Impact of Covid-19 Outbreak on Performance of Indian Banking Sector

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Abstract— **The COVID-19 pandemic adversely impacted various industrial sectors of India as well as other countries across globe. In India, impact is resulting to a negative growth rate in economy. Many sectors were performing good before the pandemic but now they have been pulled down by this pandemic. So, it is very much required to analyse and cater the data about those sectors which are badly impacted by pandemic, these sectors play vital role in Indian economy. One of the most important sector of Indian economy is banking sector which is responsible for all the financial activities going on in the country and working as a supporting hand to all of the industries in term of financing, credit, transactions, collection and payment and so on. There are so many reports containing numerous data are in public domain stating the effects of this virus pandemic. The data is not only in physical form but also it is scattered in various format over the internet. Though the data amount is enormous, the major problem is to get the appropriate data according to the user needs. The databases available online are being regularly updated but these databases are not able to provide inference over the knowledge already stored. By using inference capability, we can fetch latent and indirect information out of the knowledge base. Various ontologies for Covid-19 are available online but they do not focus on the performance of banking sector of India during Covid19. So, many times users do not get appropriate information according to the imposed query. This article attempts to highlight the repercussions of the Covid-19 in the performance of the Indian banking sector by creating and evaluating the largest comprehensive knowledge base called ontology (Covid19-IBO) in order to get semantic information, in continuation of the same we address few important research questions with respect to Indian economy.**

Index Terms— **Large data, Ontology, Indian Banking, Covid-19, Sectors, Evaluation.**

I. Introduction

Indian economy basically depends on the three sectors namely primary sector, secondary sector and tertiary sector and all the three sectors are being majorly supported by banking sector. Banking sector is providing the financial support to all these sectors by disbursing loans, advances, short term credits, issuing letter of credit, bank guarantees etc as its traditional work. Apart from it the new phase of Indian Banking resembles in work like providing forex support, digital banking, e-commerce, telebanking, e-kiosk and many more. You cannot imagine rapid growing economy without banking support. If banking sector get impacted by any obstacle its consequences will definitely be borne by all these

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three sectors which are pillar of the Indian economy. This pandemic appeared as "black swan event" that needs immediate action from government to help resume economic stability through banking channel [1]. Based on approximation about recovery time from this global pandemic various economic tools are pointing out towards global economic depression of different dimensions. Covid-19 has affected the economy of India at that time when the growth rate of the country was at lowest in last 10 year. In the recent past, Indian Abstract The COVID-19 pandemic adversely impacted various industrial sectors of India as well as other countries across globe. In India, impact is resulting to a negative growth rate in economy. Many sectors were performing good before the pandemic but now they have been pulled down by this pandemic. So, it is very much required to analyse and cater the data about those sectors which are badly impacted by pandemic, these sectors play vital role in Indian economy. One of the most important sector of Indian economy is banking sector which is responsible for all the financial activities going on in the country and working as a supporting hand to all of the industries in term of financing, credit, transactions, collection and payment and so on. There are so many reports containing numerous data are in public domain stating the effects of this virus pandemic. The data is not only in physical form but also it is scattered in various format over the internet. Though the data amount is enormous, the major problem is to get the appropriate data according to the user needs. The databases available online are being regularly updated but these databases are not able to provide inference over the knowledge already stored. By using inference capability, we can fetch latent and indirect information out of the knowledge base. Various ontologies for Covid-19 are available online but they do not focus on the performance of banking sector of India during Covid19. So, many times users do not get appropriate information according to the imposed query. This article attempts to highlight the repercussions of the Covid-19 in the performance of the Indian banking sector by creating and evaluating the largest comprehensive knowledge base called ontology (Covid19-IBO) in order to get semantic information, in continuation of the same we address few important research questions with respect to Indian economy.

Economy was trying to get on the track by recovering with a slow rate. However, due to this pandemic the recovery process is severely impacted. As in last two quarters India has facing negative growth in GDP. The Indian economy was already suffering even before the Covid-19 outbreak, but Covid-19 outbreak resulting it worsen more.

In a recent report published by the RBI (India's central bank) states that this virus has impacted better companies,

organizations and businesses that were performing well before this pandemic. Now, Banks have to minimize the risk and use the high risk-averse strategy to restructure loans, provisioning bad debts due to less risk appetite, Indian banks have already suffered severe losses in past restructuring attempts. The same report indicates that 19 sectors are been adversely impacted by this pandemic resulting the stress of dept having value Rs 15.5 lakh crore which were not under the stress before this virus outbreak. Therefore, investigation of the impact of Covid19 from the large amount of distributed data is very vital to prevent the downfall of the economy and the minimize the pandemic effect. It is also essential because this study will be used as a touch bearer in future if any of the pandemic impacts like Covid-19. This paper offers the Covid19 impact on Banking ontology (Covid19-IBO) that provides semantic information about the impact of the Covid-19 on the banking sector of India. The major contributions of the paper are listed below: • Development of Covid19 Impact on Banking ontology (Covid19-IBO) • Evaluation of the Covid19-IBO by different evaluation approaches The rest of the paper is divided into six sections. Section 2 describes existing work. Section 3 discusses some research questions that is handled by developed ontology. Section 4 shows the development and evaluation of the Covid19-IBO. Section 5 emphases the result and discussion of the proposed work. Section 6 shows the results of subjective testing and last section concludes the paper.

