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THE EDITORIAL

Dear Reader,

CU Global Management Review publishes high-quality research that tests, extends, or builds management theory and makes strong empirical contributions to the field of management development, practice, and research. This journal aims to serve academic researchers and educators, as well as business professionals, by publishing conceptual and empirical manuscripts that intend to explore the paradoxes of management research. The current issue includes a coherent set of six research papers that deliver extensive contributions to new insights into management paradigms, approaches, and methods.

The issue begins with the first research paper titled "Assessment of Markets Fire Emergency Preparedness in Tanzania: A Case Study of 6 Markets in Ilala City Council -Dares salaam" examined the fire emergency preparedness in public and private markets in Dar es Salaam Region by measuring the specific market preparedness in fire emergency policies, fire safety equipment, signage and infrastructure, fire-fighting knowledge and fire preparedness plans, and acknowledging areas of improvements. The second paper titled "Productivity & Efficiency in Apparel Manufacturing: A firm-level analysis for India" attempted to examine the productivity and efficiency performance of apparel manufacturing at the firm-level in India using secondary data for corporate firms. The third manuscript titled "Analyzing the Disparate Impact of COVID-19 on Students: Challenges Unfolding the Education System" attempted to highlight the impact of the COVID-19 crisis on students learning through online platforms and to find out the various motivating and demotivating factors in online teaching-learning as a response to mitigate the spread of the said virus. The next study titled "Role of e-Recruitment in the Modern Era" was conducted to highlight the significance of e-recruitment in today's technological era. Further, the research paper titled "Covid-19 and Human Resources: A Systematic Literature Review of the last two years of Research (2020 to 2021)" is an attempt to help organizations in formulating and implementing HR strategies for the future. The final research paper titled "Role of Financial Services and Technology in the Industrial Sector of India in Times of Covid-19" was conducted to support resiliency in all aspects of the business as well as resilient decision making".

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ASSESSMENT OF MARKETS FIRE EMERGENCY PREPAREDNESS IN TANZANIA

A Case Study of 6 Markets in Ilala City Council -Dares salaam.

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Abstract

This study is intended to assess fire emergency preparedness in public and private markets in Dar es Salaam Region by measuring the specific market preparedness in fire emergency policies, fire safety equipment, signage and infrastructure, firefighting knowledge and fire preparedness plans, and acknowledging areas of improvements. The study was comparative and adopted mixed approach design implying both quantitative and qualitative methods. Primary data were collected using questionnaires, semi-structured interview and observation. Secondary data were obtained reviewing published dissertations, articles, journals, textbooks and documents from the website. A total sample of 87 respondents from public markets were selected for the study. Quantitative data was analysed by using descriptive statistics with the help of SPSS. Qualitative data was analysed by using content analysis. The use of graphs and charts was encouraged to facilitate data presentation. The findings showed that fire emergency preparedness was good in private Markets compared to public market. The study revealed that both public and private markets had awareness on firefighting activities. However, public market did not offer much trainings compared to private markets which made majority of the respondents to have less knowledge on firefighting. Also, public markets lacked fire emergency policies, plans and some of firefighting equipment compared to private markets. The study recommended that markets should have fire emergency preparedness plans, policies, sufficient equipment, signage and infrastructure and monitoring and evaluation programs. Also separate fire preparedness budget and creation of awareness programs via different communication media to improve emergency preparedness.

Keyword: Fire Emergency, Preparedness in Fire Emergency, fire Policies, Fire safety, fire preparedness plans, Market and Tanzania.

Introduction

Fire outbreaks are disasters which are caused by actions of human beings directly or indirectly.

Fire safety entails all the activities which are geared towards fire prevention, fire detection and fire control. These activities and processes are done to safeguard human life and to preserve property.

Fire safety preparedness is one of the four phases of fire emergency management which is aimed at fire disaster risk reduction. It is a continuous cycle of planning, organizing, training, equipping, exercising, evaluating and improving strategies to ensure effective coordination and enhancement of capabilities to respond to fire disasters (FEMA, 2007).

Fire safety preparedness is an essential aspect in both environmental and occupational safety and health. Fires being an example of physical hazards have affected many workplaces and most of them are mainly caused by inadequate strategies in fire prevention, detection and/ or fire control.

The notion of emergency preparedness is very crucial in preventing fire emergencies from happening and lessening the impacts by reducing the number of deaths, casualties and damage to properties. It is one of the important elements in emergency risk reduction which encompasses community awareness, readiness to render appropriate responses and quick recovery.

In most of the developing countries like Tanzania, little is documented on preparedness for specific types of emergencies like fire especially in markets. This is explained in various reports of fire statistics in different countries of the world (CTIF, 2020). However, there has been numerous fire outbreaks in Tanzania from the lowest unit of family to the highest level of the nation. According to Ndibalema (2015), some of these incidents include the 1989 Ministry of Home Affairs headquarters fire, the 2002 National Insurance Investment building, the 2009 Tanzania Breweries Limited fire, and 2013 Sunset Bungalows and White sands hotel in Zanzibar, Dar es Salaam Parastatal Pension Fund (PPF) Towers in 2013, the 2020 Byamungu Islamic School fire (VoA, 2020), and 2020 Kimbi family fire in Tanga region (Facebook, 2020). The Sunset Bungalows and White sands incidents of 2013 resulted to a loss of more than 400 million Tanzanian shillings and 800 million Tanzanian shillings respectively (Michuzi, 2013), the Byamungu Islamic fire resulted to a death of 10 students and the Kimbi family fire resulted to death of 4 people.

Luoga (2020) claims that, most of fire emergencies that happened in the past are due to negligence in unpreparedness and poor implementation of the laws and regulations. Also Ndibalema (2015) adds that, fire emergencies are a result of poor fire management systems and lack of awareness to respond to fire emergencies.

According to (UNDRR, 2015), less has been done globally to improve the levels of emergency preparedness despite its importance. Furthermore, the Hyogo Framework for DRR report in

Tanzania underlines a need of developing high level of preparedness capacity for all types of emergencies (PMO, 2015). This rises a concern that no enough measures are put in place to prepare for fire emergency as a whole and particularly in markets regardless the impacts they cause.

Fire incidences are a common phenomenon in Tanzania even though the country has limited record on market fires. The Fire and Rescue Force have recorded a total of 3,456 fire events that happened all over Tanzania in the year 2020 (Fire Rescue Force, 2020). It is hypothesized that such emergencies resulted from negligence in preparedness and particularly inadequate trainings for different facility users, poor fire emergency management, low awareness on the use of firefighting gears and insufficient enlightenments on community awareness and cautions on fire incidences (Ndibalema, 2015). Most of the market fires happening around the world during Covid-19 pandemic were caused by gas explosions. Tanzania is facing the same challenge and the level of vulnerability is increasing due to the pandemic.

Markets are emergency centres by nature which are complex and surrounded by many hazards including explosive chemicals, electrical wiring, flammable liquids and gas tanks and cylinders which at the right environment can lead to fire emergency. Proper assessment is needed to be done in order to enhance fire emergency preparedness in markets especially during Covid-19 pandemic.

Less attention of fire emergency preparedness is also observed in African countries whereby various fire incidences particularly in markets continue to destroy lives and properties of people (Murage, 2012). This makes preparedness one of the crucial aspects that should be considered to avoid destruction of people's lives and properties associated with fire outbreak (Addai et al., 2016). In Tanzania, unpreparedness of fire emergency is also evident in various fire incidences especially in markets whereby various fire incidences have been reported to occur in various places of Dar Es Salaam, particularly in Ilala City Council public markets. The overall research problem is that, despite its importance, there have been frequent fire outbreaks in public markets across the nation which continues to destroy markets' infrastructures, peoples' properties and even loss of life. In addition to that, there is little academic information regarding fire emergency preparedness in Tanzania particularly in public markets. Therefore, this justifies a need to carry out the study in the respective areas

Literature Review

Fire is one of the greatest discoveries in human life that has helped the world to evolve to where we are (Darwin, 1874). History explains that fire was discovered over 1,000,000 years ago in an open site in East Turkana, and site in the Chemoigut Formation at Chesowanja near Lake Baringo in Kenya (Gowlett, 2016). Ever since its discovery, fire has been used in various activities ranging from

domestic use to technological discoveries including cooking, generating heat, light, incineration of wastes, smelting and forging of engines.

According to (Merriam-Webster, 2021) fire means the light and heat and especially the flame produced by burning. Many authors including (Pan American Health Organisation (PAHO), 2014) mentions three important elements in the fire occurrence; fuel, oxygen and source of ignition (heat) which form a fire triangle. If one of these elements misses then a catalyst must be present to help in the ignition process. The three elements are explained as follows;

Fuel; fire cannot start if there is nothing to burn. Fuel is any combustible material that can be used as the source of ignition of the fire, as well as to keep it burning example wood, paper, gas, animal fats, petroleum oil and electrical appliances. Some of these materials burn easier than others. In suppression of fire one element must be removed to discontinue the burning process and fuel is the hardest to be removed among all the three elements (Fire Risk Assessment Network, 2021).

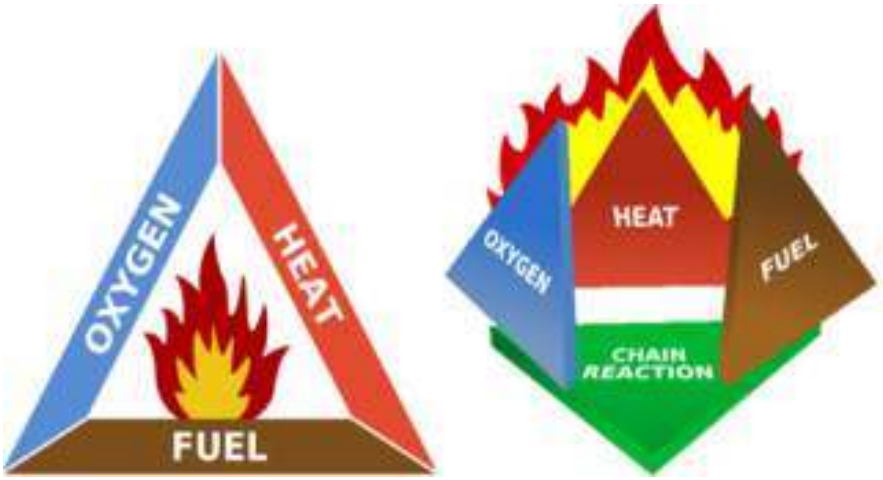
Oxygen as an oxidizing agent that reacts with the fuel to start and continue the fire. Lower concentrations of oxygen result in slower fuel combustion. Reports explain that atmosphere of the earth consists of 21 % oxygen and most fires start with 16% of oxygen which indicates that there's enough to trigger a fire anywhere as long as the other two components are present (Oregon State Univ, 2020).

Heat is responsible for the initial ignition of fire, and is also needed to maintain the fire and enable it to spread. Heat perpetuates fire to escalate quickly by preheating fuel and making the air around the area more warmer.

Currently, some authors have mentioned four elements which are important in the outbreak of fire. The elements are heat, oxygen, fuel and chain reaction which has altogether transformed the fire triangle into a tetrahedron. According to Fire Risk Assessment Network (2021), tetrahedron is a pyramid, which is a solid with four plane faces. This theory was reformulated after the discovery of the halon extinguishing agent.

Britez et al., (2019) further explains that, heat is the element used to start a fire, maintain and increase its spread. Oxidizer (oxygen) is in the air surrounding us and is needed for combustion. Fuel is the propagating element of fire and can be solid, liquid or gaseous. The chain reaction makes the burning process self-sustaining. Basically, the radiated heat from the flames reaches the fuel and it is broken down into smaller particles, which combine with oxygen and burn, radiating heat back into the fuel, thus forming a constant (self-sustaining) cycle.

Figure 1 Fire Triangle and Fire Tetrahedron



Source (Underhill, Hiltz John, & Moyst , 2007)

Classes of Fire

Fire is classified in five classes which highly depend on the type of fuel / combustible material that is burning (Univ of Pennsylavania, 2014). The following are the classes of fire;

CLASS "A" stands for fires that leaves ash after burning. They are caused by ordinary combustible materials, such as paper, wood, cloth and plastics. This type of fire is best extinguished by removing the heat. Fire extinguishers for this purpose is dry chemical extinguisher and water.

CLASS "B" stands for fires that boil or bubble. They are caused by any non-metal in a liquid state such as flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents and lacquers. This type of fire is fast-spreading and can cover a very large area in a very short time. This fire accounted for only 2% of fires and a massive 21% of fatalities in 2010/11 in UK (HASpod, 2019). In Tanzania, the recent class 'B' fire that happened was in 2019 in Morogoro region resulting to more than 100 fatalities (BBC Swahili, 2019). The best way to extinguish it is by blanketing or smothering action (ABCs of Fire Extinguishers, 2021).

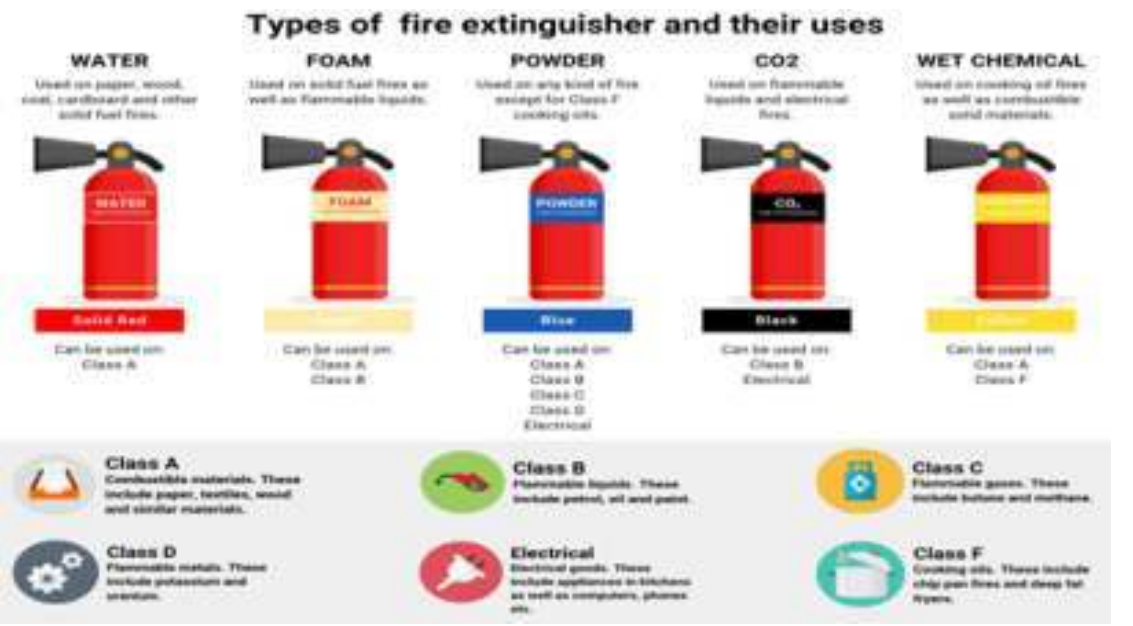
CLASS "C" stands for fires originating from flammable gases. The early steps of extinguishing this kind of fire is putting off electricity source to cut off current conduction. Generally, the fire extinguisher recommended is dry chemical or carbon dioxide. Water is highly not recommended in this class.

CLASS "D" fires stand for fires that have a dynamite effect as they involve combustible metals such as ammonium nitrate, sodium, lithium, potassium, titanium, magnesium and zirconium. In 2020, a port in Beirut Lebanon which did not properly store ammonium nitrate exploded and killed over 200 people, injured 7000 and displaced over 300,000 persons (Landry, Alameddine, Jesus, & et.al, 2020). This class is extinguished by dry powder.

CLASS "F/K" are fires caused by cooking appliances that involve combustible cooking oils such as vegetable or animal oils and fats. This class is extinguished by wet chemical.

Furthermore, fires from electrical currents do not have a clear distinction and they are not classified as electricity is not regarded as fuel but rather acts as heat source.

Figure 2 Types of Fire Extinguishers and Their Uses



Source; Google 2022

Concept of Fire Emergency

Fire is very important but possess a great danger when used incorrectly. In the world we are living today, there are many hazards that can lead to emergencies like fire. WHO (2002) explain emergency as a state in which normal procedures are suspended and extra-ordinary measures are taken in order to avert a disaster. Fire emergencies may be triggered by human actions which increases or decreases the probability of fire outbreak. The probability of fire outbreak / fire risk is

determined probabilistically as a function of hazard, exposure, vulnerability and capacity. It is defined as the potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time (UNDRR , 2021). Some literatures explain that fire risk is a probability of negative consequences that can happen as a result of fire emergency or disaster.

Fire emergencies have devastating consequences that may result into deaths, injuries, loss of properties, and extensive damage to business and homes (World Fire Statistics, 2014). In 2019, a fire department responded to a fire on average every 24 seconds in the United States (NFPA, 2015). A home fire was reported every 93 seconds, a home fire death occurred every three hours and 10 minutes, and a home fire injury occurred every 43 minutes. According to CTIF (2020), Barbados, Netherlands and USA, are among the top 15 countries with high fire emergencies per thousand people per year 2018, Barbados recording 6.95 fire events per thousand people, USA 4.05 fire events per thousand people and Netherlands 5.18 fires per thousand people.

In Africa, fire emergencies have occurred in all the countries and have resulted to injuries, deaths, loss of properties (CTIF, 2020). In East Africa, Tanzania is leading in fire deaths per year having an average of 2,808 deaths and being among top 25 countries in the world fire 2020 report with more than 2.0 deaths per 100,000 inhabitants having a rate of 5.2 deaths per 100,000 inhabitants (CTIF, 2020). The report further reveals that Kenya has a total number of 1,230 deaths per year which is an average of 2.5 deaths per 100,000 inhabitants while Uganda has an average of 2,228 deaths which is 5.4 deaths per 100,000 inhabitants per year.

Fire emergency has resulted to loss of lives, injuries and destruction of different facilities in various countries including public markets in Tanzania (Luoga, 2020), boarding schools (Nyagawa, 2017) and markets facilities in South Africa (SABC News, 2021).

Relevance of the Theory to the Study

This theory provides that individuals tend to safeguard themselves from any of harm which is persuaded by four aspects which involve belief related to the risk, severity, belief related to the vulnerability and belief related to the perceived efficacy and self-efficacy. In addition to that, this theory is very crucial in this study as it provides the importance of protecting from various risks and dangers where for the purpose of this study, various strategies are taken into consideration and these are conducting inspection, providing education to the community about fire emergency preparedness, fire risk management and fire emergency preparedness plan.

Behavioral Theory

This theory attempts to elaborate about human behaviour by analyzing what is commonly known as the antecedents and consequences present in the environment of individuals. Therefore, according to Ejeta (2015), preparedness for disasters and emergencies at individual, community and organizational levels could be more effective tools in mitigating (the growing incidence) of disaster risk and ameliorating their impacts. That is, to play more significant roles in Disaster Risk Reduction (DRR). Preparedness efforts focus on changing human behaviors in ways that reduce people's risk and increase their ability to cope with hazard consequences.

Disaster preparedness is one of the basic components of DRR. Preparedness identifies the steps necessary to increase the likelihood of avoiding or minimizing hazard effect consequences. Preparedness strategies are developed through a hazard identification and mapping, vulnerability analysis and risk assessment with behavior change strategies being used to inform how the outcome of this process can translate into protective actions. Effective preparedness reduces vulnerability, increases mitigation level, enables timely and effective response to a disaster event and so shortens the recovery period from a disaster, and increases community resilience.

The Concept of Emergency Preparedness

The Sendai Framework for Disaster Risk Reduction 2015-2030 has preparedness amidst its four (4) priority of actions (UNDRR, 2015). This was an assessment done after the Hyogo Framework for Disaster Reduction 2005-2015 which showed an emphasis in increasing efforts in preparedness activities to reduce the impacts of potential emergencies. According to UNDRR (2021), emergency preparedness refers to all the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the outcomes of any hazard that may happen or is happening at a given time.

FEMA informs that, preparedness involves activities as planning, training, and educational activities for events that cannot be mitigated. Such activities may comprise of developing preparedness plans for what to do, where to go, or who to call for help in an emergency, exercising plans through drills; table top exercises and full-scale exercises, preparing a list of required items that can be used in case of emergency and acknowledging potential vulnerabilities by performing scenario identification.

Preparedness includes all activities and measures taken to assure that there is an operative reaction to the influence of hazards. These activities include forecasting and early warning, scenario identification (Manesh, 2017), temporary evacuation of people and property from threatened locations (AL-Fazari & Kasim, 2019), recruiting, assigning, and training staff who can

assist in key areas of response operations, identifying resources and supplies that may be required in an emergency, designating facilities for emergency use (Federal Emergency Management Agency, 2006) and planning and Monitoring.

