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Informal Labour & Untapped Potential of Information and Communication Technology (ICT) During COVID-19

Authors

Ms. Sana Ajmal

Mr. Mutee ul Rehman



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Ms. Sana Ajmal

Mr. Mutee ul Rehman

Capacity Analytics

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Capacity Analytics

Office# 21, Basement, Rauf Centre, Fazl-e-Haq Road, Block-I, Blue Area, Islamabad, 44000Pakistan.

For information:

Landline: +92 51 8481782

Email: pmu@analytics.org.pk

Twitter: @CapacityAnalyt

Website: www.analytics.org.pk

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1. INTRODUCTION

The informal economy, often referred as shadow economy, grey economy, underground economy etc., is comprised of the diversified set of economic activities, enterprises, jobs, and workers that are not regulated or protected by the state. According to global estimates, the informal sector comprises of major portion of the labour force in developing countries such as 70% in South Asia, 58% in Latin America and 66% in Sub-Saharan Africa, whereas, it represents 10-20% of global output in developed countries. Hence, it shows that informal economy has a major part in the global Gross Domestic Product (GDP) with such huge generation of economic activities. Moreover, it is inferred from the research studies that informality is the highest among the working poor class, workers with lower education and youth respectively (ILO, 2002; Charmes, 2012; Steel & Donald, 2008; Schneider et al., 2013; Gatti et al., 2014; Benjamin, 2014).

The challenges, which emerge with the informality, include lack of social protection/insurance, low productivity and limited capacity and influence the labour market productivity and competitiveness (Andrews, 2011; Perry et al., 2007). The reasons behind informality mainly revolve around tax avoidance, skill mismatch of labour, complexity of registration and regulation in the formal sector, lack of awareness, lack of incentives for the labour etc. Keeping these reasons in consideration, the researchers have categorized the nature and determinants of the informal economy in to four perspectives including the Dualist, the Structuralist, the Legalist and the Voluntarist schools (Hart 1973; ILO 1972; Sethuraman 1976; Tokman 1978; Moser 1978; Castells & Portes, 1989; de Soto, 1989, 2000; Web, Ronald & Sigrid, 2020).

According to dualist approach, the informal economy is the result of the mismatch between demand for and supply of labour in the market and hence play as a safety net in crisis for the poor class. According to structuralist, subordination of informal units and workers to capitalist firms are the major cause of informality, whereas, unreasonable regulations and hostile legal environment give space for the informal economy to increase/breed as per legalist approach. In addition, the argument of the calculated decision by informal entrepreneurs to exit from the formal system is raised by the voluntarists approach.

More specifically, informal sector includes private unincorporated enterprises, which includes i.e. wagedworkers, own account workers, casual wagedworkers, homemade workers, unpaid family workers etc., (Husmanns, 2004; Chen, 2012; Stuart et al., 2018; ILO/WIEGO, 2019; Web, Ronald & Sigrid, 2020). Informal economy is usually considered as less productive with limited innovative capacity and accessibility to capital. However, informal economy can be a great potential of innovative economic sectors due to its resilient nature against the shocks, sudden demands and can kill the competition in the formal sector through diversification in the economy (Sassen, 1994; Portes & Haller, 2005; De Beer et al, 2013; ILO, 2018 b; Stuart et al., 2018; Web, Ronald & Sigrid, 2020).

In the wake of COVID-19 pandemic, the global economies crumbled due to shutting down of industries and breakup of supply chains on massive level. The tangible sectors of the

economy, which were the main sources of formal employment in the global market, had to face the greatest uncertainties for their survival during the COVID-19 lockdowns (Neilson et al, 2020). The pandemic is not only inflicting unprecedented damage to human lives but it has also taken a heavy toll on global economic activity. In particular, various necessary measures to control the spread has brought much of the global economic activity to a halt. Consequently, countries are now facing multiple crises—a health crisis, a financial crisis, and a collapse in commodity prices. On one hand, the pandemic has put the whole world in a Lockdown and changed the dynamics of ongoing and future economic activities, while on the other, the pandemic wiped out any mentionable economic performance of any economy.

COVID-19 pandemic has specifically accelerated the temporary nature of job market towards intangible and non-traditional jobs such as gig economy, hence introducing new challenges associated with these jobs like social security, working conditions and decent work. Recently the trend of digital labour has raised concerns about its influence in the labour market especially informal sector. The temporary nature of the jobs are growing with the time, which includes on-call workers, contract workers, freelancers etc. Berg et al., (2018) stated that in 2017 average spending on social protection as a percentage of GDP in Asia was almost one-third of the global average. In the gig economy, workers are treated as “independent contractors”. Hence, they are not entitled to any rights of a worker employed otherwise by an employee such as, sick leave and holiday entitlement. Digital labour, thus, experiences rather tougher conditions at work, with little or no accountability in times of unfair behaviour by the employer. Hence, the more people are dependent on crowd work for income, the less social protection they have. Especially when it comes to developing countries, social protection for digital labour is near to nil, this in fact is an incentive for platform providers to get more workers from these regions.

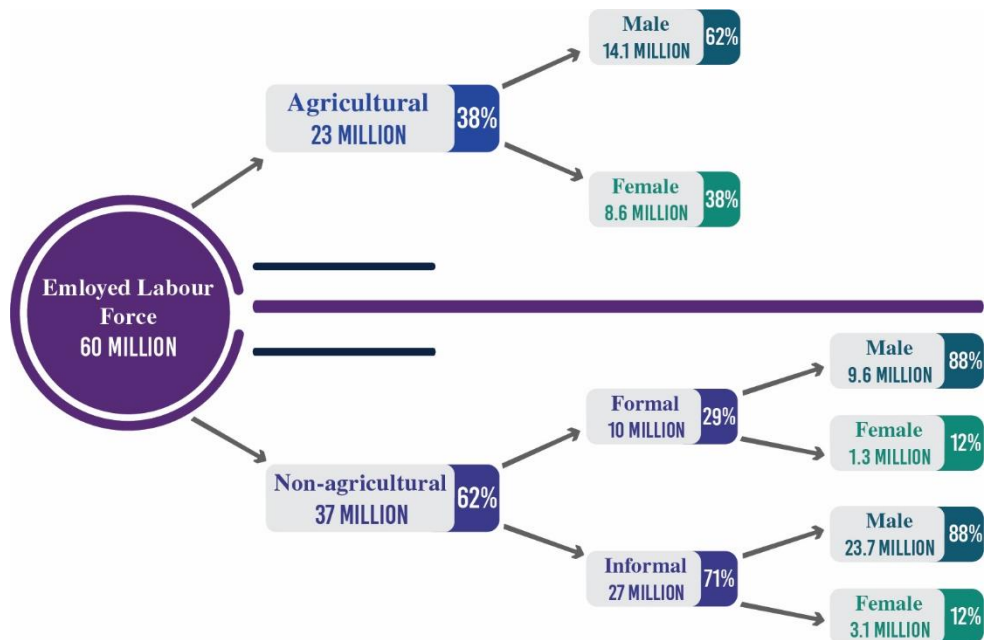
Therefore, COVID-19 pandemic has drastically reduced the employment opportunities in 2020 while on the contrary; it has shifted the balance of costs and benefits involved in informal employment making informal sector more attractive for even the formal workers due to its flexible and resilient nature. However, informal economy when involved with gig economy would create more cumbersome issues for long run than immediate benefits including the vulnerability, lack of security and record (Katz & Kreuger, 2019; UN, 2017; European Commission, 201; Web, Ronald & Sigrid, 2020; 7).

The following discussion will provide a comprehensive overview of the relation between informality and ICT sector in Pakistan, trends, issues and challenges in the perspective of COVID-19 and highlights the major concern of digitization, which can resolve many issues interlinked with informal economy and ICT sector in the country.

2. STATE OF INFORMAL ECONOMY IN PAKISTAN

Pakistan has the ninth largest labour market having 66 million workers in total, among them 60 million workers are employed. Agriculture sector amounts to 23 million workers, which is 38% of total labour force employed. Non-agriculture i.e. industry and services employs 37 million workers among which, 71% workers are employed in informal sector and 29% are employed in formal sector as shown in the Figure 01. Furthermore, the working age population is 61% of total population of 212 million, which is approximately 130 million. The unemployment rate in Pakistan is reported to be 4.4 in 2020 and there are no unemployment benefit schemes. The informal sector defined in Labour Force Survey (LFS 2017-18) counts up to 27 million and formal sector 10 million, whereas, social insurance in Pakistan exists only for the employed formal labour.

Figure 1: Distribution of Labour Force in Pakistan



Source: Labour Force Survey 2017-18

2.1. Definition of Informal Sector

According to LFS (2017-18), informal sector in Pakistan is formulated in terms of household enterprise and size of employment. It comprised of the enterprises with less than 10 people and operated by own-account workers excluding the agricultural sector¹. It is the same

¹ For statistical purpose, the provenance of employment in informal sector is given as follows:

- All household enterprises owned and operated by own-account workers, irrespective of the size of the enterprise (informal own-account enterprises),
- Enterprises owned and operated by employers with less than 10 persons engaged. It includes the owner (s) of the enterprise, the contributing family workers, the employees, whether employed on an occasional

definition that is used by International Labour Organization (ILO) for defining the informal labour globally. However, keeping in mind the new phase of job market with an inclusion of the digital labour or online workers then the definition of informal economy really needs reconsideration in order to come up with better policy measures and decisions for the informal labour.

Informal economy is segregated according to the type of labour force in the Figure 2 with an additional segment of gig economy workers, which are not considered a part of the labour force. The nature of the job of online platform workers is based on the independent contract based job, which makes them part of the informal labour force. Even the LFS (2017-18) do not categorize such workers in any part of the employed labour force. However, with the rise of Information & Communication Technology (ICT) based job market amid the COVID-19 break, the proportion of the online platform workers would increase substantially in the coming years. The concept of 'Work from Home' has somewhat changed the dynamics of the work environment and raised the opportunities for the home-based workers to be the part of the formal labour force. However, there is a need to not only to reconsider the status of the workers in gig economy in the employed labour force, but also the definition of informal economy needs reconsideration in this regard.

