

Strategic Financial Innovations

Emerging Trends and Policies

Edited by

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Swami Vivekananda University

Published by

Penprints
India

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Published by Penprints

Official Address: 38/2 A. N. Saha Road, Kolkata-700048,

West Bengal, India.

Phone no-8697875467

Website - www.penprints.in

Copyright - Swami Vivekananda University

Price: INR 500 | \$ 20

First Edition - 2024

ISBN: 978-81-975894-2-3

ISBN 10 : 81-975894-2-9

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Printer: S. P. Communications Pvt. Ltd. 1st Floor, Merlin Marigold, 31B, Raja Dinendra St, Yogi Para, Garpar, Machuabazar, Kolkata, West Bengal 700009

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From Fungi to Feasts: A comprehensive Study of Mushroom Revolution in Agriculture, Medicine, and Income Generation

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Abstract:

In this study, we delve into the world of mushrooms and their significant impact on agriculture, medicine, and income generation. Mushrooms are more than just a tasty addition to our meals; they're packed with nutrients, offering a low-calorie source of proteins, vitamins, and minerals. With global production soaring to 8 million metric tonnes annually, mushrooms are a crucial player in ensuring food security and boosting economic growth, especially in countries like India. However, challenges such as lack of technical know-how, marketing information, and quality spawn hinder their cultivation. Despite these hurdles, mushrooms hold immense promise for enhancing food security, creating livelihoods, and providing valuable medicinal properties. Our study underscores the need for further research and development to unlock the full potential of mushrooms for society's benefit.

Keywords: Mushrooms, Indian agriculture, Food security, Cultivation practices, Medicinal benefits.

1. Introduction:

For millennia, humans have relied on mushrooms not only as a source of sustenance but also for their medicinal properties. With over 1.5 million species of fungi in existence, approximately 10,000 produce the fruiting bodies we commonly refer to as mushrooms (Brown & Dugan, 2017). The cultivation of mushrooms dates back to ancient times, with historical records indicating that the Chinese were the first to cultivate mushrooms around 1100 AD (Liang et al., 2020). Today, mushrooms are cultivated worldwide, with annual global production estimated at around 8 million metric tonnes (Huang et al., 2019).

Due to their great nutritional value, mushrooms are prized for being an excellent source of vitamins, minerals, and proteins. Actually, fresh mushrooms have about double amount of protein than that of vegetables and four times the protein content than that of oranges (Chan, 1981). In addition, mushrooms have minimal fat and carbs, which makes them a great food for people with dietary restrictions, including those who have obesity, diabetes, or hypertension (Ahlawat et al., 2016). Furthermore, the nutritional value of mushrooms is further enhanced by the presence of important amino acids like tryptophan and lysine, which are frequently absent from cereals (Liang et al., 2020).

In recent years, there has been a growing recognition of the potential economic benefits of mushroom cultivation, particularly in developing countries like India. Mushroom cultivation not only provides a valuable source of income for farmers but also contributes to food security by diversifying agricultural practices (Sharma et al., 2017). Despite these benefits, challenges such as lack of technical knowledge, access to quality spawn, and marketing information pose significant barriers to mushroom cultivation in many regions (Sharma et al., 2017).

In this study, we aim to explore the multifaceted role of mushrooms in agriculture, medicine, and income generation, with a focus on the Indian context. By examining cultivation practices, medicinal properties, and economic opportunities associated with mushrooms, we seek to highlight the potential benefits they offer to individuals and communities alike.

2. Mushroom: Source and Origin

Mushrooms, known for their rich history in human diets and traditional medicine, have been harvested from the wild for

thousands of years. The term “mushroom” encompasses a diverse array of fungal fruit bodies, with approximately 10,000 species identified as edible out of an estimated 1.5 million fungi (Ramsbottom, J., 1954). Cultivation of mushrooms has ancient roots, with the Chinese pioneering their cultivation around 1100 AD (Koppell, CRS., 1990). Oyster mushrooms rank second in world production and hold significant cultural and culinary importance globally (Robinson, RF., 1957). Mushrooms are prized for their nutritional value, boasting high protein content and essential vitamins and minerals (Chang, ST., 2006). Their versatility makes them a valuable addition to diets, especially in regions where protein sources are limited. Despite their ancient origins, mushrooms continue to play a vital role in modern agriculture, medicine, and culinary arts.

3. Mushroom Growth, Structure and Composition

According to science, mushrooms are nutrient-rich, meaty fruiting forms that fall into one of several fungal genera. They are categorised as macro-fungi. They grow either above or below ground and can be hand-picked. They don't possess chlorophyll; instead, they are fed by other plant material called the substrate (Ahlawat & Tewari, 2007). The fruiting body of the mushroom is what is visible to the unaided eye, although its primary body is made up of microscopic filaments known as mycelium that spread throughout the substrate and gather nourishment by decomposing organic matter (Stamets, 1993).

A number of environmental conditions, including temperature, light, humidity, and the ratio of carbon dioxide to oxygen, can affect the growth, shape, and composition of mushrooms. According to Sanchez (2010), growers manage mushroom production by manipulating air conditions, which typically decide when a mushroom will fruit.

Three essential phases make up a mushroom's life cycle: vegetative development, reproductive growth, and fruit body production of spores (Shirur & Shivalingegowda, 2015). A mat of entwined hyphae makes up the mould colony, which is located in the soil beneath the mushroom. The mushroom starts off as tiny, white balls made composed of a pilage (cap) and a short stem (stipe) that progressively open up like an umbrella. Gills are visible beneath the thin membrane or veil (velum) that covers the cap as the mushroom grows (Manikandan, 2010).

Because they are an excellent source of vitamins, minerals, fibre, proteins, and other nutrients, mushrooms are highly valued. They are perfect for people with dietary restrictions like diabetes and obesity because they are low in fat and carbohydrates (Mattila et al., 2001). Furthermore, mushrooms are a helpful supplement to the diet because they include important amino acids like lysine and tryptophan, which are frequently missing in cereals (Pehrsson et al., 2003).

Mushrooms can be grown on a range of substrates and have different cultivation requirements. For instance, compost made from a combination of plant wastes, salts, and nutrients is commonly used to grow button mushrooms (*Agaricus bisporus*) (Sharma et al., 2017). Oyster mushrooms (*Pleurotus* spp.), on the other hand, can be cultivated on substrates such as straw, stalks, and leaves of various crops (Sanchez, 2010).

Understanding the growth, structure, and composition of mushrooms is essential for successful cultivation. By providing the right environmental conditions and substrate, farmers can ensure a bountiful harvest of these nutritious and versatile fungi.

4. History and Status of Mushroom Cultivation

Mushroom cultivation has a rich history dating back thousands of years, with evidence of humans harvesting wild mushrooms for food and medicinal purposes (Hay, 1887). The Chinese were among the first to cultivate mushrooms around 1100 AD, marking the beginning of organized mushroom farming (Zhanxi & Zhanhua, 2000).

The cultivation of mushrooms has a long history in India, having been referenced in historical religious texts such as the Rig Veda and the Atharva Veda (Jandaik & Kapoor, 1974). However, deliberate attempts to establish mushroom farming as a contemporary agricultural technique were not made until the 1960s. The Directorate of Mushroom Research was founded by the Indian Council of Agricultural Research (ICAR) in 1961 with the goal of developing methods for growing mushrooms (Sharma et al., 2017).

Today, mushroom cultivation in India has witnessed significant growth, particularly in the production of popular varieties such as button, oyster, and paddy straw mushrooms (Sharma et al., 2017). The country's diverse agro-climatic conditions provide ample opportunities for mushroom cultivation, with various

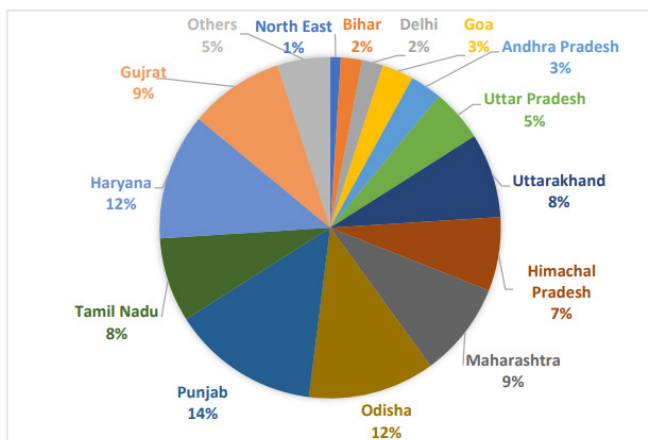
states emerging as leading producers.

Punjab, Haryana, Uttar Pradesh, Himachal Pradesh, and Tamil Nadu are among the top mushroom-producing states in India (Sharma et al., 2017). The cultivation of button mushrooms, in particular, has gained prominence, accounting for a significant portion of the total production. Additionally, the cultivation of oyster and paddy straw mushrooms has seen a surge in recent years, driven by their high demand and nutritional value.

The adoption of modern cultivation technologies has played a crucial role in boosting mushroom production in India (Stamets, 1993). From compost preparation to spawning and crop management, farmers are leveraging scientific techniques to enhance productivity and quality. Moreover, the utilization of agricultural residues as substrates for mushroom cultivation has opened new avenues for sustainable farming practices and waste management.

Despite the progress made, challenges such as limited technical knowledge among farmers, inadequate marketing infrastructure, and quality spawn availability persist. Efforts are underway to address these challenges through capacity building initiatives, research collaborations, and policy interventions aimed at promoting mushroom cultivation as a viable agribusiness.

Fig. 1: Share of different states of India in National mushroom production



Source: Sharma VP, Sudheer KA, Gautam Y, Singh M, Kamal S (2017).

Burdwan district in West Bengal, one of India's most agriculturally and industrially evolved states, is well worth mentioning. In West Bengal, India, the Burdwan area is known as a "Granary of rice district" since there are plenty of agricultural leftovers to be found there. Protein-rich mushrooms could be grown using all of these leftover wastes as well as other trash materials that contaminate the environment (Medda, 2001). Mushroom farming is one way that agricultural wastes are recycled (Madan, 1994). The people living in the villages of Chhattisgarh cultivated mushrooms using their own techniques, using paddy straw as a substrate, and selling them in the local market for a profit (Thakur et al., 2003; Jandaik & Kapoor, 1974).

4.1. Types of cultivated Mushrooms

While thousands of mushroom species exist in nature, only a handful are grown commercially around the world. Mushroom farmers focus on varieties that are relatively easy to cultivate and have an established market demand. Let's take a look at some of the most popular cultivated mushrooms in India:

The Button Mushroom (*Agaricus bisporus*): This classic white variety is the undisputed king of the cultivated mushroom world. First domesticated and grown industrially in the early 20th century, button mushrooms now account for a whopping 73% of India's total mushroom production (Sharma et al., 2017). They require carefully controlled temperature and humidity levels during their distinct vegetative and reproductive growth phases (National Horticulture Board). Seasonal cultivation occurs mainly in the cooler winter months across the north Indian plains and hills (See Appendix, Fig. A2).

The Oyster Mushroom (*Pleurotus spp.*): With its distinctively shaped caps resembling oyster shells, this group of mushrooms ranks second in global production volumes. India's warm climate provides the perfect conditions for oyster cultivation, with major production hubs in states like Orissa, Andhra Pradesh, and the northeast (Jandaik & Kapoor, 1974). Oyster mushrooms can thrive on a wide range of agricultural waste substrates, making them a sustainable and environmentally friendly crop (See Appendix, Fig. A4).

The Paddy Straw Mushroom (*Volvariella volvacea*): As the name suggests, this variety loves to grow on paddy straw,

although other crop residues can also be used as substrates. Originating in China over 300 years ago, paddy straw mushrooms are now the sixth most cultivated mushroom worldwide (Zhanxi & Zhanhua, 2000). They are particularly popular in eastern and southern India, especially in coastal regions like Orissa, where both indoor and outdoor cultivation methods are employed (Ahlawat & Tewari, 2007) (See Appendix, Fig. A5).

The Milky Mushroom (*Calocybe indica*): This tropical mushroom is making steady inroads across the Indian mushroom industry, thanks to its suitability for the country's warm climatic conditions. Tamil Nadu currently leads the way in milky mushroom production, with cultivation spreading to states like Kerala, Orissa, and West Bengal. While similar to oyster mushrooms in some cultivation aspects, milky mushrooms require a unique casing layer to induce fruiting body formation (Madan et al., 1995) (See Appendix, Fig. A6).

These are just a few examples of the many mushroom varieties being grown by India's mushroom farmers. As consumer demand and cultivation techniques evolve, we may see even more varieties joining the ranks of commercially viable mushroom crops in the years to come.

5. Medicinal Mushrooms:

There is documented usage of medicinal mushrooms in traditional eastern medicine. Numerous mushrooms, mostly from the genera *Tremella*, *Flammulina*, *Ganoderma*, *Grifola*, *Lentinula*, and *Auricularia*, have been found to have therapeutic properties. The most widely used and traded mushroom in the world's commerce is *Ganoderma lucidum*. Given its diverse range of agroclimatic conditions, India possesses exceptional potential for producing an abundance of commercially edible and therapeutic mushrooms. Medicinal mushrooms are among the most commonly recommended natural products with anticancer properties. Medicinal mushrooms belong to a class of polysaccharides called beta-glucans, which enhance immunity against tumours. Currently, researchers at the Indian Institute of Horticultural Research (IIHR) in Hesaraghatta are creating technology to take advantage of mushroom varieties that support a healthy lifestyle.

Shiitake mushrooms have anti-tumor, anti-LDL cholesterol, and anti-thrombotic properties. They can also help prevent high blood pressure, kidney disease, diabetes, cataracts, neuralgia, gallstones, numbness in the hands and feet, haemorrhoids, and enhance sexual function (Mori, 1974). It can help prevent excessive blood pressure, diabetes, haemorrhage, lung and breast disorders, jaundice, intestinal worm infections, and throat ailments. It is quite helpful. Moreover, it contains the digestive enzyme trypsin, which is essential for proper digestion, and lecithin, which helps to keep low blood cholesterol levels. Furthermore, it has been determined that the mushroom contains Retene, which can prevent tumour formation and the majority of malignancies, all of which may be caused by a normal deficiency in Retene (IFT, 1995).

Mushrooms are a remarkable supply of potassium, a mineral that enables lower increased blood strain and decreases the risk of stroke. One medium portabella mushroom has even greater potassium than a banana or a pitcher of orange juice. (Stamets, 1993) [See Appendix, Fig. A7]

Table 1: Medicinal values of few important mushrooms

Mushroom	Compound	Medicinal property
Ganoderma lucidum	Ganoderic acid, Beta-glucan	Augments immune system Liver protection Antibiotic properties Inhibits cholesterol synthesis
Lentinula edodes	Eritadenine Lentinan	Lower cholesterol Anti-cancer agent
A. bisporous	Lectins	Enhance insulin secretion
P. sajor-caju	Lovastatin	Lower cholesterol
Auricularia auricula	Acidic Polysaccharides	Decrease blood glucose
Trametes versicolor	Polysaccharide-K (Kresin)	Decrease immune system depression

Source: Manikandan, K. 2010.

Nutrition in Mushrooms

For hundreds of years, people have eaten mushrooms on a large scale. The Indian's lack of protein will be made up by mushrooms. The money will help the socially awkward average man become in better shape. It is believed that mushrooms are healthy for people of all ages, including the elderly. Ten percent of mushrooms are dry and ninety percent are water (Sánchez, 2010). Since mushrooms can be high in protein, fibre, and minerals, they are important for nutrition. Mushrooms are low in calories, free of gluten, fat, and cholesterol, and they contain very little sodium. Our bodies contain excessive amounts of minerals like potassium, iron, copper, zinc, and manganese in fruit. Because of their high digestion, mushrooms are thought to be a viable substitute for muscle protein (Pavel, 2009). [Refer to the Appendix, Fig. A8]. Furthermore, mushrooms are an abundant source of nutrients B1, B2, B12, C, D, and E (Heleno et al., 2010). Additionally, mushrooms are a fantastic source of vitamin D; without them, it would not be possible to obtain it from other food supplements (Pehrsson, et.al. 2003). Because of their high nutritional content, flavour, and delicacy, mushrooms are safe to eat and are now a commercially significant fungal product. Their production and consumption have increased significantly. The polysaccharide molecule beta-glucan, which enhances cellular immunological function, is another important component of mushrooms. The oyster mushroom has a high protein content, is low in carbohydrates and sugar, and lacks starch. These are the perfect meals for people with diabetes, heart problems, and those who don't want to gain weight (FAO, 1974). The table below lists the nutritional values of several mushrooms. The dry weight foundation g/100g represents the nutritional properties of various mushrooms (Manikandan, 2010).

Table 2: Nutritive values of different types of mushrooms (dry weight basis g/100g)

Mushroom	Carbohydrate	Fiber	Protein	Fat	Ash	Energy kcal
Auricularia auricula	82.80	19.80	4.20	8.30	4.70	351
Flammulina velutipes	73.10	3.70	17.60	1.90	7.40	378
Calocybe indica	64.26	3.40	17.69	4.10	7.43	391
Pleurotus sajor-caju	63.40	48.60	19.23	2.70	6.32	412
Pleurotus ostreatus	57.60	8.70	30.40	2.20	9.80	265
Lentinula edodes	47.60	28.80	32.93	3.73	5.20	387
Agaricus bisporus	46.17	20.90	33.48	3.10	5.70	499
Volvariella volvaceae	54.80	5.50	37.50	2.60	1.10	305

Source: Manikandan, K. (2010).