Literature

Covid-19 pandemic adverse impact the Indian economy. To control the flow of the virus, GoI announced a nationwide lock down and various policies to help the people. **Dev and Sengupta [3]** have analysed the economic condition of the India before the Covid-19 along with policies that has been declared so far and potential effect of the shock on several part of the Indian economy.

Rakshit and Basistha [4] have wrote an article about economic effect of the outbreak in India by considering outbreak as a man-made disaster i.e. human tragedy. They addressed three important research questions: the effect of Covid-19 on the Indian economy along with the detailed analysis of the different sectors that suffered from Covid-19, the effect of Covid-19 on the bilateral trade relationship between China and India, the performance of health system during this pandemic.

Kanitkar [5] demonstrated the economic loss of India during Covid-19 by using a linear I/O model and results shows that the loss is about 10-30% of its GDP. The author has also focused on the emission of CO2 from the power sector and electricity supply, demand.

Demirguc-Kunt et al. [6] have analysed the effect of the Covid-19 outbreak on the banking sector by discussing the bank stock prices all over the world along with examine the role of financial policy by using global databases for the performance of bank stocks. The Covid-19 data is available on the internet in various format. WHO provides multilingual Covid-19 database that updates regularly and contains all the information about Covid-19.

Kousha and Thelwall [9] provided the access of the coverage of scholarly databases and impact indicators from the period of 21.03.2020 to 18.04.2020 so that people can identify the important new studies quickly from Covid-19 publications like news, tweets, citations, Facebook, databases and many more places. To respond effectively to emergencies like public health, we need to share the information across various disciplines and IT systems [10]. This is the place where ontologies offer excellent services and overcome the problem of interoperability. Along with the databases, various ontologies also have been developed in order to exact the hidden and semantic information.

Dutta and DeBellis [11] have published the ontology as a data model namely COviD-19 ontology for case and patient information (called CODO) on the web as a knowledge graph that provides the information about the Covid-19 pandemic. The primary focus of the CODO ontology is to describe the Covid-19 cases and Covid-19 patient data. Infectious Disease Ontology (called IDO) is an interoperable ontology that contains the domain information about infectious disease where entities are related to the clinical and biomedical aspects of the disease [12]. The extension of the IDO and Virus Infectious Disease ontology (VIDO) is called COVID-19 Infectious Disease Ontology (known as IDO-COVID-19) and contains the information about the Covid19 disease and SARS-CoV-2 virus [13]. The available different format of data (text documents, video, audio, databases and ontologies) contains the detailed information about the Covid-19 disease. After studying the literature, we claim that the available databases and ontologies that provide information according to the user queries do not have the complete information about the impact of Covid-19 on Indian banking sector that play vigorous role in the growth of Indian economy.

II. OOBJECTIVES OF THE STUDY

1. To Study the financial performance of the selected public sector and private banks. 28

2. To study and analyse of various financial reforms in banking sector during post liberalization period with respect to public and private sector banks.

3. To Study the legal and structural and financial status of banking sector prior to financial reforms period.

4. To study the changes in banking sector during post financial reform period.

5. To assess the impact of financial reform on banking sector

6. To identify the problems and prospects for banking sectors emerged due to financial reforms.

III. RESEARCH METHODOLOGY

Research is based upon effect of COVID -19 in Indian Banking Sector. As total world is suffering from the worst situation. Indian Banking also affected. People repaying capacity of loan get reduced. GDP of India got down. Economy progress of India got lower. Indian Government

along with Reserve Bank of India is continuously in the process of developing new policy which help to reduce impact of COVID-19.

Data Collection

The research is mainly based on the secondary database but it is supported by the primary data. Secondary data have been collected through structured questionnaire, annual reports, authentic records and publications of RBI and website of individual banks and RBI website. Primary data are collected through interviews from the officers of selected public sector banks as well as private sector banks. The interviews were undertaken from selected banks namely Bank of Baroda, SBI, Dena Bank and Oriental bank of commerce operating in Gujarat and Mumbai. The data also collected though interviews of the officers of above mentioned banks and also from the RBI.

IV. CONCLUSION

Financial Institution facilitate a conducive healthy environment to the employees and reskilling of the employees on new processes for ways of working. They enhancing customer centric approach through digital channels. RBI frame the policy for ensuring business continuity, Engage in partnership to optimize process and enhance experience. Reprioritize sectors and customer segment based on growth and risk profile. As situation change due to COVID-19 pandemic government encouraging people to design innovative business model for the new industry environment. Focusing on build robust digital ecosystem leveraging latest technology.

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