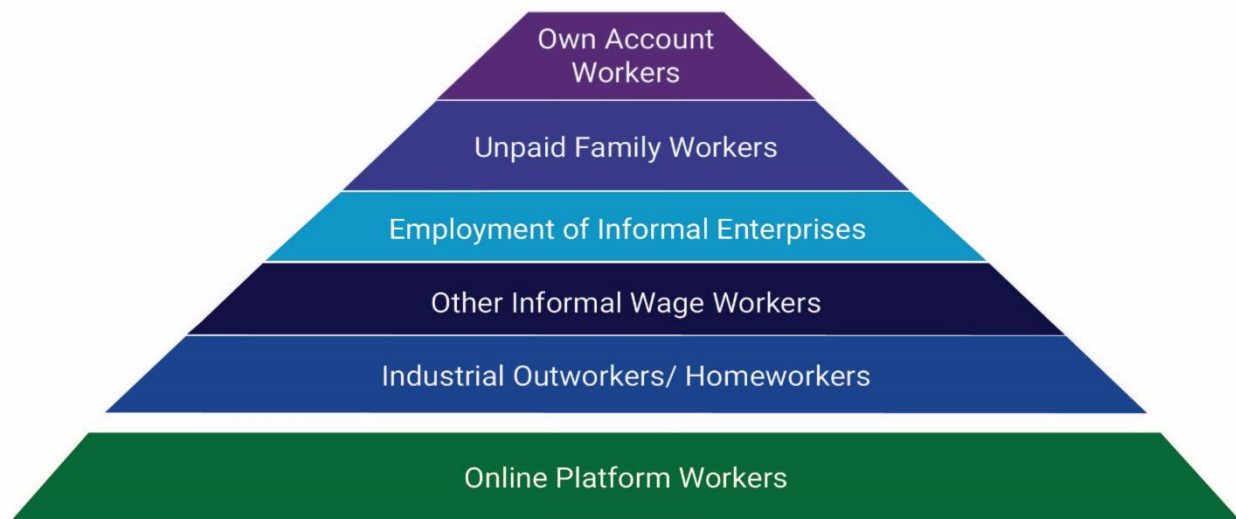


Figure 2: Composition of Informal Sector

2.2. Trends in Informal Sector

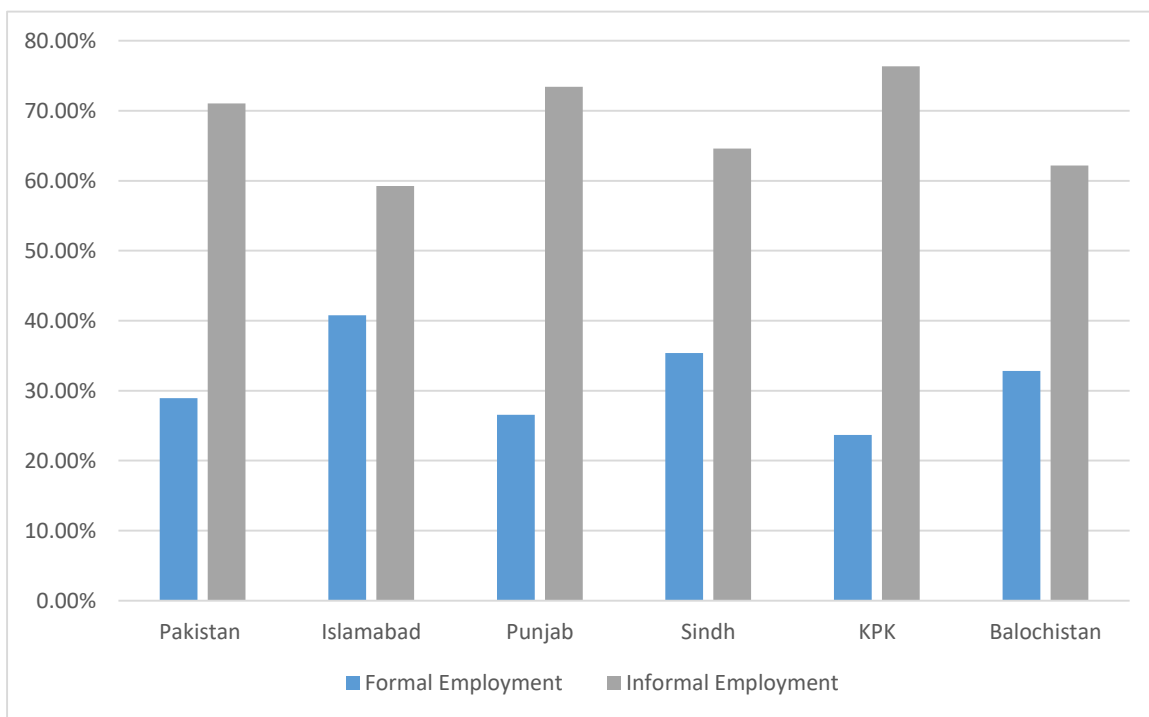
Arby et al., (2010) estimated the share of informal economy in Pakistan through three models, ARDL, MIMIC and electricity approach. The results of all the three approaches differed in explaining the trend in the changing share of informal economy in the country with the time. The results showed that the informal economy has increased its share in the

or a continuous basis, or as an apprentice, and iii. Excluded are all enterprises engaged in agricultural activities or wholly engaged in non-market production.

Pakistan's economy until the end of 1990s and has a declining trend since then. It was below 30% during 1960s and 1970s, increased to 33% during 1990s and then declined to 23% in the current decade of 2000s through ARDL model. The results of MIMIC model, on the other hand showed that the informal economy has been around 30% of the total economy in Pakistan. The electricity approach, on the other hand, showed that the extent of the unmeasured economy was less than 5% during 1970s, which then increased sharply until 1990s and remained stagnant after that.

However, according to latest statistics of LFS (2017-18), informal sector in Pakistan is formulated in terms of household enterprise and size of employment. Share of employment in informal sector reached from 71.5% in 2006-07 to 71.4% in 2017-18, while mixed trend is shown as high and low in the middle. The corresponding shares by males (71.6%, 71.5%) remained the same during the period 2006-07 to 2017-18, while the share of females (69.9%, 70.7%) showed a marginal variation during the comparative periods 2006-07 vs 2017-18.

Figure 3: Provincial Share of Formal & Informal Labour Force



Source: Labour Force Survey 2017-18

In the Figure 3, it is evident that the share of informal employment is greater in all of the provinces as compared to share of formal employment in the country. The highest share of informal employment is in Khyber Pakhtunkhwa with the ratio of 76.35% to 23.65%, whereas the lowest share of informal employment is in Islamabad Capital Territory (ICT) with the ratio of 59.23% to 40.77%. The presence of informal employment in such a large ratio implies that the economy of the country is highly dependent on the informal activities

and is at higher risk towards external shocks like pandemic due to lack of safety net for the workforce in the informal economy. It is also highly likely for the State to misinterpret the economic statistics and may mislead the policymaking at the broader level based on this situation because of the off-record economic activities taken place.

The Figure 04 depicts the division of informal economy based on gender. It is shown that the major portion of informal employment in the economy comprises of male's contribution of 71.2% with respect to 29% of the female's participation. In fact, the contribution of females in the overall labour force is quite low. In such case, when the economic activities are largely dependent on male's contribution, in which 71.20% of the males are employed in informal sector, then it brings in quite gruesome state when the economy is hit by any shock like pandemic. The insecurity of the informal employed labour force makes the whole of the economy vulnerable.