One of the biggest challenges facing Indian democracy is providing for the population's food demands in this environment. Malnutrition and various diseases spread among poor people due to their economic weakness. For this people are forced to search for alternative nutrition. Mushrooms are grown on wastes without the need for additional land in addition to their nutritional and medicinal properties.

Table 3: Composition of cultivated mushrooms and common vegetables per 100g

Name	moisture	Protein % Dry weight basis	Carbohydrates %	Fat gm	Calories kcal
Mushrooms	91.1	26.9	4.4	0.3	16
Potato	73.8	7.6	19.1	0.1	83
Beetroot	87.6	12.9	9.6	0.1	42
Green beans	88.9	21.6	7.7	0.2	35
Green peas	74.3	26.1	17.7	0.4	98
Cauliflower	91.7	28.8	4.9	0.2	25

Source: Manikandan, K. (2010)

6. Income Generation

Mushroom production is entirely distinct from growing green plants. Manufacturing mushrooms requires a deep understanding of fungal life cycles. With its contributions to agriculture, medicine, and the economy, mushroom growing enhances the resilience and standard of living of rural residents. In 1943, Thomas planted the first mushroom in India. Dr. E. F. K. Mental, a German artist, began the artwork in the middle of the 1960s since he was an FAO consultant in Solan and introduced button mushroom growing to India. The Indian Council of Agricultural Research (ICAR), New Delhi, started cultivating button mushrooms (*Agaricus bisporus*) in Solan for the first time in 1961.

The city of Solan is referred to as "Mushroom City of India." According to recent manufacturing data, the production of button mushrooms accounts for the highest amount at roughly 73%, with oyster mushrooms accounting for 16% (Sharma et al., 2017). [Figure 2]. In India, there are two types of mushroom

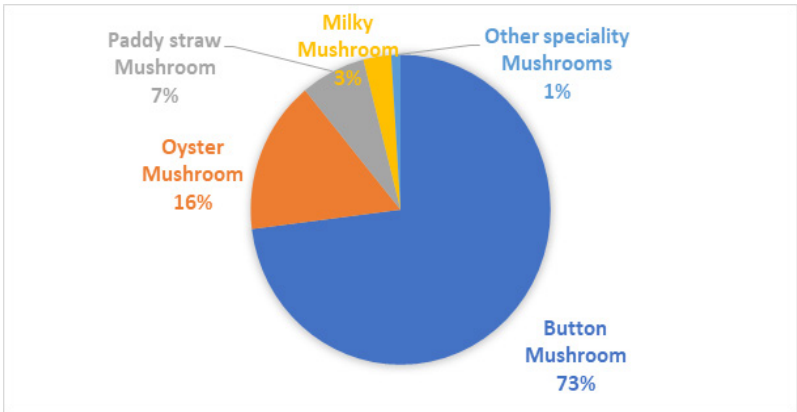
producers: spherical growers, who grow mushrooms all year round, and seasonal growers. Both farmers have concentrated on producing *Agaricus bisporus* white buttons, harvesting two to three plant lives in a 12-month period. The negative farmers’ economic standing increased gradually when they started growing mushrooms. By the year 2020 AD, India’s mushroom production could reach a magical yearly yield of 6,000,000,000 tonnes (Karthick and Hamsalakshmi, 2017). (Sharma, et.AI, 2017).

Table 4. Mushroom production (India)

Mushroom	Annual Production (tonnes)
Button mushroom	100,683
Oyster mushroom	6,399
Paddy straw mushroom and other	5,313
Milky mushroom	920

Source: Prakasam, 2012

Fig.2: Relative contribution of different species of mushroom (in total production)



Source: https://link.springer.com/referenceworkentry/10.1007/978-3-319-78030-6_86

The ability to produce mushrooms is primarily dependent on the availability of manpower, excellent spawn, and raw fabric, or substrate. Growing mushrooms may be a very profitable

hobby with significant financial rewards. Farmers should get instruction on a variety of mushroom farming topics in order to fill the knowledge gap and encourage the use of new technologies. Employers that cultivate mushrooms provide job opportunities for unemployed adolescents and rural girls. The high benefit-to-cost ratio, the easily obtained and less expensive agricultural wastes, and the hospitable climate make the adoption of mushroom growing a profitable strategy for society advancement. Because mushrooms are an unconventional crop, the growing of different kinds of mushrooms in rotation is not very well-known in India.

Mushrooms are another type of plant that can be produced all year round. In the northern Indian plains, white button mushrooms can be produced in the winter. Tropical or subtropical mushrooms that can tolerate high temperatures, including paddy straw, oyster, or milky mushrooms, can be produced in the summer.

Table 5. Leading states in Mushroom cultivation in India State Annual Production (tonnes)

State	Annual Production (tonnes)
Punjab	60,000
Uttarakhand	8,000
Haryana	7,178
Uttar Pradesh	7,000
Tamil Nadu	6,500
Himachal Pradesh	5,993
Orissa	5,846
Andhra Pradesh	3,022
Delhi	3,070
Maharashtra	2,975
Kerala	800

Source: Singh et. al., 2011

Mushrooms Pack a Nutritional Punch When it comes to nutrition, mushrooms really punch above their weight. Just take a look at how they compare to some common vegetables per 100 grams:

With over 91% moisture content, mushrooms are incredibly low in calories, providing just 16 calories per 100g serving. Yet they

are a rich source of protein, packing nearly 27% protein by dry weight. This is higher than green beans at 21.6% and cauliflower at 28.8%.

Mushrooms also provide a good dose of carbohydrates at 4.4%, though vegetables like potatoes (19.1%), green peas (17.7%) and beetroots (9.6%) have higher carb levels. Where mushrooms really shine is their low-fat profile, with just 0.3 grams of fat per 100g serving.

Overall, mushrooms make an excellent addition to a balanced diet. Their low calorie, high protein, and low-fat combination make them particularly attractive for those looking to manage their weight or restrict certain macronutrients. Plus, their savory umami flavor can satisfy cravings while keeping things light.

Further, Mushroom refers to a fleshy and nutrient-wealthy fruiting frame of particular macro-fungi agencies that can be hand-picked and grown both above or beneath the ground. Some of the commonly available types are button, oyster, paddy, milky, and so on. Edible mushrooms are a considerable supply of potassium, Vitamin D, riboflavin, selenium, and so on., and are established to be highly useful in dealing with weight, constructing immunity, and reducing the dangers of numerous persistent sicknesses.

The India mushroom market is largely driven by consumer demand for nutrient-dense, cholesterol-free foods and health consciousness. Because of their taste, mushrooms are substituted for meat. Growing mushrooms provides an opportunity to produce an extremely tradeable good and advances earnings technologies. However, the majority of farmers are unable to benefit from their mushroom producing endeavours as a result of the unfavourable advertising strategy. It is a straightforward system where producers promote directly to retailers, but it has drawbacks of its own, such as seasonal mushroom production. Commercial mushroom farming has become more and more important recently as a result of its high cash output. Proteins, minerals, and antioxidants found in mushrooms may be essential for a growing child or expectant mother. Mushrooms must be processed and marketed as cost-introduced products that can provide acceptable profits, such as pickles, nuggets, dry powder, etc., in order to be successful.

7. Conclusion

Mushrooms are an amazing energy source. More protein can be found in mushrooms than in other veggies. In addition to strengthening the immune system, mushrooms help make up for deficiencies in mushroom protein. Protein, minerals, and antioxidants found in mushrooms are vital for a developing child's and a pregnant woman's health. After a thorough analysis of the study's various components, it was determined that farmers would benefit from rice cultivation and that, should the study be validated, lives would be healthier. There are numerous health benefits to mushrooms.

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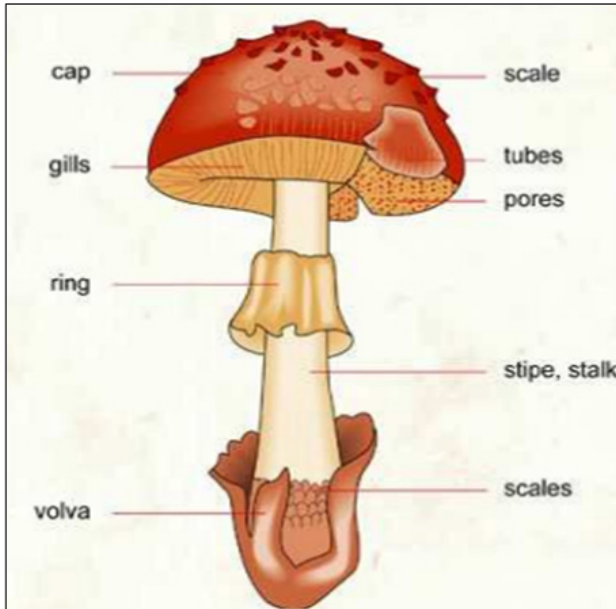
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APPENDIX

Fig: A1: Morphology



Source: https://www.researchgate.net/figure/Labelled-diagram-of-a-mushroom-The-image-is-retrieved-from-https-wwwkagglecom_fig1_363262281

Fig: A2: Basic life cycle

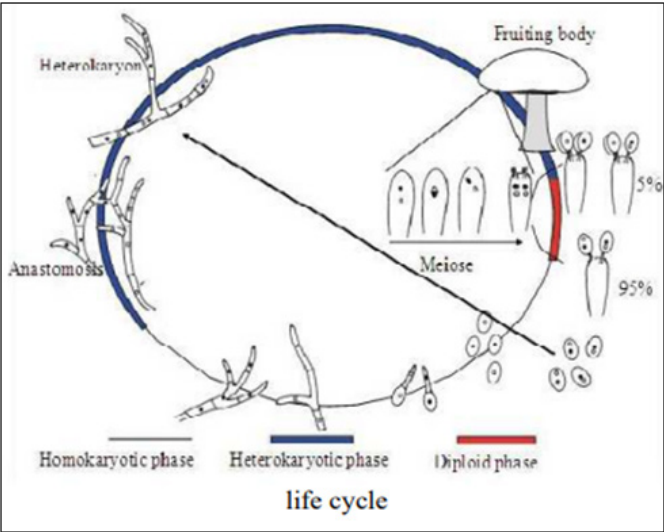


Fig.A3: Button Mushroom



White button mushroom (*Agaricus bisporus*)



Brown button mushroom (*Agaricus bisporus*)

Fig.A4: Oyster Mushroom



Gray oyster (*Pleurotus pulmonarius*)



Pink oyster (*Pleurotus djamor*)



Blue oyster (*Hypsizygus ulmarius*)



Yellow oyster (*Pleurotus cornucopiae*)

Fig. A5: Paddy Straw Mushroom



Paddy straw mushroom (*Volvariella volvacea*)

Fig. A6: Milky Mushroom



Milky mushroom (*Calocybe indica*)

Fig.A7: Medicinal Mushroom



Fig. A8: Nutrition in Mushroom



Healthcare Policies and Their Effect on Access and Equity

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Abstract:

This article offers a thorough examination of healthcare policies and their impact on access and fairness in healthcare systems. Access to decent healthcare is a fundamental human right, yet discrepancies continue internationally, with underprivileged communities facing major obstacles. This research does a literature analysis to explore the historical history of healthcare policies, contemporary reform attempts, impediments to access and fairness, policy interventions, and the impact of policies on vulnerable groups. The research emphasizes the complexity of resolving healthcare inequalities and suggests the potential for policy change to enhance equitable access to healthcare services.

Keywords: Healthcare policies, Access to healthcare, Fairness in healthcare, Healthcare disparities, Underprivileged communities, Literature analysis, Historical perspective, Contemporary reform, Policy interventions, Vulnerable groups

Introduction:

Access to healthcare is a fundamental human right that underpins public health. It includes not only the capacity to access medical services, but also the chance to get timely, appropriate, and high-quality treatment regardless of socioeconomic level, geographic location, or demographic features. Achieving equal access to healthcare is critical for improving population health, eliminating health inequities, and encouraging social justice.

Healthcare policies influence access to healthcare and the allocation of health resources in society. From the founding of public health systems to the implementation of universal healthcare programs, policy decisions have far-reaching

consequences for healthcare accessibility, affordability, and quality. Despite tremendous advances in increasing healthcare coverage and improving health outcomes, inequities exist, with marginalized communities frequently encountering disproportionate obstacles to care.

The purpose of this literature review is to investigate the complicated relationship between healthcare policy and equal access to healthcare services. This review examines the historical evolution of healthcare policies, recent reform efforts, barriers to access and equity, policy interventions, and the impact of policies on vulnerable populations to provide insights into the challenges and opportunities for advancing health equity within healthcare systems.

Objectives:

1. Investigate the historical history of healthcare policy and their influence on access and fairness.
2. Analyze the impact of current healthcare reform efforts on enhancing access to services and reducing inequities.
3. Identify common impediments to healthcare access and discrepancies in outcomes for disadvantaged populations.
4. Examine policy solutions to improve access and fairness in healthcare systems.
5. Evaluate how healthcare policies affect vulnerable populations, such as racial and ethnic minorities, low-income persons, immigrants, LGBTQ+ communities, and people with disabilities.
6. Investigate global views on healthcare policies that promote access and fairness across nations and systems.
7. Discuss problems and potential for future policy development.

Methods:

1. Literature Search: Conduct a comprehensive literature search in academic databases (e.g., PubMed, Google Scholar, Scopus) to find relevant research, policy papers, and peer-reviewed publications published between 2000 and 2024. Keywords and search phrases include “healthcare policies,” “access to

healthcare," "health equity," "healthcare reform," "barriers to healthcare access," and specific vulnerable groups (e.g., "racial minorities," "low-income individuals").

2. Inclusion Criteria: Include studies and reports on healthcare policies and their influence on access and equity, with a preference for empirical research, policy analyses, and systematic reviews. Exclude studies that do not directly address healthcare policies or are unrelated to the issues of access and equity.

3. Data Extraction: Extract information from specific research, such as main results, techniques, populations studied, policy interventions investigated, and outcomes assessed. Organize the extracted data into topical groups depending on the literature review objectives.

4. Synthesis and Analysis: Combine results from the relevant literature to identify common themes, trends, and knowledge gaps about healthcare policy and their influence on access and equity. Examine the efficacy of policy measures in reducing obstacles to access and improving fairness in healthcare systems.

Results:

1. Historical Evaluation of HealthCare Policies: Historical examination of healthcare policies highlights key milestones from public health efforts to complete changes. Key occurrences include the introduction of social insurance systems in the United States, such as Medicare and Medicaid, which increased access to healthcare for the elderly and low-income populations. Furthermore, the Affordable Care Act (ACA) was enacted in 2010 as a historic endeavor to expand coverage to millions of uninsured Americans and implement changes targeted at enhancing the quality and cost of healthcare services.

2. Recent HealthCare Reform Efforts: Examining previous healthcare reform attempts, notably the ACA, revealed both triumphs and concerns. The ACA significantly reduced the uninsured rate while also expanding coverage through features such as Medicaid expansion and the development of health insurance markets. However, practical issues, political resistance, and ongoing arguments about the role of government in healthcare have hampered the law's full implementation. Furthermore, affordability difficulties remain, particularly

for people and families with high out-of-pocket expenses and limited access to subsidies.

3. Barriers to Access and Equity: Analysis revealed social, regional, and structural variables that contribute to inequities in healthcare access and outcomes. Economic hurdles, such as a lack of insurance coverage and budgetary limits, have emerged as major impediments to care access, particularly for low-income individuals and families. Geographic gaps in healthcare access were also visible, with rural and underdeveloped areas experiencing a scarcity of healthcare practitioners and restricted access to specialist care services. Furthermore, socioeconomic variables such as race, ethnicity, language, and immigrant status interacted with structural inequities to worsen gaps in healthcare access and outcomes for disadvantaged groups.

4. Policy Interventions to Improve Access and Equity: Policy initiatives attempt to improve access and fairness in healthcare systems. Medicaid expansion, for example, has been found to expand coverage and improve access to care for low-income individuals, especially in states that have implemented the expansion. Other actions, such as insurance premium subsidies and community health center improvements, have also improved healthcare access and usage. However, there are still problems to ensuring the fair implementation and efficacy of these interventions, particularly in meeting the unique requirements of disadvantaged groups.

5. Impact on Vulnerable Populations: Healthcare policies have disproportionately impacted vulnerable populations, including racial and ethnic minorities, low-income persons, immigrants, LGBTQ+ communities, and those with disabilities. For example, studies have found discrepancies in insurance coverage, preventive care use, and illness management across minority and marginalized communities, indicating greater structural inequities in healthcare access and delivery. Addressing these discrepancies necessitates governmental actions that address the socioeconomic determinants of health and encourage culturally competent treatment.