In this study, preparedness has incorporated some elements of fire risk assessment to acknowledge the level of vulnerability and preparedness in the markets. According to HM Government (2006), fire risk assessment refers to an organised survey which is done step by step in a certain premise to understand the nature of the activities conducted and the possible causes of fire and the people that can be affected in the premise and in the surrounding areas. Fire risk assessment includes in identifying fire hazards, recognizing vulnerable people, evaluating the existing fire safety arrangements, recording findings; produce an emergency plan; instruct; inform and train, and arrange to regularly perform risk assessment (Fire Safety Section, 2013)

Fire risk assessment is important in markets to identify the fire hazards, reduce the risk of those hazards causing harm to as low as reasonably possible and decide what physical fire precautions and management arrangements are necessary to ensure the safety of people present in the market (Fire Safety Section, 2013)

Strategies employed by Fire and Rescue Force in Fire Emergency Preparedness

Baig and Ashraf (2016) on fire risk assessment at superstores in Pakistan showed that, the purposes of the fire risk assessment are to make an identification of the fire hazards or fire prone areas. The process of risk management can be done by dividing the process into different stages such as identification of risk, risk analysis and risk responses. There are many methods which can be used for assessment of risk such as expert judgment which is based on knowledge and experience, plan decomposition, analysis based on assumption and brainstorming for identification of risk factors. Moreover, the study revealed that, area accessibility of some stores increases the chances of hazard as if fire tenders are not able to reach them on time then loss of lives and property would be greater and even there is risk that it would convert into disaster. By studying the past cases of fire incident in super stores of Karachi it was found that there are two cases of fire had been reported in last 5years.

Twigg et al. (2017) on improved methods for fire risk assessment in low-income and informal settlements found that, fire policy and mitigation strategies in least developed nations are constrained by insufficient information on incidence, impacts, and causes, which is mainly due to a lack of ability and resources in collecting information, analysis, and modeling. Hence, community-based risk and vulnerability assessment methods which are widely used in disaster risk reduction

could be adapted to urban fire risk assessment and could be enhanced by advances in crowd sourcing and citizen science for geospatial data creation and collection.

Likewise, the reviewed study by Twigg et al. (2017) attempted to provide detailed information related to the fire risk assessment including fire policy. However, the study only based on these strategies leaving behind other strategies such as fire inspection, provision of education, fire risk management and fire emergency preparedness plan.

In the same trail, Rawat (2003) on the fire risk assessment for forest fire control management in Chilla forest range of Rajaji national park Uttaranchal showed that the entire study area was vulnerable to forest fires during summer seasons. On the other hand, all existing forest roads need to be cut and burnt annually during winter. Also firewatchers should be engaged during fire season. Strict vigilance needs to be maintained to any kind of public entry inside park during fire season. In addition to that, the study stated that it is very crucial for raising the level of awareness of local people with regard to fauna, flora and to help in protecting environment without the cooperation of the local people it would be difficult to protect that particular area.

The reviewed study by Rawat (2003) attempted to provide detailed information related to the fire risk assessment. However, the study only based on this strategy leaving behind other strategies such as fire inspection, provision of education, fire risk management and fire emergency preparedness plan.

Boakye (2017) on the emergency fire response in Ghana with reference to fire stations in Kumasi unveiled that comprehensive emergency management and response is crucial for disaster prevention and health emergencies. However, in African countries with an abundance of natural disasters and a rising surge in cardiovascular and obstetric emergencies, little research exists on emergency response. The study used Geographic Information Systems (GIS) tools including location -allocation modeling to evaluate the existing system of fire facilities, identify gaps in service, and suggest locations for new fire stations to maximize population coverage. Moreover, the study findings showed that, there is a poor distribution of fire stations within Kumasi Metropolitan Assembly (KMA) and large portions of the metropolis are underserved.

Methodology

This research was carried out at Kariakoo International market, Ferry fish Intentional market City Mall, Imalaseko Super Market, Kisutu Central Market and Karume market. The justification of selecting this study area is the fact that most of the large public and private markets in Dar es Salaam are located in Ilala City Council in Dares salaam Region. The study was comparative and adopted mixed approach design implying both quantitative and qualitative methods. Primary data were collected using questionnaires, semi-structured interview and observation. Secondary

data were obtained reviewing published dissertations, articles, journals textbooks and documents from the website. A total sample of 87 respondents from public markets were selected for the study. Quantitative data was analysed by using descriptive statistics with the help of SPSS. Qualitative data was analysed by using content analysis. The use of graphs and charts was encouraged to facilitate data presentation.

Findings and Discussion

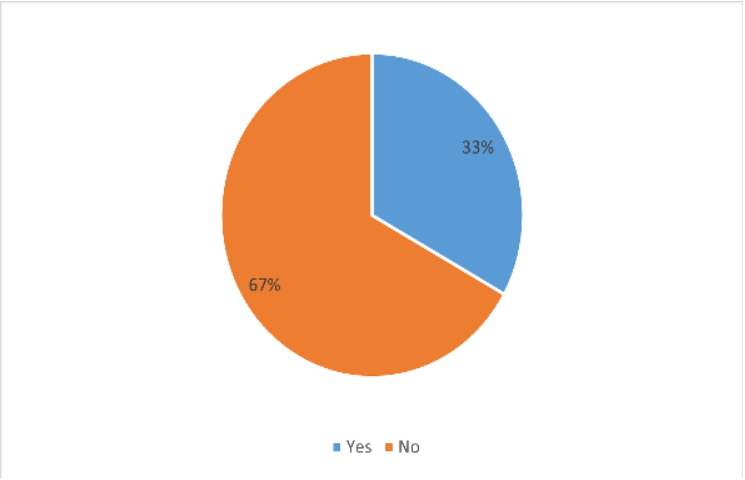
Fire policies and fire safety equipment, signage and other infrastructure

It is important to have emergency policies which offer guidance, consistency, accountability, efficiency, and clarity on how market fire emergency preparedness should be done (CMHC, 2021). The fire emergency preparedness policy carries a lot of weight in any institution so as to save the lives of other people and put a priority in their safety. Emergency policies are supposed to be under review annually to accommodate all the changes needed. Such policies enable markets preparedness in case of fire emergency along with fire safety equipment, signage and other supporting infrastructure. In this section the availability of the policies, fire safety equipment, signage and other supporting infrastructure and their efficiency.

Availability of the fire emergency preparedness policy on fire emergency preparedness

Public and private markets do differ in their practices as some have general policies for disaster preparedness and some have specific policy of fire emergency preparedness and some do not have at all.

Figure 3 shows the availability of fire preparedness policies in public markets.



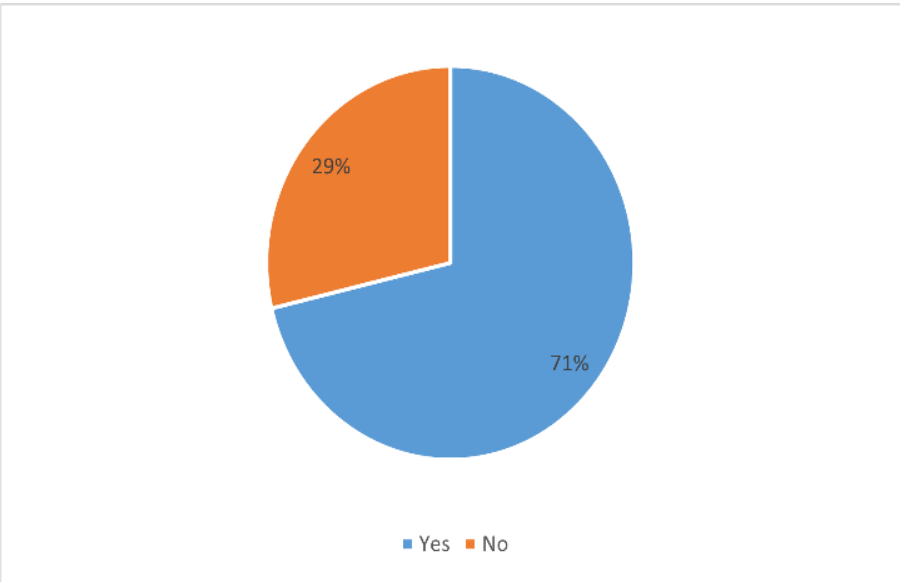
Source: Field data (2022)

The data from Figure 3 indicated that, 67% of public respondents confirmed no fire emergency preparedness policies were operational in their markets. The remaining 33% responded that there is a possibility that policies are operational. The respondents further informed that the markets do not have policies for general emergency preparedness and in case of any situation they do not have any emergency guidance.

This underlines the need to develop fire emergency preparedness policies in the markets as any successful emergency need guidance and clear procedures to be followed.

The availability of fire emergency preparedness policies in private markets is different from the public sector as the Figure 4 shows;

Figure 4. Availability of fire emergency preparedness policies in private markets



Source: Field data (2022)

The data from the analysis show that, private markets have prioritised on fire emergency preparedness policies through ensuring that the policies are formulated and put in operation through practices. From Figure 4, 71% indicates that there are policies formulated to provide guidance for fire emergency preparedness as part of enhancing the safety of their facilities and the people within from the impacts that maybe resulted from fire emergencies. 29% of the respondents indicated that there are no policies formulated for fire emergencies.

It was reported from the interview that one of the market had an operating fire emergency policy

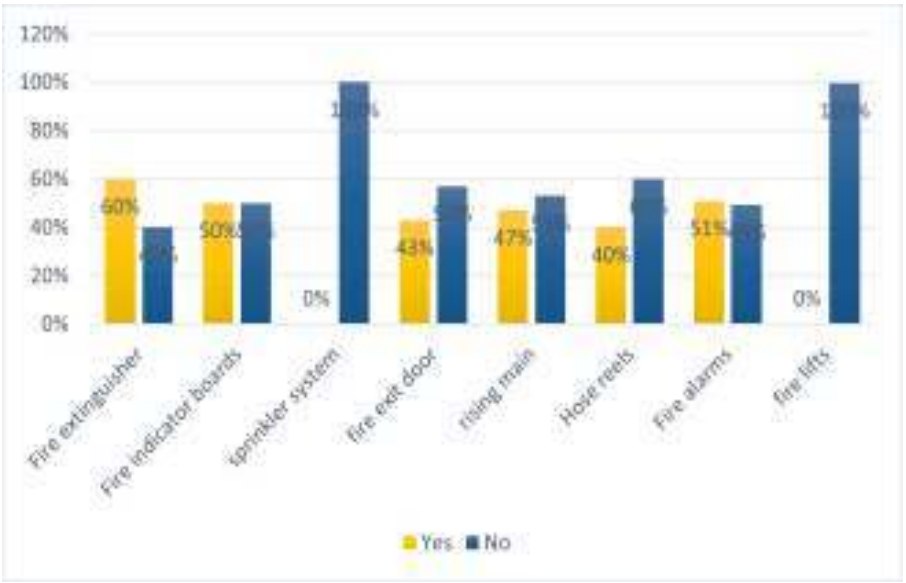
which is reviewed annually and communicated to their staff concerning the changes. The other market had already prepared a draft on fire emergency preparedness policy which was to be turned into a full policy and properly communicated to their staff. The study found that the 28.6% of respondents who denied on the availability of policy into lack of awareness on the availability of the draft because at that stage information remains with the administration alone.

The findings of this study show that, availability of fire emergency preparedness policies in both public markets and private markets has much difference. This is shown by the difference in percentage level which is more than 25% for availability of fire policies. This implies that there is more need to develop fire emergency preparedness policies in public markets compared to private markets.

Availability of fire safety equipment, signage and other supporting infrastructure

The Fire and Rescue Force Act of 2007 requires markets to have fire equipment, signage and other supporting infrastructure. In this section fire emergency preparedness was checked through availability of fire safety items including fire alarms, sprinkler systems, fire exit doors, hose reels, fire indicator boards and fire lifts. The Figure 5. Shows the availability status of these equipment in public markets:

Figure 5 : Availability of fire safety equipment, signage and other supporting infrastructure in public markets

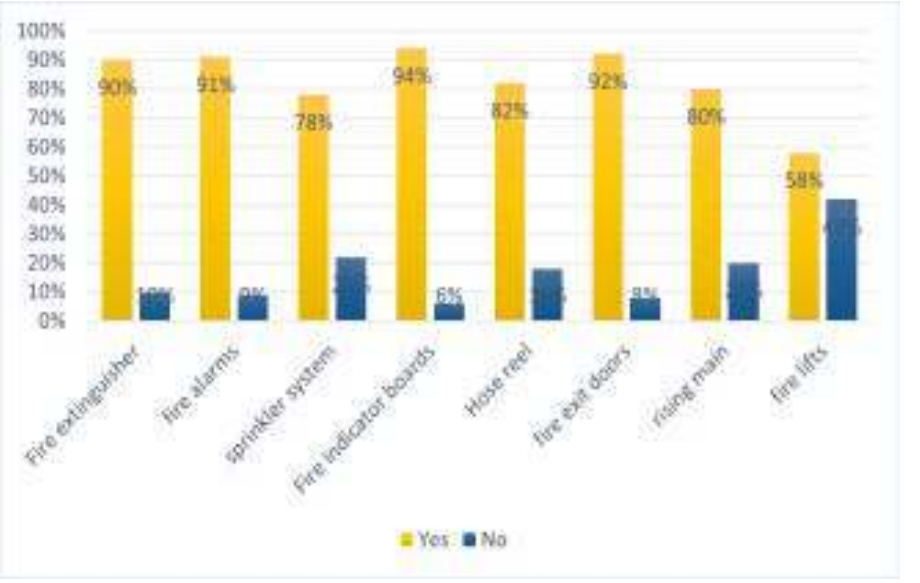


Source: Field data (2022)

The data from Figure 5 shows that availability of one fire safety item differs from another depending on the preparedness of the markets. The respondents from public markets explained that fire extinguishers are available at a rate of 60% while fire alarms are available at 50%, sprinkler 0%, fire exit doors 43%, rising main 40%, hose reel 40%, fire indicator boards 51% and fire lifts at 0%. The study informed that the availability of these equipment were not sufficient as none of these items have exceeded 50% except for fire alarms. One of the respondents from the interview informed that their market had only two fire extinguishers, broken fire alarms and lacked rising main, hose reel and fire indicator boards. Availability of sprinkler system and fire lifts is the least in the public markets as their availability percent is 0%. The chosen markets in the case study do not have sprinkler system which is contradictory to Fire and Rescue Act of 2007. The Act states that any building which has from one floor onwards must have sprinkler system to protect itself from fire emergency.

The situation is better in private markets as there is more availability of fire safety items compared to public markets. The Figure 6 explain the situation as follows;

Figure 6 : Availability of fire safety equipment, signage and other supporting infrastructure in private markets

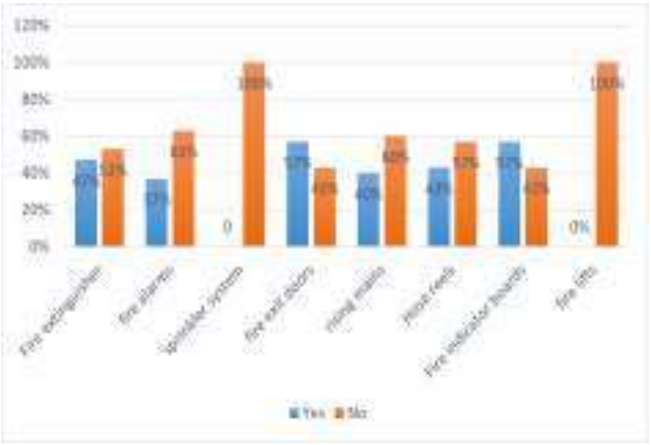


Source: Field data (2022)

The data from Figure 6 show that fire indicator boards are leading with an availability rate of 94%, followed by fire exit door at 92%, fire alarms at 91%, fire extinguisher 90%, hose reel 82%, rising main at 80%, sprinkler system at 78% and fire lifts at 58%. It was reported from the interview that sprinkler systems were not available in all the desired buildings according to Fire and Rescue Acts of 2007. Most of the buildings built before 2000 had no sprinkler systems which pose a threat to fire emergency. Fire lifts were not available in one of the markets but they had emergency stairs which are not really functional in rescue of patients with critical conditions. In both markets there is availability of hose reels and rising main although the percentage does not indicate total availability. The study observed that, there is a possibility that the respondents are not informed of the name "rising main" and "hose reel" but are aware of its availability. The plate 1 shows fire safety equipment, signage and infrastructure available in private markets.

In fire emergency preparedness it is important to ensure that fire safety items are working and in good condition so that when fire emergency occurs the items can be used to lessen the impacts of fire. In this section, the study explored the working conditions of fire safety equipment, signage and other working infrastructure. The working condition of fire items in public markets is not satisfactory as the figure7 shows;

Figure 7 : Working condition of fire safety equipment, signage and other supporting infrastructure in public markets



Source: Field data (2022)

Data from Figure 7 show that none of the fire safety equipment in public markets have exceeded 50%. This shows that most of the equipment are not in good working conditions. Fire indicator boards are in better working condition of 43% compared from all the remaining items. Data collected from observation showed that the signs are in place and they all lead to exit doors in one of the markets but the other market one had none.

Fire extinguishers are working at 40% because some of the extinguishers are expired and not correctly stored as they are supposed to be serviced and hanged where anyone can see. Also some of *them are obstructed with market equipment making it difficult to be accessible during emergencies.*

Fire alarms are at 37% working condition because in one of the market the alarms are not working and the other markets the alarms are broken which makes it difficult to be used in emergencies.

Hose reels reached a 37% working condition because in one of the markets they are not available at all and in the other market they were not properly serviced. Observation showed that the last service for the hose reels was in January 2021which reduced the chances of working well in real emergency.

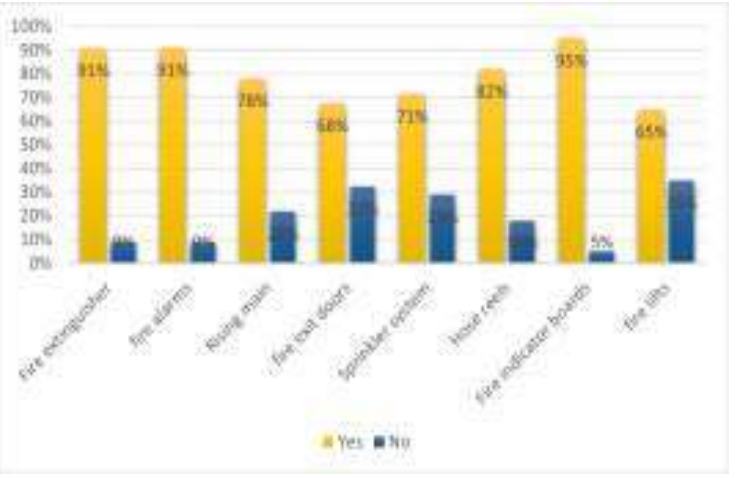
Fire exit door are at a rate of 33% because they are normal exit doors which are large in size to help evacuate many people at once but are not designed to block fire from spreading to other parts of the market. The doors are operating from the outside and not inside which is not easy to help evacuate people during fire emergencies.

Sprinkler systems and fire lifts were not available at all which has a 0% of good working condition. In both markets there were neither rams nor emergency stairs to be used alternatively in case of fire emergency.

Therefore, the data shows that working conditions of fire items in public markets is not good.

The working condition of fire safety items in private markets is different from the public as the Figure 8 shows;

Figure 8 :Working condition of fire safety equipment, signage and other supporting infrastructure in private markets



Source: Field data (2022)

The situation in private markets is better than in public markets as the working condition of most of the items is above 50% which is good working condition. Fire indicator boards are in better working condition of 95% compared from the rest of the items. Observation performed by the study revealed that indicator boards are in good working condition and they all lead to assembly points outside the market buildings.

Fire extinguishers and fire alarms are working at a good rate of 91% because they are regularly serviced, correctly hanged, not obstructed with market equipment and can be easily accessible during real emergencies.

Hose reels reached an 82% working condition, rising main 78% because in both market they are regularly service. Sprinkler showed a rate of 71% which indicated that there was uncertainty among the respondents because whenever drills are conducted the sprinklers are rarely used.

Fire exit door are at a rate of 68% because in one of the market the fire exit door is a normal door but larger in size helping to evacuate many people at once. Also the door opens from outside hindering people to pass smoothly in emergencies.