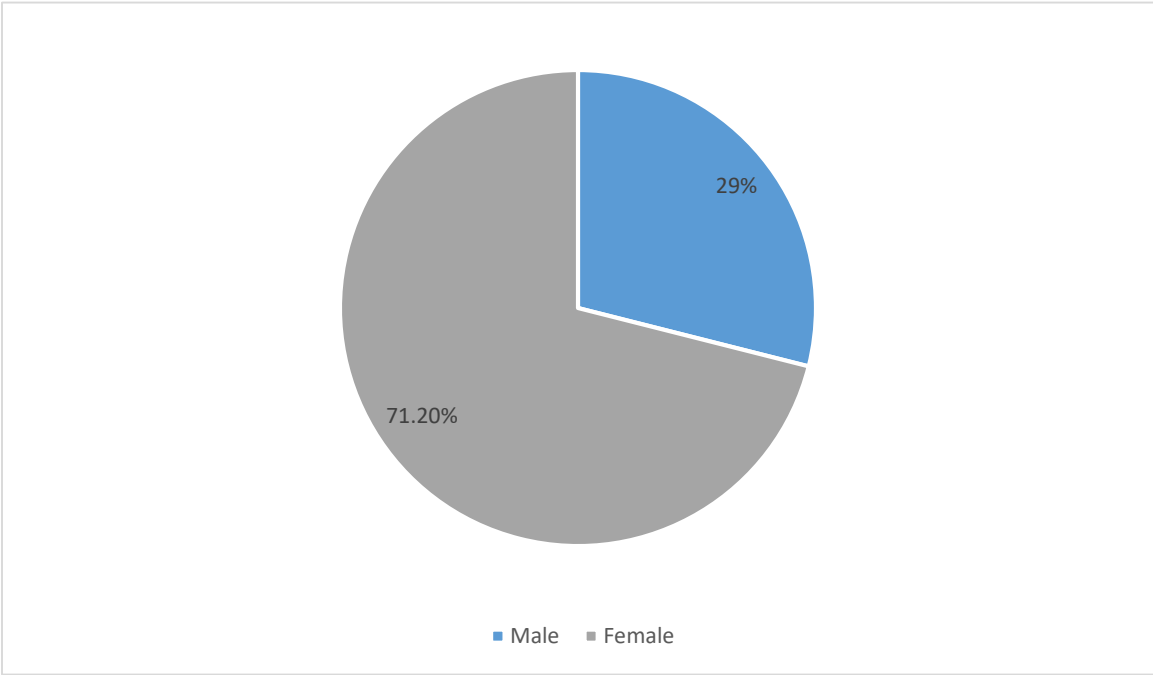


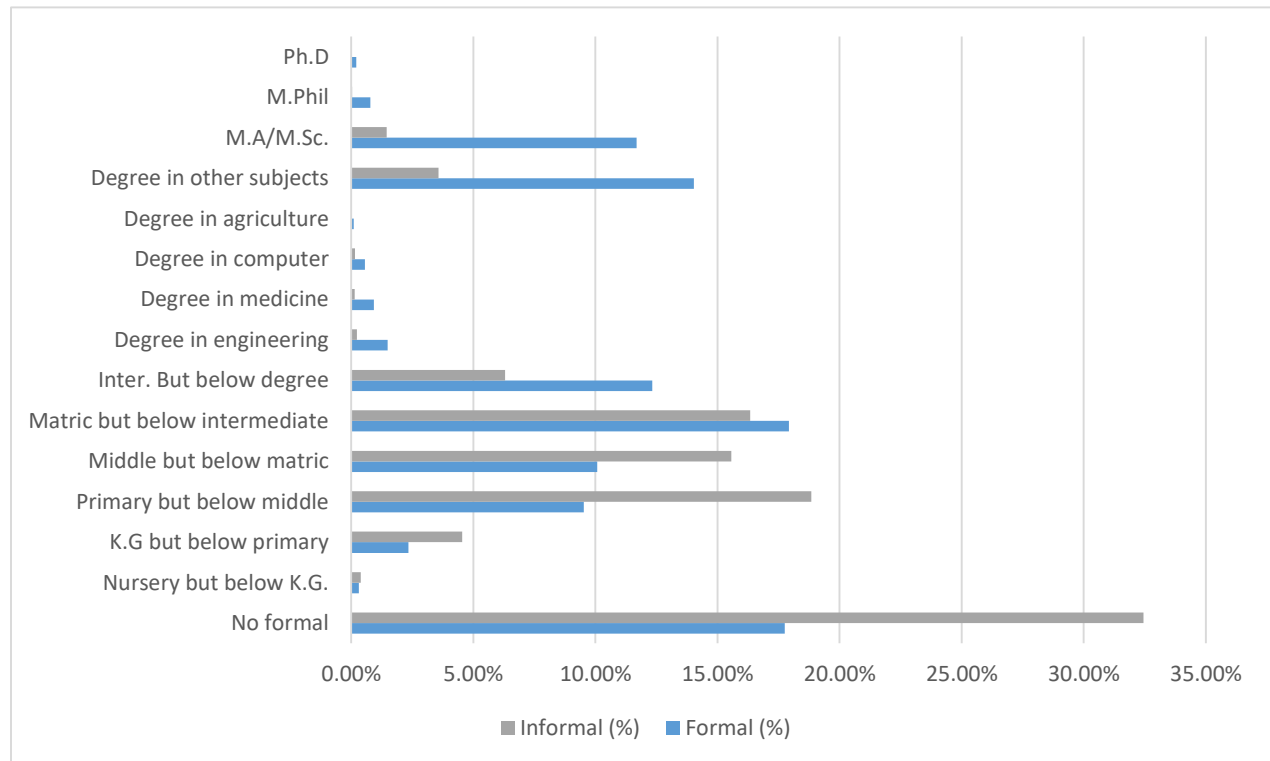
Figure 4: Gender Segregation of Informal Economy

Source: Labour Force Survey 2017-18

In the Figure 05 below, it is shown that the level of informality decreases with the increase in the education levels. 32.45% of the labour force with no formal education is working in the informal sector as compared to 17.75% of the formal labour force, whereas 15-18% of the labour force with primary or secondary education are also part of the informal sector.

However, the higher the educational degree is, the greater is the share of the formal sector, but on the other hand, the chances of employment shrunk with the rise in education levels.

Figure 05 0: Informal Economy Based on Educational Levels



Source: Labour Force Survey 2017-18

3. THE STATUS OF GIG ECONOMY

As decades pass by, the world is evolving, and the way people behave, make choices and decisions are changing likewise. Similarly, labour market has also evolved immensely from the past two decades, the skills in demand, new technology, increased automation, increased globalization; all of these factors significantly contribute to this change. In the prior times for example, work was more labour intensive, craft skills had a high demand, labour mobility was a major constraint and policies aimed at catering these challenges. Today, however, with the transformed labour market environment, there is a need for transformed and updated set of policies to protect workers and encourage growth and efficiency in the labour market.

A growing in demand professional worldwide is one that is related to the field of Information and Communications Technology (ICT) industry. A salient feature of “today’s work” is the digital platform or also known as the gig economy. This characterizes a workplace where employers and workers communicate over an online platform. It involves full-time, part-time, self-employed, outsourced and crowd work. In the crowd work, people take jobs from employers and outsource them to other workers, over the internet. It provides worker the ease to choose when to work, how much to work and from where to work. To the employers,

it gives the ease to look for cost effective and efficient labour. Be it due to the advancement in technology, increased use of social media, or in general the increasing digitalization, as time passes by, these digital markets are getting bigger and bigger.

Where digital platforms have provided a solution for numerous issues emerging in the conventional labour markets, they have also brought some challenges along. They are accused of being exploitative for workers through practices such as late pay, fraud, unfair rejection and low wages. Social protection for digital labour requires much more attention considering the sectors potential growth around the globe. Moreover, the role of digital labour in the informal economy relates in a sense that the digital labour is not defined as part of the labour force in any category whether formal or informal. Hence, it is quite important to debate on the status of digital labour and its role in the informal economy.

In order to discuss how digital labour markets contribute to economy and how can efficient functioning of them be ensured, we need to define the term 'Digital Labour'. Digital Labour platforms enable producers and workers to interact with each other; they provide a platform where employers and workers can communicate from job allotment to compensation part (Choudary, 2017). A few prominent names among such platforms today are Fiverr, Upwork, and Freelancer. Digital Labour is the use of new forms of technologies towards automation².

Employers and workers meet over a platform generated over the internet; it has completely changed the concept of labour mobility. The problem of accessibility to cheaper, more efficient labour for employers and free-ness at work for employees has been greatly influenced by digital labour platforms. They help workers and employers gain some level of access to international labour markets. Where technology has always feared to crowd out demand for labour, it has also provided the digital market platform as an employment opportunity for many.

3.1. Future of Work & Gig Economy

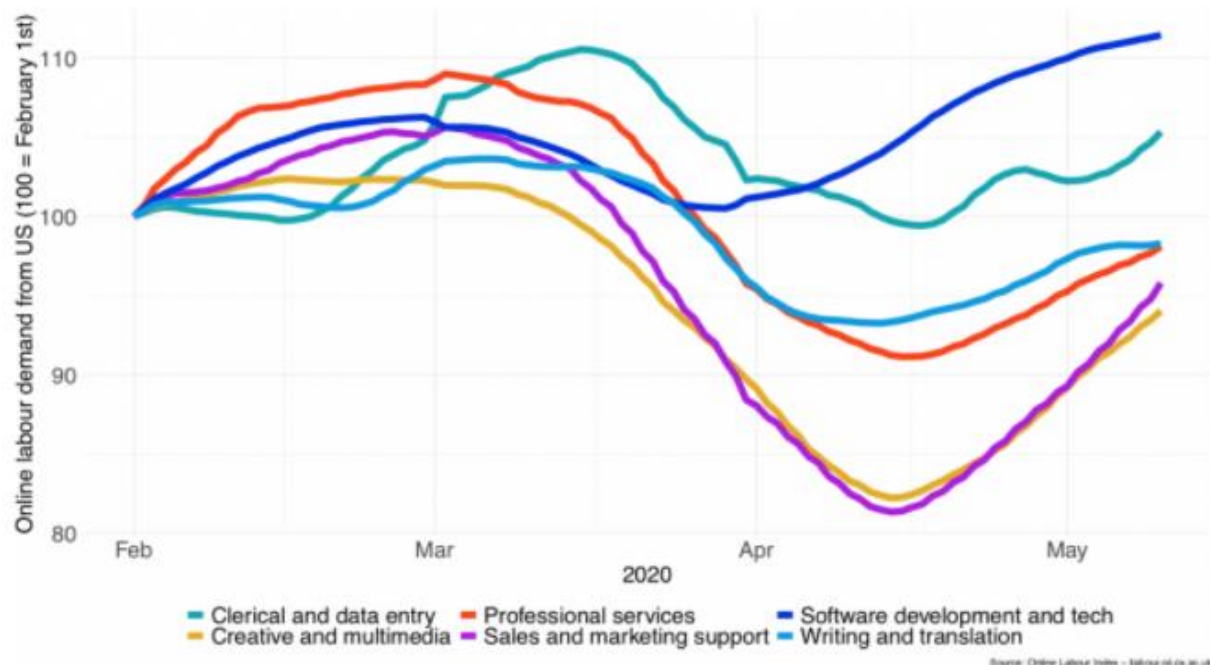
The emergence of COVID-19 pandemic has introduced the new normal especially in the field of professionalism through the concept of 'Work from Home'. The dynamics of the occupations have shifted especially in the ICT sector. The Figure 06 is showing the data of the US during pandemic that the demand in creative & multimedia as well as sales and marketing support work shrunk significantly, as the pandemic unfolded, but requests for projects in the software development & technology category remained largely unaffected. This finding is consistent with an interpretation that companies cut non-essential freelance contracts, such as marketing and sales campaigns, while maintaining freelance outsourcing that is essential for continued business operations, such as tech support and database management.

The occupations that experienced deep cuts are slowly bouncing back, but the winner occupations are experiencing even more demand than before the crisis. This is consistent

² Overview of Digital Labour – KPMG US. YouTube: <https://www.youtube.com/watch?v=KCyMxXlgTLM>

with the idea that the rapid push towards videoconferencing and other remote operations across companies has created additional demand for freelance IT specialists who are able to help with this³.