6. Global perspectives: Comparative examination of healthcare policy across nations and systems revealed varied methods to promote access and fairness. Countries with publicly financed

universal healthcare systems, such as Canada and the United Kingdom, have achieved high levels of coverage and fair access to care, albeit efficiency and quality vary. In contrast, nations with hybrid public-private systems, such as the United States, encounter difficulties in combining coverage growth with cost conservation and providing fair access to care for various populations. Comparative studies provide useful insights for policymakers looking to learn from international experiences and identify best practices for advancing health equity.

7. Challenges and Future Directions: The discussion of issues and future prospects highlighted the necessity for ongoing efforts to reduce healthcare inequities and promote health equity. Political divisions, fiscal restrictions, and the intricate interaction of social, economic, and structural issues all play a role in inequities in access to care. To make significant progress toward health equity in the future, policymakers, researchers, and activists must emphasize equity in healthcare policy design and implementation, using evidence-based interventions and involving stakeholders from many sectors.

Literature Review:

Healthcare policies have a significant impact on access and equity in health-care systems worldwide. Extensive study highlights the subtle impact of these policies, revealing a wide range of outcomes. Universal health coverage and Medicaid expansion have showed promise in enhancing access, especially for marginalized groups (Marmot et al., 2020; Sommers et al., 2014). Nonetheless, obstacles such as limited resources, administrative difficulties, and discrepancies in healthcare infrastructure might impair the efficacy of these initiatives (Guy et al., 2019; Ku & Jones, 2019). Furthermore, governmental decisions about insurance coverage, reimbursement methods, and provider networks might worsen existing imbalances (Artiga et al., 2021). The complex interplay between healthcare policy and social determinants of health highlights the importance of comprehensive approaches that address underlying socioeconomic problems (Braveman and Gottlieb, 2014). The COVID-19 pandemic has highlighted the importance of healthcare policy in providing equitable access to care, highlighting the necessity for evidence-based treatments that target the needs of marginalized communities (Chowkwanyun & Reed, 2020; Dorn et al., 2020). Healthcare policies have a

significant impact on access and fairness in healthcare systems throughout the globe. Extensive research has shown that these policies have a multidimensional influence, with both positive and bad results. Initiatives such as universal health coverage and Medicaid expansion have been found to improve access to care, particularly for vulnerable groups. However, budgetary limits, regulatory barriers, and differences in healthcare infrastructure can all hamper the implementation of such programs (Feldstein, 2020; Ku et al., 2019).

Conclusion:

Healthcare policies impact access to healthcare and promote fairness in healthcare systems. Despite advances in extending coverage and eliminating inequities, important problems remain. Policymakers can work to ensure that all individuals have access to quality healthcare services, regardless of their socioeconomic status, race, ethnicity, or other demographic factors, by taking a comprehensive approach that addresses the root causes of healthcare disparities and prioritizes equity in policy design and implementation.

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A Study on Comparison about Working Capital Management of State Bank of India and Housing Development Finance Corporation Bank

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Abstract:

Working capital management refers to managing a company's short-term financial assets and liabilities. In simpler terms, it's all about efficiently managing the day-to-day cash flow of a business to ensure smooth operations and maintain financial health. Working capital is a financial metric calculated as the difference between current assets and current liabilities. Efficient Working capital management helps balance current assets and Current liabilities, ensuring your business has the necessary resources to pay off its short-term debts. A Study On Comparison About Working Capital Management Of State Bank of India And Housing Development Finance Corporation Bank is analysed to know the Efficiency, Profitability and Liquidity ratio. The main purpose of this study is to know how these two financial institutions manage their short-term financial assets and liabilities to ensure smooth operations and financial stability.

Keywords: Working Capital, Current Assets, Current Liabilities, Liquidity ratio.

1.Introduction:

Every business whether big, medium or small, needs finance to carry on its operations and to achieve its target. In fact, finance is so indispensable today that its rightly said to be the lifeblood of an enterprise. The term working capital means the funds available and used for day-to-day operations of an enterprise. Working capital states that the period of debtors, receivables etc for a company to raise finance from them at the earliest.

Working capital management involves managing the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses.

Working capital is essential to the health of every business and improving your working capital position can provide a boost to the operational efficiency of a business, but managing it effectively is something of a balancing act.

1.1. Working Capital Analysis:

Working capital analysis is a financial statement analysis technique that helps lenders assess the company's ability to meet short-term financial obligations.

There are five steps involved in performing WCA:

1. Gathering data: To conduct WCA, analysts need to gather data on a company's assets, liabilities, and cash flows. This data can be obtained from financial reports, customer invoices, and bank statements.
2. Calculating ratios: Ratios help analysts measure a company's liquidity and solvency. Some common ratios used in WCA include: Current Ratio, Cash Deposit Ratio, Investment Deposit Ratio etc.
3. Determining risks: Using ratios and data gathered in Step 1, analysts can identify risks associated with a company's assets, liabilities, and cash flows. These risks can then be evaluated and mitigated.
4. Making recommendations: After analyzing the data and

risks in Step 3, analysts may make recommendations for improving a company's liquidity and solvency.

5. Monitoring progress: After making recommendations, it's important for companies to monitor their progress and make adjustments as needed.

1.2. State Bank of India

SBI is an institution that has been at the forefront of India's banking and financial sector since its inception more than 200 years ago. SBI's rich legacy, steadfast commitment to its customers, and its vision for the future makes it a cornerstone of India's economic progress. With a comprehensive suite of products and services, a strong focus on Corporate Social Responsibility (CSR), and a vision to be the bank of choice for all, SBI continues to be a trusted financial partner for millions across the nation. SBI remains the largest Indian Bank with 1/4th market share, serving over 48 crore customers through its vast network of over 22,405 branches, 65,627 ATMs/ADWMs, 76,089 BC outlets.

SBI's journey began in 1806 when the Bank of Calcutta was established. It later merged with the Bank of Bombay and Bank of Madras in 1921 to form the Imperial Bank of India. In 1955, the Imperial Bank was nationalized, and it became the State Bank of India. This transformation marked the birth of the nation's largest and most influential bank. SBI's history is a testament to its enduring commitment to the economic and social development of India. Over the years, it has played a pivotal role in supporting various sectors, including agriculture, small and medium-sized enterprises, and retail banking. SBI's wide network of branches, ATMs, and digital banking services ensures that it remains deeply ingrained in the lives of millions of Indians.

Presently, The Bank has successfully diversified businesses through its various subsidiaries i.e SBI General Insurance, SBI Life Insurance, SBI Mutual Fund, SBI Card, SBI Capital Markets Limited, SBI FUNDS MANAGEMENT LIMITED, SBI Payment Services Pvt Ltd. etc. SBI offers a plethora of products and services such as savings account, credit cards, fixed deposits, personal loan, home loan, business loan, debit card, loan against property, car loan, gold loan, mudra loan and more.

SBI honoured with India's Best Annual Report Awards-2022 by Free Press Journal. Recently, SBI has won 4 awards - 2 Golds and 2 Silvers in the following different categories at the DIGIXX 2024 Summit & Awards - 1. Gold - "Brand of the Year", 2. Gold - "Influencer Marketing Campaign", 3. Silver - "Best Use of Social Media", 4. Silver - "PR/Online Reputation Management".

1.3. Housing Development Finance Corporation Bank

HDFC Bank Limited (also known as HDFC) is an Indian banking and financial services company headquartered in Mumbai. It is India's largest private sector bank by assets and the world's sixth-largest bank by market capitalization as of January 2024, following its takeover of parent company HDFC. As of April 2024, HDFC Bank has a market capitalization of \$145 billion, making it the third-largest company on Indian stock exchanges.

HDFC Bank was incorporated in 1994 as a subsidiary of HDFC Ltd, which received an 'in principle' approval from the RBI to set up a bank in the private sector, as part of its liberalization of the Indian banking industry. The bank commenced operations in January 1995, with its registered office in Mumbai. As of March 31, 2024, the Bank's distribution network was at 8,735 branches and 20,938 ATMs across / Cash Recycler Machine (Cash deposit & withdrawal) across 4,065 cities/towns. HDFC Bank now boasts an expansive customer base of around 120million individuals, bigger than the population of Germany.

Presently, the bank has Various subsidiaries i.e. HDFC Life, HDFC ERGO, HDFC securities etc. HDFC Bank provides a number of products and services including wholesale banking, retail banking, treasury, auto loans, two-wheeler loans, personal loans, loans against property, consumer durable loan, lifestyle loan and credit cards. Along with this, various digital products are PayZapp and SmartBUY. HDFC Bank's business philosophy is based on five core values: Operational Excellence, Customer Focus, Product Leadership, People and Sustainability. HDFC Bank has been awarded the 'Best Bank of the Year' (Joint Winner) and 'Best Large Indian Bank' award at the 28th BT - KPMG Best Banks and NBFCs Survey 2022-23.

Literature Review:

Working capital is very important for every company to meet day to day operation expenses and urgent payments. Effective working capital increase the company profit and vice versa. For effective working capital, collection days should be less and payment days should be more overall cash conversion cycle days should very low or in negative.

Many researchers have studied working capital from different views and in different environments. The following ones were very interesting and useful for our research:

R. Bhuvaneshwari, Dr. Prakash Babu and kavitha 2013 emphasizes about the importance of financial planning and forecasting in estimating the future cash flow needs of the organization. They also have given insights about the management utilizing their financial strength and to identify the financial weakness of the firm by analyzing the liquidity position and changes in the working capital.

Rao and Rao (1991) in their study among a few public enterprises belonging to manufacturing sector in the state of Karnataka, have attempted to probe in to the capacity of the various techniques I evaluating working capital efficiency of business enterprises. The study revealed that the investment working capital was considerably high when compared to the total investment. The Tandon Committee norms were found to be yielding better results among the surveyed companies. However, the study also revealed that the working capital planning and control was found to be disorderly and ineffective and hence, the urgent need for full focus on working capital management.

According to **Agyei, S. K., & Yeboah, B. (2011)** ,being profitable and liquid are not negotiable for banks at least for two reasons;to meet regulatory requirements and to guarantee enough liquidity to meet the unexpected and unannounced withdrawal of customers.

Agyei, S. K., & Yeboah, B. (2011) also states that balanced working capital management would help banks in nourishing growth,which results in profitability and liquidity which helps the banks to serve its customers more effectively and efficiently. There is a large discrepancy that supports the study of banks

working capital management. Banks in developing nations rely more heavily on internal savings than larger banks in industrialised economies because they have more difficulty obtaining external financing.

Dr.V. Bhuvaneswari (2020) highlighted the working capital which will determine whether the position of the company from the working capital point of view is sound and satisfactory. She concluded that the overall working stability, soundness and overall financial performance have improved over the years.

Objectives of the study:

1. **To Understand the concept of Working Capital Management.**
2. **To analyze the Efficiency in the Working Capital Management with State Bank of India And Housing Development Finance Corporation Bank.**
3. **To analyze the liquidity ratio of State Bank of India and Housing Development Finance Corporation Bank.**
4. **To analyze the profitability position of State Bank of India and Housing Development Finance Corporation Bank.**

Research Methodology:

Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue. This study try to evaluate how these two financial institutions manage their short-term financial assets and liabilities to ensure smooth operations and financial stability. The area of study is Financial Management.

The Research methodology adopted for this study is secondary source of data. The Period Considered for the study is five years i.e. from financial year 2018-19 to 2022-23. The study is based on secondary data which is collected from the annual financial reports and Ratio Analysis is used for analysis of the data. The data is presented using various graphs and charts.

Data Analysis and Result:

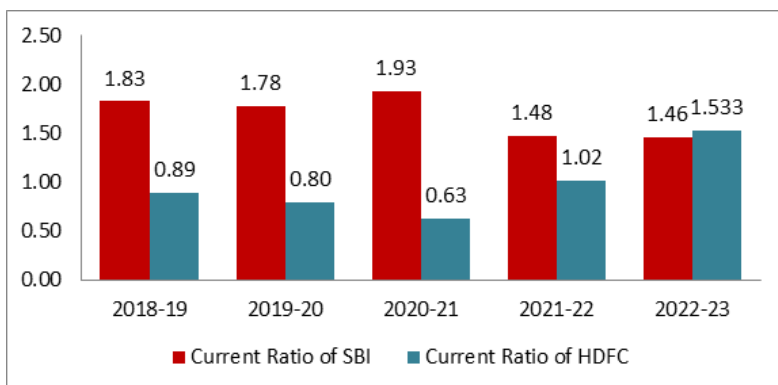
Table 1

Comparison Of Current Ratio of State Bank of India with Housing Development Finance Corporation Bank

The current ratio is also referred to as the working capital ratio. This ratio compares a company's current assets to its current liabilities, testing whether it sustainably balances assets, financing, and liabilities. It is Calculated as follows:

Formula : **Current Ratio = Current Assets / Current Liabilities**
(Rs. In Cr.)

Year	Current Assets of SBI	Current Liabilities of SBI	Current Assets of HDFC	Current Liabilities of HDFC	Ratio of SBI	Ratio of HDFC
2018-19	266,327.70	145,597.30	49,173.95	55,108.29	1.83	0.89
2019-20	289,613.55	163,110.10	53,931.09	67,394.40	1.78	0.80
2020-21	351,768.68	181,979.66	45,925.89	72,602.15	1.93	0.63
2021-22	339,924.86	229,931.84	85,767.83	84,407.46	1.48	1.02
2022-23	397,061.58	272,457.15	146,712.52	95,722.25	1.46	1.53



Source: Annual Report of SBI and HDFC.

Graph Analysis: The graphical representations of Current Ratio of SBI Shows from year 2018-19 as 1.83, then 2019-20 it decreases after that it again increases in 2020-21 as 1.93. But after 2020-21, it Shows gradual Decrease.

On the other hand, the graphical representations of Current Ratio of HDFC bank Shows from year 2018-19, it gradually decreases. But after 2020-21, current ratio of HDFC bank started increasing gradually. The current ratio of HDFC bank in 2022-23 is 1.53.

Table 2

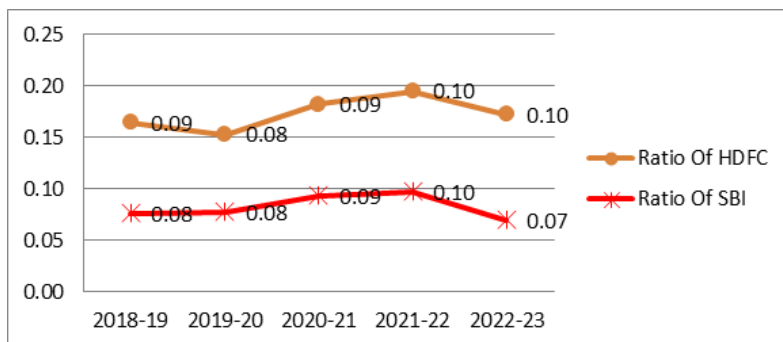
Comparison Of Cash Deposit Ratio Of State Bank of India With Housing Development Finance Corporation Bank

Cash Deposit ratio (CDR) is the ratio of how much a bank lends out of the deposits it has mobilised. It indicates how much of a bank's core funds are being used for lending, the main banking activity.

Formula: **Cash Deposit Ratio = Cash / Deposits** (Rs. In Cr.)

Year	Cash Of SBI	Deposits Of SBI	Cash Of HDFC	Deposits Of HDFC	Ratio Of SBI	Ratio Of HDFC
2018-19	222,490.11	2,911,386.01	81,347.64	923,140.93	0.08	0.09
2019-20	251,097.01	3,241,620.73	86,618.72	1,147,502.29	0.08	0.08
2020-21	343,038.71	3,681,277.08	119,470.40	1,335,060.22	0.09	0.09
2021-22	394,552.32	4,051,534.12	152,326.93	1,559,217.44	0.10	0.10
2022-23	307,899.62	4,423,777.78	193,765.08	1,883,394.65	0.07	0.10

Source: Annual Report of SBI and HDFC



Graph Analysis: The graphical representations of cash deposit ratio of SBI bank shows from 2018-19 to 2019-20 same. It gradual increases for the following years, it is 0.09 during the year 2020-21 and for the year 2021-22 is 0.10. The overall Cash Deposit ratio of HDFC Bank is same as SBI except during the year 2018-19 and 2022-23.

Table 3

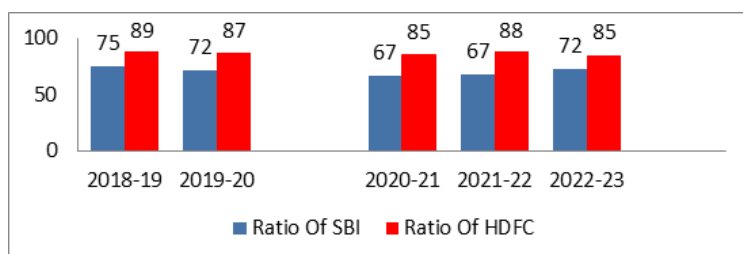
Comparison Of Credit Deposit Ratio Of State Bank of India With Housing Development Finance Corporation Bank

It is the ratio of how much a bank lends out of deposits it has mobilised. CD ratio helps in assessing a bank's liquidity and indicates its health.

Formula: **Credit Deposit Ratio = Total Credit/Total Deposits*100**
(Rs. In Cr.)