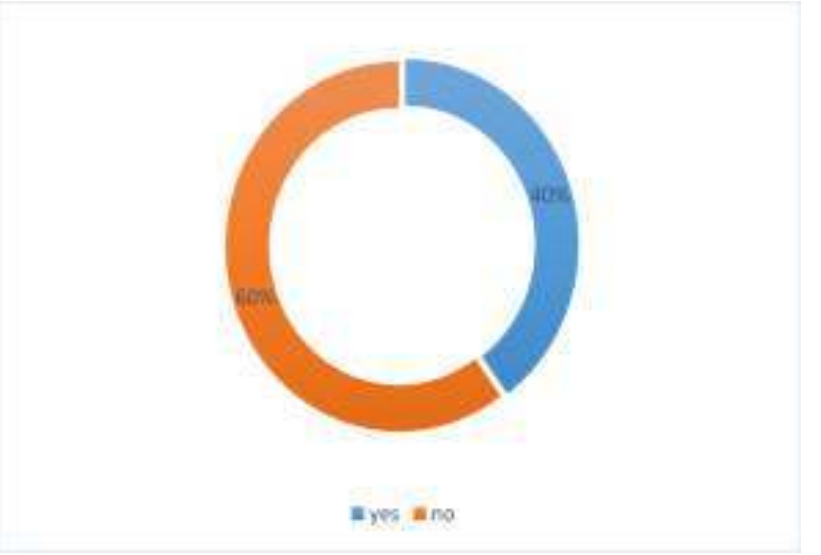
The study concluded that fire indicator boards, fire alarms and fire extinguishers are always in excellent working conditions as they are regularly monitored and serviced. The observation performed by the study revealed that other equipment including fire exit doors, hose reel and rising main are also serviced regularly and there are no obstructions from using the items.

Fire preparedness knowledge and fire emergency preparedness plans in public and private markets

Knowledge on fire fighting

Knowledge is one of the important items in emergency preparedness as it helps to make informed decisions and coordinate activities to respond effectively. The study explored the knowledge on firefighting among market workers in both public and private markets. 40% of the respondents in public markets informed that they have knowledge on firefighting while 60% had no knowledge. Data obtained from the interview declared that trainings have not been conducted for more than two years in one of the markets. In the other markets training is mostly done to security guards and not all staff which makes the rest of the stuff vulnerable to fire emergency. The study observed that firefighting knowledge in public markets is low as the majority of the respondents have poor knowledge. Figure 9 indicates the level of firefighting knowledge in public markets.

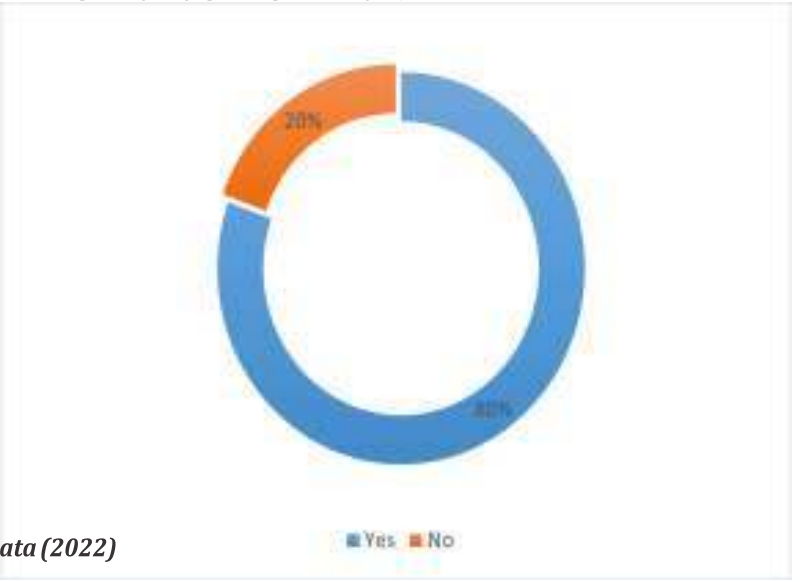
Figure 9 Knowledge of firefighting and safety in public markets



Source: Field Data (2022)

The data of respondents from private markets informed that 80% have knowledge on firefighting while 20% have no knowledge on firefighting. Majority of the respondents have awareness on firefighting which helps to act accordingly during fire emergency. This shows good preparedness level for private markets compared to public markets. The Figure 10 shows the level of knowledge in firefighting in private markets.

Figure 10 : Knowledge on firefighting and safety in private markets



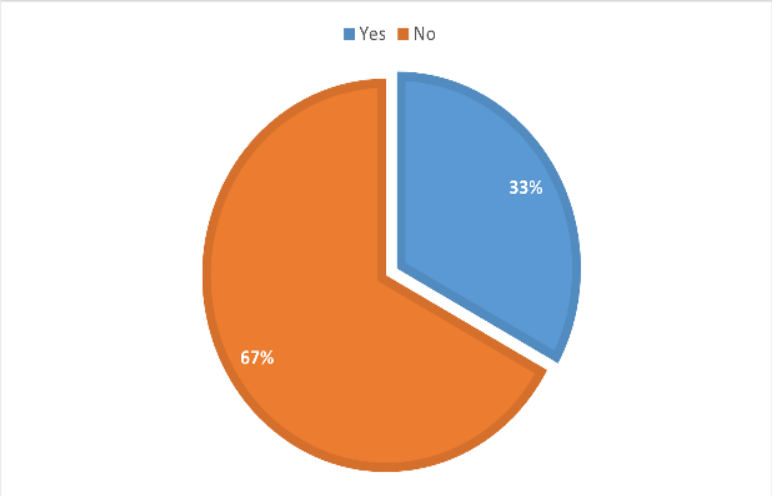
Source: Field data (2022)

In general, the level of firefighting in public mrkets is low as majority of the respondents have no knowledge. The study concluded that more efforts should be made to create awareness in firefighting in public markets.

Participation in firefighting drills/exercises

Efficiency in fire emergency preparedness includes participation of people in firefighting drills/exercise as one of the implementation strategy in both public and private markets. It was observed from the study that 33% of respondents from public markets participated in drills conducted at the market while majority of the respondents 67% have never participated on fire drills. The data collected from the interview declared that in one of the market drills have not been conducted for three years and which makes majority of the workers inexperienced of using fire safety items. Therefore, it can be concluded that firefighting drills/exercises are less efficient in public markets as they are rarely carried out in the markets. This situation is indicated by the Figure 11 as follows;

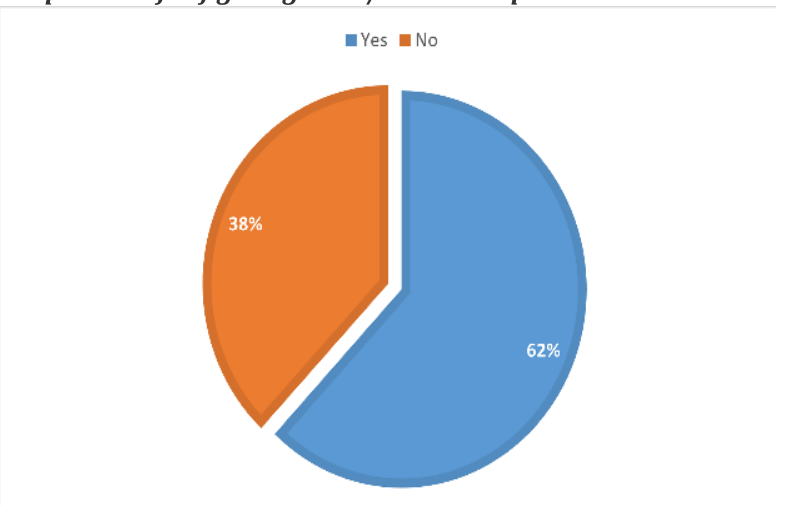
Figure 11 : Participation in firefighting drills/exercise in public markets



Source: (Field data2022)

The respondents from private markets revealed that they were always participating to drills in firefighting drills/exercises. The data observed that 62% of the respondents from private markets participated in fire drills while 38% never participated in fire drills. The majority of respondents participated in fire drills in private markets therefore, it can be concluded that firefighting drills/exercises are efficient in private markets as they are always carried out in the markets than in public markets. This situation is indicated in Figure 12 as follows;

Figure 12 : Participation in firefighting drills/exercise in private markets



Source: (Field data2022)

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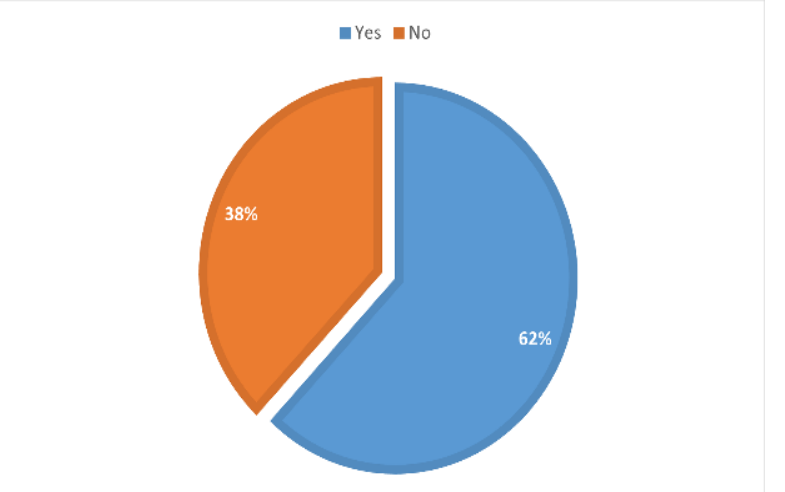


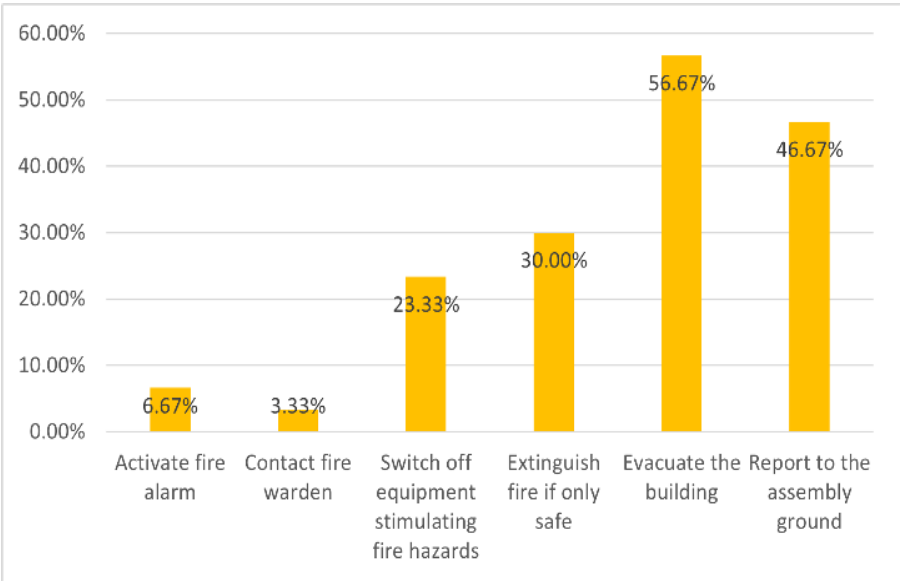
Source: Field data (2022)

In a nutshell, firefighting drills in public markets are lower than in private markets.

Awareness on activities to do in case of fire emergency in public markets

Awareness has reflected a number of activities ranging from evacuating the building, reporting to the assembly ground, extinguishing fire if only safe, switching off the equipment stimulating the fire hazards, activation of the fire alarm and contacting the warden. The data from the analysis shows awareness regarding the activities to be done in case of fire emergency in public markets.

Figure 13 : Awareness on activities to do in case of fire emergency in public markets



Source; Field data, (2022)

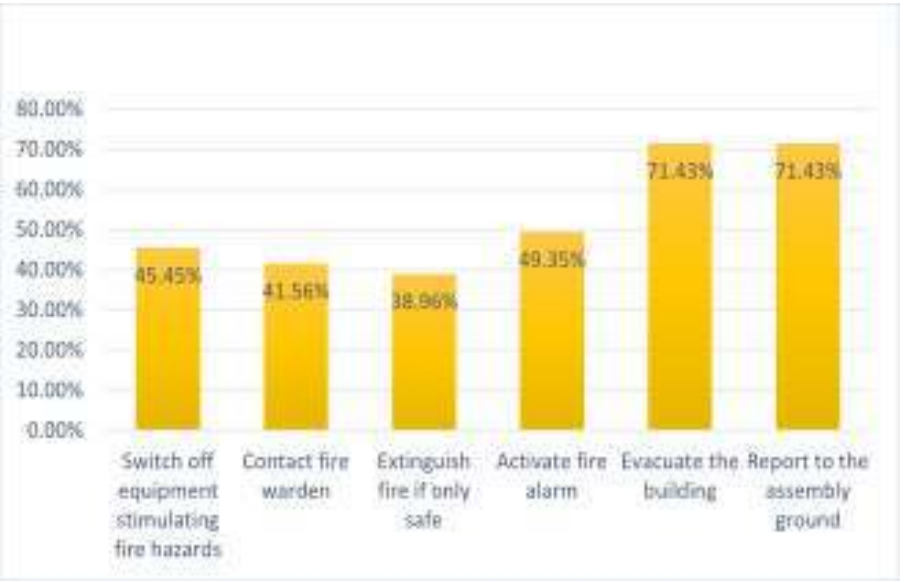
From the figure 13, 56.67% indicate the main activity which is to be done in case of fire emergency in the public market which is to evacuate the building, followed by 46.67% indicating reporting to the assembly ground, followed by 30% indicating to extinguish fire if only safe. 23.33% indicate the switching off equipment stimulating fire hazards while 6.67% indicates the activation of the fire alarm. Lastly, 3.33% indicate that the contact to the warden should be made.

This implies that, in case of fire emergency most of the public workers in these market will vacate the building heading to the assembly point as they have knowledge on how to use fire exit signs. The data informs that most of them do not have chronological order on the activities to be done in case of fire emergency. Figure 13 shows that majority of the workers will try to extinguish fire before pressing the fire alarms and switching off equipment stimulating to fire hazard.

However, if there will be a fire emergency most of the market workers might be in greater danger as the assembly points have been turned into parking lots for vehicles.

The results of the data collected from the private markets that were visited show that, the majority of the respondents were aware of activities to be done in case of fire emergency in the market. Figure 14 shows the percentage of awareness according to activities:

Figure 14 Awareness on the activities to do in case of fire emergency in private markets



Source; Field data, (2022)

From the Figure 14, 71% indicate the evacuation of the building is the main activity and reporting to the assembly ground. Followed by 49% indicating activating fire alarms, switching off all equipment stimulating fire hazard (45.5%) and contact fire warden (41.5%). Lastly the respondents indicated that 38.9% will extinguish fire if only safe. The study has concluded that, the respondents from the private sector are well aware of the activities to do in case of fire emergency compared to respondents from public markets.

Improvement needs of fire emergency preparedness in public and private markets

Monitoring and evaluation routine of fire emergency preparedness items

The study considered market policies, fire equipment, signage and infrastructure, fire hazard and vulnerable groups, fire training and drills, and fire emergency preparedness plans in the monitoring and evaluation process of fire emergency preparedness items in the market.

The majority of the respondents acknowledge that there is no monitoring and evaluation in market policies and fire emergency preparedness plans in public market. The data from the respondents

further informs that fire training and drills, and fire safety equipment, signage and other supporting infrastructure are the leading item in monitoring and evaluation routine by 57% and 53% respectively. The rest which are 50% include market policies 43%, fire hazard and vulnerable groups (37%) and fire plans by 13% in the same descending order. The level for fire emergency preparedness policies and plans is relatively higher than others because in public markets there are no such practices. The study concluded that public respondents are not aware of the importance of fire emergency plans or policies in their markets. It is therefore important to stress on the importance of fire policies and plans together with monitoring and evaluation practices in all the areas so as to enhance fire emergency preparedness in public markets.

The situation in public markets is different from private market. Monitoring and evaluation routine is always performed on fire emergency plans followed by safety equipment, signage and other infrastructure as these fire items are always serviced and tested on their working ability. The rest include fire drills, fire hazards and vulnerable groups and lastly fire policies. It was reported from the interview that fire drills are reviewed annually same as fire hazards and fire policies. The respondents also mentioned that monitoring and evaluation is done in fire training and drills so as to make sure the knowledge offered is relevant and time bounded.

Fire policies have carried the least weight because in one of the market there is a complete draft of fire policy waiting to be communicated to other staff.

Areas of improvements on fire emergency preparedness in the markets

The study gave options to the respondents to choose areas of fire emergency preparedness improvements in the market. The respondents were given improvement areas including market policies, fire equipment, signage and infrastructure, fire hazard and vulnerable groups, fire training and drills, and fire emergency preparedness plans.

The data informs that majority of the respondents from the public market recommended improvement in fire training and drills by 60%, followed by fire safety equipment (50%) and fire hazard and vulnerable groups by (40%). The least recommended was fire emergency preparedness plans by 37%. This shows that majority of the respondents did not see the importance of these plans regarding the fact that they are not present in their markets.

On the other hand, the respondents from private markets recommended that much enhancement should be made on fire training and drills by 47% followed by fire equipment, signage and infrastructure (45%) and fire hazards and vulnerable groups by 39%. The least recommended both scored 32%, which are fire emergency preparedness policies and fire emergency preparedness plans. The data from the private markets also show that majority of the respondents do not give a lot of weight in policies and plans. These plans are as important as other fire emergency preparedness items

and on further notice they help to instil a fire emergency preparedness culture among the workers by outlining clear directions on what to be done wherever an emergency occurs.

Conclusions

In general, fire emergency preparedness in public market is lower than private markets. The percentage for preparedness in most of the listed items in the study is not satisfactory. This increases vulnerability of public markets towards the impacts of fire emergency. It is better that efforts be made by the government to help prevail the impacts that can be resulted. The situation in private markets is better and they should keep updating their preparedness measures to match the needs of the markets so as to keep their people and properties safer.

Recommendations

Proper fire emergency preparedness reduces at a great level the impacts that are caused by emergency such as loss of properties, environmental pollution, anxiety, fear and panic attack. Preparedness also helps in responding to an emergency easily and returning back to normal in a shorter period of time (sherriff, 2021). The study recommended on the following;

Fire emergency preparedness policies

The Occupation Safety and Health Act of 2003 stipulates that every office should have safety policies to act as guidance to their workers. The government should insist that every institution including markets weather be public or private should have fire emergency preparedness policies and be reviewed at least annually. This will help build market culture in preparation to fire emergencies.

Sufficient instalment of fire safety equipment, signage and infrastructure

Fire emergency preparedness equipment, signage and infrastructure should be proper installed in markets according to the ratio as stipulated by Fire and Rescue Force Act of 2007. Fire and Rescue Force should delegate the responsibilities market fire inspections to other agents so that all markets can be checked and hold accountable in a convenient time.

Training and drills to improve fire preparedness skills

Markets should maintain provision of training and conduct drills to help improve fire preparedness skills to their workers. Fire emergency preparedness training and drills will help people to know the right move to take and how to minimize risk before a real emergency. There is a huge difference between a person who has knowledge and the one who does not at all and the one who has knowledge and skills.

Conduct Monitoring and Evaluation of fire emergency preparedness

Markets should have a culture of doing monitoring are evaluation of fire emergency preparedness items. This will help acknowledge hazardous areas, update training and drills and making sure that equipment, signage and infrastructure are well placed and in good condition to reduce the fire risk and offer better response in case of an emergency.

Emergency preparedness plan

In order to be prepared, there is a need to have good plans for fire emergencies in the markets based on a risk and vulnerability analysis. The plans should be detailed to help emergency responders to understand the procedures for preparing and responding to fire emergency including; resource inventory planning; stockpiling planning; logistical planning; evacuation planning; communication planning; needs assessment planning.

Allocation of specific budget for fire emergency preparedness

There is a need for markets to have separate budget for fire emergency preparedness. This budget will help allocate funds for purchase of fire safety equipment, training and drills conduction and periodic monitoring and evaluation.

Creation of fire awareness programs

TAMISEMI and Local Government Authority should collaborate with Fire and Rescue Force to create fire emergency awareness programs to prepare people's mindset on what to do in case of real emergencies. This will also create emergency preparedness culture among people.

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PRODUCTIVITY & EFFICIENCY IN APPAREL MANUFACTURING: A FIRM-LEVEL ANALYSIS FOR INDIA

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Abstract

The long-term growth and sustainability of a manufacturing industry depends on its production performance, both in terms of efficiency & productivity. Apparel manufacturing is a key industry in developing economies due to its significant contribution to employment, output, and exports. This study examines the productivity and efficiency performance of apparel manufacturing at the firm-level in India using secondary data for corporate firms. Data Envelopment Analysis (DEA), Malmquist Productivity Index (MPI) and Tobit regression are used to empirically analyse the data. The total factor productivity (TFP) has marginally improved over the study period and firms should focus on technology and pure efficiency for improvement. Firm characteristics such as scale, exporting, age and listing status have varied impact on productivity and efficiency and firms would benefit from adopting unique and customised strategies for performance improvement. The policy efforts should promote scale expansion and export promotion to ensure competitiveness in the sector.

Keywords: Apparel manufacturing, India, Data Envelopment Analysis, Technical Efficiency, productivity.