Figure 06: The Status of Employment in Occupations during Pandemic



Source: Online Labour Index

Therefore, the pandemic is causing economic upheaval around the world, as shops and offices close and those able to do so switch to working remotely from their homes. However, one segment of workers that have always been working remotely is online workers (software developers, graphic designers, data labellers etc.). They have been earning some or all of their income from freelance projects and tasks obtained via online labour platforms. For them, there are two types of effects during pandemic;

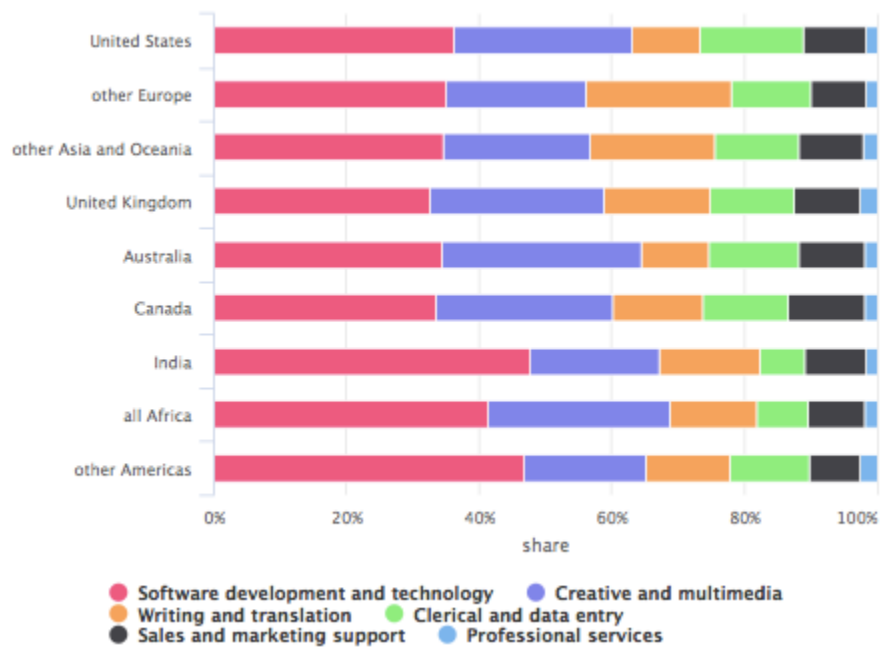
- a) The distancing effect: demand for online work grows, as companies switch from on-site contractors to remote freelancers.
- b) The downscaling effect: demand for online work diminishes, as companies facing declining revenues reduce non-essential spending, including external contractors.

³ <https://labour.oii.ox.ac.uk/pandemic-proof-jobs/>

Over the past several years, the Online Labour Index has shown a clear seasonal pattern: demand drops during the year-end holiday season, and then rises again to reach a plateau in February, which normally persists until May. However, as the Figure 07 shows, this is not the case in 2020. By mid-March, when the World Health Organization (who declared that COVID-19 had become a pandemic), the Online Labour Index was in deep decline, in comparison to 2018 and 2019.

This finding indicates that the downscaling effect may be dominating over the distancing effect. While this is only a preliminary finding, it suggests clear implications for workers and policymakers. For workers who are losing their jobs and freelancing gigs, this finding suggests that going online to find project work may unfortunately not be a viable way to claw back lost income. For policy makers, it suggests that many self-employed people, including online workers, will probably need financial support to get through the crisis.⁴

Figure 07: Change in Global Occupational Status during COVID-19



Source: Online Labour Index

A striking feature of the geography of online labour utilization is that the occupational demand profiles of the leading employer countries are rather similar. Employers from all the leading buyer countries post most vacancies in the software development and technology category, followed by creative and multimedia, and so on. This is surprising, because the sectoral and industry structures of these countries are very different, as are the occupational profiles of their conventional domestic labour markets. The fact that they nevertheless resemble each other rather much in online labour demand profiles suggests that the demand

⁴ <https://ilabour.oii.ox.ac.uk/pandemics-effects-on-online-freelance-work-distancing-dividend-or-downscaling-loss/>

largely comes from the same industry within each country: information technology, broadly defined. If industries and sectors start making use of online labour in greater quantities, the OLI should begin to show employer countries’ occupational demand profiles diverging (Kassi et al., 2018).

3.2. Defining the Digital Labour

In order to discuss how digital labour markets contribute to economy and how can efficient functioning of them be ensured, first, there is a need to define the term ‘Digital Labour’. Digital Labour platforms enable producers and workers to interact with each other; they provide a platform where employers and workers can communicate from job allotment to compensation part (ILO, 2017). A few prominent names among such platforms today are Fiverr, Upwork, and Freelancer. Digital Labour is the use of new forms of technologies towards automation⁵.

Employers and workers meet over a platform generated over the internet; it has completely changed the concept of labour mobility. The problem of accessibility to cheaper, more efficient labour for employers and free-ness at work for employees has been greatly influenced by digital labour platforms. They help workers and employers gain some level of access to international labour markets. Where technology has always feared to crowd out demand for labour, it has also provided the digital market platform as an employment opportunity for many.

Hence, Digital labour is a worker who is involved in the production of value by using information and communication technologies. The following table attempts to specify the types of labour this broader term includes.

Table 01: Composition of Digital Labour

	Description	Rights
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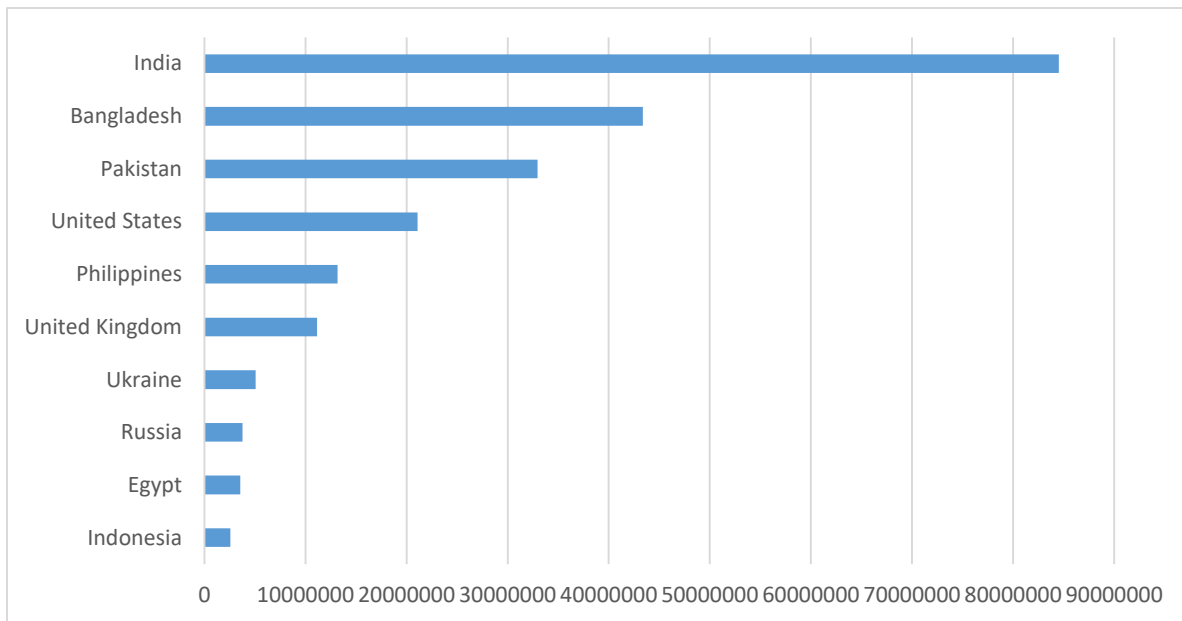
⁵ Overview of Digital Labour – KPMG US. YouTube: <https://www.youtube.com/watch?v=KCyMxXlgTLM>

Type of Digital Labour		Common to all types	Specific to each type
Freelancer	- Fixed Cost - Set Work Hours - Work is streamlined	-Appointment Contract - Health Insurance	- Paid sick leave
Crowd worker	- Output based pricing - Available 24/7 - Within budget	- Minimum wage laws - Right to for unions, collective bargaining	- Paid sick leave
Online Taxi Driver	- Output based pricing - Variability in availability		- Paid sick leave -Accident Insurance
Online Content Creator (Get paid by Advertisements)	- Price varies according to content, number of views and advertisement provider - Available 24/7		

3.3. Digital Labour in Pakistan

Figure 08 shows that Pakistan comes third after India and Bangladesh, when it comes to total number of online workers. The University of Oxford established the Online Labour Index (OLI), identifying online labour country wise and sector wise. They identify six sectors on digital labour i.e., software development & technology, creative & multimedia, writing & translation, sales & market support, clerical & data entry and professional services. In India and Pakistan, software development & technology take up the majority share. OLI shows the number of online freelancers working in different countries across the identified sectors. Moreover, OLI trends from 2017 to 2020 show an increasing value of the index overall, across the globe.