Year	Credit Of SBI	Deposits Of SBI	Credit Of HDFC	Deposits Of HDFC	Ratio Of SBI	Ratio Of HDFC
2018-19	2,185,876.92	2,911,386.01	819,401.22	923,140.93	75	89
2019-20	2,325,289.56	3,241,620.73	993,702.88	1,147,502.29	72	87
2020-21	2,449,497.79	3,681,277.08	1,132,836.63	1,335,060.22	67	85
2021-22	2,733,966.59	4,051,534.12	1,368,820.93	1,559,217.44	67	88
2022-23	3,199,269.30	4,423,777.78	1,600,585.90	1,883,394.65	72	85

Source: Annual Report of SBI and HDFC



Graph Analysis: The graphical representations of Credit deposit ratio of SBI bank shows it is 75% during the year 2018-19 and 2019-20 it is 72%. Then gradually decreases but during the year 2022-23, it increases as 72%.

On the other hand, the graphical representations of Credit Deposit Ratio of HDFC bank Shows from year 2018-19 it gradually decreases. Then it increases during the year 2021-22 as 88%. But, after 2021-22 it again decreases during the year 2022-23 as 85%.

Table 4

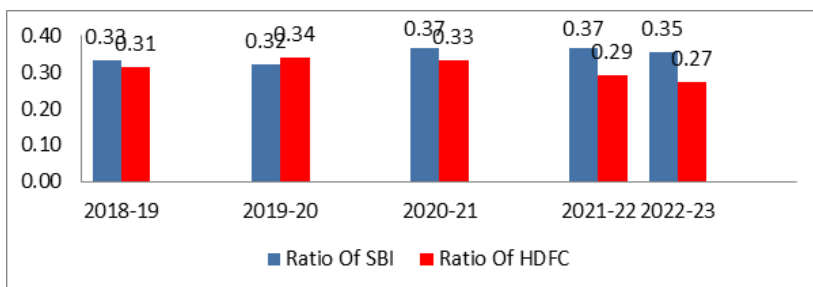
Comparison Of Investment Deposit Ratio Of State Bank of India With Housing Development Finance Corporation Bank

This ratio is crucial parameter for evaluating the performance and stability of a bank in India. It provides insight into the bank's investment strategy, risk tolerance, and its ability to generate returns for its depositors.

Formula: Investment Deposit Ratio = Investment / Deposits (Rs. In Cr.)

Year	Investment Of SBI	Deposits Of SBI	Investment Of HDFC	Deposits Of HDFC	Ratio Of SBI	Ratio Of HDFC
2018-19	967,021.95	2,911,386.01	290,587.88	923,140.93	0.33	0.31
2019-20	1,046,954.52	3,241,620.73	391,826.66	1,147,502.29	0.32	0.34
2020-21	1,351,705.21	3,681,277.08	443,728.29	1,335,060.22	0.37	0.33
2021-22	1,481,445.47	4,051,534.12	455,535.69	1,559,217.44	0.37	0.29
2022-23	1,570,366.23	4,423,777.78	517,001.43	1,883,394.65	0.35	0.27

Source: Annual Report of SBI and HDFC.



Graph Analysis: The graphical representations of Investment deposit ratio of SBI bank shows it is 0.33 during the year 2018-19 and in 2019-20 a little less 0.32. Then started increasing gradually from 2020-21 to 2021-22. During the year, 2022-23 decreased to 0.35. On the other hand, the graphical representations of Investment deposit ratio of HDFC bank shows to have increased during the year 2019-20 as 0.34, then gradually decreased.

Table 5

Comparison Of Loan-to-Deposit Ratio of State Bank of India With Housing Development Finance Corporation Bank

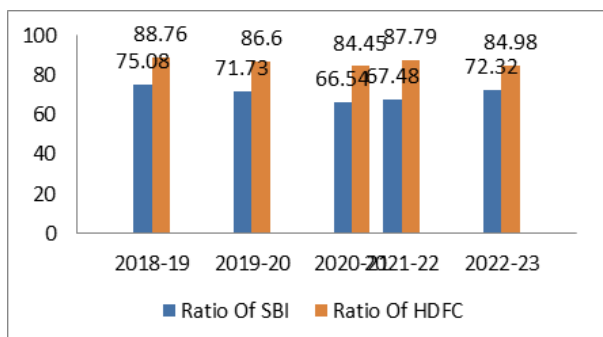
The loan-to-deposit ratio (LDR) is used to assess a bank's liquidity by comparing a bank's total loans to its total deposits for the same period.

Formula: **Loan-to-Deposit Ratio = Total Loans / Total Deposits *100**

(Rs.In Cr.)

Year	Loans of SBI	Deposits of SBI	Loans of HDFC	Deposits of HDFC	Ratio of SBI	Rato of HDFC
2018-19	2,185,876.92	2,911,386.01	819,401.22	923,140.93	75.08	88.76
2019-20	2,325,289.56	3,241,620.73	993,702.88	1,147,502.29	71.73	86.60
2020-21	2,449,497.79	3,681,277.08	1,132,836.63	1,335,060.22	66.54	84.45
2021-22	2,733,966.59	4,051,534.12	1,368,820.93	1,559,217.44	67.48	87.79
2022-23	3,199,269.30	4,423,777.78	1,600,585.90	1,883,394.65	72.32	84.98

Source: Annual Report of SBI and HDFC.



Graph Analysis: The graphical representations of Loan-to-Deposit ratio of SBI bank shows variation 2018-19 75.08% to 72.32% during the year 2022-23.

On the other hand, The percentage of HDFC bank shows variation 2018-19 88.76% to 84.98% during the year 2022-23. The Loan-to-deposit ratio of SBI bank is less percentage 72.32% when compared to HDFC bank.

Table 6

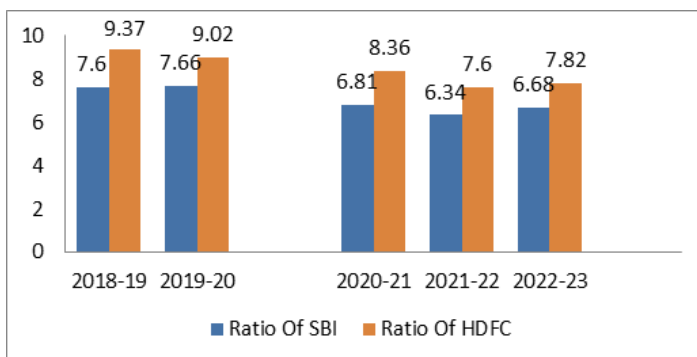
Comparison Return on Asset Ratio of State Bank of India with Housing Development Finance Corporation Bank

Return on assets (ROA) measures how efficient a company's management is in earning a profit from their economic resources or assets on their balance sheet.

Formula: **Return on assets (ROA) = Net Income / Total Assets *100 (Rs.In Cr.)**

Year	Net Income Of SBI	Total Asset SBI	Net Income Of HDFC	Total Asset HDFC	Ratio Of SBI	Ratio Of HDFC
2018-19	279,643.54	3,680,914.25	116,597.94	1,244,540.69	7.60	9.37
2019-20	302,545.0	3,951,393.92	138,073.47	1,530,511.26	7.66	9.02
2020-21	308,647.00	4,534,429.63	146,063.12	1,746,870.52	6.81	8.36
2021-22	316,021.20	4,987,597.41	157,263.02	2,068,535.05	6.34	7.6
2022-23	368,718.66	5,516,978.53	192,800.36	2,466,081.47	6.68	7.82

Source: Annual Report of SBI and HDFC.



Graph Analysis: The graphical representations of Return on Assets of SBI bank shows a lower ratio when compared to HDFC bank. Although HDFC bank ratio is decreasing since 2018-19 but higher than that SBI bank ratio. The SBI bank shows ratio as 7.60 for the year 2018-19 and for the year 2022-23 as 6.68. Whereas the ratio of HDFC bank shows 9.37 for the year 2018-19 and 7.82 for the year 2022-23.

Findings and Suggestions

On the basis of the study the following suggestions can be given to the State Bank of India and HDFC bank to improve their performance

1. The study provides the key findings according to the data analysis, it is concluded that the Idle Current ratio was well maintained by SBI bank than HDFC bank. Generally, a current ratio of 2:1 is considered ideal, which means that the current assets must be twice the amount of current liabilities. So, it is important to maintain Current ratio. From 2021-22 HDFC bank trying to enhance their Current ratio.

2. Cash Deposit Ratio is a measure of a bank's ability to meet the demands of its depositors for cash withdrawals. After observation it appears that there is not much difference between SBI bank and HDFC bank Cash Deposit Ratio. So, both SBI bank and HDFC bank have to keep balance between liquidity and profitability by managing their Cash Deposit Ratios.

3. After study it is concluded that HDFC bank Credit Deposit Ratio much higher than SBI bank. the Average Credit

Deposit ratio of SBI is 71% and HDFC is 87%. CD ratio indicates how much of the money that banks have raised in the form of deposits have been deployed as loans. An ideal CD ratio would be between 65-75%, say experts. So SBI bank should try to maintain the ideal CD Ratio.

4. Investment Deposit ratio provides an indication of how much of a bank's assets are being invested, and how much is being held in reserve in the form of deposits. After study, it is concluded that SBI bank is actively investing its funds in various investment opportunities while HDFC bank is holding more of its assets in the form of deposits.

5. Typically, the ideal loan-to-deposit ratio is 80% to 90%. The loan deposit ratio of SBI bank is less percentage when compared to HDFC bank. A lower loan-to-deposit ratio indicates that SBI bank is lending out a smaller portion of its deposits, which could mean that the bank is being more conservative.

6. A Return on Asset of over 5% is generally considered good and over 20% excellent. After study, it is concluded that SBI bank shows a lower ratio when compared to HDFC bank. A higher Return on Asset of HDFC Bank, which reflects greater efficiency in asset utilization and profitability. So, for better efficiency in asset utilization and profitability SBI bank has to improve Return on Asset.

Conclusion

In conclusion, working capital management in banks involves the efficient management of current assets and liabilities to ensure sufficient liquidity, optimize profitability, and support lending activities. On the basis of the overall study, it is concluded that Current ratio was well maintained by SBI bank. It means SBI bank has ability to pay off its current debt (liabilities that are due less than one year) with its current assets. Cash Deposit Ratio of SBI bank and HDFC bank has not much difference. Credit Deposit Ratio of HDFC bank is much higher than SBI bank. The SBI bank should implement various strategies for full use of their resources. The overall Investment Deposit Ratio of SBI bank is little bit better compare to HDFC bank. It means SBI bank is actively investing its funds in various investment. The loan deposit ratio of HDFC bank is better when compared to SBI bank. It means HDFC bank take risk by lending out more money than

it has in deposits. If SBI bank has to improve Return on Asset, then SBI bank should focus more on efficiency and productivity in managing its balance sheet to generate profits. Overall, this study is based on secondary source of data. We all know that, SBI bank is a Public Sector Bank and the largest bank in India and HDFC bank is India's largest private sector bank by assets. These two banks have not only provided excellent services to their customers but have also played a pivotal role in shaping the banking landscape.

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Resilience Study of MSMEs During the Lockdown Period

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Abstract

This study investigates the resilience of Micro, Small, and Medium Enterprises (MSMEs) during the challenging times of the lockdown period, focusing on the COVID-19 pandemic as a case study. The research examines the adaptive strategies, coping mechanisms, and resilience factors employed by MSMEs to navigate through the economic disruptions caused by the lockdown measures. Utilizing a mixed-methods approach, including surveys, interviews, and case studies, data was collected from a diverse sample of MSMEs across various sectors and geographical locations. The findings shed light on the key resilience drivers such as financial preparedness, digital readiness, diversified income streams, and social capital. Moreover, the study identifies barriers and vulnerabilities that hindered resilience, including limited access to capital, lack of digital infrastructure, and supply chain disruptions. The research contributes to both theoretical understanding and practical implications by providing insights into the dynamic nature of MSME resilience and offering recommendations for policymakers, business owners, and support organizations to bolster resilience and mitigate future crises.

Keywords: Resilience, MSMEs, Lockdown, Adaptive Strategy, Crisis Management, Business Resilience.

Introduction

The global outbreak of the COVID-19 pandemic triggered unprecedented challenges for economies worldwide, prompting governments to implement stringent lockdown measures to curb the spread of the virus. Amidst this crisis, Micro, Small, and Medium Enterprises (MSMEs) emerged as particularly vulnerable entities, grappling with the sudden halt in economic activities, disrupted supply chains, and dwindling consumer demand. However, amidst adversity, many MSMEs showcased remarkable resilience, demonstrating the ability to adapt, innovate, and sustain their operations during the lockdown period.

This study delves into the resilience of MSMEs during the lockdown period, aiming to understand the factors that enabled their survival and success amidst the crisis. By examining the strategies employed, coping mechanisms adopted, and resilience drivers that underpinned their response to the pandemic-induced challenges, this research seeks to offer insights into how MSMEs navigated through turbulent times.

Utilizing a mixed-methods approach encompassing surveys, interviews, and case studies, this study presents a comprehensive analysis of MSME resilience across various sectors and geographical locations. By synthesizing empirical evidence with theoretical frameworks from resilience literature, the research sheds light on the dynamic nature of resilience within the MSME context.

Furthermore, this study not only identifies the key resilience factors that enabled MSMEs to weather the storm but also highlights the barriers and vulnerabilities that impeded their ability to bounce back. Through an exploration of the role of financial preparedness, digital readiness, diversified income streams, and social capital, this research elucidates the multifaceted nature of MSME resilience.

Ultimately, this study contributes to both theoretical understanding and practical implications by offering actionable insights for policymakers, business owners, and support organizations to enhance MSME resilience and mitigate the impact of future crises. By drawing lessons from the experiences of MSMEs during the COVID-19 lockdown period, this research

endeavours to inform strategies aimed at fostering a more resilient and sustainable entrepreneurial ecosystem.

Literature Review:

Resilience research spans multiple disciplines, exploring how individuals, communities, and ecosystems adapt and thrive in the face of adversity. This literature review synthesizes key contributions from prominent researchers and theoretical frameworks, emphasizing psychological, community, and ecological resilience.

Psychological Resilience

Luthar, S. S., Cicchetti, D., & Becker, B. (2000) in their seminal paper, critically evaluate the construct of resilience, proposing guidelines for future research. They argue that resilience is a multifaceted construct involving dynamic processes that allow individuals to thrive despite adversity. Key contributions include:

- **Conceptual Clarification:** They stress the importance of distinguishing resilience from related concepts like coping and adaptation.
- **Protective Factors:** Identifying individual attributes (e.g., self-regulation) and external resources (e.g., supportive relationships) that contribute to resilience.
- **Methodological Rigor:** Advocating for longitudinal studies and diverse sampling to capture the complexity of resilience processes.

Masten's concept of "ordinary magic" emphasizes that resilience arises from common, everyday resources rather than extraordinary means. Key points include:

- **Ordinary Resources:** Asserting that resilience stems from normal human adaptive systems, such as secure attachment relationships, cognitive skills, and self-regulation.
- **Developmental Perspective:** Highlighting resilience as a developmental phenomenon, where supportive environments and effective parenting play crucial roles.
- **Policy Implications:** Suggesting that fostering resilience in children involves enhancing access to basic protective systems.

Tugade and Fredrickson focus on the role of positive emotions in resilience. Their findings indicate:

- Emotional Regulation: Resilient individuals use positive emotions to recover from stress, which enhances coping and problem-solving abilities.
- Broaden-and-Build Theory: Positive emotions expand cognitive and behavioral repertoires, fostering resilience through resource building.
- Physiological Benefits: Positive emotions help buffer against stress by reducing physiological arousal, promoting faster cardiovascular recovery.

Cohen and Wills introduce the buffering hypothesis, exploring how social support mitigates the impact of stress. Key insights include:

- Types of Support: Emotional, informational, and instrumental support all play roles in reducing stress effects.
- Direct and Buffering Effects: Social support has direct positive effects on well-being and acts as a buffer during stressful times.
- Measurement and Methodology: Emphasizing the need for precise measurement of social support dimensions and their contextual relevance.

Folkman and Lazarus explore coping as a mediator of emotion, proposing a cognitive appraisal model of stress and coping. Their contributions include:

- Cognitive Appraisal: Stress is perceived through primary and secondary appraisal processes, influencing coping responses.
- Coping Strategies: Differentiating between problem-focused and emotion-focused coping strategies.
- Adaptation: Effective coping leads to better emotional and psychological outcomes, enhancing resilience.

Community Resilience

Norris et al. conceptualize community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. Key components include:

- Four Domains: Economic development, social capital, information and communication, and community competence.
 - Integrated Model: Emphasizing the interplay between these domains to enhance overall community resilience.
 - Policy Implications: Recommendations for disaster preparedness and recovery planning at the community level.
- Cutter and colleagues propose a place-based model for understanding community resilience to natural disasters. Their framework highlights:
- Vulnerability and Resilience: Understanding the spatial distribution of vulnerability to enhance resilience planning.
 - Community Context: Tailoring resilience strategies to local contexts and capacities.
 - Empirical Assessment: Using geographic information systems (GIS) and other tools for detailed resilience assessments.

Aldrich and Meyer examine the role of social capital in community resilience, emphasizing:

- Bonding, Bridging, and Linking Social Capital: Different forms of social capital contribute to resilience in unique ways.
- Recovery and Reconstruction: Social networks facilitate resource mobilization and collective action during recovery.
- Policy Recommendations: Encouraging policies that strengthen social networks and community ties.

