76% of respondents supported the notion that graduates require supplementary training before entering the workforce. This highlights the insufficiency of current academic programs in preparing students for immediate professional demands.

The analysis demonstrates:

- A **recognized skills gap** between academic preparation and industry needs.
- **Soft skills** – especially communication, teamwork, and leadership – are **critical deficiencies**.
- A strong **need for additional professional training** and **workplace readiness programs** for newly graduated students.
- Perceptions differ slightly between academia and industry respondents, but both acknowledge the necessity for better curriculum-to-career alignment.

Overall, these findings validate the study's premise that proactive curriculum reforms and experiential learning integration are urgently needed to bridge the employability gap.

Inferential Statistics

Hypothesis Testing

The following two hypotheses were tested:

- **H1:** There is a significant gap between the skills acquired by graduates and the skills required by industries.
- **H2:** There is a significant positive relationship between curriculum alignment and industry readiness of graduates.

A Chi-Square Test of Independence was used to test H1, while Pearson Correlation was used for H2.

Table 5

Chi-Square Test for Skills Gap Perception

Test Value	Chi-Square (X^2)	df	p-value	Decision
Skills Gap Perception	23.52	4	.001	Significant (Reject H_0)

Note: A p-value less than 0.05 indicates a statistically significant skills gap perception between academia and industry.

Interpretation:

The Chi-Square test result shows a significant difference in perceptions about skills gaps. Thus,

Hypothesis 1 is accepted – a real skills gap exists between graduates' preparation and industry expectations.

Correlation Analysis

Pearson's correlation was performed between curriculum alignment and graduates' perceived industry readiness.

Table 6

Correlation Between Curriculum Alignment and Graduate Readiness

Variables	1	2
1. Curriculum Alignment	1	.612**
2. Graduate Industry Readiness	.612**	1

Note. *n = 114.* ***p*** *< .01.*
*(** indicates correlation is significant at the 0.01 level.)*

Interpretation:

The Pearson correlation coefficient r = 0.612 indicates a moderate to strong positive relationship between curriculum alignment and graduates' readiness for the industry.

Thus, Hypothesis 2 is accepted – stronger curriculum-industry alignment leads to higher graduate preparedness.

Summary of Analysis

- A statistically **significant gap** was identified between academia skills preparation and industry requirements.
- Positive **correlation** confirms that better curriculum alignment improves graduate employability.
- Industry and academia **both recognize** the need for updated, skills-based education strategies.
- Soft skills, technological competencies, and practical experiences are vital areas for improvement.

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Discussion

The findings of this study reinforce the growing body of research emphasizing a persistent skills gap between newly graduated students and industry expectations. The descriptive and inferential analyses provided robust evidence that, although graduates possess theoretical knowledge, they often lack the practical competencies necessary for immediate workplace integration.

A significant proportion of both academic and industry respondents acknowledged the deficiency of soft skills, such as communication, leadership, teamwork, and adaptability. This is consistent with earlier findings by Andrews and Higson (2008) and Cranmer (2006), who similarly identified soft skills as a major area of weakness among graduates. Additionally, the positive correlation identified between curriculum alignment and graduate industry readiness ($r = .612$, $p < .01$) corroborates the assertions of Boyatzis (2008) and Cobo (2013), emphasizing that curricula designed in collaboration with industry needs significantly enhance employability.

The Chi-Square test showed even more statistical significance for opinions on the skills gap among several respondent categories. This result corresponds with studies from HEC (2022) and the World Economic Forum (2020), which emphasize that outdated educational material and lack of experiential learning opportunities are main causes of this problem, especially in developing countries like Pakistan.

Another significant revelation is the acknowledged need for more professional training and bridging programs following graduation, which implies that universities by themselves cannot shoulder the duty. By providing internships, apprenticeships, and mentoring programs, industries too have to play active role in shaping future workers. All things considered, the findings highlight the pressing need for curriculum reform, the inclusion of practical training, soft skill development, and the promotion of alliances between industrials and educational institutions.

CONCLUSION

This study explored the employability gap faced by newly graduated students, focusing on the misalignment between higher education curricula and industry requirements in the context of Karachi, Pakistan. Through comprehensive data collection and analysis, the research confirmed the existence of a significant skills gap, notably in soft skills and practical competencies.