1. Introduction

Manufacturing industries need to enhance production efficiency performance to ensure growth and sustainability in the long run in competitive economic environments (Mahadevan, 2002). Apparel manufacturing sector is a key industry for developing nations with high level of competition. Apparel exports account for a huge chunk of the total exports for the South Asian countries who have 'taken many steps in recent years to support the textile and apparel sector' but need to direct attention toward addressing inefficiencies along the value chain that undercut their competitiveness (World Bank, 2016). Firms which have higher productivity and efficiency, can save time, and use inputs optimally to offer lower, competitive prices. In the Indian economy,

apparel manufacturing is a significant industry, in terms of its contribution to employment of low-skilled labour, exports and GDP. 'The share of textile and clothing in India's total exports stands at a significant 12 % (2018-19)', while readymade garments or apparel contributes around 40% of India's total textile and apparel exports (Ministry of Textiles, 2020). "Apparel is one of the largest sources of foreign exchange flow into the country" (Credit Analysis & Research Limited (CARE) Ratings, 2016). In addition, it is labour-intensive and provides employment to 'over 45 million people' and has a huge participation of 'women and rural population' (Ministry of Textiles, 2020).

India needs to focus on improving firm-level performance to gain a competitive edge in terms of technology, value added products, scale economies etc. and many of the factors that drive competitiveness are actionable at the firm-level (Bhavani & Tendulkar, 2001). Apparel manufacturing firms in India need to focus on improving efficiency and productivity gains to successfully capture emerging market opportunities (Sudha, Sekhar & Reddy, 2019). Despite government support policies at the industry level, it has been observed that productivity and efficiency performance at the firm-level remains sub-optimal (Joshi and Singh, 2012). The government and managements should consider the firm-specific characteristics for formulating & implementing policies for improving performance (Ngo, Tran, Nguyen & Nguyen, 2020). This necessitates a study of productivity and efficiency performance and related drivers at the firm-level for the industry, especially for corporate firms which are in a better position to tap market opportunities as compared to other firms.

This paper analyses the productivity growth and technical efficiency of apparel manufacturing firms in the Indian corporate sector based on secondary data. It is presumed that firm-specific characteristics influence productivity and efficiency performance. The specific research objective is to examine performance and identify drivers thereof. The remainder of the paper is organized as follows: The second section contains the literature review and research objectives; the third section contains the methodology and data, followed by the results & discussion in the fourth section and the last section concludes.

2. Literature Review

There is extensive empirical literature on the study of productivity & efficiency in manufacturing using different methodologies (Chapelle & Plane, 2005; Driffield & Kambhampati, 2003; Paul & Yasar, 2009). Productivity and efficiency of apparel sector has been studied globally by researchers at the firm-level. The studies mainly consider large-scale firms with comparatively fewer studies considering small-scale firms. Hill and Kalirajan (1993) applied the stochastic frontier analysis (SFA) and discriminant analysis to measure technical efficiency and identify the influencing factors for small-scale garment firms in Indonesia and found considerable inter-firm

variations. Wadud (2004) studied efficiency of textile and clothing firms in Australia and revealed that older, larger, and legally incorporated firms were more efficient. Yasar, Garcia, Nelson, and Rejesus (2007) found that the learning by exporting effects were strong in Turkey's textile and apparel manufacturing industry. The productivity gains from exporting were more for firms with less-developed technology and dependent on the industry structure. Paul and Yasar (2009) studied textile and apparel manufacturing plants of Turkey and found that the more productive plants start outsourcing; input subcontracting improves productivity, while output subcontracting hampers it. Vixathep and Matsunaga (2012a, 2012b) applied DEA and Tobit regression to study the firm-level technical efficiency and its determinants for the garment industry in Cambodia and Vietnam using secondary data. Their studies found that technical efficiency was influenced by various factors such as firm experience, remuneration, firm origins, scale, product specialization, exports, and location. They highlighted the need for firms to upgrade skills of the middle management and attract investment. Kapelko and Lansink (2014) studied the textile & clothing industry in thirty-nine countries using data for listed companies using a bootstrap DEA model. Mok, Yeung, Han, and Li (2010) studied the effect of export orientation on the technical efficiency of large clothing firms in China and found that firms which focus on either domestic or export market were more efficient compared to those engaged in both. Wadho and Chaudhry (2018) used primary data to study firm performance in the textile and wearing apparel sector for Pakistan using a multi-stage structural model. They reported that labour productivity and productivity growth improved due to product innovation.

Some researchers have also explored the efficiency and productivity of the apparel industry in India. Bhavani and Tendulkar (2001) studied determinants of export performance in the garment industry using SFA and regression and found that large scale operation would help in reaping the economies of scale and enhance efficiency. Bheda, Narag, and Singla (2001) used primary data from apparel manufacturing companies to study productivity and related factors and reported that based on performance, the companies' characteristics differed significantly. Leveraging the correct factors can bring significant productivity gains. Bheda, Narag, and Singla (2003) found that stagnating productivity; much lower as compared to neighbouring countries. They found that firms that invested in upgrading technology and training the supervisors, operators and managers achieved higher levels of productivity. Hashim (2005) studied the competitiveness of the Indian textile and garment industry and revealed that high unit costs resulted due to high factor prices and poor productivity. The findings favoured large-scale production and better capacity utilization to build competitiveness. Joshi and Singh (2009) estimated efficiency using DEA and found most firms experienced decreasing returns to scale. They suggested moving to optimum plant size to improve efficiency. Joshi and Singh (2010) found that from 2002 to 2007, Indian garment industry

had registered average annual TFP growth rate of 1.7 per cent. The nominal productivity growth was mainly driven by technical efficiency change and not by technological change. Joshi and Singh (2012) studied the technical efficiency and its determinants at the firm level. They found that most firms had excess production capacity and suggested improvements in input usage to improve efficiency. Gambhir and Sharma (2017) studied technical and scale efficiency of micro enterprises and reported widespread inefficiency.

From the existing literature, certain drivers of productivity and efficiency in apparel manufacturing can be identified. It has been found that there is a positive relationship between technical efficiency and firm age or experience (Vixathep & Matsunaga, 2012a; Wadud, 2004); export orientation (Hill & Kalirajan, 1993; Mok et. al, 2010; Vixathep & Matsunaga, 2012b; Yasar et. al, 2007); remuneration (Joshi & Singh, 2012; Vixathep & Matsunaga, 2012a); female workforce (Hill & Kalirajan, 1993); formal registration of firms (Chapelle & Plane, 2005; Wadud, 2004); labour productivity (Joshi & Singh, 2012); single market domain (Mok et. al, 2010); and product specialization (Vixathep & Matsunaga, 2012b). It was found that capital intensity also has a positive impact (Chapelle & Plane, 2005; Hashim, 2005; Mok et. al, 2010); however, Joshi and Singh (2012) revealed that investment in plant and machinery negatively influenced efficiency. There was positive association with financial integration (Hill & Kalirajan, 1993), but debt impacted negatively (Joshi & Singh, 2012; Kapelko & Lansink, 2014). Some studies found large scale to have a positive impact (Chapelle & Plane, 2005; Hashim, 2005; Kapelko & Lansink, 2014; Mok et. al, 2010; Wadud, 2004), while others found that smaller firms had better performance (Joshi & Singh, 2012; Vixathep & Matsunaga, 2012b).

It is evident that there is a dearth of academic research on productivity and efficiency of India's apparel manufacturing sector in recent years. There is an urgent need to examine and gain insights for formulating appropriate measures to enhance performance. This paper examines the productivity & efficiency performance of apparel manufacturing sector of India at firm-level and examines possible drivers as well.

3. Methodology & Data

3.1. Data Envelopment Analysis (DEA)

The ratio of maximum obtainable and the actual production gives a measure of production efficiency. DEA is a non-parametric technique for estimation which makes use of linear programming to identify a production frontier and was introduced by Charnes, Cooper, and Rhodes (CCR) (1978), who expanded the concept of Farrell (1957) using the assumption of constant returns to scale (CRS). All decision-making units (DMUs) or firms considered lie on or below this frontier. This methodology supports benchmarking as DMUs lying below are

considered inefficient while those on the frontier are considered efficient. DEA is most suited to measure a firm's efficiency as it can consider multiple inputs and single or multiple outputs. Banker, Charnes, and Cooper (BCC) (1984) extended the model to variable returns to scale (VRS) model by adding the convexity constraint to it and this provides results under VRS as well as CRS assumption. It also allows for decomposition of technical efficiency in the form of pure efficiency and scale efficiency. The detailed mathematical notations and concept of DEA models are explained in Coelli, Rao, O'Donnell, & Battese (2005). This study applies the input-oriented BCC model to analyse the efficiency performance of the apparel sector in India at the firm-level. Input orientation is considered as there are constraints on demand which are beyond the control of a firm or industry (Satpathy, Chatterjee & Mahakud, 2017). A firm is considered technically efficient and lies on the efficiency frontier if and only if the optimal value of the efficiency score is equal to one. A value less than one indicates a relatively inefficient firm lying below the frontier. The minimum number of DMUs required for discrimination between efficient and inefficient performers, in a single output and four input model, can be taken as four, eight, 10 or 15 (Sarkis, 2007). The DEA approach has some distinct advantages over the other approaches to efficiency measurement such as growth accounting and SFA (Grifell-Tatje & Lovell, 1995; Joshi & Singh, 2010). It does not need specification of any functional for, does not need price data or specific objective functions, refers to the best practice technology and facilitates decomposition of the index into distinct components. 'DEA excels as a tool when technology is heterogeneous and returns to scale are not constant' in an industry, for example where firms are in different life-cycle phases (Van Biesebroeck, 2007). However, it 'does not account for noise and cannot be used to conduct conventional tests of hypotheses' (Coelli et. al, 2005). DEA and its applications have been widely used to study performance at the firm level in manufacturing sector (Joshi & Singh, 2010; Mahajan, Nauriyal & Singh, 2018).

3.2. Tobit Regression & Disaggregate Comparison

Regression uses observed metric values of independent variable(s) to estimate or predict corresponding metric values of the dependent variable (Cooper, Schindler, & Sharma, 2012). Under two-stage DEA analysis, the DEA efficiency scores, lying between 0 and 1, are a constrained variable, and regressed to identify the determinants of efficiency. This makes Tobit regression, a censored regression model suitable to identify determinants of efficiency. The model is defined as:

$$y = \begin{cases} y^*; & 0 <= y^* <= 1 \\ y = 0; & y^* < 0; \\ 1; & 1 < y^* \end{cases}$$

$$y^* = \hat{a}xi + \mathring{a}t$$

$$\mathring{a}t \sim i\ e\ N(0, \acute{o}2)$$

where y is the DEA VRS TE score, y* is a latent (unobservable) variable. β is the vector of unknown parameters which determines the relationship between the independent variables and the latent variable. xi is the vector of explanatory variables.

Tobit regression is popularly used in two-stage DEA analysis for identification of drivers of pure technical efficiency at the firm-level (Joshi & Singh, 2012; Mok et. al, 2010; Vixathep & Matsunaga, 2012a, 2012b). Recently, there has been some debate on the suitability of Tobit vis-à-vis Ordinary Least Squares (OLS) regression model for two-stage DEA analysis (McDonald, 2009). However, given the applicability and acceptance of Tobit model, it has been applied in the paper. A disaggregate comparison by segregating the sample into sub-categories and studying the group-wise average performance and distribution has also been attempted (Kundi & Sharma, 2015).

3.3. Malmquist Productivity Index

In modern manufacturing, total factor productivity (TFP) is deemed an appropriate measure for productivity performance and is defined as an index of output divided by an index of input. Over time, an improvement in TFP indicates growth that is beyond only an increase in inputs (Mahadevan, 2002; Sharma & Mishra, 2011).

Caves, Laurits, Christensen, and Diewert (1982) developed the Malmquist Productivity Index (MPI), an application of DEA. Based on Malmquist distance functions, taking technology of a period as the reference or benchmark for a set of DMUs, it measures an index of TFP. The use of distance functions makes it possible to consider a multiple output - multiple input production model. Such functions may be of two types depending on the orientation i.e. input distance functions and output distance functions. Input distance functions look for a minimal proportional contraction of an input vector, given the output level, while output distance functions consider the maximum proportional expansion of output with the given set of inputs.

Fare, Grosskopf, Norris, and Zhang (1994) were the first to empirically apply DEA for calculating MPI and stated that the total factor productivity may have two different sources or components i.e. efficient utilization of resources and technical change. They expressed the MPI as the geometric mean of two-consecutive period indices to remove any ambiguity in choice of benchmark technology. Thus, as per MPI, TFP change (TFPCH) under constant returns to scale (CRS) is a product of technology change (TECHCH) and efficiency change (EFFCH). Under variable returns to scale (VRS), efficiency change can further be expressed as a product of technical or pure efficiency change (PECH) and scale efficiency change (SECH).

MPI helps implementation of initiatives based on component sources that need to be improved (Mahadevan, 2002). An index value of one signifies stagnation, less than one signifies regress while more than one implies progress Coelli (1996). Since the immediately previous year is taken as base, the percentage change per annum can be derived which facilitates comparison.

Popular alternatives for productivity measurement include stochastic production function models, growth accounting, co-integration models, Tornqvist index, Olley & Pakes and Levinsohn–Petrin semi-parametric methods (Goldar, 2019; Paul & Yasar, 2009; Satpathy, Chatterjee & Mahakud, 2017; Sharma and Mishra, 2011; Yasar et. al, 2007). In addition, bootstrapping has gained popularity in recent years for statistical inferences made using MPI (Kapelko & Lansink, 2014). However, the input oriented MPI has been applied in the study due to its widespread applicability and acceptance (Joshi & Singh, 2010).

3.4. Data & Variables

Corporate firms or companies have stricter rules and greater data disclosure as compared to other type of firms. The sample for this study has been restricted to the corporate firms which comprise of both large and micro, small & medium enterprises (MSMEs). The data has been extracted and compiled from two financial databases – Ace Equity by Accord Fintech Pvt. Ltd. and Prowess by Centre for Monitoring of Indian Economy (CMIE).

Prowess has been used extensively for firm-level studies in India (Mahajan, Nauriyal & Singh, 2018; Mallick & Yang, 2013; Satpathy, Chatterjee & Mahakud, 2017). Ace Equity is similar but has a better user interface and coverage of private, non-listed companies (Gambhir & Sharma, 2015b). The same variables based on published financial accounts have been extracted from both databases for the respective companies covered by them. The data was checked manually for inconsistencies, incomplete entries, and duplications. The missing figures and characteristic details were extracted and verified manually from the annual reports wherever needed. The companies were filtered based on the NIC-2008 code 14 i.e. 'Manufacture of Wearing Apparel' as the principal activity of the company. In some cases, the company was carrying out some other activity as its principal business. Such companies were excluded, and the sample was finalized based on data availability and judgement.

3.4.1. For Efficiency Analysis

The technical efficiency using DEA was measured by a single output – multiple inputs model for the year 2014-15, for a sample of 64 companies (Table 1). The financial figures were considered for efficiency measurement does not necessitate deflation of monetary values. The sample was arrived at based on data availability on all required variables and considered suitable for analysis as it accounted for almost half the market share for apparel in the corporate sector.

3.4.2. For Productivity Estimation

For MPI, the same model was adopted, however, the financial figures were deflated using relevant price indices (Table 1). This approach of deflating financial proxies for variables has been adopted in earlier firm-level studies (Joshi & Singh, 2010; Sharma & Mishra, 2011). DEA-MPI requires balanced panel data and the final sample consisted of 29 companies, accounting for one-fifth to one-fourth market share for the six years from 2009-10 to 2014-15.

Table 1 Output-Input Model for DEA & MPI

VARIABLE	MEASURED BY	DEFLATED USING
Output	Gross Sales	Wholesale Price Index (WPI) for Other Misc. Textiles
Input - Capital	Net Plant & Machinery	WPI for Textile Machinery
Input - Labour	Salaries & Wages	Consumer Price Index for Industrial Workers (CPI-IW)
Input - Energy	Power & Fuel Expenses	WPI for Fuel & Power
Input - Material	Raw Material Consumed	WPI for Textiles

Note: WPI is obtained from the Office of the Economic Adviser to the GOI, the Ministry of Commerce & Industry of India. All-India average CPI-IW has been computed using the monthly index values published by the Labour Bureau, Ministry of Labour & Employment, GOI. All the price indices were converted to the base year 2011-12.

Source: Authors

3.4.3. For Identifying Drivers of Pure Technical Efficiency

The variables for the Tobit regression and hypothesised relation between the independent and dependent variables are given in Table 2.

Table 2 Variables used in Tobit Regression

Variable Type	Variable Name	Description	Nature	Hypothesized Relationship
Dependent	VRSTE	y*: Pure Technical Efficiency	Metric	
Independent	Age	A: Number of Years from Incorporation to 2014-15	Metric	+
Independent	Export Intensity	EI: Ratio of Exports to Gross Sales	Metric	+
Independent	Capital Intensity	CI: Ratio of Capital to Labour	Metric	+/-
Independent	Liquidity	L: Quick Ratio	Metric	+/-
Independent	Size of Firm	S: Measured by Gross Plant & Machinery	Metric	+/-

Source: Author's Compilation

The equation of the Tobit regression analysis conducted for this study is expressed as:

$$⟦y^*⟧_m= α+β_1 A_m+β_2 ⟦EI⟧_m+β_3 ⟦CI⟧_m+β_4 L_m+β_5 S_m+⟦ε_t⟧_m$$

where: m represents the firm; β_1, β_2, β_3, β_4, β_5 represent parameters/coefficients to be estimated; and ε_t is the error term.

3.4.4. For Disaggregate Comparison

The productivity and efficiency results have been compared based on four disaggregate attributes (Table 3).

Table 3 Disaggregate Attributes for Comparison

Attribute	Categories	Description
Scale of Operation	MSME Large	Categories are as defined by MSME Development Act 2006 (prior to July 2020)
Export Participation	Exporting Non exporting	Based on whether the company engages in exports
Listing Status	Listed Unlisted	Whether the company's shares are listed on a stock exchange
Age	Young Middle aged Old	Based on the number of years from incorporation to 2014-15

Source: Author's Compilation

The MSME Development Act 2006, prior to July 2020, classified Manufacturing MSMEs as firms having investment in gross plant and machinery up to INR 100 million. The age groups have been created by dividing the data based on quartiles.

4. Results & Discussion

4.1. Efficiency Performance

The descriptive statistics for the input-output variables are presented in the Appendix (Table A1). The results of the efficiency analysis revealed inefficiency with average efficiency scores for CRSTE, VRSTE and Scale efficiency as 0.637, 0.746 and 0.866 respectively. The increase in the technical efficiency score from CRSTE and VRSTE indicates that there is influence of the scale efficiency component on the overall performance in the sector. Based on VRSTE scores, around one-third of the firms were operating efficiently, while only ten firms were scale efficient. This implied that firms were largely inefficient both due to an inappropriate scale of operations and the inefficient management of inputs and resources.

The inefficient enterprises were further classified into two sub-groups – Closer to Efficiency (CTE) (value greater than or equal to 0.6) and Poor Performers (PP) (value less than 0.6). In terms of pure technical efficiency and scale efficiency, around two-third and ninety percent of the inefficient firms were CTE respectively (Table 4). This implies that with appropriate and timely corrective action, the firms can move to the efficiency frontier.

Table 4 Distribution of Inefficient Firms

EFFICIENCY INDEX	Closer to Efficiency (CTE) (0.6 = Value<1)	Poor Performers (PP) (Value<0.6)	Total Inefficient
	% of Total Firms	% of Total Firms	% of Sample
CRSTE	35.9375	48.4375	84.375
VRSTE	40.625	28.125	68.75
SCALE EFFICIENCY	76.5625	7.8125	84.375

Source: Author's Compilation

In terms of returns to scale, half of the firms showed decreasing returns implying excessive plant capacities. These firms could benefit from scale economies by utilizing their facilities to the optimum level or scaling down. More than one-third of the firms showed increasing returns and would benefit by expansion of facilities. The results indicate that firms need to focus on operating at the appropriate scale to improve efficiency performance.

The analysis of residual slacks showed that none of the firms had slack on material, while more than half of the sample firms showed slack on capital. Energy and labour input had slack for more

than one-third of the firms. The results imply that while material is relatively managed more efficiently by firms, other inputs are mismanaged. There is huge scope to reduce the capital input for the existing level of output. Roy (2009) also observed that instead of using better technology to produce value added goods, firms may be simply investing in labour displacing technology and deskilling labour which is not favourable where unemployment is a major concern. As a labour-intensive industry, active measures to promote labour efficiency and productivity to improve efficient utilization of all resources should be undertaken. The firms should make investments to enrich skills through training apart from providing fair compensation to labour (Gambhir, 2020). Ray, Mukherjee, and Mehra (2016) noted that little or no upgrading takes place within the firms; few firms engage in process and functional upgrading. But product upgrading is taken up the least. The firms need to focus more on the optimum resource utilization for the machinery employed, fuel consumed, and labour engaged.