Ecological Resilience

Holling introduces the concept of ecological resilience, focusing on the capacity of ecosystems to absorb disturbances. Key points include:

- Resilience vs. Stability: Differentiating between resilience (capacity to absorb change) and stability (resistance to change).
- Adaptive Cycles: Ecosystems undergo cycles of growth, accumulation, collapse, and renewal.
- Management Implications: Adaptive management practices that consider ecological dynamics and uncertainties.

Gunderson and Holling's panarchy framework explores transformations in human and natural systems. Contributions include:

- Cross-Scale Interactions: Interconnected adaptive cycles across different scales influence system resilience.
- Panarchy Model: Describing the dynamic interplay between persistence and change in complex systems.
- Application: Using the panarchy model to inform sustainable resource management and policy.

Elmqvist and colleagues discuss response diversity as a key aspect of ecological resilience. Key insights include:

- Biodiversity and Resilience: Diverse species and functional roles enhance ecosystem resilience.
- Ecosystem Services: Maintaining ecosystem functions and services critical for resilience.
- Conservation Strategies: Promoting biodiversity to enhance resilience to environmental changes.

Daily's work on ecosystem services underscores the societal dependence on natural ecosystems. Key contributions include:

- Ecosystem Services Framework: Identifying and valuing services like pollination, water purification, and climate regulation.
- Human Well-Being: Linking ecosystem health to human well-being and economic stability.
- Policy Implications: Advocating for policies that protect and sustain ecosystem services.

Walters and Holling emphasize large-scale management experiments and adaptive learning. Their key points include:

- Adaptive Management: Iterative learning and management practices that adapt to changing ecological conditions.
- Experimental Approaches: Using experiments to test and refine management strategies.
- Sustainability: Promoting resilience through sustainable management of natural resources.

Resilience in Micro, Small, and Medium Enterprises (MSMEs) in India

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in India's economy, contributing significantly to employment, innovation, and GDP. However, these enterprises often face various challenges that test their resilience, such as financial constraints, market competition, and regulatory hurdles. This literature review synthesizes key studies and findings on the resilience of MSMEs in India, focusing on the factors influencing their resilience, the strategies they employ, and the policy implications.

Factors Influencing Resilience in MSMEs

Financial Resources and Access to Credit

Access to finance is a critical factor affecting the resilience of MSMEs. Studies highlight that:

- Financial Constraints: MSMEs often struggle with limited access to formal credit, high interest rates, and stringent collateral requirements.
- Government Schemes: Initiatives like the Pradhan Mantri Mudra Yojana (PMMY) and Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) have been introduced to improve credit access for MSMEs.

Innovation and Technological Adoption

Innovation and the adoption of new technologies enhance the resilience of MSMEs by improving efficiency and market competitiveness. Key insights include:

- Digital Transformation: The adoption of digital tools and platforms helps MSMEs streamline operations, reach wider markets, and respond swiftly to disruptions.
- R&D Investment: Investment in research and development fosters innovation, enabling MSMEs to create unique products and services that can withstand market fluctuations.

Human Capital and Skills Development

The skills and capabilities of the workforce significantly influence the resilience of MSMEs. Studies emphasize the following:

- Skill Development Programs: Government and private sector

initiatives aimed at enhancing the skills of MSME employees are crucial for improving productivity and resilience.

- Leadership and Management: Effective leadership and management practices are critical for navigating challenges and driving organizational growth.

Market Access and Diversification

Market access and diversification strategies are essential for MSMEs to reduce dependence on single markets and mitigate risks:

- Export Opportunities: Access to international markets through trade agreements and export promotion schemes can enhance MSME resilience by diversifying revenue sources.
- Local Market Networks: Strong local supply chains and market networks provide stability and support during economic downturns.

Strategies for Enhancing Resilience

Adoption of ICT and E-commerce

Integrating Information and Communication Technology (ICT) and engaging in e-commerce are pivotal strategies for MSMEs to enhance their resilience:

- E-commerce Platforms: Participation in e-commerce platforms allows MSMEs to reach a broader customer base and maintain sales even during physical market disruptions.
- Cloud Computing and ERP Systems: These technologies help MSMEs manage operations efficiently, reduce costs, and improve decision-making.

Building Collaborative Networks

Collaborative networks and partnerships play a vital role in MSME resilience:

- Business Associations: Membership in business associations and clusters provides MSMEs with access to shared resources, knowledge, and advocacy support.
- Public-Private Partnerships: Collaborations with government agencies and larger corporations can provide MSMEs with technical assistance, financial support, and market access.

Risk Management Practices

Effective risk management practices are crucial for enhancing the resilience of MSMEs:

- Insurance and Risk Mitigation: Insurance products tailored for MSMEs can provide financial protection against various risks such as natural disasters, theft, and market volatility.
- Crisis Management Plans: Developing and implementing crisis management plans enable MSMEs to respond promptly and effectively to unforeseen events.

Policy Implications and Recommendations

Supportive Regulatory Framework

Creating a supportive regulatory environment is essential for fostering MSME resilience:

- Simplified Compliance: Simplifying regulatory compliance and reducing bureaucratic hurdles can alleviate the operational burden on MSMEs.
- Tax Incentives: Providing tax incentives and reliefs for MSMEs can enhance their financial stability and growth prospects.

Access to Finance and Credit Facilities

Improving access to finance remains a top priority:

- Financial Inclusion Initiatives: Expanding financial inclusion initiatives and ensuring wider coverage of government credit schemes can enhance MSME resilience.
- Alternative Financing: Promoting alternative financing options such as peer-to-peer lending, crowdfunding, and venture capital can provide MSMEs with diverse funding sources.

Capacity Building and Training Programs

Investing in capacity building and training programs is crucial for MSME development:

- Entrepreneurship Training: Providing entrepreneurship training and mentorship programs can equip MSMEs with the necessary skills and knowledge to navigate challenges.

- Digital Literacy: Enhancing digital literacy among MSME owners and employees is critical for leveraging technological advancements.

Conclusion

The resilience of MSMEs in India is influenced by a complex interplay of financial resources, innovation, human capital, and market access. Strategies such as adopting ICT, building collaborative networks, and implementing risk management practices are essential for enhancing resilience. Policy interventions that simplify regulatory compliance, improve access to finance, and invest in capacity building can further strengthen the resilience of MSMEs. Future research should continue to explore these dynamics, considering the diverse contexts and challenges faced by MSMEs across different regions of India.

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Competitiveness Roadmap through Future Ready MSMEs: A journey towards Bharat@100

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Abstract:

India is edging towards 100 years of independence in the year 2047 with the objective of global competitiveness and sustainable development. Micro, Small and Medium Enterprises (MSMEs) are the backbone of Indian Economy contributing nearly 27% percent of the Gross Domestic Product (GDP). Roadmap for achieving the goal of being a developed nation by 2047, that is, Bharat@100, largely rests on the shoulders of the MSME sector. To bring about the global competitiveness along with societal well-being and environmental sustainability, MSME sector needs to be future ready in terms of innovation, technology adoption, export orientation, sustainable supply chain and employability. Hence, the article manifests on discussing the significance of the MSME sector in uplifting the journey towards Bharat@100.

Keywords: MSMEs, Competitiveness, Future Ready, Roadmap, Bharat@100

I. Background of the Study

On the occasion of 100 years of independence, India is moving towards the vision to become a self-reliant country with the ambition of “Atmanirbhar Bharat’. India’s GDP is poised to reach the US\$ 5 trillion mark in the year 2026-27. In this context, the role of future ready MSME plays as one of the major pillars of success towards overall economic growth of the country. The Indian MSME sector accounts for around 120 million jobs across industries and regions and is predicted to contribute worth US\$

1 trillion to India's total exports by 2028. As India is reaching towards the celebration of Bharat@100 in 2047, that is Amrit kaal for the nation, that symbolize the remarkable new requisites of transforming India as one of the industrially advanced economies (Economic Times, 19th May 2023). To become globally competitive along with the objective of sustainable economy, MSME sector should have access to sustainable global business practices, upgrading to new age technologies and innovative financial solutions to resolve the challenges of the past and become future ready.

The contribution of Indian MSME sector has played a significant role in the socio-economic development of the country. The roadmap to India@100 requires MSME to adopt newer technologies and innovations in keeping pace with the fast-evolving requirements of the industry and market.

II. Review of Literatures

MSMES have been regarded as the cornerstone of the Indian economy's expansion for quite some time (Negi and Kumar, 2024). MSMES are renowned for needing less money and technology. In the Indian economy, this industry offers the second-greatest amount of job opportunities, after agriculture. (Prakash and Thamilselvan, 2024). Additionally, MSMES promote growth in underdeveloped and rural areas, thereby mitigating regional disparities and ensuring a fair allocation of wealth and income across the country. Notwithstanding its importance and influence in the Indian economy, the MSME sector continues to confront a number of challenges (Sharma and Sharma, 2024). The fulfilling of working capital requirements accounts for 70% of the total financial demand of MSME, which is 69.30 trillion. In order to meet the urgent finance requirements, it is necessary that the enormous credit gap be addressed. Lack of MSME-focused product availability (Satheeswaran, et. al., 2024).

There is a growing push on MSMEs to integrate sustainable practices into their operations to address environmental concerns and align with the broader goals of sustainable development. MSMEs have a variety of situation-specific opportunities as well as challenges in their quest of sustainability (Biswas and Gupta, 2022). The sector's variability of sustainability measures can be attributed to several reasons such as legislative frameworks,

resource limitations, and varying levels of awareness and dedication among MSME owners (Gupta, 2022). Comprehending these nuances is crucial to devising tailored approaches that facilitate MSMEs' integration of sustainable practices, considering their unique circumstances and contributions to the social and economic fabric of diverse locales (Gupta and Biswas, 2020).

The growth of Micro, Small, and Medium-Sized Enterprises (MSMEs) in India is directly linked to a number of significant economic indicators, including the number of MSME units, GDP share, employment generation, and export statistics (Usha and Devakumar, 2018). The significant importance of the MSME sector to India's overall economic development, have made this relationship easier to understand. The MSME sector in India is crucial to ensuring that the Sustainable Development Goals (SDGs) are met by 2030 (Yang and Zhang, 2020).

III. Research Gap

The literatures available with respect to MSMEs in India intends to highlight the significance of the sector in the Indian economy. The related literatures place the center of discussion towards the fact that MSMEs play a significant role in the overall economic development and value addition to the Indian eco-demography. But no such seminal work is evident which illuminates on the role of the MSME sector fruit fulling a competitive and sustainable future roadmap towards Bharat@100. Hence the researcher intends to de-earth the present scenario and competitiveness structure which will help India to attain a competitive and sustainable future when heading towards 100 years of Independence.

IV. Research Objectives

On the basis of the review of literatures and research gap, the following research objectives are as framed:

1. To analyze the schemes announced by Government of India for future ready MSMEs.
2. To frame a 4-S MSME competitiveness model which intends towards uplifting the journey of India towards Bharat@100.

V. Research Methodology and Database

The present study is descriptive in nature and is based on secondary database. The data is collected from various government reports and publications as well as reports from other concerned authorities. Several tables, percentages, graphs are used to interpret and fulfil the research objectives.

VI. Findings and Discussions

MSMEs are frequently referred to as the engine of the Indian economy. MSMEs have a major impact on exports, employment creation, and general economic expansion. According to reports, they support around 11 crore jobs and provide over 27.0% of India's GDP. Based on approximations, the industry comprises approximately 6.4 crore MSMEs, of which 1.5 crore are registered on the Udyam portal. It also employs approximately 23.0% of India's labor force, making it the country's second largest employer after agriculture. They provide 45.03% of the nation's overall exports⁵ and 38.4% of the nation's manufacturing output.

With over 6.30 crore enterprises, the MSME sector has become one of the most dynamic and lively segments of the Indian economy. It is the second most capital-efficient sector after agriculture, providing chances for self-employment and entrepreneurship at relatively cheap costs. Through the implementation of various schemes and programs aimed at providing credit assistance, technological assistance, building infrastructure, improving skills and training, enhancing competitiveness, and market assistance, the Ministry of MSME, Government of India, promotes the growth and advancement of the sector, including the Khadi, Village, and Coir industries.

The following schemes were implemented with respect to MSMEs during the year 2023-24 and their status as on 31.03.2024:

Table 2: Schemes Implemented

Sl.No.	Details of Schemes for MSMEs	Status of the Scheme as on 31.03.2024
1	59-minute loan portal	• A total of 2,48,766 loans amounting to Rs. 86,112 crores were officially approved. • There have been 2,29,261 loans disbursed totalling Rs. 69,352 crores.
2	Interest Rebate	• By RBI circular dated 08.03.2022, the Interest Equalization Programme was extended till 31.03. 2024. • The Interest Equalization Scheme has revised its rates. MSME manufacturing exporters shipping under any HS line now pay 3% of the revised rates, while manufacturer and merchant traders operating under 410 HS lines pay 2%. • Since the Rs. 9538 Crore financial outlay allocated to the plan was insufficient to fund it until March 31, 2024, the department prepared a comprehensive proposal, which it filed to the EFC for approval. With an increased expenditure of Rs. 2500 crores, the Expenditure Finance Committee (EFC) authorized the expansion of the outlay for the Interest Equalization Scheme to cover the period until June 30, 2024.
3	Mandatory procurement of 25% instead of 20% from MSMEs	• 25% of all purchases, as opposed to 20%, must come from MSMEs • CPSUs have purchased products and services from 1,61,305 MSEs for a total of Rs 44,591.89 crores in 2023-24, accounting for 33.39% of all procurement.
4	Mandatory procurement from Women Entrepreneurs	• Out of 25% required procurement, CPSUs will mandate the purchase of goods by women entrepreneurs in the amount of 3%. • As of now in 2023-24, CPSUs have purchased goods and services from 12,739 women-owned micro, small, and medium enterprises (MSEs) for a total of Rs 1,439.37 crores, or 1.08% of the procurement value.
6	Government e-Marketplace (GeM)	• On the GeM platform, MSMEs account for 48.33% of order value.

Source: Compiled by the researcher through various government reports

From the above table the intentions of the government towards strengthening the MSMEs are evident. Along with the existing schemes, there are various other announcements which are announced by the Ministry of MSMEs which are discussed below:

1. PM Vishwakarma

A new program named “PM Vishwakarma” seeks to guarantee that “Vishwakarmas” are incorporated into both local and international value chains while also enhancing the caliber and marketability of the crafts people’s goods and services. The Plan was unveiled in the Budget Address for the fiscal year 2023–24 on February 1st, 2023. On September 17, 2023, the Honorable Prime Minister officially introduced the Scheme. This Scheme aims to provide Vishwakarmas, or artists and crafters, with comprehensive end-to-end support so they can advance up the worth chain in their specialized fields. It will improve the socioeconomic standing of craftsmen and craftspeople by bringing about a fundamental change in the way they conduct their jobs.

The Government of India provides all funding for PM Vishwakarma, a Central Government Scheme, which had an initial investment of Rs. 13,000 crores over a five-year period beginning in 2023–2024 and ending in 2027–2028. An aggregate of 48.80 lakh people has been enrolled under PM Vishwakarma as of December 30, 2023. 1.32 lakh registrations have been successfully enrolled under the Scheme in total. The individuals who have registered will go through five days of “Basic Training.” The applicants that selected credit support will benefit from collateral-free credit following successful training.

2. MSME Champions

The MSME Champions Scheme aims to enhance business competitiveness, modernize processes, cut waste, and support the national and international reach and excellence of clusters and firms. “MSME-Sustainable” (ZED), “MSME-Competitive” (LEAN), and “MSME-Innovative” (Incubation, Design, and IPR) are the three components of the scheme. On April 28, 2022, the MSME-Sustainable (ZED) Certification program was introduced. 4.41 lakh MSMEs have registered overall, and they have received 79,546 Bronze, 275 Silver, and 271 Gold certificates.

ZED certification is now free for female MSME owners. On March 10, 2023, the MSME Competitive (LEAN) Program was introduced. Up till December 2023, 3,200 MSMEs with “Basic Lean” certification have been certified, 6,453 MSMEs have accepted the pledge, and 6,561 MSMEs are registered thus far.

3. *RAMP Scheme*

The Raising and Accelerating MSME Performance Programme (RAMP) Scheme seeks to improve MSMEs’ access to credit and the market, upgrade their technology, address late payments and corporate greening, and strengthen institutions and governance at the federal, state, and local levels. The National MSME Council met twice in 2023, on May 10, and December 20, 2023. A total of Rs. 1143.55 crore has been granted for the Strategic Investment Plans for ten states which includes Odisha, Tamil Nadu, Maharashtra, Madhya Pradesh, Uttar Pradesh, Mizoram, Andhra Pradesh, Bihar, and Karnataka. The first round of funding from the Indian government has been distributed to the states.

4. *20 Hubs and 100 Spokes in the form of Tool Rooms*

The plan, with an estimated expenditure of Rs. 3500 crores have been given authorization for implementation up until 2025–2026. 21 sites have been chosen and authorized for the establishment of Tool rooms. Land has been finalized for 18 places, and the finalization of land for the remaining 4 locations is underway. Of the 16 sites whose land was finalized.