Figure 08: Top 10 Countries - Total Number of Online Workers



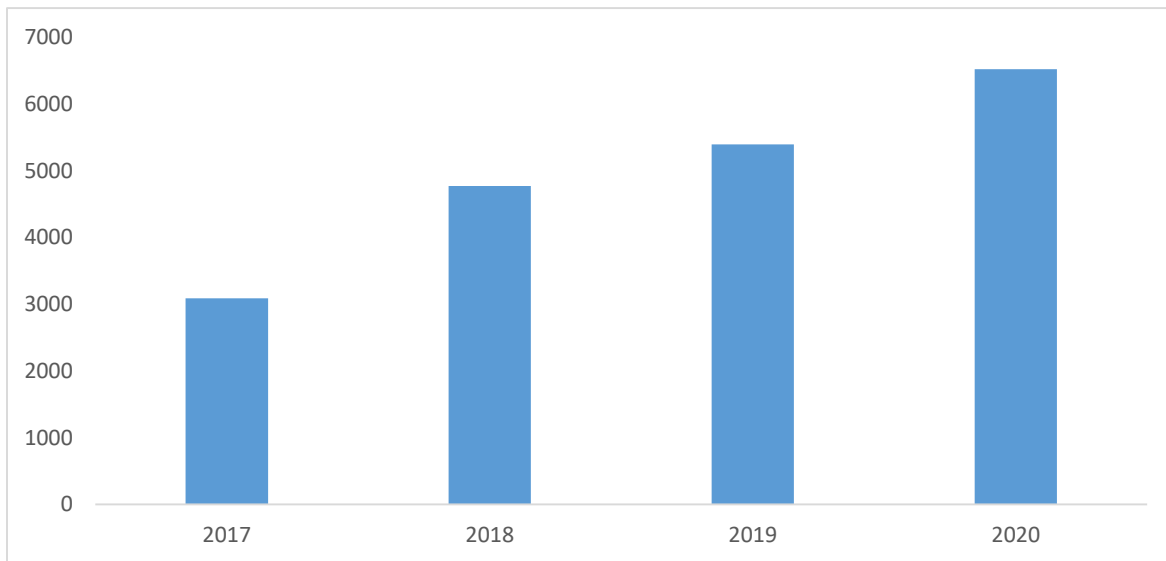
Source: *The Online Labour Index Data, University of Oxford*

The exploitative nature of digital labour markets, however, is often argued about. Low wages, high workload, delayed payments and non-payments are some of the reasons for this. The ILO report on Digital Labour Platforms (2019) highlights a number of risks attached to crowd work. These include rejection; which is often uninformed and uncompensated for, lack of job security; your online work profile could be deleted overnight, and lack of efficient communication. For developing countries, the report suggests that where it can prove to have great potential in providing job opportunities and alleviating poverty, more attention needs to be given to its adverse effects too. Most of the digital labour is already skilled, educated and some even employed. This raises the question of if really this industry can contribute to the betterment of the marginalized sector. Developed countries are usually employers on the digital labour platforms while digital labour is usually employed on at a lower cost from Asian countries, this is evident from the top 3 countries with digital workers as shown in Figure 08.

In Pakistan, the biggest sector of digital markets is that of writing and transaction. Trends from data of online workers show that the number of workers in writing and transaction along with, clerical & data, creative & multimedia, and software development & technology have increased, while the amount of digital labour in sales & marketing and professional services have reduced after 2018. Overall, in Pakistan the average increase across all these sectors has been 29% from 2017 to 2020. Figure 09 shows how the average online workers in Pakistan have increased over the past four years i.e., 2017 – 2020. In fact, with the current global scenario, the digital markets around the global are expected to have a significant

impact when it comes to increased number of workers switching to online, stay-at-home and digital work.

Figure 09: Yearly Average Number of Online Workers in Pakistan (2017-2020)



Source: The Online Labour Index Data, University of Oxford

Be it due inadequacy of labour laws, faults in implementation of those laws, corruption or unawareness among labour, social protection for labour has remained questionable in Pakistan. With the digital labour platforms expanding, in order to ensure it generates benefit for the economy, there is a dire need to expand the social protection umbrella over digital labour too. As the digital era brings with it new risks and opportunities, the existing labour laws do not cater with them, as these laws are based on outdated work environment. One major such risk is lack of job security, there seems to no long-term attachment being between the worker and employment; hence, there is uncertainty and risk of prolonged periods of unemployment for an individual worker. This makes the nature of digital labour platforms not economically dependable for workers, it is suggested that works should keep on saving from their income to either invest in a business or just keep for probable hard times.

4. THE IMPACT OF COVID-19 PANDEMIC ON INFORMAL ECONOMY

The COVID-19 pandemic has disrupted the lives of the people socially and economically in the country. Millions of people are at risk of falling into extreme poverty. This pandemic has also posed existential threats for the industrial and entrepreneurial sector and the country's workforce was at the risk of losing their means of earning. In such case, informal sector of the economy are the most vulnerable due to lack of social protection, access to quality healthcare facilities and low savings. The Government of Pakistan defines Informal Sector workforce as own account workers in industry and services sector or firms with less than 10 employees. It also excludes the workforce in agriculture sector. Hence, informal economy,

Being the 72% of the total workforce, becomes the most affected sector of the economy during pandemic. However, during the pandemic, industrial and services sectors posed the highest threat as compared to agriculture in terms of workforce layoff.

According to the Pakistan Bureau of Statistics (PBS)'s recent '*Special Survey for Evaluating Socio- Economic Impact of COVID-19 on Wellbeing of People*', 46% of the workers have faced job loss or decrease in their income in the industrial sector, whereas, 49% of the workers in services sector (wholesale & retail trade, transport & storage and others) have lost their jobs during COVID-19. On the other hand, only 5% of the working population in agriculture sector has faced this impact. 55.74 million (35%) population was economically active before COVID-19 period⁶. Moreover, during the COVID-19 period, economically active population decline to 35.04 million (22%). This drastic reduction of 13% in workforce shows the need of the immediate social protection interventions to protect the vulnerable population from the COVID-19 impact, which is mostly comprised of the workforce from the informal sector. On the other hand, agriculture sector remains comparatively at the safer side due to its inherent nature of being self-sufficient, whereas services and industry sector were highly at stake of market forces⁷.

It is inferred from the official statistics that the sectors, facing the economic risk, are construction, manufacturing, accommodation and food services, wholesale and retail trade, transport and storage, and real estate and business activities. All these sectors are labour intensive and employ 28.45 million workers, most of which are low-paid and low-skilled workers. The share of total employment in these high-risk sectors is 47% of total employment in the country. The services sector is the worst hit due to the COVID-19 induced lockdowns in the country. All sub-sectors, be it food and accommodation services (tourism and hospitality industry), educational institutions, retail, and the transportation sector, have been the worst hit. The LFS 2017-18 indicated that 1.18 million workers are engaged in the food and accommodation sector. Those working in the education sector are 2.5 million, while the transport and storage sector alone employs 3.5 million. The construction sector, employing 4.7 million workers, has come to a grinding halt owing to the lockdown and recommended social distancing. Construction is the most labour intensive sector, and most workers engaged in the sector are daily wageworkers or employed on a piece-rate basis.

Manufacturing sector, also engaging 9.7 million workers, is impacted by the lockdown and cancellation/postponement of export orders. Agriculture, to this moment, remains largely unaffected due to the Government's policy of allowing movement of goods across the country, including agricultural produce. Similarly, the Government has allowed food and beverage manufacturing units, pharmaceuticals as well as seeds and pesticides unit to continue working even during the lockdown. There can be issues of food security due to border closures. Workers in the sector and the whole food supply chain will be impacted if

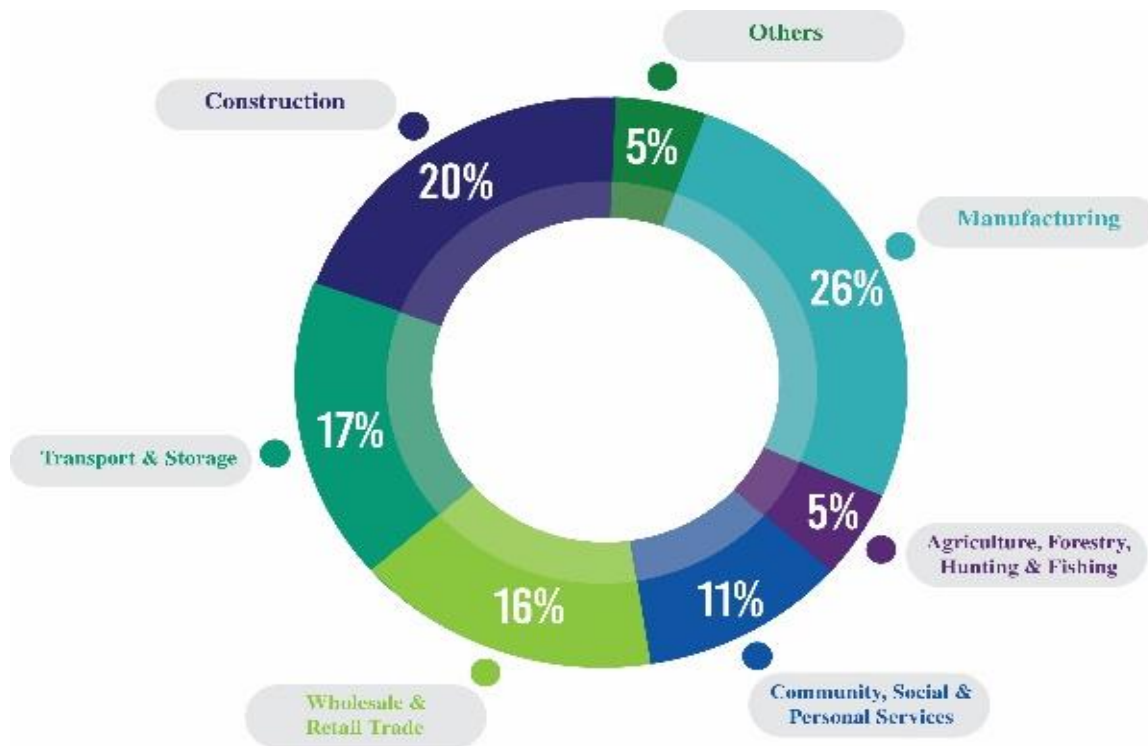
⁶ Special Survey for Evaluating Socio-economic Impact of COVID-19 on Wellbeing of People

⁷ In agriculture sector, the relation of tenant and farmer is rather more flexible making this sector shock-absorbent as compared to the industrial sector, where the relation of producer and labour is highly dependent on the market forces, making it more vulnerable to economic shocks.

the virus spreads further into rural areas. Total expected job disruption is 21.24 million of which 77% (16.49) million is working in the “at-risk” sectors including construction; accommodation and food service activities; manufacturing; transport, storage and communication; real estate, business and administrative activities; and wholesale and retail trade, repair of motor vehicles and motorcycles.⁸

Therefore, in all the above mentioned sectors, it is the informal workforce in these sectors, which suffered the most during the pandemic. It is estimated that 20.63 million of the workforce either lost their jobs or could not work and 6.7 million of the workforce experienced reduction in their income due to COVID-19 lockdown. However, if this larger portion of workforce were prioritized and digitized and given social security at the first place before COVID-19 hits, the 72% of the workforce would not have been threatened and left vulnerable during COVID-19.