4.2. Drivers of Technical Efficiency

The results of the Tobit regression model are presented in Table 5. Contrary to expectations, none of the other variables for age, capital intensity, liquidity and size were significant. Only the coefficient for 'Export Intensity' was significant at 1%; however, the negative sign to the coefficient was contrary to expectation.

Table 5 Results of Tobit Regression

Dependent Variable	VRSTE
Independent Variable	
Age	5.11E-05
Export Intensity	0.40355***
Capital Intensity	0.005384
Liquidity	0.014366
Size	1.09E-07
_cons	0.902299***

This implied that as export intensity increased in a firm, the pure technical efficiency came down. This seems to support the self-selection hypothesis i.e. efficient firms enter the export market; but does not support the concept of learning-by-exporting. Roy (2009) observed that export firms in India increase scale without engaging in overall consolidation. They do not consider potential in the domestic market potential due to concerns such as unstandardized and small lots, marketing, and distribution hassles.

4.3. Productivity Estimates

The descriptive statistics for the output and input variables for the study period i.e. years 2009-10 to 2014-15 reveal a significant variation in the variables (Table A2 in Appendix). There was no distinct trend in TFP change (TFPCH) for the sample firms in the Indian apparel manufacturing sector (Figure 1).

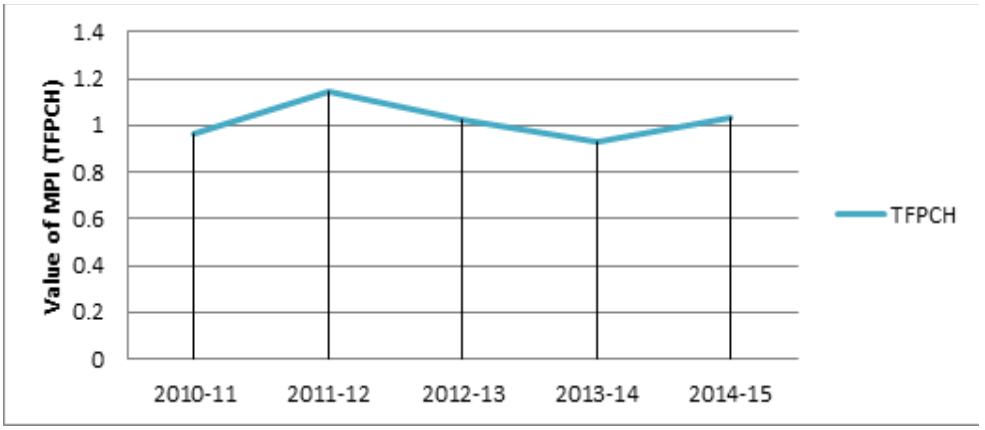

Figure 1 : Trend in MPI for Sample firms in Indian Apparel Manufacturing Industry
Source: Authors

On average it was observed that TFPCH showed slight progress, with progress on efficiency change (EFFCH) i.e. pure efficiency change (PECH) and scale efficiency change (SECH) (Figure 2). The technological change (TECHCH) showed regress in the two latest years of the study period. Highest TFPCH was observed in 2011-12 on account of progress on TECHCH and SECH. However, the PECH revealed some regress in this year. The maximum fluctuation was seen in TECHCH while SECH remained constant in recent years.

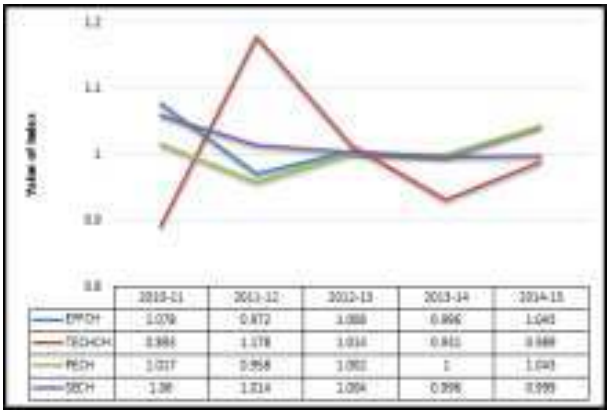

Figure 2 : Trends in Component Indices of MPI

The Indian apparel manufacturing firms in the corporate sector had a nominal growth rate of only 1.5 per cent per annum (Table 6). This was comparable to the results obtained by Joshi and Singh (2009) for the garment sector for the years 2002-2007. TECHCH showed a negative rate while rate of PECH was also extremely low. The positive average annual percentage change in TFP was a result of positive EFFCH with a larger contribution of SECH. The firms need to focus on improving technology and pure efficiency on an urgent basis.

Table 6 : Estimated Annual Percentage change in TFP and its Components

Year	EFFCH	TECHCH	PECH	SECH	TFPCH
2010-11	7.8	-10.7	1.7	6	-3.8
2011-12	-2.8	17.8	-4.2	1.4	14.4
2012-13	0.6	1.4	0.2	0.4	2.1
2013-14	-0.4	-6.9	0	-0.4	-7.3
2014-15	4.3	-1.1	4.3	-0.1	3.1
Average	1.8	-0.3	0.4	1.4	1.5

Source: Authors

The firm distribution made it evident that majority showed progress on TFPCH, TECHCH and SECH, while on PECH they experienced stagnation. Interestingly, almost equal number of firms showed regress in terms of TECHCH. Most firms experienced growth in SECH implying that the firms are making efforts to adjust the scale of operation to the most productive scale.

4.4. Disaggregate Comparison

The samples were almost equally distributed between MSME and Large firms; and skewed towards exporting, listed and middle-aged firms. The disaggregate comparison for productivity growth is given in Table 7. Most firms under all sub-categories showed progress in terms of average TFP index value. There were differences in the distribution on the component indices.

Table 7 Average Estimates for TFP and Components: Disaggregate Analysis

FIRM CHARACTERISTIC	CATEGORY	NO. OF FIRMS	EFFCH	TECHCH	PECH	SECH	TFPCH
SCALE	MSME	15	1.015	0.974	1.011	1.004	0.989
	Large	14	1.021	1.021	0.996	1.025	1.043
EXPORT PARTICIPATION	Exporting	22	1.019	1.003	1.009	1.010	1.022
	Non-Exporting	7	1.016	0.975	0.988	1.029	0.991
LISTING STATUS	Listed	18	1.008	0.991	1.005	1.003	0.999
	Unlisted	11	1.035	1.005	1.002	1.033	1.041
AGE GROUP	Young	7	0.997	0.995	1.011	0.986	0.993
	Middle Aged	16	1.029	1.000	1.003	1.026	1.029
	Old	6	1.015	0.987	0.997	1.017	1.002

Source: Authors

For technical efficiency, most firms under each sub-category showed inefficiency, with different magnitude, for both pure technical and scale components (Table 8). There were also differences in distribution for the returns to scale between sub-categories.

Table 8 : Technical Efficiency & Component Indices: Disaggregate Analysis

ATTRIBUTE	CATEGORIES	NUMBER OF FIRMS	MEAN VRSTE	MEAN SCALE EFFICIENCY
SCALE	MSME	31	0.779	0.868
	Large	33	0.716	0.865
EXPORT PARTICIPATION	Exporting	48	0.710	0.881
	Non-Exporting	16	0.855	0.822
LISTING STATUS	Listed	42	0.756	0.860
	Unlisted	22	0.729	0.877
AGE GROUP	Young	15	0.765	0.883
	Middle Aged	33	0.760	0.860
	Old	16	0.702	0.862

Source: Authors

4.4.1. On Scale of Operation

On average MSME firms showed regress while large firms showed progress in the MPI. However, the regress for MSME firms resulted from poor performance in terms of TECHCH, which coincides with the disadvantages arising from small scale operations. In terms of both PECH and SECH, MSME firms showed progress on average. In the case of large firms, TECHCH and SECH contributed to the positive MPI. However, there was a regress in PECH on average. This suggests that large scale entails challenges for efficient utilization of resources and proper management of a firm.

Majority MSME firms showed progress in terms of TFP and EFFCH, while almost two-thirds of the MSME firms showed regress in TECHCH. The results indicate that for most MSME firms, immediate corrective action, and targeted policy support to ensure improvement in technology access and use would lead to improved performance. Karabag, Lau, and Suvankulov (2014) stated that availability of government incentives is a key determinant of firm-level competitiveness. The government policy support for the sector in India is extensive ranging from export promotion and technology upgradation to training and skill development. However, the productivity and efficiency improvements in the sector are not at par with the extended support. In 2016, the Indian government rolled out a package worth INR 60 billion for the apparel sector aimed at promoting employment, productivity, and exports along the entire value chain in the sector. It included different focus areas such as reforms related to labour laws, increased coverage for duty drawback, income tax relief and also some additional incentives under the Amended Technology Upgradation Fund Scheme (ATUFS), the popular credit linked subsidy for the sector (Press Information Bureau, 2016). It can be said that while there are incentives and schemes to increase investment and access to technology, the support to improve usage is deficient. The investments in capital and machinery take time to translate into visible gains in terms of productivity and profits (Mahadevan, 2002), and it is beyond the scope of this paper to study the impact of the new policy package. The list of major schemes benefiting the apparel sector and features of the special package are given in the Appendix (Table A3 and A4).

Majority large firms performed well on TECHCH and SECH, however, they showed stagnation or regress on PECH. Technology alone cannot result in enhanced productivity and must be accompanied by gains in efficiency in the long run. The average annual percentage change in MPI was positive and significantly higher for large firms. The gap between MSME and Large firms for TECHCH and SECH component was greater than that for PECH. Large firms can easily bridge the gap by making improvements in internal management and resource utilization.

The MSME firms had higher mean pure technical efficiency score while the mean scale efficiency score for both type of firms was almost similar. While two-third of the MSME firms were technically inefficient, the proportion increased to three-fourth for large firms. A further examination of inefficient firms revealed that for both categories, most firms were CTE, and large firms had very few firms as PP on scale efficiency. In terms of pure technical efficiency, a greater number of large firms were CTE while MSME firms had an equitable mix of CTE and PP firms. This implied that pure technical efficiency is an important area for efficiency improvement for firms irrespective of scale. Most Large firms showed decreasing returns to scale whereas for MSME most had increasing returns.

4.4.2. On Export Participation

Exporting firms performed better in terms of productivity with progress on MPI and all component indices on average. Non-exporting firms showed regress on average MPI on account of poor performance on TECHCH and PECH. There was a huge difference in the average annual percentage change in TFP for exporting and non-exporting firms. For exporting firms, all components showed growth, but attention should be directed to technology component along with focus on efficiency to sustain and improve growth rate. Mallick and Yang (2013) observed that firms with low productivity do not sustain and exit the export market. Sharma and Mishra (2011) had further noted that export participation in Indian firms is generally at a low level, which may not be adequate to influence their productivity performance.

Most firms in both sub-categories showed progress in terms of TFP. However, there was a difference in the pattern for the component indices. For exporting firms, 73 percent showed progress on SECH, half showed progress on TECHCH and almost two-third showed stagnation or regress on PECH. Shanmugasundaram and Panchanatham (2011) suggested that workers should be counselled and motivated to improve quality and reduce wastage. Goldar (2019) found that for labour-intensive and low technology industries, use of imported materials had a positive impact on TFP. For non-exporting firms, the performance was divided - no firms regressed on SECH, but majority showed stagnation or regress in terms of PECH and TECHCH.

While exporting firms had a higher mean scale efficiency score, non-exporting firms had a higher mean pure technical efficiency score. The magnitude of difference for pure technical efficiency was greater as compared to scale efficiency. Most firms were technically inefficient irrespective of the export participation. The percentage of exporting firms that were pure technical inefficient was higher than that for non-exporting firms. Exporting firms work with tight deadlines and shipment dates with greater mismanagement of resources. Almost same percentage of firms were scale inefficient for both categories. Out of the inefficient firms, there were no PP firms for pure technical efficiency in non-exporting group, however, exporting group had a large number. A larger number

of exporting firms were CTE for scale efficiency as compared to pure technical efficiency while the distribution was almost equal for non-exporting firms. Most exporting firms showed decreasing returns to scale, while non-exporting enterprises showed no clear pattern. To remain competitive and improve market share, exporting firms need to focus on operating at the appropriate scale as well as improve utilization of resources.

4.4.3. On Listing Status

The average MPI for unlisted firms was showed higher progress as compared to listed firms. Unlisted firms showed progress on each of the component indices as well. The listed firms showed progress on both PECH and SECH but regress on TECHCH. This was unexpected as listed firms have better access to sources of finance and can raise funds to upgrade technology more easily. Firms undergo more scrutiny when listed on a stock exchange, and this may keep them from making capital decisions with long term obligations. Unlisted firms had a significantly higher average annual percentage change in MPI as compared to listed firms, contributed mainly by positive SECH. The firm distribution pattern on component indices was similar but varied in magnitude; majority of the firms showed progress on SECH for both categories. For PECH, majority firms irrespective of listing status showed either stagnation or regress. Listed firms had low average annual percentage EFFCH but the main cause of negative TFP growth was negative TECHCH. Listed firms should focus on investing in technology upgradation and modernization of facilities to enhance productivity performance. Technology upgradation for the apparel sector mainly implies investing in the latest and updated machinery for the various production processes such as design, sewing, cutting, buttoning, embroidery, embellishments, and 3D printing etc. The upgraded technology would help to avoid breakdowns/stoppages, reduce wastage, save time, ensure consistent quality, and enable firms to offer higher value-addition.

In terms of technical efficiency, listed and unlisted firms were close in terms of the mean scale efficiency scores while listed firms had a higher mean score for pure technical efficiency. Most firms in both categories, were inefficient in terms of both scale and pure technical efficiency and showed decreasing returns to scale. Further comparison revealed that more unlisted firms were CTE while there were almost equal number of firms that were PP and those CTE for pure technical efficiency.

4.4.4. On Age of Firm

The productivity performance for Middle-aged and Old firms was better compared to Young firms. Middle-aged firms performed best with progress on MPI and all component indices. For Old firms, there was progress on SECH but the TECHCH and PECH indices showed regress. For Young firms, TECHCH and SECH showed regress while PECH showed progress; indicating new entrants, with limited funds and experience, are cautious in resource utilization.

The average annual percentage change in MPI was highest for Middle-aged firms primarily due to positive SECH and PECH. Old firms had a positive change only on SECH while Young firms showed positive change only on PECH. The age of the firm seems to influence the aspects that need to be worked on more for greater productivity gains. Age-appropriate measures should be adopted by the firms instead of blindly copying measures adopted by others in the industry.

The firm distribution revealed that the majority firms in all age groups showed progress on TFPCH. Majority of the Young firms showed progress or stagnation on PECH and SECH. Majority Middle-aged firms showed progress on PECH and SECH. The Young and Middle-aged firms were divided between progress and regress on TECHCH. Majority Old firms showed progress on TECHCH and SECH. A larger proportion of Old firms showed stagnation or regress for PECH; as they struggle to change management styles and established systems which might be unsuitable in the current times.

The comparative technical efficiency performance showed Young firms had the highest mean pure technical efficiency and mean scale efficiency scores. The mean scale efficiency score for Middle-aged and Old firms was almost the same whereas Middle-aged firms had higher mean pure technical efficiency score as compared to Old firms. Majority of the firms in all age-groups were technically inefficient. Young firms and Old firms had a similar distribution on both pure technical efficiency and scale efficiency. Middle-aged firms had more scale inefficient firms than pure technically inefficient firms. A comparison of inefficient firms revealed that Young and Old firms had more of CTE firms on both pure technical efficiency and scale efficiency. Old firms had a fair number of PP firms for pure technical efficiency. Middle-aged firms had a larger number of CTE firms for scale efficiency, and a mix of CTE and PP firms for pure technical efficiency.

While most young and old firms showed decreasing returns to scale, Middle-aged firms showed increasing returns. This is consistent with the life cycle theory and shows that middle-aged firms were yet to reach their maximum output or plant capacity; as fairly established players in the industry who consolidate 'knowledge and technology' better, they can make use of emerging market opportunities (Driffield & Kambhampati, 2003).

5. Conclusion & Implications

This paper studies the firm-level productivity and efficiency and related drivers for Indian apparel manufacturing sector. The findings provide insight for the management and policy makers to take suitable measures to improve performance. First, the efficiency analysis showed technical and scale inefficiency, with a higher mean value for scale efficiency. Moreover, half of the firms showed decreasing returns to scale whereas one-third showed increasing returns and majority firms were closer to efficiency. There is immense scope for improvement in performance by moving to the

most productive scale and managing inputs properly. The residual slacks showed that management of inputs needs improvement and the high slack on labour could be resulting from stricter labour legislation applicable to corporate sector. Second, Tobit regression showed only export intensity as a determinant of pure technical efficiency. However, interestingly the influence was seen to be negative and warrants investigation into the causal relation in future studies. Third, the TFP growth has shown marginal improvement on average over the study period with no clear trend. The source of growth was improvement in both efficiency components – scale and pure efficiency. Technology component is pulling down productivity and firms need to focus on improving and updating the technology to sustain and improve productivity growth in the future. Moreover, majority firms were experiencing stagnation on pure efficiency, further stressing the focus on internal management and resource utilization. Last, while large and exporting firms have higher average productivity performance, MSME and non-exporting firms perform better in terms of pure technical efficiency. Listing status does not seem to affect the efficiency performance but unlisted firms have better average productivity growth. It seems to influence technology but not internal resource management. Middle aged firms perform best on average productivity while young firms have the highest average pure technical efficiency score. While not all exporting firms are efficient or productive, if firms improve efficiency, they are able to make more competitive offerings and capture a larger market share. The results of this paper highlight the areas for improvement and confirm that performance of firms may vary based on specific firm characteristics. Support measures should be designed based on specific firm characteristics and challenges for effective and lasting results.

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ANALYZING THE DISPARATE IMPACT OF COVID-19 ON STUDENTS: CHALLENGES UNFOLDING THE EDUCATION SYSTEM

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Abstract

The ongoing pandemic COVID-19 has emerged as one such biggest hindrances in the education system of almost every country across the globe. To reduce the spread of COVID-19, most governments worldwide decided to shut down the educational institutions temporarily. The virus forced our education system to shift overnight to a newer set of online teaching and learning to which neither the teachers nor the students were accustomed. Although the virtual platforms have helped keep the learning mode on, it has its challenges even during such exceptional times. The paper attempts to highlight the impact of the COVID-19 crisis on students learning through online platforms and to find out the various motivating and demotivating factors in online teaching-learning as a response to mitigate the spread of the said virus.

Keywords: COVID-19, Pandemic, Motivation, Online teaching, Students, Education System

Introduction:

The ongoing pandemic COVID-19 is one of the biggest and challenging crises posing hindrances in every sector, and the education system is not an exception even. The outbreak of the COVID-19 was first identified in December 2019 in Wuhan, China. All the countries over the world cautioned the public to follow preventive measures and show responsible behavior to curtail the spread of the virus. This led to having a far-reaching impact on every walk of our lives than expected. Stay at Home, Social distancing, limited movement only in case of urgency have become the new normal ways of living due to the pandemic (Sintema, 2020).

To reduce the spread of COVID-19, most governments worldwide decided to shut down the educational institutions temporarily. A report by UNICEF states that about 47 percent of the world's student population has been immensely impacted by the nationwide lockdown declared by all the major countries as a response to COVID-19 spread. This pandemic situation has significantly disturbed our education system (Pokhrel and Chhetri, 2021). The pandemic has forced our education system to shift overnight to a newer set up online teaching and learning to

which neither the teachers nor the students were accustomed. This has taken a toll on students' mental setup to learn in new ways.

As learning and motivation go hand in hand, both are essential parts of our educational environment. Motivation plays an essential role in learning - arousal of interest in learning and is effective when it can prepare a mindset towards gaining knowledge or learning something. However, sometimes the environmental factors create an obstacle in the learning process that makes the students unable to concentrate on their studies. Motivation is a reason to do or not to do anything. So, it is a continuous process, and lack of motivation creates a more significant hindrance in the students' learning process. Although the Government has already made great efforts to reduce the spread of the virus and take precautionary measures through vaccination, it is still a great challenge for one to combat the virus.

Furthermore, COVID-19 has caused so many uncertainties in life that students are confused about what to focus upon at this hour- to get attuned to online learning or build a strong immunity system to fight the virus. Therefore, the present paper is an attempt to analyze the present mindset of the students in times of crisis and how motivated or de-motivated they feel when it comes to online teaching and learning system.

Review of literature

Since the outbreak of the COVID-19 Pandemic, various researchers have studied the far-fetched impacts, directly or indirectly, of the virus on our education system. Due to new norms such as social distancing and no physical interaction during the pandemic, the educators were forced to shift from physical classroom learning to digital classrooms set up quickly. Undoubtedly, the online mode of education helped both teachers and the taught stay connected and keep learning even amid disruptions caused by the pandemic. Though Gupta and Garg (2021) opined that COVID-19 has been instrumental in implementing innovative solutions in educational institutions worldwide, but the online way of education has its challenges. One uniform system cannot cater to the needs of the variety of courses that need a different and specialized setup of learning.