The research hypotheses were both accepted:

- There exists a significant mismatch between academic preparation and industry skill demands.
- Curriculum alignment significantly correlates with higher graduate industry readiness.

The findings underscore the necessity for systemic reforms in higher education to incorporate skill-based training, digital literacy, leadership

development, and experiential learning opportunities. Universities must evolve beyond traditional pedagogy and collaborate with industry stakeholders to develop dynamic, responsive curricula that better prepare students for the rapidly changing global job market.

Bridging the employability gap will not only enhance individual career outcomes but also contribute to national economic development by creating a more competent, future-ready workforce.

Recommendations

Based on the study's findings and analysis, the following recommendations are proposed:

Curriculum Reform and Industry Collaboration

Higher education institutions have to update courses often in consultation with business partners. Including required internships, real-world projects, and guest lectures by industry professionals helps to close the gap between theory and practice.

Integration of Soft Skills and Digital Competencies

Universities should include digital literacy courses and soft skills training–communication, leadership, and teamwork–in every subject area so that graduates have a well-rounded skill set.

Strengthening Experiential Learning Opportunities

Experiential learning opportunities, such as cooperative education programs, capstone projects, simulations, and case studies, should be mandatory components of degree programs to enhance practical exposure.

Establishing Career Development Centers

Institutions should develop or strengthen career development centers to provide skills workshops, resume writing clinics, interview preparation, and career counseling services, thereby enhancing graduate employability.

Continuous Feedback Mechanisms

Institutions should establish feedback loops with employers and alumni to continuously update and refine educational programs in response to evolving market demands.

Policy-Level Reforms

The Higher Education Commission and relevant ministries must develop national employability frameworks and accreditation standards that require competency-based education as a core evaluation criterion.

REFERENCES

Al-Azawei, A., Parslow, P., & Lundqvist, K. (2019). Barriers and opportunities of e-learning implementation in Iraq: A case of public universities. *The International Review of Research in Open and Distributed Learning, 17*(5), 126–146. https://doi.org/10.19173/irrodl.v17i5.2501

Andrews, J., & Higson, H. (2008). Graduate employability, 'soft skills' versus 'hard' business knowledge: A European study. *Higher Education in Europe, 33*(4), 411–422. https://doi.org/10.1080/03797720802522627

Bakhshi, H., Downing, J. M., Osborne, M. A., & Schneider, P. (2017). *The Future of Skills: Employment in 2030*. Pearson and Nesta. https://futureskills.pearson.com

Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development, 27*(1), 5–12. https://doi.org/10.1108/02621710810840730

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development, 28*(1), 31–44. https://doi.org/10.1080/07294360802444347

Chouhan, V. S., & Srivastava, S. (2014). Understanding competencies and competency modeling – A literature survey. *Journal of Business and Management, 16*(1), 14–22.

Cole, D., & Tibby, M. (2013). *Defining and developing your approach to employability: A framework for higher education institutions*. Higher Education Academy. https://www.heacademy.ac.uk

Cobo, C. (2013). Mechanisms to identify and study the demand for innovation skills in the knowledge economy. *Journal of Research in Science Teaching, 50*(9), 1155–1171. https://doi.org/10.1002/tea.21102

Cranmer, S. (2006). Enhancing graduate employability: Best intentions and mixed outcomes. *Studies in Higher Education, 31*(2), 169–184. https://doi.org/10.1080/03075070600572041

Crebert, G., Bates, M., Bell, B., Patrick, C. J., & Cragnolini, V. (2004).

Developing generic skills at university, during work placement and in employment: Graduates' perceptions. *Higher Education Research & Development, 23*(2), 147–165. https://doi.org/10.1080/0729436042000206636

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal, 5*(6), 00149. https://doi.org/10.15406/bbij.2017.05.00149

Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management, 53*(1), 75–93. https://doi.org/10.1111/jsbm.12065

Finch, D. J., Hamilton, L. K., Baldwin, R., & Zehner, M. (2013). An exploratory study of factors affecting undergraduate employability. *Education + Training, 55*(7), 681–704. https://doi.org/10.1108/ET-07-2012-0077

Foss, L. (2021). Skills gap in higher education: Industry expectations versus academic delivery. *Journal of Educational Policy and Management, 15*(3), 234–249.