5. *Clusters for Pharma MSMEs*

Pharma MSMEs ought to join clusters and receive 70% government backing. support from India Four suggestions were submitted in response to the announcement. Of the quartet, the submissions that Indumati Pharma Pvt. Ltd. Pune received its final sanction on March 26, 2021, with Project expenses of Rs. 31, 43, 75, 175 and financial support amounting to Rs. 20 crores. Up until July 31, 2022, Rs. 18 crores had been released from this.

6. *Livelihood Business Incubator*

An organization created to provide programs for skill development and job creation in the agro-rural sector, with an emphasis on underserved and rural areas, in order to foster entrepreneurship. The LBIs’ initiatives are designed to help the

recipients start their own businesses or find suitable jobs in the local industrial cluster. The primary goals of LBI are to create job opportunities by supporting the formal, scalable establishment of microenterprises and to train, upskill, and reskill jobless individuals as well as current wage earners and self-employed individuals in new technologies.

Between January 2023 and December 2023, ASPIRE, managed by SIDBI, approved four new Livelihood Business Incubators (LBIs), training 25,468 beneficiaries, of which 1,458 were wage employees. Furthermore, 225 microbusinesses were founded through the LBIs.

7. Other schemes aiding competitiveness among MSMEs

- 3,67,087 Unified Yearly Returns for the time frame from 02.11.2018 to 31.12.2023 were submitted filed by the businesses under the Integrated Annual Returns on Shram Suvidha Portal with 8 Labour Laws and 10 Central Rules.
- 40,78,478 enterprises (including MSMEs) were recently inspected by the computerized random assignment mechanism under the risk-based approach via the Shram Suvidha Portal.
- The goal of the SRI Fund is to give qualifying and worthy MSME Sector units growth funding. By investing more than Rs. 3658 crores between January 1st, 2023 and November 30th, 2023, 14 daughter funds were partnered with NSIC Venture Capital Fund Limited (NVCFL), a mother fund, to support 242 potential MSMEs.

Source: Compiled by the researcher through various government reports

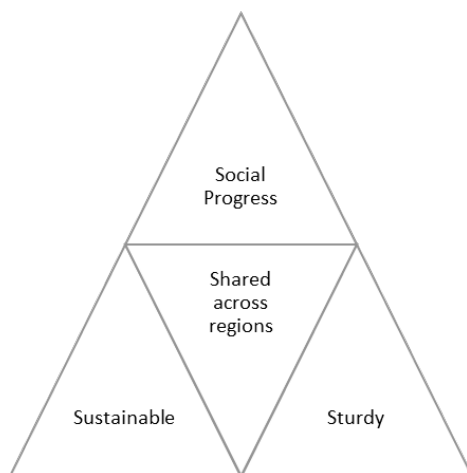
4-S Model: Roadmap for Future Ready MSMEs

Professor Michael E. Porter's Competitiveness framework serves as the foundation for the Competitiveness blueprint for MSMEs in India@100. The competitiveness approach advances the notion that productivity is a key factor in long-term economic success. It highlights the environment in which a country may enable businesses to be more efficient and for people to share in the wealth created by their labor. The India@100 roadmap, which is based on this strategy, lays out how industry-specific and specific to the region strategies based on the "4 S" principles

will help India become a high-income nation by 2047.

The goal of the roadmap is to provide new guidelines based on well-defined overarching objectives and the formulation of a fresh approach to development integrated into the integration of economic and social agendas. The “4 S” guiding principles, which emphasize the need for prosperity development to be balanced by social progress, to be shared throughout all regions of India, towards being environmentally sustainable, as well as be sturdy in the face of external shocks, redefine our approach to achieving prosperity. Resilient and comprehensive development is made possible by the “4 S” guiding principles, which encompass these four crucial areas.

Figure 1: 4-S Model



Source: Compiled by the researcher through various government reports

The components of the above model are analyzed below:

1. Social Progress through MSMEs

Through their innovative business practices, MSMEs are making a substantial contribution to the growth of entrepreneurial endeavors. MSMEs are expanding into new economic areas and offering a wide range of goods and services to satisfy both local and international consumer demands. In addition to offering significant employment opportunities at a significantly lower cost of capital than large industries, MSMEs in India are playing

a critical role in industrializing rural and underdeveloped areas, reducing regional imbalances, and ensuring a more equitable distribution of wealth and income across the country.

At a predicted CAGR of 2.5 percent, the total number of MSMEs in the entire nation is expected to increase from 6.3 crore to around 7.5 crore in the near future. As of March 2024, there were 4,00,42,875, MSMEs listed on the Udyam portal, which includes the Udyam Assist Platform (UAP). According to the recent RBI data on departmental deployment, the gross credit from banks allocated to MSMEs through priority sector financing in the month of October 2023 totaled US\$ 279.18 billion, up 22.8% from the preceding year and 11.8% from September 2023.

2. Shared economic well-being throughout the region through MSMEs

With an estimated 630.52 lakh businesses, the micro sector makes up over 99% of all MSMEs. The estimated number of MSMEs in the small and medium sectors was 3.31 lakh and 0.05 lakh, respectively, making up 0.52% and 0.01% of the total estimated MSMEs. Of the estimated 633.88 MSMEs, 324.88 lakh (or 51.25%) are located in rural areas, and 309 lakh (or 48.75%) are located in urban areas. 608.41 lakh MSMEs (95.98%) out of 633.88 MSMEs have proprietary problems. The ownership of private MSMEs was dominated by men. Therefore, among proprietary MSMEs overall, men controlled 79.63% of the businesses, compared to women who owned 20.37%.

Both urban and rural regions showed no discernible variations in this pattern, while the predominance of male-owned businesses was slightly more. Nearly 66.27% of MSMEs were held by socially backward populations. OBCs controlled the majority of that (49.72%). In the MSME sector, the percentage of SC and ST owners was low, at 12.45% and 4.10%, respectively. Socially and economically disadvantaged groups held over 73.67% of MSMEs in rural areas, with 51.59% of these groups being OBCs. Nearly 58.68% of people in urban areas were members of socially backward categories, of which 47.80% were OBCs (MSME Annual Report, 2023-24).

3. Sustainable Development through MSMEs

MSMEs have demonstrated a noteworthy ability to foster sustainable economic development through their ability to foster entrepreneurship, generate job opportunities, and operate in underdeveloped areas, all of which contribute to sustainability. MSMEs have the capacity to generate a lot of revenue opportunities, although smaller ones, serving a sizable portion of the Indian and global populace. MSMEs have demonstrated a noteworthy ability to foster sustainable economic development through their ability to foster entrepreneurship, generate job opportunities, and operate in underdeveloped areas, all of which contribute to sustainability. MSMEs have the capacity to generate a lot of revenue opportunities, although smaller ones, serving a sizable portion of the Indian and global populace.

4. Sturdy in the face of external shocks

Since almost all of MSMEs are unregistered, they have been particularly hard hit by the lockdowns that were implemented during the COVID-19 outbreak. Due to limitations in supply and demand, a large number of them were forced to close their doors, while others had to scale back their activities. The hazards associated with climate change have an impact on India's micro, small, and medium-sized (MSME) industries. These companies are growth engines because they create jobs, enhance value chains, encourage grassroots innovation, and make efficient use of underutilized local resources. Nevertheless, the industry is not immune to the risks, uncertainties, and financial harm brought on by climate change. The development of a corpus worth Rs. 1 lakh crore providing 50-year interest-free loans was announced in the interim budget for 2024–2025. The purpose of this effort is to encourage the private sector to improve innovation and research in developing sunrise domains, with a focus on MSMEs.

I. Conclusion

Strong evidence regarding the sensitivity of MSMEs to socio-economic change and the potential costs to them must be developed. Value chain analysis is one method that could be used to identify climate hotspots, likely disruptions, and important areas for intervention. Risks may be managed by adopting cutting-edge technology like artificial intelligence (AI), remote sensing, and geographic information systems to provide

tailored information, advice, and extension services. Creating a trustworthy database of regional resources and indicators pertaining to MSME would help research and development create business-specific solutions. Increasing knowledge and enhancing an enterprise's or cluster's capacity to foresee, plan, and prioritize measures against internal and external issues and repercussions is a crucial strategy for supporting MSMEs. MSMEs frequently don't have sufficient funds to invest in technology. To prioritize innovations and speed investments, MSMEs must develop creative and specialized low-risk finance solutions.

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Swasthya Sathi Health Scheme: A Study On Slum Dwellers In Uttarpara Kotrung Municipality

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Abstract:

The Swasthya Sathi Health Scheme is a comprehensive health insurance scheme initiated by the government of West Bengal, India. The Swasthya Sathi Health Scheme was introduced in West Bengal to address the healthcare needs of the underprivileged population. Slum dwellers, who face significant socio-economic challenges, become the focus of this study. This study delves into the impact of this scheme on slum dwellers living in the Uttarpara Kotrung Municipality. The objective is to analyse the healthcare accessibility, utilization, and satisfaction among beneficiaries of the Swasthya Sathi scheme residing in slum areas. This study aim to shed light on the effectiveness of the Swasthya Sathi Health Scheme in improving healthcare outcomes for vulnerable slum dwellers.

Keywords: Swasthya Sathi, health scheme, slum dwellers, Uttarpara Kotrung Municipality, healthcare accessibility, healthcare utilization, healthcare satisfaction.

Introduction

Health disparities among marginalized populations, such as slum dwellers, have long been a significant concern in public health discourse. The Swasthya Sathi Health Scheme, initiated by the Government of West Bengal, aims to address these disparities by providing comprehensive health coverage to vulnerable

populations. This scheme has been crucial in improving access to quality healthcare services for slum dwellers in various parts of the state.

In this study, focus is on the effect of the Swasthya Sathi Health Scheme on the health of slum dwellers in Uttarpara Kotrung Municipality. This municipality, located in the Hooghly district of West Bengal, is home to a sizeable population of slum dwellers who face numerous challenges in accessing healthcare services due to financial constraints and limited healthcare facilities in their vicinity.

The Swasthya Sathi Health Scheme offers cashless health insurance coverage of up to Rs. 5 lakhs per family per annum, enabling beneficiaries to avail of a wide range of healthcare services, including hospitalization, diagnostic tests, and surgeries, at empanelled facilities. By alleviating the financial burden associated with healthcare expenses, the scheme plays a crucial role in promoting health-seeking behavior and ensuring timely medical interventions for slum dwellers.

Literature Review

Universal Health Coverage (UHC) is a key component of sustainable development goals, aiming to ensure that all individuals and communities have access to quality healthcare without facing financial hardship. The Swasthya Sathi Health Scheme, launched in 2016, is a step towards achieving UHC by providing health insurance coverage to all residents of West Bengal, including the most vulnerable populations such as slum dwellers.

According to a study by Sen and Sengupta (2019), the Swasthya Sathi Scheme has contributed significantly to improving access to healthcare services among slum dwellers in urban areas of West Bengal. The study found that the scheme has led to a reduction in out-of-pocket expenditures on healthcare, increased utilization of healthcare services, and improved health outcomes among slum dwellers.

Despite the positive impact of the Swasthya Sathi Scheme, there are several challenges in ensuring effective implementation among slum dwellers. A study by Banerjee et al. (2020) highlighted that lack of awareness about the scheme, bureaucratic

hurdles in enrolling beneficiaries, and inadequate infrastructure in healthcare facilities are some of the key challenges faced in providing healthcare services to slum dwellers under the scheme.

Furthermore, a study by Ghosh and Das (2018) emphasized the importance of community engagement and active participation of slum dwellers in the design and implementation of healthcare services under the Swasthya Sathi Scheme. The study recommended the establishment of community health committees comprising of slum dwellers to ensure the effective delivery of healthcare services tailored to the specific needs of the slum communities.

Research by Chatterjee et al. (2021) examined the impact of the Swasthya Sathi Scheme on the health outcomes of slum dwellers in West Bengal. The study found that slum dwellers enrolled in the scheme had better access to timely healthcare services, reduced morbidity rates, and improved overall health status. The study also highlighted the role of the scheme in reducing health inequities and promoting health equity among vulnerable populations.

Magnitude of the Problem

Slums are characterized by overcrowded living conditions, inadequate sanitation facilities, and limited access to healthcare services. In Uttarpara Kotrung Municipality, a significant proportion of the population resides in slum areas, facing numerous health challenges due to poor living conditions and lack of access to basic healthcare services. These challenges are further exacerbated by factors such as poverty, unemployment, and social exclusion, which contribute to the overall vulnerability of slum dwellers in this region.

One of the major health challenges faced by slum dwellers in Uttarpara Kotrung Municipality is the high prevalence of communicable diseases such as tuberculosis, malaria, and waterborne illnesses. Limited access to clean water, sanitation facilities, and preventive healthcare services increases the risk of infection and transmission of these diseases within the slum community. Additionally, poor nutrition, overcrowding, and exposure to environmental toxins further compromise the health and well-being of slum residents.

Inadequate healthcare facilities and a shortage of trained medical professionals also pose significant barriers to accessing timely and quality healthcare services in slum areas. Many slum dwellers rely on informal healthcare providers or traditional healers for treatment, leading to delays in diagnosis and inappropriate management of health conditions. Moreover, the out-of-pocket costs associated with seeking healthcare services often deter slum residents from seeking necessary medical care, resulting in poor health outcomes and higher rates of morbidity and mortality within the community.

The Swasthya Sathi Health Scheme aims to address these healthcare challenges by providing health insurance coverage to all residents of West Bengal, including slum dwellers in Uttarpara Kotrung Municipality. Under the scheme, beneficiaries are entitled to free secondary and tertiary healthcare services at empaneled hospitals and healthcare facilities, ensuring access to quality medical care without financial burden. By removing financial barriers to healthcare and promoting universal health coverage, the Swasthya Sathi Health Scheme has the potential to improve health outcomes and reduce health inequities among vulnerable populations in West Bengal.

Barriers to Access:

Lack of Awareness: Many slum dwellers in Uttarpara Kotrung Municipality are unaware of the Swasthya Sathi Health Scheme and its benefits. Limited knowledge about the scheme leads to underutilization and missed opportunities for healthcare services.

Financial Constraints: While the Swasthya Sathi scheme offers cashless coverage, slum dwellers may still face financial constraints in accessing transportation to healthcare facilities, purchasing prescribed medications, and covering incidental expenses during treatment.

Limited Healthcare Infrastructure: The municipality may lack adequate healthcare infrastructure, leading to long waiting times, overcrowded facilities, and substandard services. Slum dwellers may prefer seeking care from private providers due to perceived better quality of service.

Cultural and Social Factors: Cultural beliefs and social stigma can act as barriers to seeking healthcare services. Some slum dwellers may be hesitant to access medical care due to traditional practices, fear of discrimination, or lack of trust in healthcare systems.

Research Objectives

1. **To Assess Awareness Levels:** One of the key objectives of this study is to assess the level of awareness among slum dwellers in Uttarpara Kotrung Municipality regarding the Swasthya Sathi Health Scheme. This will help in understanding the reach of the scheme and identifying any gaps in knowledge dissemination.
2. **To Evaluate Utilization:** Another important objective of this study is to evaluate the utilization of healthcare services among slum dwellers under the Swasthya Sathi Health Scheme. This includes assessing the percentage of sample availed services, and satisfaction with the services received.

Research Methodology

The study employed a quantitative research approach to assess the awareness levels of slum dwellers in the Uttarpara Kotrung Municipality regarding the Swasthya Sathi Health Scheme. A sample size of 52 females was selected based on their residency (i.e., block 23 & 24) in the slum areas of the municipality. The research instrument used for data collection was a structured questionnaire containing questions related to the Swasthya Sathi scheme, including its benefits, eligibility criteria, enrolment process, and coverage. The selection criteria included females residing in the slum areas, aged 18 years and above (Family Female Head), and willing to provide voluntary responses to the questionnaire. Purposive sampling method was adopted.

Awareness Levels:

- High knowledge: Participants who were well-informed about all three aspects - benefits, coverage, and procedures associated with the scheme.
- Average knowledge: Participants who had knowledge of any two out of the three aspects.
- Below-average knowledge: Participants who were only aware of one aspect of the scheme.

Findings

The study revealed varying levels of awareness among female slum dwellers regarding the Swasthya Sathi Health Scheme. The participants were assessed based on their knowledge about the scheme, with the following results:

- **High Knowledge (55%):** More than half of the participants exhibited a high level of knowledge about the Swasthya Sathi Health Scheme. They were well-informed about the benefits, coverage, and procedures associated with the scheme.

- **Average Knowledge (29%):** Nearly one-third of the participants displayed an average level of knowledge about the Swasthya Sathi Health Scheme. While they had some awareness, there were gaps in their understanding of the scheme's details.

- **Below Average Knowledge (16%):** Approximately 16% of the participants demonstrated below-average knowledge about the Swasthya Sathi Health Scheme. These individuals had limited understanding of the scheme and its benefits.

Utilization:

- It was found that 53% of the sampled population had availed services under the Swasthya Sathi Health Scheme. This indicates a significant uptake of the scheme among the target population, highlighting its importance in providing healthcare access to vulnerable communities.

