Projections to Silver Lining: Economy on Recovery Alley

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Apart from economic theory and channels, we attempt to provide a simple visualization to facilitate debate on revival of Pakistan Economy. Amid government's narrative against corruption, the market based exchange rate and autonomy of central bank are evidence of free economy to some extent. It is believed that in the absence of excessive government interventions economy adjusts itself accordingly to recovery alley.

It is revealed in our analysis that Economy is on recovery path; well, every cloud has silver lining.

Escaping theoretical channels give us liberty to utilize atheoretical econometric techniques to estimate projections; however this effort provides food for thought for theorist to think in this direction and fine-tune their understanding with empirical evidence. Data based pragmatic findings do not ascertain causal relation, however it provides evidence of association that might be a result of some confounded causal channel. These confounding factors move economy in one direction or other apart from theoretically known economic channels.

We investigate selected important indicators to Pakistan Economy through visualization and predictions; we find persistent historic patterns & interesting future projections. The most concerned and discussed budget related macro variables such as GDP, Inflation, Remittances and Exports are considered. These variables have direct or indirect associations and transmission mechanism with other economic indicators and ultimately have significant impact on overall economy.

The visualizations of macro-economic variables depict historical pattern and predicts the future course. We utilize up to date and reliable data sources for interesting analysis, that result in astonishing facts about revival of economy. Our projections indicate better economic conditions in near future. Keeping in view all data related constraints including data availability, restricted estimation tools and convergence problem; we employ con-temporaneous econometric techniques to estimate projections for various economic variables. None of the models and none of the tools is ultimate, they work well subject to underlined assumptions. The choice of technique and data span is ever remained debatable; however we believe that WEAK convergence is better than NO convergence.
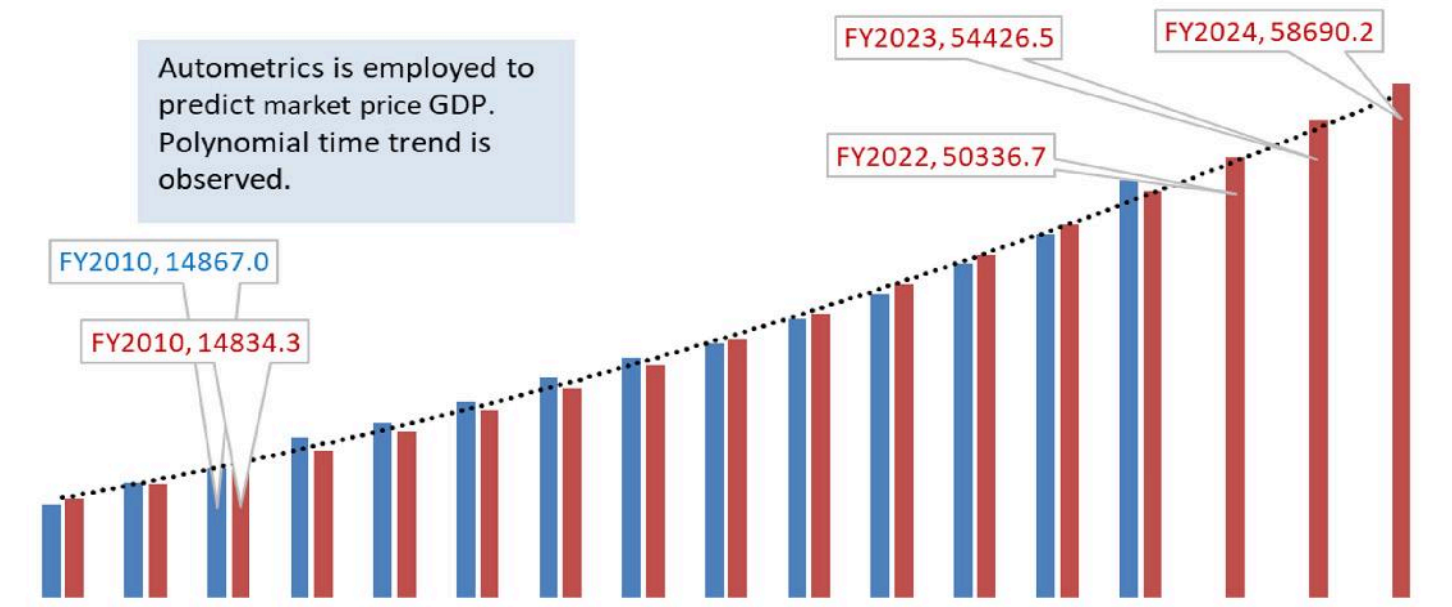
Though budget figures seems mere numbers but they manifest government's intentions and reveals impact of government interventions. GDP growth rate is one of the most criticized and debated numbers before every budget; we do not indulge in "guessing the growth rate" contest and focus on projections of GDP. Beside real and nominal descriptions of GDP, GDP at current basic price and GDP at market price are reported by distinct data sources, though quantitatively distinct but all these GDP numbers show same qualitative properties including trends and future course; we assume that GDP at market price is a better choice amongst others as it is adjusted for taxes and subsidies.