Moreover, it is difficult for teachers and students to immediately adapt to newer online education settings (Daucet, A. et al., 2020). Online education involves changing and sensitizing the teachers, students, and institutions to the nuances and necessities of learning in an online mode (Pandit and Agrawal, 2021). Effective use of ICT tools requires proper training for the teachers and learners accustomed to the traditional classroom setup having a room with a chalkboard. Although the online platforms such as Google classroom, Blackboard, etc., also allow the users to create the same effects or may be better than the physical setup, their use depends upon the skill and efficiency of the users (Petrie, 2020).

The academic performance of the students may get affected by the online education system in the current scenario. It is suitable for bright students who do not need direct supervision. Still, for weaker students, it may affect a lot because their contact hours with the teachers would be less than personal interaction during on-campus classes (Sintema, 2020). Suspension of face-to-face interactions between students and teachers during the pandemic has adversely affected students' learning. There has been found that school students have made very little or even no progress during the pandemic, especially in the countries where digital infrastructure is not fully developed (Per Engzell et al, 2021).

School, colleges, universities are not just the places where the only study is facilitated. These are where children grow and nurture with many more learning experiences than just the bookish knowledge. They learn working in peer groups; they learn to develop social skills and general awareness. However, with virtual learning, they are missing various social and psychological growth opportunities. Moreover, due to the pandemic, domestic violence cases have surged up that further cause mental distractions and stress on students' minds while attending online classes sitting at home only (Ravichandran and Shah, 2020).

Thus, there is a dire need to understand the students' mindset during the present crisis and the various factors affecting their motivation to learn. The study would help educators build a system that can provide quality education even when facing uncertain and exceptional times without affecting the learners. A hybrid model must be developed, having face-to-face and remote learning to provide for future shocks. The system should also provide for more personalized teachings to reach the students individually (Robin Donnelly et al, 2021).

Objectives of the study

In general, the study aims to analyze the impact of COVID-19 on the motivation level of the students. Precisely, the study aims

- To understand the present mindset of the students during the pandemic era.
- To analyze the various motivating and demotivating factors in the teaching-learning process in online settings.
- To find out the level of students' satisfaction with the online teaching mode.
- To gauge the impact of covid-19 on the lives of the students.

Database and Research methodology: The study is based upon primary data that has been collected through a structured questionnaire. The questionnaire was administered randomly to 250 students belonging to different higher educational institutes situated in Punjab, Haryana, and Chandigarh, out of which 210 students responded with duly filled-up questionnaires. The

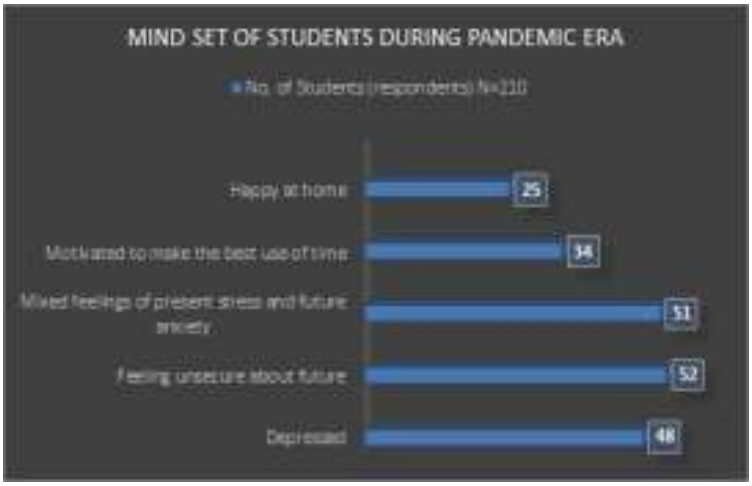
Exploratory Factor Analysis and Confirmatory Factor Analysis have been applied to explore and confirm motivating and demotivating factors in the teaching-learning process in online settings. Twenty-two statements were taken and quantified on a five-point Likert scale ranging from strongly agree to disagree with assessing the factors strongly. Further, descriptive statistical tools were used to analyze the data.

Data Analysis and interpretation:

The purpose of the study is to understand the mindset of the students in the unprecedent COVID era. The pandemic has had a huge impact on the lives of every age of people. Therefore, the present study mainly focused on the feelings of the students during this period.

Table 1: The Present Mindset of The Students During Pandemic Era

Students' Present Mindset	No. of Students (respondents) N=210
Depressed	48
Feeling unsecure about future	52
Mixed feelings of present stress and future anxiety	51
M otivated to make the best use of time	34
Happy at home	25

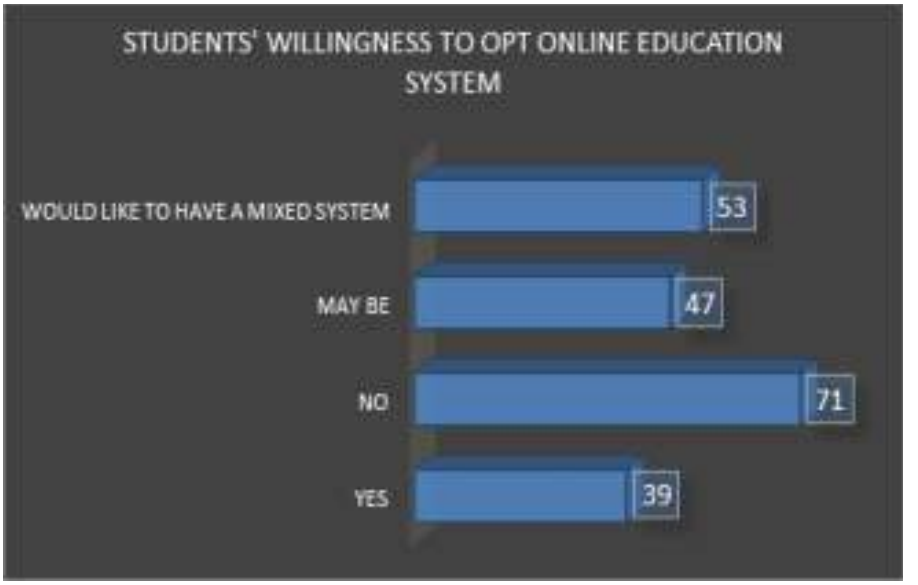


The above table and diagram indicate that most of the students are feeling unsecure about the future and have mixed feelings of present stress and future anxiety. They are also worried about their future and feeling depressed during this pandemic. On the contrary, out of 210 (34 +25) students feel motivated to make the best use of time and feel happy to stay at home. These students have a positive attitude towards their future, and they think the future will be better than the present period

Furthermore, respondents were asked if they would like to continue online learning even after the adverse situation gets back to normalcy. Following are their responses:

Table 2 Students' Choice of continuing with online education

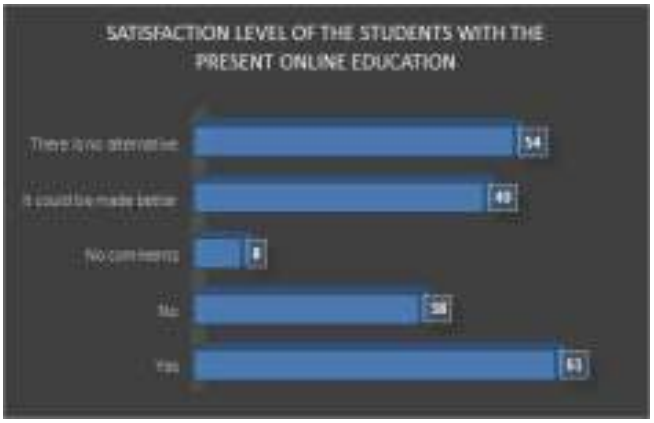
Students' Response	No. of Students (Respondents)
Yes	39
No	71
May be	47
I would like to have a mixed system	53



Next, the respondents were asked to state whether they are satisfied with the online education they are getting during the pandemic following responses were recorded:

Table 3. Satisfaction level of the students with the present online education given the pandemic situation

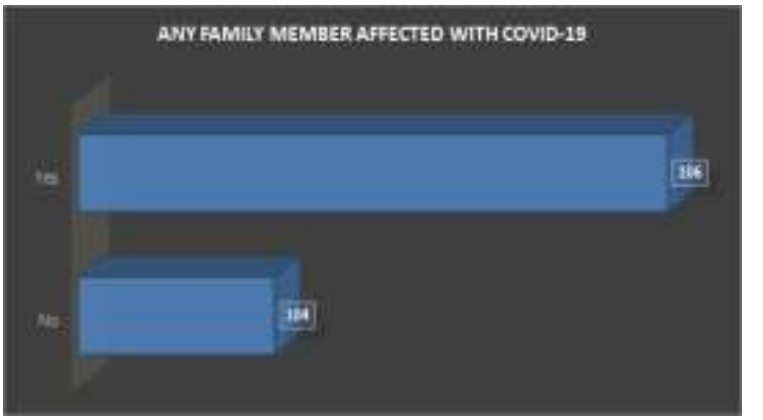
Students' Response	No of Responses
Yes	61
No	38
No comments	08
It could be made better	49
There is no alternative	54



The above responses show that around 29% of respondents are happy with online education given the pandemic, while 18% of respondents are not satisfied with the online education system. About 26% of respondents feel that the online education system is not their choice. Still, they do not have any alternative, so they have to go by it, but it could have been made better and effective if used effectively and supported by all technical infrastructure (23%).

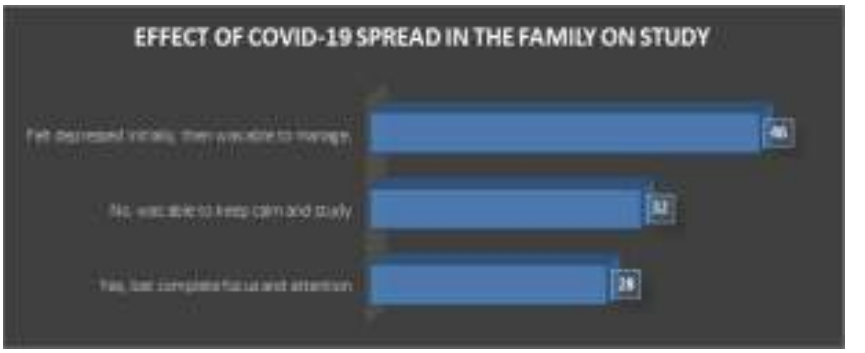
The following table shows the data regarding COVID-affected respondents in response to whether they or any of their family members have been affected by VIRUS.

Any family member affected by Covid-19	No. of Respondents
No	104
Yes	106



The table shows almost half of the respondents have faced COVID-19 in their families. This is the biggest reason behind their mental stress and adverse effect on their studies. As shown in the below table, 28 respondents have expressed that they completely lost their attention and focused on studies as the virus hit their family, and they (32) were not able to keep calm while 46 respondents were, luckily, able to manage their stress effectively. As a result, they could come out of the situation with their physical and mental strength.

Students' Response	No. of Responses
Yes, lost complete focus and attention	28
No. was able to keep calm and study	32
Felt depressed initially, then was able to manage.	46



Exploratory Factor Analysis

Considerations for the data reduction strategy, exploratory factor analysis was used. Exploratory factor analysis is a helpful tool for understanding the dimensionality of a set of variables and isolating variables that do not represent the dimensions well (Dobni,2008, pp. 550).

Before applying the EFA, the reliability of the scale was measured. The value of Cronbach's alpha was found to be 0.850. Further, to assess the appropriateness of the factor model, the values of Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) were calculated as depicted in table 6.

Kaiser Meyer Olkin Measure of Sampling Adequacy		.852
Bartlett's Test of Sphericity	Approx. Chi-Square	2735.793
	df	231
	Sig.	.000

KMO is a measure of testing the adequacy of sample size, and its value should be greater than 0.5 (Kaiser, 1974). Bartlett's sphericity test indicates a significant correlation among at least some of the variables, and a significant value of less than 0.05 is required (Hair et al., 2013). The values of KMO and Bartlett's test of sphericity were found in acceptable limits. Hence, it is good to pursue further to extract factors.

Extraction of Factors

The initial rotated component matrix consisted of four factors. These factors solution accounted for 63.083 percent of the variance, which is greater than the minimum acceptable limit of 60 percent as recommended by Hair et al. (2013). For each factor, the variables having factor loadings of 0.5 or more are taken into consideration.

Table 7: Factor Naming and Loadings

Factor Name	Label	Statement	Factor Loadings
Social, Psychological, and Technical Issues	V2	It is like not getting an education at all	.555
	V3	There is lot of distractions studying online at home	.807
	V4	It is not as interactive as offline education	.848
	V7	Lack of physical activities brings health problems	.555
	V8	Missing on campus enjoyment with friends	.660
	V13	Don't get much opportunity to ask questions during online class	.580
	V14	Feels the need to have eye contact with the teacher	.763
	V16	Technical hurdles are the major issues	.716
	V18	It is frustrating and boring to attend online classes	.723
	V19	Feels the need to study in peer groups	.794
	V20	Parents are more burdened to arrange the technical infrastructure to study online	.808
Save time and money	V5	It is very effective , and students participate actively	.671
	V6	Less travel time gives more time to study	.582
	V15	It saves on transportation costs	.543
	V17	Teachers provide feedback on any assignments submitted	.741
	V21	There is a big opportunity to study online and do a job/business simultaneously	.859
	V22	Teachers provide extra study material/notes	.864
Safety and Convenience	V1	It is the best way of getting an education being safer at home	.693
	V9	Making best use of social networking with friends	.636
	V10	Online exams are very convenient	.798
Choice Based/ Flexibility	V11	More choice of attending or not attending online classes	.860
	V12	Less burden of assignments and class tests	.857

After exploring the factors, the confirmatory factor analysis was performed to confirm the factors.

Social, Psychological, and Technical Issues- These issues sometimes demotivate the students in the teaching-learning process in online settings. They feel that there is a lack of interaction with the teachers and classmates during the online study, so online teaching creates an environment of frustration and boredom. Moreover, students face many distractions while studying online at home, including technical issues in the internet and devices used for classes like mobile phones, laptops, tabs, etc. In addition to school and college fees, the parents have to spend huge money on the arrangements of technical instruments, which ultimately creates a burden on the students' parents.

Moreover, the social circle and enjoyment of the students with their friends at campus get ruined with online teaching. Lack of physical activities of the students becomes the primary cause of their health issues like depression, overweight.

Save time and money- Despite the negative impact of online teaching on students learning process, some students take online teaching positively. They opined that online teaching is an effective & interactive way of teaching, and students can participate actively. Moreover, teachers also timely provide study material and notes to students for better learning. On the other hand, online teaching helps the students save their time and commuting cost and, in the meantime, while students can spend their time doing jobs and business.

Safety and Convenience- Online teaching is one of the best ways of learning for those students who prefer to stay at home during COVID-19. They think that it is convenient and safe to give online exams than appearing offline. On the other hand, they can explore their social networks with their friends to solve their problems.

Choice Based/ Flexibility- Online teaching environment provides comfort to students as they can skip any class during urgency and sickness. Moreover, there is less burden of assignments and tests for the students.

Confirmatory Factor Analysis

Confirmatory factor analysis was applied to confirm the motivating and demotivating factors in the teaching-learning process in online settings. For the assessment of the measurement model, multiple fit indexes are calculated, such as chi-square/degree of freedom, Comparative fit index (CFI), Tucker Lewis Index (TLI), Incremental fit index (IFI), Root mean square error of approximation (RMSEA) and Root mean square residual (RMR). The error terms in the confirmatory model are correlated to improve the fitness of the model to data.

Table 8

Goodness of Fit Results of the Measurement Model

Variable	CMIN/DF	CFI	TLI	IFI	RMSEA	RMR
Value	2.893	0.91	0.90	0.91	0.045	0.032
Acceptable Limit	<=5.00	>0.9	>0.9	>0.9	<0.1	<0.05

After correlating the error terms, the values of all the fit indices were improved. The value of chi-square/ degree of freedom is 2.893, which is less than the value of 5.00 as recommended by Hoyle (1995). The values of Comparative Fit Index (CFI), Tucker- Lewis Index (TLI), and Incremental Fit Index (IFI) were found to be greater than the threshold point of 0.9 recommended by (Hoyle, 1995; Fadlelmula, 2011). The value of Root Mean Square Error of Approximation (RMSEA) is 0.045, less than the value 0.10, the threshold limit, suggested by (Fadlelmula, 2011). Moreover, the value of Root Mean Square Residual (RMR) is 0.032, below the threshold limit of 0.05, recommended by (Fadlelmula, 2011). Since the values of all the fit indices are found in the acceptable range, indicates a good fit of the model to data.

Assessing Reliability and Validity of Measurement Scale

The composite reliability of the scale was calculated to ensure the internal consistency of the scale. Furthermore, the scale's construct validity was ensured by calculating convergent and discriminant validity of the scale.

Table 9

Reliability and Validity of Measurement Scale

Latent Variables	Composite Reliability	AVE	MSV	ASV
Social psychological and technical issues	0.911	0.511	0.133	0.061
Save time and money	0.855	0.502	0.491	0.166
Safety and Convenience	0.759	0.513	0.491	0.211
Choice Based	0.933	0.894	0.049	0.021

The value of Composite Reliability (CR) of each construct is greater than the threshold limit of 0.7, recommended by (Nunnally and Berstein, 1994). Further, the values of composite reliability and AVE are compared to ensure convergent validity. In the abovementioned table, the values of average variance extracted indicate that the latent construct explains 50 percent or more of the variance in the observed variables. Finally, to ensure the scale's reliability, the composite reliability of each factor should be more than its average variance extracted. And all the conditions are satisfied as depicted in table 2.

On the other hand, to ensure the discriminant validity of the scale, two conditions must have to be satisfied. First, maximum Shared variance (MSV) always should be less than Average Variance Extracted (AVE), and Average Shared Variance should be less than Average Variance Extracted (AVE). Hence, the above results ensure the discriminant validity of the scale.

Responses from students towards the question of how they are trying to keep themselves motivated under the current depressing pandemic situation

Based on their responses and comments, respondents have been categorized into three as follows:

Table 10: Students Responsiveness to Pandemic Stress

No. of students with Optimistic Approach		No. of students with Pessimistic Approach		No. of students with Neutral Approach	
Think positive	48	Can't Keep calm	43	Give it time to get back to normal	17
Do exercise and meditation	36	Feeling depressed	23	Don't listen to the news	9
Pursuing favorite hobbies	32	Future is very insecure	19	Let the life move on as it is	10
Eating healthy	67	The career will be poorly affected	34		
Learning new things	25	Adversely Affected academic performance	29		
Focus on studies	41	Offline teaching was the best	26		

The above table (Table no. 10) shows that although students are under stress due to the uncertainties caused by the still ongoing pandemic, they are trying to cope with the situation with varying strategies as per their choice and convenience. The majority of the students are optimistic about the future and dealing with it with greater positivity and strength. They are making their mental and positive health stronger by taking a healthy diet and doing yoga, exercises, and mediation. However, many students are very pessimistic to the adversities caused by the pandemic on their lives and careers. They (26) also find it very difficult to learn effectively through online mode. Few students are even neutral while responding to the COVID-caused stress. As they feel everything is beyond their control, it is better to leave the situation to get back to normalcy.

Based on the responses mentioned above, the following are some of the suggestions listed down for the students to balance their minds under depressed pandemic situations and focus on the study:

1. Positive approach towards life
2. Exercise, yoga, and meditation
3. Pursue your hobbies
4. Better utilization of free time
5. Eat healthily and stay healthy
6. Follow the safety norms
7. Learning new things
8. Share the feelings
9. Enjoy family time
10. Focus on study
11. Avoid misleading news and rumors
12. Make the best use of technology
13. Co-operation and understanding is the key
14. Active participation in digital classrooms
15. Healthy use of social media

Conclusion

The study provides a deep insight into the impact of COVID-19 on students in every aspect. It has affected their academic performance. Due to the lack of technical infrastructure with the teachers and students, online education has been very challenging. The virus has taken a toll on the

students' mental health as they are under stress and not finding themselves able to focus on study. But there is another side of the coin too. Although students are somewhat demotivated at present, they are very positively thinking about a normal future and preparing themselves to be physically and mentally healthy to the extent possible. The future is uncertain, there is no doubt about it, but there should be united efforts to streamline the challenges. The education environment should be made so strong to face such natural shocks in the future too. The hybrid education model is one of the suggested options where students and teachers are well conversant with the digital medium of learning and have personal physical interaction on a one-to-one basis. As the results of exploratory and confirmatory factor analysis indicates that there are some motivating and demotivating factors in teaching-learning process in online settings. These factors include social, psychological and technical issues; save time and money; safety and convenience; choice-based/flexibility. Therefore, the educational institutes should also organize such motivational webinars and events for students to teach them how to balance their study and health. Stress management should be taught to them by the expert faculties as students are the future of the nation.