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*(1), 14–38. https://doi.org/10.1016/j.jvb.2003.10.005

George, D., & Mallery, P. (2010). *SPSS for Windows step by step: A simple guide and reference* (17th ed.). Pearson.

Harvey, L. (2005). Embedding and integrating employability. *New Directions for Institutional Research, 128*, 13–28. https://doi.org/10.1002/ir.160

Higher Education Commission (HEC). (2022). *Graduate Employability Survey Report 2022*. Islamabad, Pakistan.

International Labour Organization (ILO). (2021). *World Employment and Social Outlook: Trends 2021*. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_795453.pdf

Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education, 40*(2), 350–367. https://doi.org/10.1080/03075079.2013.842221

Knight, P. T., & Yorke, M. (2003). Employability and good learning in higher education. *Teaching in Higher Education, 8*(1), 3–16. https://doi.org/10.1080/1356251032000052294

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Prentice Hall.

Maes, J. D., Weldy, T. G., & Icenogle, M. L. (1997). A managerial perspective: Oral communication competency is most important for business students in the workplace. *Journal of Business Communication, 34*(1), 67–80. https://doi.org/10.1177/002194369703400104

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education, 56*(2), 429–440. https://doi.org/10.1016/j.compedu.2010.09.004

McFadden, M. (1999). Bridging the academic-industry divide in education. *International Review of Education, 45*(3–4), 289–303. https://doi.org/10.1023/A:1003803721551

McMurray, S., Dutton, M., McQuaid, R., & Richard, A. (2016). Employer demands from business graduates. *Education + Training, 58*(1), 112–132. https://doi.org/10.1108/ET-02-2014-0017

McQuaid, R. W., & Lindsay, C. (2005). The concept of employability. *Urban Studies, 42*(2), 197–219. https://doi.org/10.1080/0042098042000316100

Morley, L. (2007). Employability, social capital and gender: The case of university graduates in the knowledge economy. *Higher Education Research & Development, 26*(4), 395–407. https://doi.org/10.1080/07294360701658772

Nabi, G. R., & Bagley, D. (1999). Graduates' perceptions of transferable personal skills and future career preparation in the UK. *Career Development International, 4*(7), 382–391. https://doi.

org/10.1108/13620439910295762

National Association of Colleges and Employers (NACE). (2019). *Job Outlook 2019*. https://www.naceweb.org

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education, 59*(3), 1065–1078. https://doi.org/10.1016/j.compedu.2012.04.016

Patrick, C. J., Peach, D., Pocknee, C., Webb, F., Fletcher, M., & Pretto, G. (2009). *The WIL [Work Integrated Learning] report: A national scoping study*. Queensland University of Technology.

Redecker, C., Ala-Mutka, K., Bacigalupo, M., Ferrari, A., & Punie, Y. (2012). *The Future of Learning: Preparing for Change*. European Commission. https://doi.org/10.2791/81135

Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly, 75*(4), 453–465. https://doi.org/10.1177/1080569912460400

Tan, C. (2016). Lifelong learning through the SkillsFuture movement in Singapore: Challenges and prospects. *International Journal of Lifelong Education, 35*(5), 512–528. https://doi.org/10.1080/02601370.2016.1224040

Tomlinson, M. (2012). Graduate employability: A review of conceptual and empirical themes. *Higher Education Policy, 25*(4), 407–431. https://doi.org/10.1057/hep.2011.26

Tomlinson, M. (2017). Forms of graduate capital and their relationship to graduate employability. *Education + Training, 59*(4), 338–352. https://doi.org/10.1108/ET-05-2016-0090

World Economic Forum. (2020). *The Future of Jobs Report 2020*. https://www.weforum.org/reports/the-future-of-jobs-report-2020

Yorke, M. (2006). *Employability in higher education: What it is – what it is not*. Higher Education Academy.

Yorke, M., & Knight, P. (2006). Embedding employability into the curriculum. *Learning and Employability Series 1*. The Higher Education Academy.

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