Figure 10: Distribution of Affected Workers (Job Lost) by Industry



Source: Pakistan Bureau of Statistics 2020

Furthermore, it is observed that there was a major occupational shift before and during COVID-19. It is worth mentioning that the daily wagers (usually construction workers), casual workers and the people who were own account workers in non-agriculture sectors like shopkeepers, street vendors, taxi drivers were the most affected portion. Moreover, works in elementary occupations were badly shaken with 36% work force lost their jobs or

⁸ Ahmad, I. (2020). COVID-19 and Labour Law: Pakistan. *Italian Labour Law e-Journal*, 13(1S).

could not work during COVID-19 period followed by service workers/sales workers with 26%. Craft and Related Trade Worker is the third most affected occupation group in which 18% working population faced job loss. This implies that majority affected i.e. 74% relates to informal sector and proved to be the most vulnerable to these kinds of shocks.

4.1. Data & Methodology

In order to estimate the impact of COVID-19 pandemic on the informal economy of Pakistan, it is essential to check the share and trends in the formal and informal economy in pre-COVID and post-COVID-19 lockdown period. For this purpose, the analysis has been conducted on the data of LFS (2017-18) and PBS Survey on COVID-19 (2020).

4.1.1. Research Approach

LFS 2017-18 lays a clear definition of the informal sector, using that definition the informal sector of Pakistan is estimated to be 72%. The study uses that definition to estimate the informal sector of each industry, then uses these estimates to match with the industry in PBS Special Survey COVID-19. This gave an estimate of formal (*F*) and informal (*I*) segregation on the latter data set.

As a matter of the fact, COVID-19 hit Pakistan on 26th February 2020 and pandemic spread to all provinces in Pakistan. *To date, 521,211 people have been reported as confirmed cases, out of which, 10,997 people have died and 475,228 people have recovered so far*⁹. The country has faced its first lockdown on 23rd March 2020 at provincial level, when the first case was reported in Karachi and it was extended twice and ended on 9th May 2020. Therefore, in order to assess the impact of COVID-19 and lockdown imposed by the Government on informal economy, the data of LFS (2017-18) and PBS Survey 2020 are used to estimate the change in the share of employment and growth in pre-COVID-19 (January-March 2020), during COVID-19 first wave (April-July 2020) and after COVID-19 (August-September 2020). The following analysis will provide insights to the most affected industrial sectors in formal and informal economy during the above-mentioned periods. It will also give an overview of the least influenced industrial sectors in formal and informal economy.

4.1.2. Variables

The analysis in this chapter is based on change in employment share and growth rate of each industry in Pakistan, individually analysing both formal and informal sector. The calculation of employment share and growth rate of formal and informal sector of *ith* industry is given below:

The Table 02 shows the description of the variables chosen for the data analysis in order to assess the impact of COVID-19 on informal and formal economy.

⁹ Dated 18th January 2020; <https://covid.gov.pk/>

Table 02 : Construction of Variables for Analysis of Formal and Informal Industries

Variables	Pre COVID-19	Post COVID-19	Employment share	Growth rate
Formal Sector of <i>ith</i> industry	F_{t-1}^i	F_{t+1}^i	$F_{t+1}^i - F_{t-1}^i$	$\frac{F_{t+1}^i - F_{t-1}^i}{F_{t-1}^i}$
Informal Sector of <i>ith</i> industry	I_{t-1}^i	I_{t+1}^i	$I_{t+1}^i - I_{t-1}^i$	$\frac{I_{t+1}^i - I_{t-1}^i}{I_{t-1}^i}$

Note: where

i = industry code (1 to 99)

t = time-period during COVID-19/ Lockdown (Months)

F^i = Percentage share of *ith* industry formal sector out of total formal sector in Pakistan

I^i = Percentage share of *ith* industry informal sector out of total informal sector in Pakistan

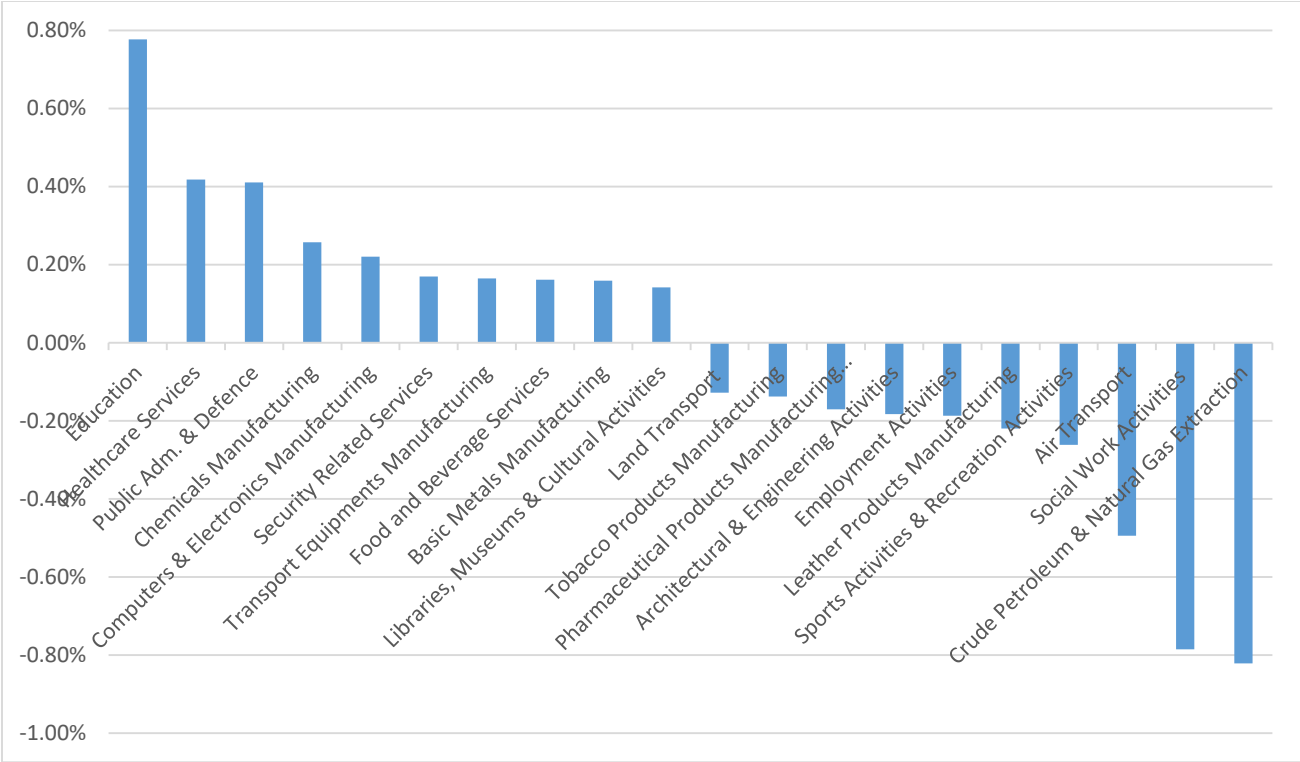
4.2. Change in Share of Employment in Formal Sector

The formal sector comprised of 10 million out of total employed labour force and social insurance in Pakistan exists only for the employed formal labour. However, when formal economy is considered in terms of change in the share of employment in industrial sectors between pre-COVID-19 and post-COVID-19 period in the formal sector, it is evident that the dynamics of the employment has significantly shifted. In the Figure 11, top ten and bottom ten industrial sectors with the highest and lowest change in employment share during this COVID-19 lockdown period in formal sector are shown. It is evident from the Figure 11 that education sector has showed an increase in the employment share with 0.78% followed by the 0.42% increase in the employment share in healthcare services, whereas, the share of employment activities related to public administration and manufacturing of chemicals and electronics increased with 0.41%, 0.26% and 0.22% respectively. On the contrary, the bottom ranked sectors include extraction of crude petroleum & natural gas, social work activities, air transport and sports activities & recreation activities with -0.82%, -0.79%, -0.49% and -0.26%.

Interestingly, education has the highest change in the employment share between pre and post-COVID-19 period, which may be justified with the shifting and closing of other major sectors like manufacturing and construction during lockdown and the focus of the economic

share shifted to the social sectors like education and healthcare sector. Due to lockdown, transportation was also closed making the sectors of land transport, air transport and crude petroleum & natural gas extraction go down. The services were shifted to online systems, which made the share of employment of the sectors of food & beverages and computers & electronic manufacturing to rise. The increased demand of sanitizers, disinfectants and masks have raised the share of employment in the sector of chemicals manufacturing. Closing down of offices, schools, colleges, businesses have turned down the share of employment in the sectors of employment activities, professional sector and engineering activities.