- Furthermore, 48% of the respondents expressed satisfaction with the services received through the Swasthya Sathi Health Scheme. This shows a positive response from beneficiaries towards the quality of care and support offered under the scheme.

Recommendations

While the Swasthya Sathi Health Scheme has shown positive outcomes among slum dwellers in Uttarpara Kotrung Municipality, there is always room for improvement. To enhance the impact of the scheme, it is important to:

- **Increase awareness:** Ensure that all eligible individuals are aware of the benefits and services offered under the Swasthya Sathi Health Scheme.

- Enhance service delivery: Streamline the healthcare services provided under the scheme to ensure timely access and quality care for all beneficiaries.

- Expand coverage: Consider expanding the scope of the scheme to include more preventive healthcare services and outreach programs for better community engagement.

Limitations

Sample Size: Purposive sampling may limit the generalizability of the study findings, as the sample only includes a specific subset of the population. A larger sample size would provide a more comprehensive understanding of the impact of the Swasthya Sathi scheme on slum dwellers in the municipality.

Selection Bias: There is a potential for selection bias in purposive sampling, as the researchers may inadvertently select participants who share similar characteristics or opinions. This could impact the validity and reliability of the study findings.

External Factors: The study may not have accounted for all external factors that could influence the health outcomes of slum dwellers, such as socioeconomic status, environmental conditions, and cultural beliefs. These factors could have a significant impact on the effectiveness of the Swasthya Sathi scheme.

Data Collection: The study relied on self-reported data from the participants, which could be subject to recall bias or social desirability bias. Future research could benefit from incorporating objective measures to validate the findings.

Conclusion:

The Swasthya Sathi Health Scheme has emerged as a vital support system for slum dwellers in Uttarpara Kotrung Municipality, providing them with much-needed healthcare access and financial protection. With a significant percentage of beneficiaries availing services and expressing satisfaction with the care received, the scheme has proven to be effective in improving the health outcomes of vulnerable populations. It is essential to continue monitoring and evaluating the scheme to further enhance its impact and reach among underserved communities.

Future scope of the study

While the study has provided valuable insights into the impact of the Swasthya Sathi Health Scheme on slum dwellers in Uttarpara Kotrung Municipality, there are several avenues for further research and exploration:

- **Long-term impact assessment:** A longitudinal study can be undertaken to assess the sustained impact of the scheme on the health outcomes of slum dwellers over an extended period. This would provide insights into the scheme's effectiveness in promoting long-term health and well-being among the target population.

- **Quality of care assessment:** A study focusing on the quality of healthcare services provided under the Swasthya Sathi Health Scheme can be conducted to evaluate the effectiveness of healthcare delivery mechanisms in improving health outcomes among slum dwellers. This would help in identifying areas for improvement and optimizing service delivery.

- **Equity analysis:** A study focusing on the equitable distribution of healthcare services under the scheme among different socio-economic groups can be undertaken to assess whether the benefits of the scheme are reaching the most marginalized sections of society. This would help in identifying gaps in service delivery and ensuring that the scheme is inclusive and accessible to all.

- **Behavioral impact assessment:** A study can be conducted to assess the behavioral changes among slum dwellers following their enrollment in the Swasthya Sathi Health Scheme. This would help in understanding the scheme's role in promoting health awareness, preventive healthcare practices, and overall health-seeking behavior among the target population.

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The Concept of Multi-level Marketing - Ongoing Controversial Financial Practices

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Abstract:

Multi-Level Marketing (MLM) is a business model where individuals earn income by selling products or services and recruiting others to do the same. Participants in MLM typically earn commissions not only for their own sales but also for the sales made by those they recruit, as well as by the recruits of their recruits, forming a hierarchical structure. MLM companies often emphasize recruitment and building a downline organization as key to success. While MLM can offer flexibility and potential for significant income, critics argue that it can resemble a pyramid scheme and may disproportionately benefit those at the top of the hierarchy. Regulatory scrutiny and controversy surround some MLM companies due to concerns about misleading practices and exploitation of participants. This paper is an effort to simplify the concept of multilevel marketing with the help of previous.

Keywords: Multi-Level Marketing, business, companies, pyramid scheme

A review paper on focusing the concept of multi-level marketing

Multi-level marketing (MLM), also known as network marketing, is a business model that relies on independent representatives or distributors to sell products or services directly to consumers. This model is characterized by a hierarchical structure where distributors earn commissions not only on their own sales but also on the sales made by the distributors they recruit into

the network, forming multiple levels of compensation. MLM companies often emphasize recruitment of new distributors as a primary means of growth, promising participants the opportunity to build their own business and achieve financial success through hard work and dedication.

Central to MLM is the concept of leveraging personal networks for sales and recruitment. Distributors typically start by purchasing a starter kit or products from the company, which they then sell at a markup to earn a profit. They also earn commissions or bonuses based on the volume of sales generated by themselves and their downline—those they recruit and those recruited by their recruits, and so on. This recruitment aspect is often criticized as it can prioritize recruiting over product sales, leading to accusations of being a pyramid scheme.

Proponents of MLM argue that it offers individuals the flexibility to work independently, build their own teams, and potentially earn substantial income based on their sales and leadership abilities. They highlight success stories of individuals who have achieved financial independence and entrepreneurial success through MLM. Additionally, MLM companies often provide training, support, and marketing materials to help distributors succeed, although the quality and effectiveness of these resources can vary widely.

Critics of MLM raise concerns about its resemblance to illegal pyramid schemes, where the emphasis is more on recruiting new participants rather than selling actual products or services. They argue that the structure incentivizes recruiting over retail sales, making it difficult for many participants to earn significant income. Moreover, MLM's hierarchical structure can lead to high turnover rates among distributors, with many failing to recoup their initial investment or achieve sustainable income.

Regulation of MLM varies globally, with some countries imposing strict guidelines to distinguish legitimate MLM operations from pyramid schemes. In the United States, for instance, the Federal Trade Commission (FTC) provides guidelines on what constitutes a legal MLM business, emphasizing the importance of retail sales and genuine product value over recruitment incentives.

Despite controversy and regulatory scrutiny, MLM continues to attract individuals looking for entrepreneurial opportunities

with low initial investment and flexible working conditions. The industry spans a wide range of product categories, from health supplements and cosmetics to household goods and financial services, catering to diverse consumer markets worldwide. As the digital landscape evolves, MLM companies increasingly utilize online platforms and social media to expand their reach and engage with potential distributors and customers globally, reshaping traditional approaches to direct selling and network marketing.

The Structure of MLM Companies

Multi-level marketing (MLM) operates on a distinct hierarchical structure designed to incentivize both product sales and recruitment. Here's an overview of the typical structure:

1. Company

At the top of the MLM structure is the company itself, which develops or sources products or services that are sold through its network of independent distributors. The company sets the overall compensation plan, policies, and guidelines that distributors must adhere to.

2. Distributors

Distributors are independent contractors or representatives who sign up with the MLM company to sell its products or services. They purchase products at a wholesale price and sell them at a retail price, earning a profit from the markup. Distributors are responsible for building their customer base and generating sales.

3. Sponsorship and Recruitment

One of the defining features of MLM is the recruitment of new distributors by existing ones. When a distributor recruits someone new into the MLM network, they become their sponsor or upline. The upline earns commissions or bonuses based on the sales generated by their downline recruits. This creates a multi-level or hierarchical structure within the organization.

4. Levels or Tiers

MLM organizations are structured into multiple levels or tiers, typically referred to as levels or generations. Each level represents

a group of distributors who are connected through sponsorship. For example:

First Level: Direct recruits of a distributor (downline).

Second Level: Recruits of the first level distributors.

Third Level: Recruits of the second level, and so on.

5. Compensation Plan

The compensation plan in MLM is designed to reward distributors for both their own sales efforts and the sales efforts of their downline organization. There are various types of compensation plans used in MLM, including:

Retail Sales: Distributors earn a commission on their personal retail sales.

Overrides: Distributors earn a percentage commission on the sales made by their downline recruits.

Bonuses: Additional incentives and bonuses are often provided for achieving specific sales targets, recruiting milestones, or leadership ranks.

6. Training and Support

MLM companies typically provide training, support, and marketing materials to help distributors succeed in their business ventures. This may include product training, sales techniques, leadership development, and access to online platforms or events. Effective training and support are critical for distributor success and retention within the organization.

7. Compliance and Regulations

MLM companies must comply with legal and regulatory requirements set forth by government agencies, particularly to differentiate themselves from illegal pyramid schemes. Regulatory bodies often scrutinize MLM practices to ensure that the emphasis is on legitimate product sales rather than recruitment incentives alone.

8. Advancement and Recognition

Advancement within the MLM structure is based on achieving specific milestones such as sales targets, recruitment goals, and leadership qualifications. Distributors can earn higher commissions and bonuses as they advance to higher ranks or

levels within the organization. Recognition for achievements is often an integral part of MLM culture, motivating distributors to strive for success.

Examples of MLM companies -

AMWAY - One prominent real-life example of multi-level marketing (MLM) is Amway. Founded in 1959 by Jay Van Andel and Richard DeVos, Amway is one of the largest and oldest MLM companies globally. It operates in the health, beauty, and home care products sector, offering a wide range of products through its network of independent distributors.

Structure of Amway's MLM System:

Products and Sales: Amway manufactures and sells various products such as vitamins, supplements, skincare, cosmetics, and household items. These products are marketed under brands like Nutrilite (health supplements) and Artistry (cosmetics).

Independent Business Owners (IBOs): Individuals who join Amway become independent business owners (IBOs). They purchase products at wholesale prices and sell them at retail prices, earning a profit on each sale. IBOs are responsible for building their customer base and generating sales.

Compensation Plan: Amway's compensation plan includes multiple ways for IBOs to earn income:

Retail Margin: IBOs earn retail profits from direct sales to customers.

Bonuses and Overrides: IBOs can earn bonuses and overrides based on the sales volume of their downline organization (recruits and their recruits).

Leadership Bonuses: Achieving leadership ranks within Amway's structure qualifies IBOs for additional bonuses and incentives.

Sponsorship and Recruitment: A critical aspect of Amway's MLM model is recruitment. IBOs earn commissions and bonuses not only from their own sales but also from the sales generated by IBOs they recruit into the network and subsequent generations of recruits.

Training and Support: Amway provides extensive training, marketing materials, and support to help IBOs succeed in their business ventures. This includes product training, sales techniques, leadership development, and access to online resources.

Global Presence: Amway operates in over 100 countries and territories worldwide, leveraging its extensive network of distributors to reach diverse consumer markets.

Challenges and Controversies:

Amway, like many MLM companies, has faced criticism and legal challenges over the years. Critics argue that the emphasis on recruitment can prioritize recruiting over product sales, leading to allegations of operating as a pyramid scheme. However, Amway has defended its business model as legitimate and compliant with regulatory standards in various countries where it operates.

Impact and Legacy:

Despite controversies, Amway has built a significant global presence and has been a pioneer in the direct selling industry. It has provided entrepreneurial opportunities to millions of individuals worldwide, allowing them to start their own businesses with relatively low startup costs. The company's longevity and success illustrate the enduring appeal and potential of the MLM business model, while also highlighting ongoing debates about its ethics and economic impact.

Herbalife Nutrition - Another example of a well-known MLM (multi-level marketing) company is Herbalife Nutrition. Founded in 1980 by Mark Hughes, Herbalife is a global nutrition company that markets dietary supplements, weight management products, sports nutrition solutions, and personal care products through a network of independent distributors.

Structure of Herbalife's MLM System:

Products: Herbalife offers a diverse range of nutritional and personal care products. These include protein shakes, vitamins, supplements, energy drinks, skincare products, and more. The company emphasizes health and wellness, promoting its products as solutions for weight management, fitness, and

overall well-being.

Independent Distributors: Herbalife operates through a network of independent distributors, also known as Herbalife members or distributors. These distributors purchase products from Herbalife at a discounted price and sell them to customers at retail prices, earning a profit on each sale.

Compensation Plan: Herbalife's compensation plan is structured to reward distributors for both product sales and recruitment efforts:

Retail Profits: Distributors earn a retail profit from selling products directly to customers.

Wholesale Commissions: Distributors can earn commissions based on the volume of products purchased by their downline distributors.

Bonuses and Incentives: Herbalife offers various bonuses and incentives for achieving sales targets, recruiting new distributors, and advancing in leadership ranks within the organization.

Recruitment and Downline: A key aspect of Herbalife's MLM model is recruitment. Distributors are encouraged to recruit new members into their downline organization. They earn commissions and bonuses based on the sales volume generated by their downline distributors and subsequent generations of recruits.

Training and Support: Herbalife provides training, marketing materials, and support to help distributors succeed in their business ventures. This includes product training, sales techniques, nutritional education, and access to online resources and events.

Global Reach: Herbalife operates in numerous countries worldwide, leveraging its global network of distributors to reach diverse consumer markets.

Challenges and Controversies:

Herbalife, like many MLM companies, has faced scrutiny and legal challenges over its business practices. Critics have raised concerns about the emphasis on recruitment, alleging that the MLM model can incentivize recruiting over product sales. This has led to accusations of Herbalife operating as a pyramid

scheme, although the company has defended its practices and legality.

Impact and Legacy:

Despite controversies, Herbalife has built a substantial global presence and has been a significant player in the nutrition and wellness industry. The company has provided entrepreneurial opportunities to millions of individuals worldwide, allowing them to start their own businesses with relatively low startup costs. Herbalife's success illustrates both the potential and challenges associated with the MLM business model in the competitive marketplace.

In conclusion, Herbalife Nutrition exemplifies a prominent MLM company, demonstrating how such organizations operate through independent distributors to market and sell products while navigating regulatory and public scrutiny regarding their business practices.

Controversial aspects of MLM Companies

MLM (multi-level marketing) companies have often been associated with controversies and allegations of scams or unethical practices. While not all MLM companies are fraudulent, some have faced significant scrutiny and legal challenges due to various practices that critics argue resemble pyramid schemes or deceptive business tactics. Here are some common scams or problematic aspects associated with MLM companies:

Emphasis on Recruitment Over Product Sales: One of the primary criticisms of MLM companies is the heavy emphasis on recruiting new distributors rather than selling actual products or services. Distributors may be incentivized to recruit others into the network, often promising high earnings and financial success through recruitment bonuses rather than through legitimate product sales.

High Initial Costs and Inventory Requirements: Many MLM companies require new distributors to purchase starter kits, product inventory, or sales materials upfront. This can lead to financial strain on distributors who may struggle to recoup their initial investment, especially if they are unable to sell the products or recruit others effectively.

Misleading Income Promises: MLM companies sometimes exaggerate potential earnings or success stories, creating unrealistic expectations among new recruits. Distributors may be encouraged to promote the lifestyle benefits of joining the MLM network without adequately disclosing the challenges or risks involved.

Complex Compensation Structures: The compensation plans of some MLM companies can be overly complex and difficult for distributors to fully understand. This complexity may obscure the true financial viability of the business opportunity, making it challenging for distributors to assess whether they can realistically achieve the promised earnings.

Product Quality and Value Concerns: Critics argue that some MLM products are overpriced or of questionable quality compared to similar products available in the market. Distributors may face challenges in convincing customers to purchase products at premium prices, particularly if they can find comparable or superior alternatives elsewhere.

Legal and Regulatory Issues: Several MLM companies have faced legal challenges from government agencies, consumer protection organizations, or individual lawsuits alleging deceptive practices, false advertising, or operating as illegal pyramid schemes. Regulatory scrutiny varies by country, with some jurisdictions imposing stricter regulations on MLM practices to protect consumers.

Cultural and Social Pressure: MLM companies sometimes exploit personal relationships and social networks, encouraging distributors to recruit friends, family members, and acquaintances. This can strain personal relationships and create social pressure to participate in the business opportunity, even when individuals may have reservations or doubts.

Notable Examples of MLM Scams:

Herbalife: While Herbalife has a large global presence, it has faced accusations of operating as a pyramid scheme and misleading distributors about potential earnings. The company has settled legal disputes with regulators and paid fines to resolve allegations regarding its business practices.

Amway: Despite being one of the oldest and largest MLM companies, Amway has also encountered legal challenges and criticism over its recruitment-focused business model. It has defended itself against accusations of operating as a pyramid scheme, emphasizing the importance of product sales in its compensation plan.

Vemma: In 2015, Vemma Nutrition Company was shut down by the U.S. Federal Trade Commission (FTC) for operating a pyramid scheme. The FTC alleged that Vemma's compensation plan primarily rewarded distributors for recruiting new participants rather than selling products.

In conclusion, while MLM companies can offer legitimate business opportunities for entrepreneurial individuals, potential distributors should exercise caution and conduct thorough research before joining any MLM program. Understanding the company's products, compensation plan, regulatory compliance, and reputation can help individuals make informed decisions and avoid falling victim to MLM scams or unethical practices.