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ROLE OF E-RECRUITMENT IN MODERN ERA

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Abstract

Recruitment is a procedure to find out the sources of work force to meet the necessity of staffing agenda and to employ productive estimate for attracting that manpower in sufficient numbers to facilitate systematic selection of competent worker. In mid-nineties, due to the progress of internet mechanization, numerous have notarized modification of the conventional recruitment method to online recruitment (Joyce, 2002). Many organisations have restorted to adopt advanced recruitment designs and integrating various recruitment method (Tong and Sivanand, 2005). Now, E-recruitment is the latest trend in making recruitment more attractive and is used by numerous large and small-scale organization. The effective utilisation of e-recruitment will exactly guide to an extreme change in traditional recruitment collectively (Parry et al., 2008).

Keywords: Recruitment, E-recruitment, Conventional /traditional recruitment.

Introduction

E-recruitment is a method of offering internet-based technology in which cloud-based recruitment software is used to make recruitment process more efficient and effective. Internet personate in India is growing day by day and still have immense possibilities. According to a study by NASSCOM “Jobs are among the top reasons why new users will come to the internet, beside email". Currently more than 18 million of resumes are still unsettled online across the world. Hartel and Fujimoto (2010) highlighted that E-recruitment is a process of selecting potential aspirants who had applied for a job via internet applied for a job by world wide web. Recruitment includes the masses and the activities carried on by organisation with primary purpose to pinpoint and captivate potential candidates. (Barbar, 1998, P.5)

In mid-nineties, due to the progress of internet mechanization, numerous have notarized modification of cconventional recruitment method to online recruitment (Joyce, 2002). Many organisations have restorted to adopt advanced recruitment designs and integrating various

recruitment method to woo them (Tong and Sivanand, 2005). Recruiting through social networks such as face-book, linkedin and myspace is also becoming popular. Whenfoever there is modifications in company's policies, mechanization, position, dissolution, consolidation and employers' departure, the pprocedures of recruitment carry on with regular intervals to add, support or readjust the work-force in accordance to organisation and human resource planning department (Tyson and York 2000 & Cascio, 1998). A few companies even use websites to select aspirants while other took advantage of this technique to become e-recruitment service provider (Dixon, 2000). It led e-recruitment to be second most popular online business apart from online air tickets booking in United States and Europe. This business trend was later on also absorbed in South East Asia and Asia Pacific (Labanyi, 2002; Galanaki, 2002; Fisher, 2001 & Gomolski, 2000).

Internet first appeared as a recruitment tool in the mid-1990's and was poured in management's process as a driver behind a "recruiting revolution" balancing advantages, it could bring to recruiters (Boydell, 2002). A few authors recommended that the internet had revolutionised the way how candidates perceive to job (Birchfield, 2002). E-recruitment payed thorough changes in the company recruitment process (Cappelli, 2001). Now e- recruitment is the latest trend in making recruitment more attractive and is used by numerous large and small-scale organization. The effective utilisation of e-recruitment will exactly guide to an extreme change in traditional recruitment collectively (Parry et al., 2008).

LITERATURE REVIEW

Kapse, Patil, Patil (2012) explored the advantages of e-recruitment due to it's widen scope and attracts numerous applicants in lesser time and cost, but it cannot totally replace the traditional method of recruitment. Because in large organisations with huge job vacancies e-recruitment definitely gives good result, but in small organisations with a few vacancies, e-recruitment will not be fruitful rather cumbersome. Therefore, both e-recruitment and traditional method should be used in some complimentary way to make selection process more effective in long run.

Aboul-Ela (2014) developed a proportion in order to estimate the most comprehend advantage of internet-based recruitment method from recruiter's standpoint. Inductive approach was followed in this study. Data was collected through questionnaire method for which he identified set of 40 items. Further, these 40 items were reduced to 10 items by three human resource professors at Cairo University. A sample of 130 organisations was targeted with a total of 2000 questionnaire. A total of 1600 questionnaires were collected back valid and complete with 80% response rate with a time frame of 4 months. The sample included industrial (35%) and healthcare (15%) education (15%) and government (15%) population. The analysis revealed that e-recruitment saves time, geographical outreach, improved quality etc., while limitations found that it could be used only for those organisations which follows e-recruitment.

Oswal and Narayanappa (2014) argued that e-recruitment is beneficial for both companies as well as aspirants. Candidate in search of job can have better opportunity to go through company's profile, criteria of selection etc., whereas for company it broadens the database of talent hunt for HRM.

Alsultanny and Alotaibi (2015) evaluated the components effecting purpose to employ e-recruitment where link of various components such as anticipated comfort to use, usefulness, pleasure and attitude etc of respondents with respect to the intention of job seekers in e-recruitment system was studied. Also statistically, significant differences of demographic characteristics of job seekers on intention to use e-recruitment was studied. Data was collected from 356 job seekers, who used e-recruitment method. This sample consists of 74.7% of males and only 25.3% females. Findings revealed that 1.7% respondents have < 2 years internet experience, 2% just have 2-3years of experience, 11.2% have 4-5years, 21.6% respondents have 6-7years and 63.5% have 7-8years of experience in using internet. This indicates that substantially respondents are young and non- employed persons (job seekers) and have much experience in using internet.

Anand and Devi S. (2016) investigated the plus point of e-recruitment and various difficulties trashed by the human resource professionals for using e-recruitment system like www, job portal, social networking sites etc. However, the success of E-recruitment depends upon the modernized solution offered by job sites, economical, time and providing tailor-made results. It was found that job seekers also prefer to online applications than conventional applications, as it reduces time, money or other efforts. The study highlighted the reason which refrains or restricts small and medium sized organisations from focussing more on e-recruitment method. Monster and naukri.com is one of the major job portals in India who have started mobile application for job seekers, so use of mobile applications has made job search process convenient for the job seekers. In urban areas of India, there is more use of internet for the job searching as compared to rural areas. Even mobile internet uses are also increasing in urban areas as compared to rural areas.

Singh (2017) The study highlighted the role of e-recruitment as a new dimension of HRM in Indian practices or context. The why and wherefore of this research is to broaden the significance of e-recruitment method in an organisation along with methods, trends and various challenges faced by organisations with the use of e-recruitment. It was stated that e-recruitment has been started since the mid 50's to 80's; but it has gained momentum in the last few decades. It has revolutionised HRM to E-HRM. E-mail was the first step towards e-recruitment. The study also explains the concept of human resource information system (HRIS), which is an significant management information system. This helped HR department to acquire, store, manipulate, analyse and retrieve information related to Human Resources along with so many advantages of e-recruitment.

Akila, Vasantha & Thirumagal (2020) studied the validness of online recruitment for manpower selection. This review focussed on the advantages of e-recruitment process like reduction of time, work pressure, cost and saving as other assets as compared to traditional method of manpower recruitment. The study stated that vacancies of an organization need to be uploaded in www., so that job seekers can undoubtedly find out the job according to their capabilities. This will also reduce the chances of fraud advertisement and fake job agencies. E-recruitment helps aspirant to make deep enquiry before filling their details in the company portal. Also, organisation will have large database of candidate from which they can select the best one according to company's requirement.

Conclusion

In a nutshell, it was concluded that the significance of e-recruitment is increasing day by day in today's technological era. There is hardly any phase of life where internet is not used personally and professionally. Every organisation either small or big is making use of e-recruitment for selecting efficient applicants at less expenses in terms of time and cost. E-recruitment aids the institution to displace the ineligible job applicant in a robotic manner and also provide round-the-clock collection of biodata, which is not possible under any other method. Whereas, the base of e-recruitment lies in traditional method of recruitment especially in traditionally knitted country like India. So, although e-recruitment is more beneficial than traditional, still it cannot replace it completely. It means where we cannot use e-recruitment, we can have traditional method and vice-versa. So, both methods are just like two sides.

Implications and Recommendations

Presently companies are widely using modern mechanization and due to this reason online recruitment suits a regular exercise adopted by institutions for appointing talent. The success of e-recruitment depends upon modernized solution offered by websites, economical, time saved as well as customized solutions to HR managers which also helps in making brand building of the companies. Although e-recruitment provided many benefits to jobseekers and employers, still it is still not free from drawbacks and shortcomings. As it cannot be used by small companies due to high cost and sometimes due to larger talent pool and low quality of applicants etc which can reduce its effectiveness. Hence, we cannot totally replace the traditional methods by e-recruitment. There use depends upon organizational requirements with respect to time, cost and nature of job. Thus, it is suggested that a concern should continue to use e-recruitment and conventional method of recruitment for employing job seekers so that they can compeer with international as well as local requirements of companies.

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COVID-19 AND HUMAN RESOURCES: A SYSTEMATIC LITERATURE REVIEW OF THE LAST TWO YEARS OF RESEARCH (2020 TO 2021)

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Abstract

Human resources are facing peculiar type of challenges due to bad situation caused by Covid-19 pandemic such as no interaction with the superior, insufficient IT infrastructure, no interaction with colleagues and subordinates, lack of infrastructure, etc. A rigorous analysis of the literature of 44 articles published in the last two years (2020 to 2021) have been used to study the current status of the research in the area of Covid-19 and Human Resources. By using PRISMA guidelines, 44 documents were taken through a structured keyword search in the SCOPUS database. By conducting descriptive analysis, the research study can help the organizations in formulating and implementing the strategies for future. The findings will act as a guideline for researchers in the area of Covid-19 and Human Resources.

Keywords: Covid-19, Human Resources, PRISMA guidelines, SCOPUS database.

Introduction

Covid-19 pandemic was discovered in Wuhan, China and spread all over the world. It was declared as a widespread Global pandemic in the month of March, 2020 by WHO (World Health Organisation) (Coronavirus disease 2019). Business, hospitals, travel, hotels and various private and public organizations have highly impacted by covid-19 and government of many countries had taken appropriate measures for preventing the loss caused by pandemic (Mahmood S. et al.). During the period of covid-19 pandemic, many business sectors experienced economic crisis. Many organizations especially small scale organizations laid-off their employees, reduced their salaries, increased their work-load, etc. (Mediaindonesia, 2020). To prevent the spread of corona virus infection, employees were forced to work from home. Since the beginning of business world, employees had been working at the workplace only. Therefore, covid-19 pandemic has developed a challenge for all employees as they are instructed to work from home. Many employees don't have sufficient place to work at home. Unceasing effect of Covid-19 pandemic has weakened many

businesses houses to that extent that their earnings are insufficient to meet the salary component of their monthly expenditure. Because of this insufficient fund flow, companies are terminating the jobs of their employees. As a result, unemployment rate is increasing day by day across the world (Mediaindonesia, 2020). Due to Covid-19 pandemic, the government decision to shutdown the organizations, colleges and schools had led to serious disturbance in job, work-life, schooling of children across the globe. The capability of most of the Americans to do job at home has diminished the resulting economic-crisis (Barrero, Bloom, and Davis 2020; Bick, Blandin, and Mertens 2020;).

Review Methodology

Researchers across the globe are using PRISMA guideline for reviewing the published literature (Keathley-Herring, H., et al., 2016). To increase the integrity or the cohesion of the published literature and meta-analysis, researchers use systematic literature review as a guide (Moher et al., 2009). Research articles published on Covid-19 and Human Resources were extracted. PRISMA guidelines were used to identify the most eligible articles as it helps the researchers for selecting and rejecting the papers in SLR. Published papers on Covid-19 and Human Resources are included in this study. Papers were extracted with the help of the most well known database SCOPUS. Papers published in the last two years 2020 and 2021were taken to map the Covid-19 and its impact on HR in the organizations. Relevant literature was searched by using several combinations of keywords. The keywords Covid-19, Human resources, employees, etc. were mentioned in the search bar and 926 articles were extracted. However, all types of documents like articles, reviews, editorials, conference proceeding and book chapters were included in the extracted articles. Inappropriate articles were rejected by using the internal search options. To reduce the number of articles, the keywords like covid-19, human resources, employees, corona-virus were used. The domains like social sciences, Business, management and accounting, Economics, Econometrics and Finance, Humanities, Psychology and Arts were used to reduce the result. Language English and published documents were used to shrink the extracted papers to 83. Inclusion and exclusion process was applied on the selected documents. The figure shows the application of PRISMA guideline to select the most relevant articles in this study.

Quality Assessment

The literature includes the published documents for getting the most appropriate results and the best presentation of the previous data. To limit the gathering of published documents, abstract, result analysis and conclusions were prepared separately. Cited references were also used to shrink the results. Desired result was obtained by eliminating inappropriate articles. To remove duplication, the selected papers were evaluated many times.

Eligibility and Inclusion

The following criteria was used to make the final selection of the published documents. Documents published in English language were taken. The database SCOPUS was used to identify the documents. 39 irrelevant documents were removed from the excel sheet. Finally, 44 published documents were taken for the study based on systematic literature review.

This study reviews literature based on Covid-19 and its impact on human resources and provides an overview of previous studies in many establishments and offers an idea for reducing the impact of covid-19 on human resources in the workplace. Both quantitative and qualitative analysis were used in the selected documents. A few kinds of research were conducted, using qualitative analysis.

Table1: Criteria for inclusion and exclusion

Criteria for Inclusion	Keywords: Covid-19, Corona virus, Human resources. Research papers: Published in the last two years (2012-2021). Method: Quantitative and Qualitative anlysis. Types: Published documents. Language: English language.
Criteria for Exclusion	Documents that are published other than the language English are excluded. Inappropriate documents are eliminated. Documents based on personal assumptions are excluded. Documents published by researchers without mentioning evidence are eliminated.

Selection of the Research Study

The inclusion and exclusion criteria aim to consider only relevant research articles for the SLR. After using the inclusive and exclusive criteria, 44 research papers were identified as eligible and considered for review as shown in the article selection workflow.

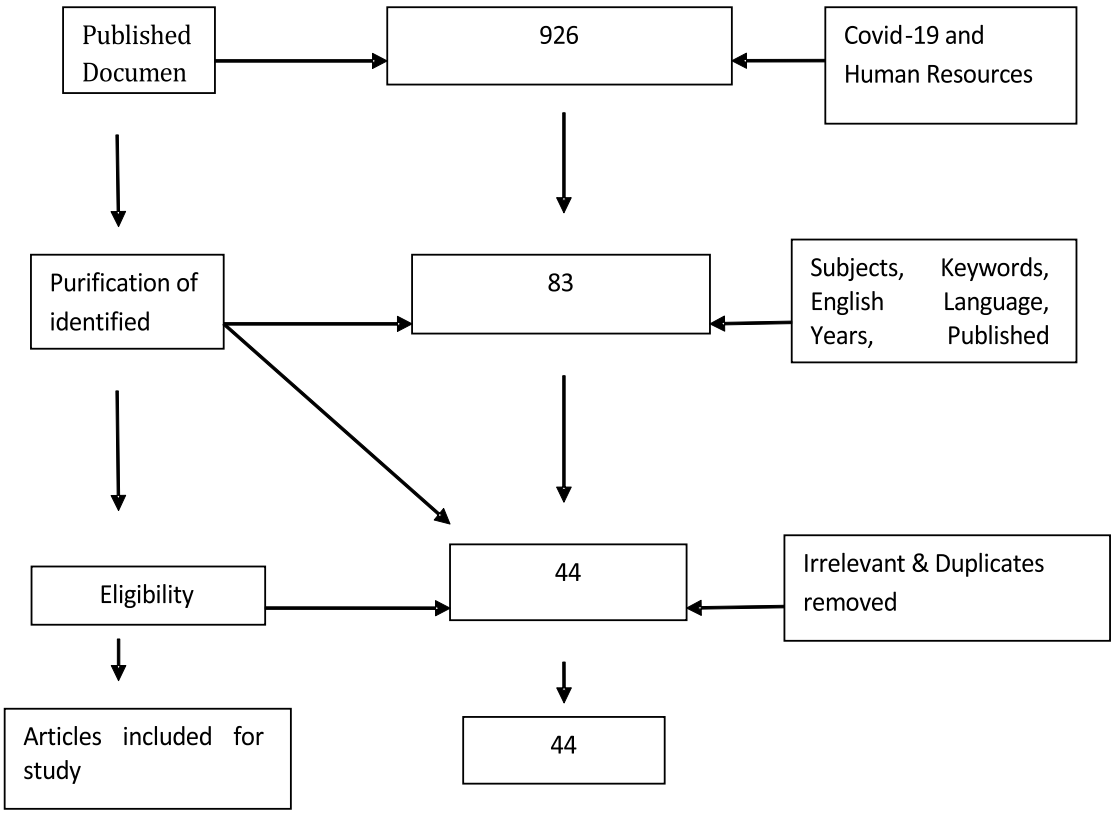


Figure 1. Documents selection workflow based on PRISMA Guideline

Analysis and Results

Descriptive Study

To maintain a transparency in this document, this study presents the list of published documents as shown in table 1 (Aguinis et al.'s, 2018). In table 1, the descriptive study includes authors' name, publication year, title, journal, context, type of study and country.

Author	Year	Journal	Publisher	Organisation	RM	Context
Kaushal V., Srivastava S.	2021	International Journal of Hospitality Management	Elsevier	tourism and hospitality industry	Qualitative	India
Ngoc Su D., Luc Tra D., Thi Huynh H.M., Nguyen H.H.T., O'Mahony B.	2021	Current Issues in Tourism	Taylor & Francis Online	tourism and hospitality industry	Qualitative	Vietnam
Chen H., Eyoun K.	2021	International Journal of Hospitality Managemen	Elsevier	Hotel Industry	Quantitative	US
D'angelo D., Sinopoli A., Napoletano A., Gianola S., Castellini G., del Monaco A., Fauci A.J., Latina R., Iacorossi L., Salomone K., Coclite D., Iannone P.	2021	Safety Science	Elsevier	Corporate and Education	Qualitative	European Countries
Araya F.	2021		Elsevier	Construction industry	Qualitative	Unspecified
Biron M., De Cieri H., Fulmer I., Lin C.-H.V., Mayrhofer W., Nyfoudi M., Sanders K., Shipton H., Sun J.M.J.	2021	Human Resource Management Review	Elsevier		Qualitative	Unspecified
Smart K., Ma E., Qu H., Ding L.	2021	International Journal of Hospitality Management	Elsevier	hospitality and tourism industry	Qualitative & QUANTITATIVE	Unspecified
Oliveira M., Sousa M., Silva R., Santos T.	2021	jJournal of open innovation: Technology, Market and	MDPI	non-profit organizations	Quantitative	Portuguese

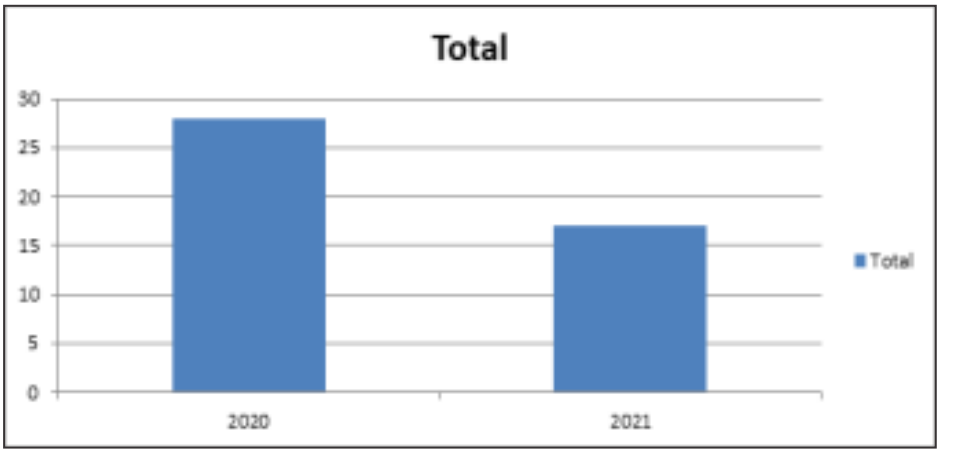
Lee H.	2021	Journal of Organizational Effectiveness: People and Performance	Emerald	public and private organisations	Qualitative	Singapore
Tanpipat W., Lim H.W., Deng X.	2021	Sustainability	MDPI	Corporate Offices	Quantitative	Thailand
Agarwal P.	2021	International Journal of Hospitality Management	Elsevier	Hotel Industry	Qualitative	India
Paulet R., Holland P., Morgan D.	2021	m	SAGE	Textile	Quantitative	India
Jayathilake H.D., Daud D., Eaw H.C., Annuar N.	2021	Benchmarking: An International Journal	Emerald	corporate	Qualitative	
Ahmad R., Scott N.	2021	International Journal of Culture, Tourism and Hospitality	Emerald	Hotel Industry	Qualitative	Malaysia
Kumar P.	2021	The Journal of Business Perspective	Sage	corporate	Qualitative	India
Schall M.C., Jr, Chen P.	2021	The Journal of the Human Factors and Ergonomics Society	Sage	corporate	Qualitative	Unspecified
Alzgool M.R.H., Ahmed U., Shah S.M.M., Alkadash T., Almaamary Q.	2021	Uncertain Supply Chain Management	Growing Science	Food Industry	Quantitative	Bahrain
El-Hage W., Hingray C., Lemogne C., Yrondi A., Brunault P., Bienvenu T., Etain B., Paquet C., Gohier B., Bennabi D., Birmes P., Sauvaget A., Fakra E., Prieto N., Bulteau S., Vidailhet P., Camus V., Leboyer M., Krebs M.-O., Aouizerate B.	2020	Prevenção e Controle de Câncer	Biblioteca Virtual em Saúde	Health Industry	Qualitative	France
Carnevale J.B., Hatak I.	2020	Journal of Business Research	Elsevier	corporate	Qualitative	