Figure 11: Top & Bottom Most Influenced Sectors with Share in Employment in Post COVID-19 Lockdown

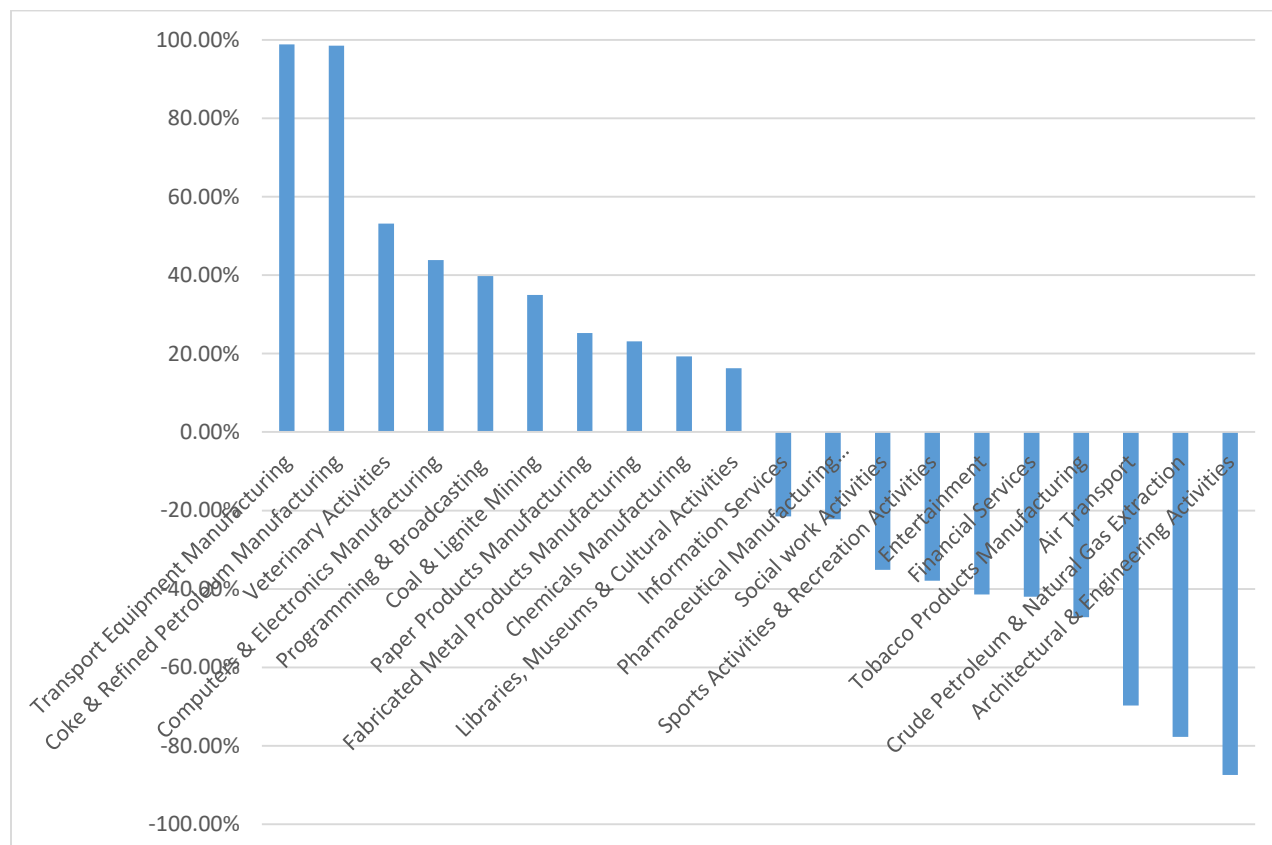


4.3. Trends in Growth Rate of Formal Sector

Apart from change in the share of employment, the growth rate shows much more variation in post-COVID-19 lockdown period. In the Figure 12, it is evident that the manufacturing sector has been the most influenced sector in terms of positive and negative growth rate in pre and post-COVID-19 period. The sub-sectors of manufacturing such as manufacturing of transport equipment, coke and refined petroleum products, veterinary activities and manufacturing of computer, electronic and optical products have shown positive change in growth rate as 98.83%, 98.57%, 53.20% and 43.90% respectively. On the other hand, the bottom ranked sectors with the negative growth rate includes architectural & engineering

activities (-87.41%), crude petroleum and natural gas extraction (-77.74%) and air transport (-69.74%) respectively.

Figure 12: Top and Bottom Most Influenced Sectors with Growth in Post COVID-19 Lockdown



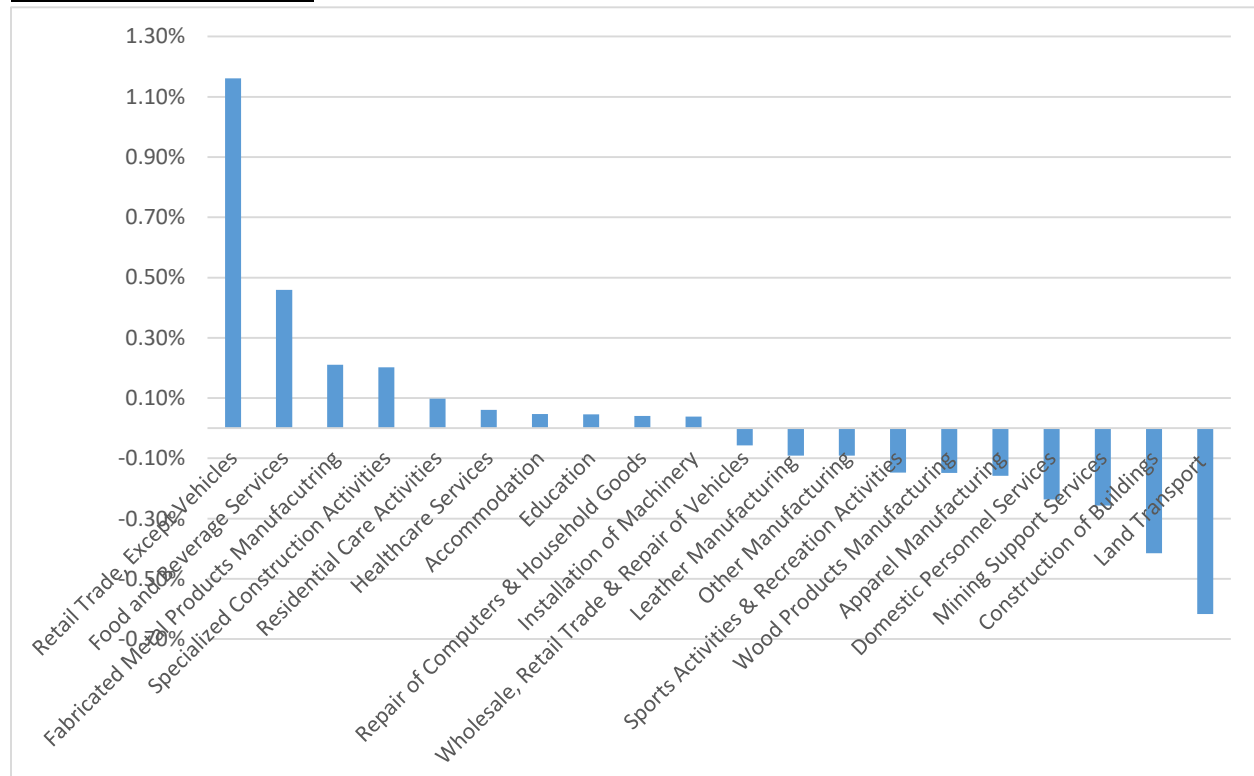
Hence, it is inferred from the above Figure that the sectors, which have experienced positive change in employment are the similar ones with positive growth rate. However, sectors with early 100% growth rate have shown a remarkable change during COVID-19 period. Moreover, a few sectors have increased growth rate but do not have shown any significant change in employment share, which means that these sectors have more productivity but do not shown any change in influx of employment during COVID-19 period.

4.4. Change in Share of Employment in Informal Sectors

According to the official statistics, informal sector counts up to 27 million and consists of the 72% of the total workforce of the country. In the Figure 13, the top and bottom 10 industrial sectors in informal economy are shown with respect to the change in their employment share in post-COVID-19 period. The sectors of retail trade excluding repair of motor vehicles and motorcycles, food and beverage services and manufacture of fabricated metal products showed a positive change of 1.16%, 0.46% and 0.21% in the employment share respectively, which means the employment in these sectors had increased during the pre and post COVID-19 period. On the other hand, the sectors of land transport and transport via pipelines,

construction of buildings and mining support services showed the negative change of -0.42%, -0.26%, and -0.24% respectively. It means that either the labour force in these sectors have shifted to other sectors or left the jobs during the period showing negative influx in the employment share of the sector.

Figure 13: Top & Bottom Most Influenced Sectors with Share in Employment in Post COVID-19 Lockdown

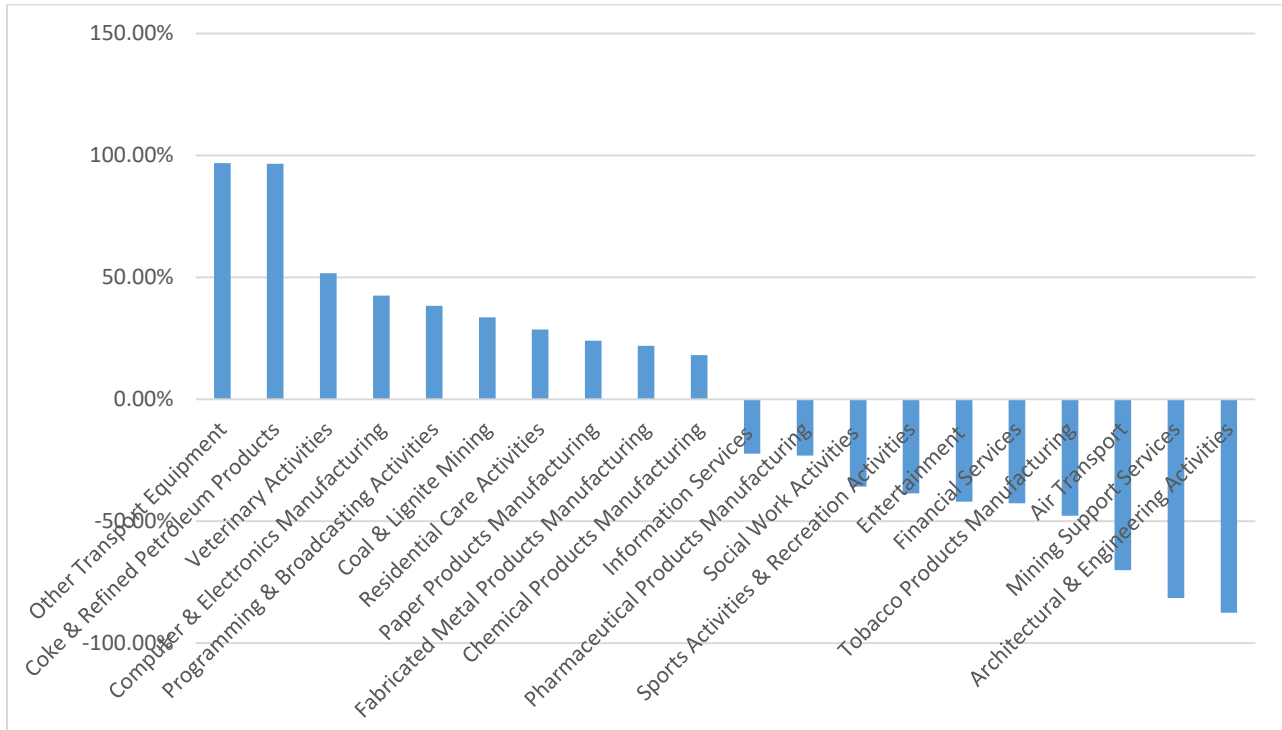


Therefore, the sectors with positive change in the share of employment in informal sector are different from the sectors in formal sector due to the nature of the sector. Due to lockdown, the manufacturing sectors including leather, wood, apparel manufacturing, wholesale and retail trade in vehicles, mining and transport have shown negative change in the share of employment, whereas the focus of the employment sector shifted to retail trade, food and beverages due to online shifting of businesses.

