

/*this will be converted to LaTeX in a later time frame.*/

BTP Project (Machine Learning and its applications)

Introduction :

In this paper we will explore the field of macroeconomic analysis using machine learning. This paper is important especially as there is huge data available both hard data as well as soft data. In the currently fast moving world making policy makers need to be well informed about the current scenario before implementing various policy decisions to make better decisions in the short term.

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Introduction :

In this project we will explore the machine learning model prediction of GDP growth prediction using basic Machine Learning Classifiers and Deep Learning Models based on feature selection from a variety of different data sources using both the hard data as well as soft data available over the Web. from a period from 2000-2018 on quarterly data available from [] and [] since highly organized data is not available in Indian markets. Also since Also there has been a huge discussion on this topic lately especially since there has been talk in the machine learning literature[2] about the usage of machine learning models in economic analysis and the sudden recession brought about by the current pandemic with many countries still seeing a surge in cases despite availability of vaccines. We explore the subject on the viewpoint of Trade Agreements, Imports, Exports and Per Capita Income OR Purchasing Power Parity of countries in the BRICS

Keywords: Machine learning, Macroeconomic Forecasting, GDP Prediction,

Abstract:

Macroeconomic forecasting has been an area of interest mainly because of its role in decision making by policy makers to understand the current economic circumstances till the actual data is available. The Benchmarks for the prediction to be used are [] and []. Also with the recent landscape in world economics it helps governments to prioritize the work that needs to be done in the short term to revive the economy and plan for economic downturns. We make predictions on the distinction between the effects of recent recession within the developed nations (European Union) and developing countries (BRICS) and the path forward for the developing countries.

Conclusions:

Much depends on the race between the mutating nature of the virus and the vaccination drives. Global growth for 2021 is expected to be 5.5 %
And global growth for 2022 is expected to settle to be at 4.2%

Debt is record high at many countries.

Per Capita Incomes to recover at pre-pandemic intervals in the range of [2020-2022]

Over 90 million individuals are expected to enter extreme poverty in the third quarter of 2021

<https://www.imf.org/en/publications/weo>

Production of the Vaccines is a huge deciding factor in Trade of the World

/*One possible option is if I will finish the report on 11-04-2021 and will make a brief report of all the papers that I have read today if anybody wishes they can review the summary and make suggestions if any are possible.*/

IMF-World Economic Forecast :

Abstract :

Policy Support and Vaccines Activity :

Three Questions:

- 1.) Impact of restrictions on different economic sectors.
- 2.) Efficiency of Vaccine Rollout.
- 3.) How will Commodity Prices evolve.

Explored using the IMF G20 Model:

This paper seems to provide less information so we discard this paper.

SAQE-Forecast(This is a 2019 paper and so is a pre-pandemic paper.):

Strengthening export performance amidst rising nationalism.

Mitigating natural disaster risks.

Public transportation systems in the region will need to be upgraded and expanded.

BRICS Paper Highlights.

- 1.) Scenario wise Evaluation of What could be predicted :

Nominal GDP
Real GDP
Inflation Rate of the G7+BRICS countries

Over to Impact of COVID-19 on GDP Prediction on major economies:

The strict lockdown measures in various countries has caused economic contractions of 5.34%, 5.24%, and 5.31% and 2.2 in France, Spain, and Italy, Germany respectively, in the first quarter of 2020[1]

The trade wars, followed by the health pandemic, have led to a turmoil to the economies of the world. This uncertain nature of the economic impact of the pandemic has resulted in an increased margin of uncertainty in the actual and forecasted quarterly GDP growth during the COVID-19 shutdown period. The fluctuations in the near-short term predictions for the GDP are the reason for the huge forecasting error during the shutdown period.

On the other hand, the demand for software and the IT industry has seen a boom with people having to switch to online modes of learning.

Variation in the Food Grain Production and GDP (FGP vs GDP) has been observed in [4418949] and hence the importance of the agriculture sector on the importance of GDP in the year 2006. Now coming to 2020 we can check for the Importance of FGP vs GDP and how the agriculture reforms can transform the landscape.

Finally for a final report to be prepared:

- 1.) Introduction: Why we need to do GDP Prediction using Machine Learning Techniques(1 page.)
- 2.) Abstract : Current Use of Machine Learning Techniques in Macroeconomic Forecasting (2 pages)
- 3.) Some History into GDP Prediction. (1 page)
- 4.) Variable Selection :(4 pages)
- 5.) Case Study about the variables(2 pages)
- 6.) Conclusion (1 page)

REFERENCES:

Building better economic bricks

<https://www.sciencedirect.com/science/article/pii/S0313592620304604>

[Machine Learning: An Applied Econometric Approach](#)

<https://www.sciencedirect.com/science/article/abs/pii/S2452292918301668> (Highly Recommended to get access to similar to what was discussed in our meeting.)

[The Indian Monsoon, GDP and Agriculture](#) (Last resort)

[Forecasting of Real GDP Growth Using Machine Learning Models: Gradient Boosting and Random Forest Approach.](#)

https://cdr.lib.unc.edu/concern/honors_theses/9593v0433