Felice C., Di Tanna G.L., Zanus G., Grossi U.	2020	Journal of Community Health volume	Springer	Health Sector	Quantitative	Italy
Ammar A., Stock A.D., Holland R., Gelfand Y., Altschul D.	2020	NCBI resources PMC		Health Sector	Qualitative	Unspecified
Lai I.K.W., Wong J.W.C.	2020	International Journal of Contemporary Hospitality Management	Emerald	Hotel Industry	Quantitative	Macau
	2020	Management Research	Emerald			USA
Sanders K., Nguyen P.T., Bouckenooghe D., Rafferty A., Schwarz G.	2020	The Journal of Applied Behavioral Science	SAGE	Education	Qualitative	Unspecified
Smith C.	2020	Social Science & Medicine	Elsevier	health	Qualitative	Indonesia
Tavares F., Santos E., Diogo A., Ratten V.	2020	Journal of Enterprising Communities: People and Places in the Global Economy	emerald		Quantitative	Portuguese
Risley C.	2020	Journal of Library Administration	Taylor & Francis Online	corporate	Qualitative	San Mateo
Davidescu A.A., Apostu S.-A., Paul A., Casuneanu I.	2020	SUSTAINABILITY	MDPI	corporate	Quantitative	Unspecified
Gurbuz I.B., Ozkan G.	2020	IEEE ENGINEERING MANAGEMENT REVIEW	IEEE	Food Industry	Quantitative	Unspecified
Cooke F.L., Dickmann M., Parry E.	2020	IJHRM	Taylor & Francis Online		Qualitative	Unspecified
Abbas M., Dhane M., Beniey M., Meloche-Dumas L., Eissa M., Guérard-Poirier N., El-Raheb M., Lebel-Guay F., Dubrowski A., Patocskai E.	2020	BMC Medical Education	Springer	Health Industry	Qualitative	Canada

Salamzadeh A., Dana L.P.	2020	JOURNAL OF SMALL BUSINESS & ENTREPRENEURSHIP	Taylor & Francis Online	New Startups	Qualitative	Iran
Almeida B., Cohen M.A., Stone R.I., Weller C.E.	2020	Journal of Aging & Social Policy	Taylor & Francis Online		Qualitative	Unspecified
He J., Mao Y., Morrison A.M., Coca-Stefaniak J.A.	2020	International Journal of Contemporary Hospitality Management	Emerald	hospitality and tourism	Quantitative	China
Buhusayen B., Seet P. -S., Coetzer A.	2020	Sustainability	MDPI	Airline Industry	Qualitative	Australia
Fathy El Dessouky N., Al-Ghareeb A.	2020	2020 Second International Sustainability and Resilience Conference: Technology and Innovation in Building Designs	IEEE	corporate	Qualitative	Unspecified
Castellanos-Redondo S., Nevado-Peña D., Yañez-Araque B.	2020	Sustainability	MDPI	corporate	Qualitative	Spain
Sarita, Datta A.	2020	*International Journal of Management*	ssrm	corporate	Qualitative	India
Bie?kowska A., Tworek K., Zab?ocka-Kluczka A.	2020	Sustainability	MDPI	IT Sector	Quantitative	Unspecified
Maritsa E., Kalemis K.	2020	SSRN	SSRN	Health Sector	Qualitative	Athens
Abler M., Bachmaier R., Hawelka B., Prock S., Schworm S., Merz A.-K., Keil S.	2020	GMS Journal for Medical Education	PMC	Education	Qualitative	Regensburg
Fernandes A., Figueiredo M., Dias A., Ribeiro J., Neves J., Vicente H.	2020	Conference	Springer	Health Sector	Qualitative	Unspecified
Ahmed T., Khan M.S., Thitivesa D., Siraphatthada Y., Phumdara T.	2020	Human Resource Management	IOC Press	corporate	QUANtitative	Thailand
Teng-Calleja M., Caringal-Go J.F., Manaois J.O., Isidro M.Q.Y., Zantua R.M.S.	2020	The Journal of Behavioral Science		corporate	Qualitative	Unspecified
Ungureanu P., Bertolotti F.	2020	Journal of Risk Research	Taylor & Francis Online	Health Sector	Qualitative	Unspecified

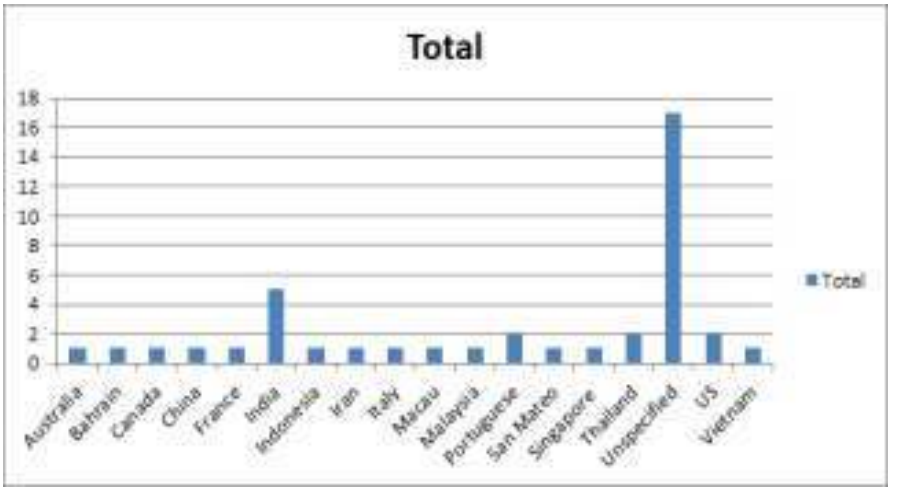
Figure 2 shows the published documents per year on Covid-19 and human resources from many countries in the last two years starting from 2020 to 2021. The purpose was to determine the total number of published documents on Covid-19 and human resources in the year 2020 and 2021. Comparatively more documents were published in 2020.

Figure 2



The literature in the year 2020 and 2021 included published documents on Covid-19 and its impact on human resources. Figure 2 shows 17 documents on Covid-19 and its impact on human resources in the list of unspecified countries as country's name is not mentioned in the published documents. The country India produced the greatest number of papers on Covid-19 and its impact on human resources. Country-wise published documents list is shown in figure 2.

Figure 3



Conclusion and Limitations and Future Scope

Employees are the most significant element of any establishments. Research found that human resources were greatly impacted by Covid-19 pandemic in terms of salary decrement, job loss, loss in promotion opportunities, work-life balance, etc. Although the paper has revealed both quantitative and qualitative researches conducted by many researchers in the field of Covid-19 and Human Resources. However, there is a scope for more researches in the field of Covid-19 and Human Resources.

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Role of Financial Services and Technology on Industrial Sector of India in Times of Covid-19

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Abstract

Great historical progress always happens after major disasters. We have entered a race against time. A race to find a treatment for covid19. A race to prepare for recovery. And a race to achieve sustainable development goals. The impact of covid19 pandemic on manufacturing is long term and far reaching. It not only impacts the operations and financial stability of manufacturing companies but also their technological suppliers. The post pandemic world will see a new normal of manufacturers focused on remote capabilities in operations, product innovation supply chain and customer management and in the business in general. That focus will drive significant investment process automation, centralized asset monitoring and diagnostics and cloud based collaboration tools. The ultimate goal will be to support resiliency in all aspects of the business as well as resilient decision making.

KEY WORDS : Financial Inclusion, Sustainable Development, Demography, Personal protective equipment, Digital Finance

Introduction

The novel covid19 pandemic emerged in the latter days of 2019 and had firmly established itself as a threat to human civilisation by the dawn of 2020. The virus has brought disruptions neither to unknown in demography, health, economy and infrastructure globally. As the virus spreads across land and water, an unprecedented loss of human life and livelihood stares us in the face. This pandemic has, for, all intents and purposes, halted the ways of life as we have known in 21st century. It has brought to the fore the inherent weakness of our system as exemplified by the state of unpreparedness of even highly developed economies in copying with the nature of this disease. The principal consequences have been an abnormal rise in sickness burden in all

communities, a step reduction in economic activity and employment recession, and human mobility concerns, all of which are affecting global economic growth and development. On the other hand certain positive trends have emerged which to have highlighted the flaws of modern day lifestyles bring relentlessly persuade till the outbreak of the pandemic. These include the natural cleansing and restoration of our environment including air , land, water those that have been rendered free from anthropogenic intervention since the pandemic took over.

Given the stated scenario governments have been working on formulation and implementation of policies and process to enhance adaptability and resilience to the changing human environment. It is becoming increasingly apparent that, in the midst of this historic crisis of human survival and well-being, the pillar of sustainable development must be strengthened by revisiting and rethinking its parameters.

In all such policy decisions, technology mainly ICT, machine, learning etc. plays a pivotal role in economic recovery and return to growth . However, the transition from mechanical to digitally controlled platform brings its own of pros and cons they manifest themselves in communities with diverse cultural, social, economic, and political settings. The impact of COVID times on technology for sustainable development initiative requires multidimensional assessment including technological innovation, policy development, and execution, as well as social advantages.

Objectives

The objective of this paper is to identify the impact of financial services and technology on the industrial sector of India and how it became economic booster for the country in the times of COVID-19. Positive attitude can help to face challenges and bring opportunities in employment generation.

Literature Review

Financial literacy is an essential component of financial capabilities which is combination of understanding ,knowledge ,attitude, skill ,and behavioural changes.

In the life cycle hypothesis ,financial literacy is regarded as a form of human capital required for managing income between saving and consumptions over a consumers lifetime. In the developing world, mobile communications are the rapidly growing technology and it has significant socio-economic impact on poor communities (Abraham,2007).

Mobile banking as a means of financial inclusion can be used it is accessible to both low income and better –off individuals .The internet based mobile -banking apps are being increasingly used by the Indians smart phone users for account and loan statement, utility bill payments etc (D'Souza,2018).

The basic objective of spreading the digital services in the developing economies is to contribute to poverty reduction and financial inclusion (UN,2016).

Methodology

Secondary data has been collected and analysed for the current study. Various reports published by RBI and other financial institutions have been used as relevant inputs. In addition, research articles from a variety of reputable journals, websites, and periodicals were used.

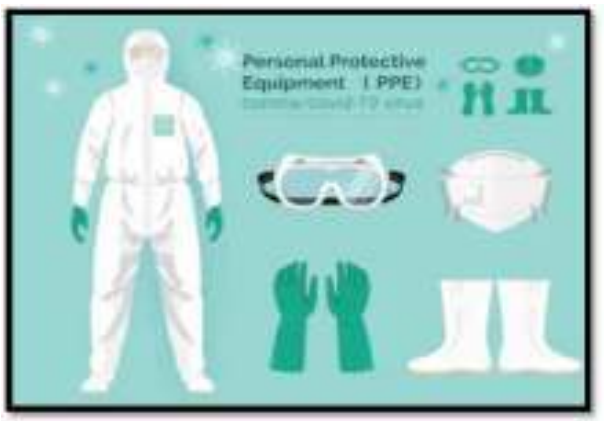
New Opportunities In Industrial Sector, Digital Finance And Technology

So here are some of the examples how technology has helped the industry in India to grow in the last two months .

Fact 1:- A new industry worth ₹10,000 crores is born in India.

Now the question is how?

So the answers comes from a simple question, what we can do? The textile industry had to close down due to covid19, but even during these tough times, they found an opportunity ,in place of closing factories , they made some PPE kits. One private industry started, then one by one many industries did this work and today 45000 kits per day are being manufactured. In these two months, India has become the world's second largest suppliers of medical personal protective equipment (PPE). These are products like goggles ,face shields ,masks, gloves ,gowns head and shoe covers. These new industries will be worth 60 billion dollars by 2025 .All of this happened in less than 60 days, which is just next to impossible, but it is true .



Fact 2 :- This is the Mahua flower from Chhattisgarh . This flower is used to make local liquor. Now what does it have to do with the crisis? The tribal women in Chhattisgarh used this flower to make alcohol as it is the base of hand sanitizers. When India was scrambling to get enough supply of hand sanitizers, these women did not give up. They asked themselves what we can do ? They understood the real meaning of "vocal for local" and their creativity. A tribal solution saved lives . This is impossible but it's a fact.

1. This is Mahua Flower

2. Tribal Women Preparing Ethanol

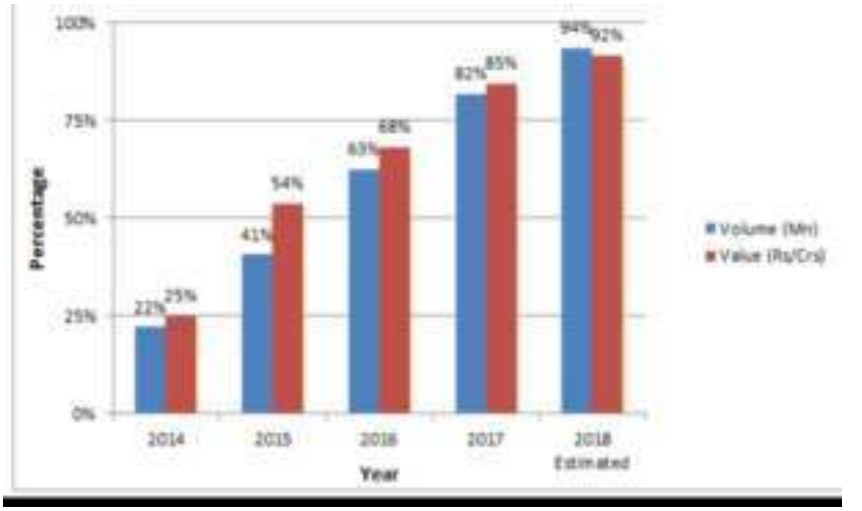
Fact 3:- India is attempting to entice over 1000 American businesses to relocate there. A total of 300 industries had already signed on the dotted line. And the question now is, where will they manufacture?

So the answer is, not in big cities like Delhi , Mumbai, Bangalore, but in small cities and interior . Luxembourg is a country in Europe . India offers land twice Luxembourg size to firms living China and settle in India . To believe there is something happening positive around us needs patience . India has a long way to go . We cannot boycott China in one day . It is one of the facts that we don't have electricity, infrastructure and even skilled labour . But it is also a fact that we have untapped potential, because of which manufacturing is going to shift from China .

People from Vietnam, South Korea and Bangladesh knows it .

Bangladesh has surpassed India as the fastest growing South Asian economy. India has to work on its negative aspect.

In 2014 we had two mobile manufacturing units, 268 mobile handset and accessories manufacturing units in 2019. 95% of mobile phones sold in the country being produced domestically, the star in India " MAKE IN INDIA" story is indeed shinning, including Samsung goes big in India with world's largest mobile factory.



Source :Statista,2018

Fig 4 : Shows the increment in the growth of mobile factories in India from 2014-18

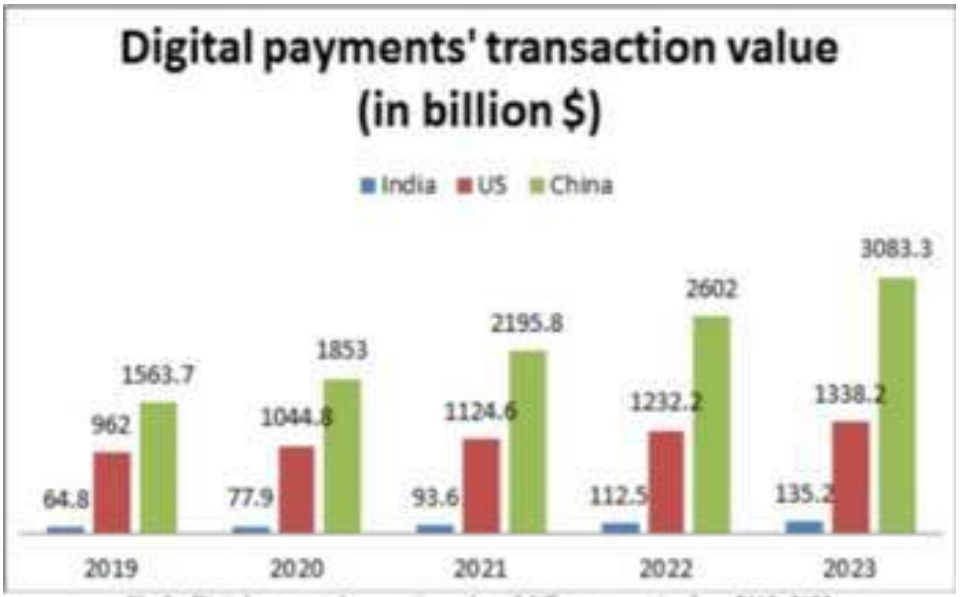
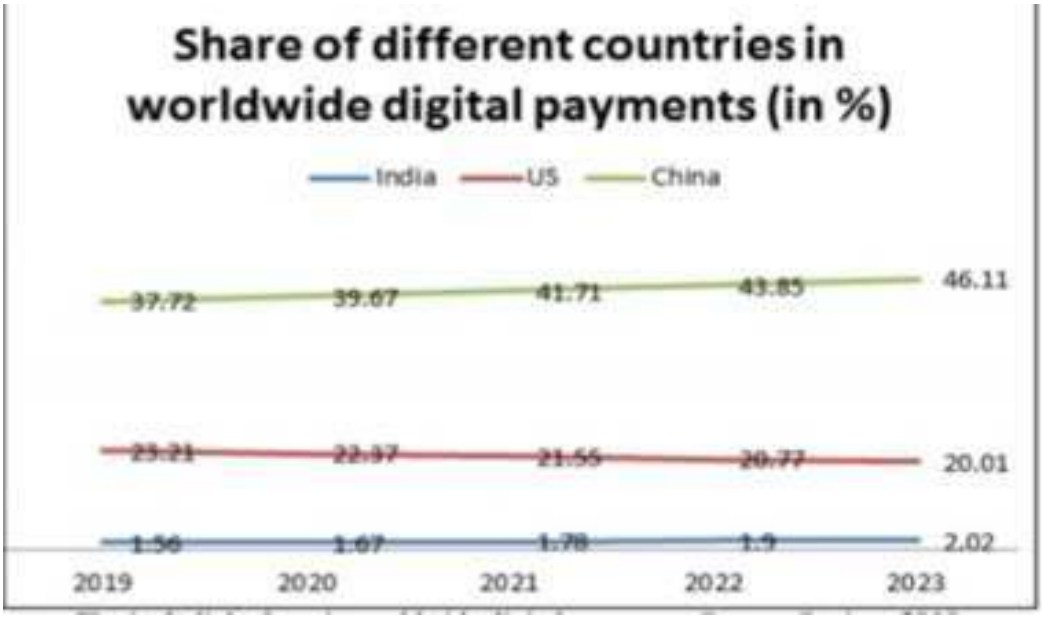


Fig 3:- Digital payments' transaction value of different countries from 2019-2023
Source: Statista, 2019



Conclusion

Donald Trump invites India to attend G7 summit in US this year . He wants to invite India , Australia but not China . Foreign countries has realized in next 10 years , India can be a alternative to China for manufacturing . "Great historical progress always happens after major disasters" said by , XI JINGPING himself . So we should listen to it that whenever a country hits rock bottom , it is the people who bring it back to life .

What did Germany do after World War 2nd ? Why is Japan so successful ? What can India learn from Singapore?

Delete Tiktok and boycott everything made in China says SONAM WANGCHUK.

Sonu Sood helping the migrants . This proves that " necessity comes before practicality" .

Only by asking ourselves what we are capable of will we be able to determine our true potential..

Suggestions And Recommendations

* What if we say there is good side effect of Corona virus ? Lockdown, health problems, food crisis feel like big dark cloud but there is the silver lining . There is a thing which is more valuable than money that is our time . Every day, we are given 86400 seconds; if we use them wisely, they will be extremely valuable.

* Podcast can be used for all works, even during sleeping .

* Online courses can be done . India produces highest number of engineers and yet 70% of them are unemployed. It is mainly because a lot of people think a graduation certificate is enough to get a job. But looking outside , the competition is immense. With online learning world class education comes to you on your computer screen saving your time at your convenience. Youtube is a huge assist and has surpassed Google as the second most popular search engine. Quarantine is an excellent time to learn new skills and improve existing ones.

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