4.5. Trends in Growth Rate in Post COVID-19 Lockdown in Informal Sector

Interestingly the trends in growth rate in formal and informal sectors are more or less the same with similar sectors. In the Figure 14, the top and bottom 10 industrial sectors in informal economy are shown with respect to their growth rate in post-COVID-19 period. The sectors of other transport equipment, manufacturing of coke & refined petroleum products, veterinary activities and computers & electronics manufacturing show positive growth rate of 96.93%, 96.68%, 51.74% and 42.53% respectively. However, the sectors of architectural and engineering activities, mining support services and air transport showed negative growth rate of -87.53%, -81.44% and -70.03% respectively.

Figure 14: Top & Bottom Most Influenced Sectors with Share in Employment in Post COVID-19 Lockdown



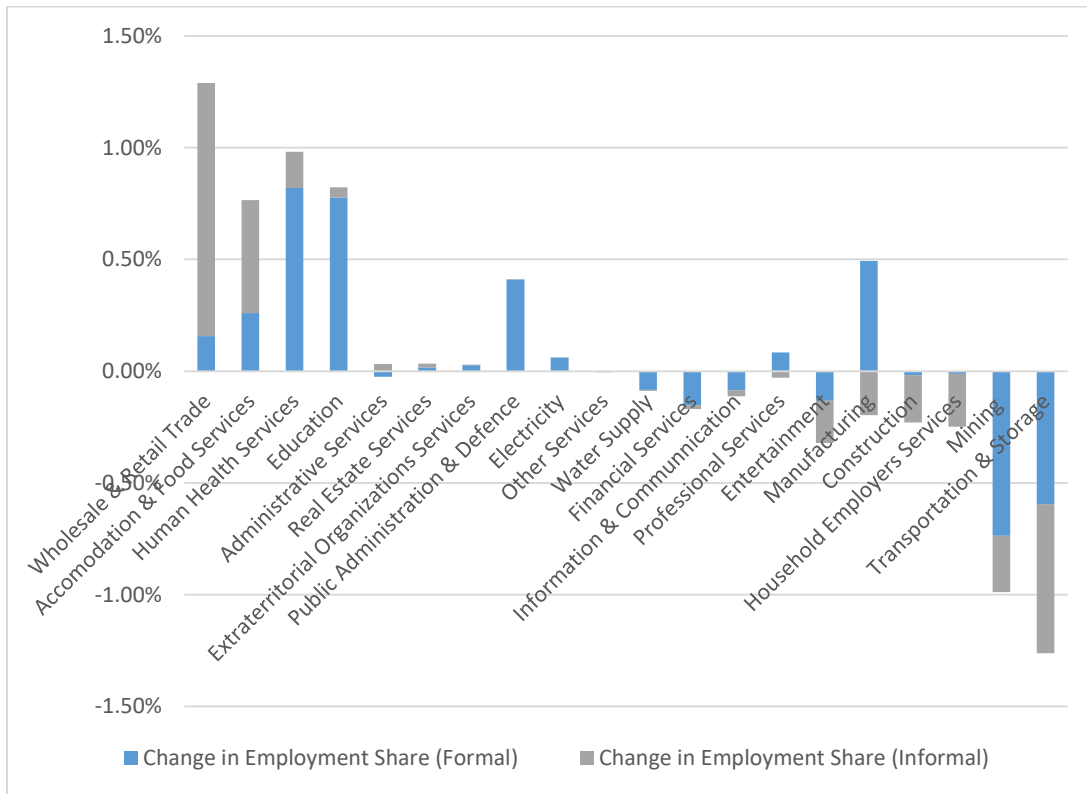
Moreover, unlike sectors w.r.t change in employment share in informal sector, the growth rate in this sector is similar to the growth rate of the sectors in formal economy. Interestingly, the sectors showing positive growth rate do not have any significant change in the share of employment in the informal sector, which means that the sectors have grown in terms of productivity but do not have any significant impact in terms of their importance in the economy w.r.t influx of employment.

Hence, this differing trend in top and bottom sectors of formal and informal sector clearly shows the shifting in the dynamics of the work during COVID-19 lockdown.

4.6. Overall Change in Employment Share of Formal & Informal Sectors

If we look upon the overall change in employment share in formal and informal sector, then it is evident from the Figure 15, that overall the employment in the a few of the informal sectors have significantly increased such as wholesale & retail trade, accommodation and food services. Moreover, the closing down of major sectors of construction, transportation and manufacturing during lockdown has changed the dynamics of the employment share in the formal sector in such a way that the share of employment in the sectors of healthcare services, education and administrative services have significantly increased. However, the lockdown has made the informal workers of manufacturing, construction, domestic employees, transportation and mining sectors much more vulnerable due to lack of social security for these sectors.

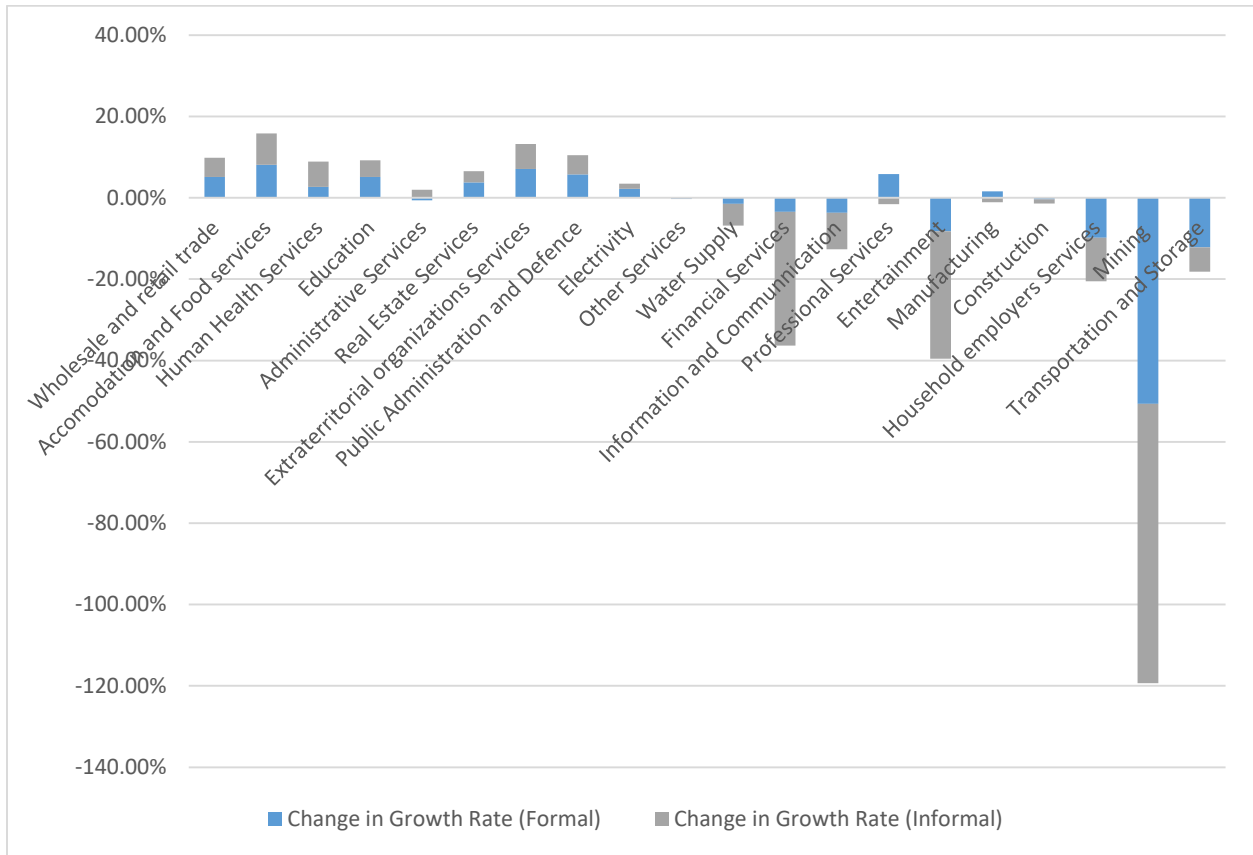
Figure 15: Change in Employment Share in Post COVID-19 Lockdown



4.7. Overall Growth Rate of Formal & Informal Sectors

Figure 16 shows the overall growth rate of formal and informal sectors in post COVID-19 lockdown period, which depicted that, the overall the growth rate has not raised much as compared to negative growth rate, which has raised drastically up to -120%. Overall, informal sector has experienced larger variation in terms of positive and negative growth rate. The sectors of transportation, domestic employees, mining and construction have possessed much decrease in growth rate.

Figure 16: Change in Growth Rate Post COVID-19 Lockdown



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