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Assessing the Evolution of Unified Payment Interface (UPI) Usage: A Comparative Analysis of Pre and Post-COVID-19 Pandemic Trends

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Abstract:

The Unified Payment Interface (UPI) has emerged as a transformative force in the Indian financial landscape, revolutionizing digital payments and facilitating financial transactions with unparalleled convenience. This paper presents a comprehensive analysis of UPI usage patterns, focusing on the significant changes brought about by the COVID-19 pandemic. Through an extensive research methodology encompassing data analysis, surveys, and case studies, this study reveals a dynamic shift in UPI usage in the wake of the pandemic. Prior to the outbreak, UPI had already gained substantial traction due to demonetization, but the pandemic accelerated its adoption in unprecedented ways. Lockdowns, social distancing measures, and the heightened awareness of hygiene led to a surge in contactless payments, driving more users to embrace UPI as their preferred payment method. The research findings underscore the profound impact of the pandemic on UPI adoption, highlighting trends such as increased transaction volumes, the diversification of use cases, and the growing user base among diverse demographics. Furthermore, the paper delves into the role of government initiatives, financial institutions, and digital payment providers in fostering this evolution. In addition to the growth in UPI usage, this study also explores challenges encountered during

the pandemic, including security concerns and digital literacy issues.

In conclusion, this research illuminates the transformation of UPI usage in response to the COVID-19 pandemic, emphasizing its pivotal role in fostering financial inclusion and shaping the future of digital payments in India. The study provides valuable insights for policymakers, financial institutions, and businesses seeking to adapt to the evolving payment landscape in a post-pandemic era, with implications reaching far beyond the realm of digital finance.

Keywords: COVID-19 pandemic, Digital Payments, Unified payment interface (UPI), Electronic payments.

Introduction:

The Unified Payment Interface (UPI) has transformed the transaction landscape in India, playing a pivotal role in advancing digital payments and financial inclusion. Introduced by the National Payments Corporation of India (NPCI) in April 2016, UPI is a digital payment system that leverages smartphone applications to facilitate instant transactions. Users can perform transactions through various third-party apps like PhonePe, Paytm, Google Pay, Amazon Pay, and Freecharge, among others. This system is designed to be a secure and efficient alternative to physical cash and traditional bank methods.

UPI was initially piloted on April 11, 2016, and banks across India began adopting the interface in August 2016. It integrates with existing systems such as Immediate Payment Service (IMPS) and Aadhaar Enabled Payment System (AEPS) to ensure smooth transactions across accounts. UPI supports a variety of transaction types, including push (payment) and pull (receiving) transactions, barcode payments, and recurring payments like utility bills and school fees. By using a single identifier, UPI allows users to make payments without needing credit or debit cards, net banking, or account details.

UPI has emerged as a transformative force in India's digital payment sector, driving financial inclusion, boosting digital literacy, and contributing to the creation of a cashless economy. Despite having over 900 million mobile users, digital payment adoption remains limited to approximately 40 million users. The pandemic significantly accelerated the use of digital payments,

particularly UPI, due to its essential role in facilitating contactless transactions and mitigating virus transmission.

This study aims to compare UPI usage before and after the COVID-19 pandemic, highlighting the major changes and factors influencing these shifts. The pandemic-induced surge in digital payment adoption, driven by UPI's user-friendly nature, real-time processing, and compatibility with various banking systems, has been notable. The research seeks to uncover the reasons behind this shift and assess UPI's resilience during these challenging times.

Additionally, the study will explore UPI's future potential in India, examining opportunities for its integration into sectors like e-commerce, transportation, and public services. By analyzing UPI's evolution and user adaptation in response to the pandemic, this study aims to contribute valuable insights to the ongoing discussion on digital payment trends and practices in India's rapidly changing financial environment.

Objectives of the Study:

- To study a comparative analysis of UPI usage focusing on significant changes and factors contributing for changes in usage in pre & post COVID-19 situations.
- To identify the reasons for a dynamic shift in UPI usage in the wake of the COVID-19 pandemic.
- To identify the key factors that contributed to resilience of UPI as a payment solution in pre & post COVID-19 situations.
- To identify the future scope of UPI in the Indian perspective.

Literature Review:

The Unified Payment Interface (UPI) has transformed the digital payment landscape in India since its inception in 2016. The National Payments Corporation of India (NPCI) reports that UPI transactions soared to unprecedented levels during the COVID-19 pandemic, indicating a significant behavioral shift towards digital payment solutions among consumers. This trend has been attributed to the growing need for contactless transactions as a preventive measure against the spread of the virus (*Sharma et al., 2021*).

Several key factors contributed to the increase in UPI usage during the pandemic. The rapid adoption of smartphones and the proliferation of internet access across rural and urban India facilitated this transition. Furthermore, government initiatives promoting digital payments, coupled with the convenience and speed of UPI transactions, played a crucial role in its widespread acceptance (*Gupta & Singh, 2022*). Behavioral factors, including increased comfort with technology and a greater preference for cashless transactions, also contributed to this dynamic shift (*Kumar & Sinha, 2021*). Moreover, the proliferation of smartphones and increase in internet penetration played a critical role in enabling users from diverse backgrounds to access UPI services easily (*Nair, 2021*).

The resilience of the UPI payment system can be attributed to its robust technological framework and security features. The UPI system's ability to handle a high volume of transactions without major disruptions was vital during the pandemic (*Gupta & Singh, 2022*). This reliability, combined with the increasing consumer confidence in digital transactions, has positioned UPI as a reliable mode of payment. Furthermore, merchant adoption spurred by the pandemic's economic impacts furthered the platform's integration into everyday business practices (*Mukherjee, 2021*). UPI's robust architecture and security features have underlined its resilience as a preferred payment solution during the pandemic. The system's ability to handle high transaction volumes without significant disruptions highlighted its reliability (*Choudhury, 2022*). Additionally, UPI's interoperability with various banking platforms improved accessibility for users, further solidifying its position in the digital payment ecosystem (*Patel & Jain, 2021*).

Looking forward, UPI is poised for continued growth as the Indian government emphasizes digital financial inclusion. The potential expansion of UPI into new sectors, such as agriculture, education, and healthcare, could enhance its utility and integration into everyday transactions (*Verma, 2022*). The introduction of advanced technologies, including artificial intelligence and machine learning, may further augment UPI's capabilities, paving the way for a more sophisticated payment environment in India.

Research Methodology:

This study uses a quantitative, cross-sectional research design to examine how the use of the Unified Payments Interface (UPI)

has changed before and after the COVID-19 pandemic. To gather primary data, conducted structured questionnaires through personal contact with respondents from selected districts in West Bengal. Additionally, for the secondary data collection, the study reviewed research published by scholars, articles in various journals, and reports from the Reserve Bank of India and the National Payments Corporation of India. Also gathered relevant information from credible websites to support our analysis.

The Chi-Square (χ^2) test, originally developed by Karl Pearson, is used to determine if the observed data aligns with a theoretical distribution. This test evaluates whether the sample data could have come from a particular population. Essentially, the chi-square test is a statistical hypothesis test where the distribution of the test statistic approximates a chi-square distribution when the null hypothesis is true. As the sample size increases, this approximation becomes more precise. Being a non-parametric test, the chi-square test gauges how much the observed data deviates from what was expected based on theoretical predictions. The Chi-Square (χ^2) test requires certain conditions to be valid. First, the observations within the sample must be independent of one another, ensuring that the data points do not influence each other. Second, the data should be randomly drawn from the population to ensure that the sample accurately represents the larger group. Additionally, the sample size must be sufficiently large to provide a reliable approximation of the chi-square distribution. Finally, the data should be presented in its original units rather than as percentages to maintain accuracy in the analysis.

The χ^2 is used in the goodness of fit test to determine how well the observed data conforms to a specified theoretical distribution. In testing for independence, the chi-square test assesses whether two categorical variables are independent of each other. Additionally, the test of homogeneity compares the distributions of categorical variables across different groups to see if they are similar or differ significantly.

Data Analysis:

Analysis (1): Demographic Analysis of the Respondents

Demographic Characteristics	Category	Percentage
Gender	Male	62%
	Female	38%
Age	Below 25	43%
	25-34	19%
	35-44	27%
	45-54	8%
	55 and above	3%
Education Qualification	High School Diploma	7%
	Bachelor's Degree	20%
	Master's Degree	56%
	Ph.D. or other advanced degrees	17%
Occupation	Service	46%
	Home maker	6%
	Retired	2%
	Self Employed	5%
	Student	39%
	Unemployed	2%
Income	Below 15000	43%
	15001-25000	7%
	25001-35000	12%
	35001-45000	9%
	45001-55000	7%
	Above 55000	22%
Residential Status	Rural	15%
	Urban	85%

Table: 1 Demographic profile of respondents

The demographic analysis highlights several key factors about the sample. Firstly, the majority of respondents are male (62%), and most are relatively young, with 43% under 25 years old. Educationally, the sample is highly qualified, with 56% holding a Master's Degree and 17% having advanced degrees. Occupation-wise, a significant portion is engaged in service jobs (46%) and student roles (39%), indicating a focus on education

and employment in service sectors. Income distribution shows a notable concentration of respondents earning below 15,000, while 22% earn above 55,000, reflecting a wide range of economic statuses. Residentially, the sample is predominantly urban, with 85% living in urban areas, suggesting an urban-centric demographic.

Analysis (2): Impact of COVID-19 Pandemic on UPI usage:

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Use UPI for digital payments before the covid-19 Pandemic	24%	20%	19%	13%	24%	100%
Change in UPI usage during the Covid-19 pandemic	52%	25%	20%	2%	1%	100%
Usage level of UPI significantly increased after the COVID 19 pandemic	46%	18%	23%	6%	7%	100%

Ho: Null hypothesis: There is no significant relationship between COVID-19 Pandemic and UPI usage

H₁: Alternative hypothesis: There is significant relationship between COVID-19 Pandemic and UPI usage.

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where:

- O_i = Observed frequency
- E_i = Expected frequency
(Expected Frequency = Total Sample Size / Number of Categories)
= 100/5
= 20

$$\chi^2 = \frac{(58-20)^2}{20} + \frac{(11-20)^2}{20} + \frac{(20-20)^2}{20} + \frac{(8-20)^2}{20} + \frac{(3-20)^2}{20} + \frac{(25-20)^2}{20} + \frac{(34-20)^2}{20} + \frac{(20-20)^2}{20} + \frac{(11-20)^2}{20} + \frac{(10-20)^2}{20} + \frac{(46-20)^2}{20} + \frac{(21-20)^2}{20} + \frac{(13-20)^2}{20} + \frac{(9-20)^2}{20} + \frac{(11-20)^2}{20}$$

$$= 164.40$$

Here degree of freedom (df)

$$= (\text{No of column} - 1) (\text{No of row} - 1)$$

$$= (3 - 1) (5 - 1)$$

$$= (2 \times 4)$$

$$= 8$$

The Chi square value at 8 degree of freedom (df) on 5 % level of significance (α) is 15.507. Therefore, we will reject the Null Hypothesis (H_0) and accept the Alternative hypothesis (H_1), which implies that there is a significant relationship between the impact of COVID-19 and UPI usage.

Analysis (3): Identify the reasons for a dynamic shift in UPI usage in the wake of the COVID-19 pandemic:

Primary reason for changes in UPI usage during the pandemic	Percentage
Safety Concerns (Contactless Payments)	39%
Increased Awareness of Digital Payments	8%
Increased Availability of Digital Payments in Retail Centres	25%
Closure of Physical Stores	12%
No Change	16%

Table: 2 Primary reason for changes in UPI usage during the pandemic

The analysis of reasons for increased UPI usage during the pandemic reveals that safety concerns related to contactless payments were the most significant driver, cited by 39% of respondents. This reflects a strong preference for minimizing physical contact. Additionally, increased availability of digital payments in retail centres was a key factor for 25% of respondents, indicating that easier access to UPI services facilitated its adoption. Closure of physical stores contributed to the rise in UPI usage for

12% of respondents, as they shifted to digital payments due to the reduced availability of in-person shopping options. Increased awareness of digital payments played a minor role, mentioned by only 8% of respondents. Lastly, 16% of respondents reported no change in their payment habits, showing that a portion of the population maintained their pre-pandemic payment methods. Overall, the key factors driving the increased use of UPI were safety concerns and improved availability of digital payment options.

Analysis (4): Identify the reasons for Increased of UPI usage during the pandemic compared to before:

Increased of UPI usage during the pandemic compared to before	Percentage
Bill Payments	8%
Sending Money to Family & Friends	12%
Online Shopping	27%
Contactless Payments at Physical Stores	31%
Donation to Charities or Relief Efforts	4%
Food Delivery or Restaurant Order.	6%
No Change	12%

Table:3 Primary reason for changes in UPI usage during the pandemic

The analysis of UPI usage during the pandemic reveals that contactless payments at physical stores saw the largest increase, with 31% of respondents using UPI more for this purpose, reflecting a shift towards safer, touch-free transactions. Online shopping also experienced a significant rise, with 27% of respondents indicating increased use, driven by the growth in e-commerce during the pandemic. Increases in sending money to family and friends (12%) and bill payments (8%) were notable but less pronounced. Food delivery or restaurant orders and donations to charities saw minimal increases, at 6% and 4% respectively. Additionally, 12% of respondents reported no change in their UPI usage, showing that some individuals maintained their pre-pandemic payment habits. Overall, the key factors driving increased UPI usage were a heightened focus on contactless payments and a surge in online shopping.

Analysis (5): Impact of UPI in the Future of digital payments:

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Usage of UPI will be more in the future	58%	11%	20%	8%	3%	100%
Reliability of UPI digital payments will significantly increase in future	25%	34%	20%	11%	10%	100%
Recommend to use UPI for making digital payments	46%	21%	13%	9%	11%	100%

Ho: Null hypothesis: There is no significant relationship between UPI usage and Future of digital payments.

H₁: Alternative hypothesis: There is significant relationship between UPI usage and Future of digital payments.

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where:

- O_i = Observed frequency
- E_i = Expected frequency
(Expected Frequency = Total Sample Size / Number of Categories)
= 100/5
= 20

$$\begin{aligned} \chi^2 &= \frac{(58-20)^2}{20} + \frac{(11-20)^2}{20} + \frac{(20-20)^2}{20} + \frac{(8-20)^2}{20} + \frac{(3-20)^2}{20} + \\ &\quad + \frac{(25-20)^2}{20} + \frac{(34-20)^2}{20} + \frac{(10-20)^2}{20} + \frac{(46-20)^2}{20} + \\ &= 164.40 \end{aligned}$$

Here degree of freedom (*df*)

$$\begin{aligned} &= (\text{No of column} - 1) (\text{No of row} - 1) \\ &= (3 - 1) (5 - 1) \\ &= (2 \times 4) \\ &= 8 \end{aligned}$$

The Chi square value at 8 degree of freedom (*df*) on 5 % level of significance (α) is 15.507. Therefore, we will reject the Null Hypothesis (H_0) and accept the Alternative hypothesis (H_1), which implies that there is a significant relationship between the relationship between UPI usage and the future of digital payments.

Analysis (6): Improvements required to enhance the UPI user experience in Future:

Improvements required to enhance the UPI user experience	Percentage
Introducing offline UPI payments	33%
Enhancing security measures	7%
Improving transaction speed	8%
Enhancing user- friendly interface	13%
Enhancing Customer Support	12%
Enhancing Incentives & Rewards	10%
Support for international transaction	17%

Table:4 Improvements required to enhance the UPI user experience in Future

The analysis of improvements required for enhancing the UPI user experience highlights several key factors. The most pressing need, identified by 33% of respondents, is the introduction of offline UPI payments, which reflects a demand for functionality in areas with limited internet access. Support for international transactions, noted by 17%, indicates a desire for UPI to accommodate global payments. Enhancements to the user interface and customer support are also important, with 13% and 12% respectively, pointing to the need for greater usability and better assistance. While enhancing incentives and

rewards and improving transaction speed are valued, they are less critical compared to the primary needs. Enhancing security measures, though important, is viewed as a lower priority by 7% of respondents. Overall, the focus is on expanding UPI's accessibility and functionality, with significant emphasis on offline capabilities and international support.

Conclusion:

This research sheds light on how the Unified Payment Interface (UPI) has evolved in India, especially during the COVID-19 pandemic. It shows that UPI has become increasingly important in the country's financial landscape. The pandemic significantly boosted UPI usage, driven mainly by the need for safer, contactless payments and greater availability of digital options in stores.

During this period, people leaned heavily on UPI for contactless transactions at physical stores and online shopping, reflecting a shift towards more convenient and secure payment methods. This shift demonstrates UPI's ability to adapt to changing needs and preferences in a fast-moving economic environment. Looking ahead, the future of UPI appears promising. Many people expect its usage to continue growing and are confident in its reliability. However, there are areas where UPI can improve. For instance, adding offline payment options and supporting international transactions could greatly enhance its reach and functionality. These changes are particularly important for expanding UPI's use in rural areas and for global payments.

For those involved in developing and managing UPI, the findings highlight the need for ongoing investment in technology and infrastructure. Addressing user concerns, such as improving offline functionality and international support, will be key to driving further adoption. Enhancing the user interface and customer support is also crucial for a better overall experience.

In conclusion, UPI has not only managed to thrive during the pandemic but has also become a vital part of India's digital payment system. As the country moves towards a more digital economy, UPI is set to play a central role. To fully realize its potential, continuous improvements will be needed to meet user needs and adapt to changing market demands. Future research could explore how these pandemic-driven changes will affect

long-term digital payment behaviors and how UPI can be further integrated to promote financial inclusion and economic growth.

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