We explore historic trend of market price GDP and found increasing pattern over FY2008 (2007-08) to FY2021 (2020-21). During this period no exponential but a second order polynomial trend is detected, we exploit this information to estimate future projections. The projected series follow steady increasing trend which is no doubt an indication to better economy in near future.

Figure.1 provides time trend and projections of market price GDP for next three years FY2022, FY2023 and FY2024 (Charemza and Deadman 1997).

Figure.1. Actual and Projected GDP in Million Rupees.

Actual and Predicted GDP in Million PKR

Autometrics is employed to predict market price GDP. Polynomial time trend is observed.

FY2023, 54426.5

FY2024, 58690.2

FY2022, 50336.7

FY2010, 14867.0

FY2010, 14834.3

After GDP growth rate the other debatable question is that which macro variable contributes to GDP to track its current trend and growth? Proposed by theory there are many potential factors including Consumption. Over the years Final Consumption Expenditure is increasing with an average rate of about 4%; during FY 2016 and FY2017 its rate of increase was more than 7% and this is the same period in recent past when GDP growth rate was exemplary high, see figure.2.

It is also observed that area under study consumption remained more than 90% of the GDP (see figure.3) and in last few years consumption contribution has stable increasing time trend. We cautiously conclude that consumption is the factor that expected to contribute significantly in GDP growth in near future; it points out towards consumption led growth economy. This finding advocates against austerity policy of the sitting government.

Figure.2. Final Consumption Expenditure in Billion Rupees.
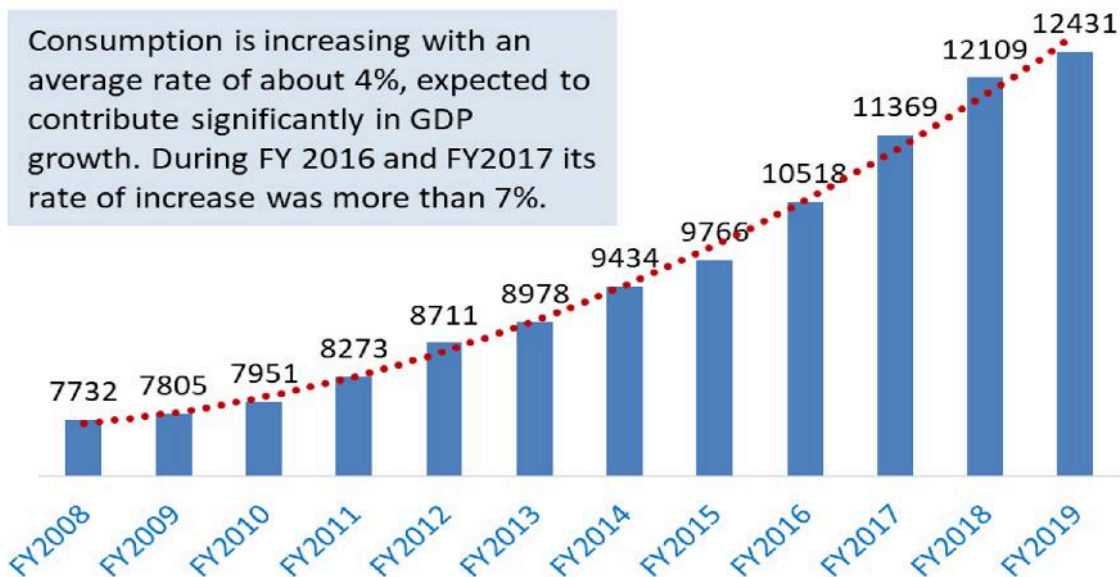
Consumption PKR billion

Consumption is increasing with an average rate of about 4%, expected to contribute significantly in GDP growth. During FY 2016 and FY2017 its rate of increase was more than 7%.

12431
12109
11369
10518
9766
9434
8978
8711
8273
7951
7805
7732

FY2008 FY2009 FY2010 FY2011 FY2012 FY2013 FY2014 FY2015 FY2016 FY2017 FY2018 FY2019

Figure.3. Consumption as percentage of GDP

Consumption (% of GDP)

95%
94%
93%
92% 93% 92% 92% 91% 91%
91% 90% 90%
90%

In recent past Consumption remained a substential contributor to economic growth. Over the period it grows at an average rate of 4% per anum.

FY2008 FY2009 FY2010 FY2011 FY2012 FY2013 FY2014 FY2015 FY2016 FY2017 FY2018 FY2019
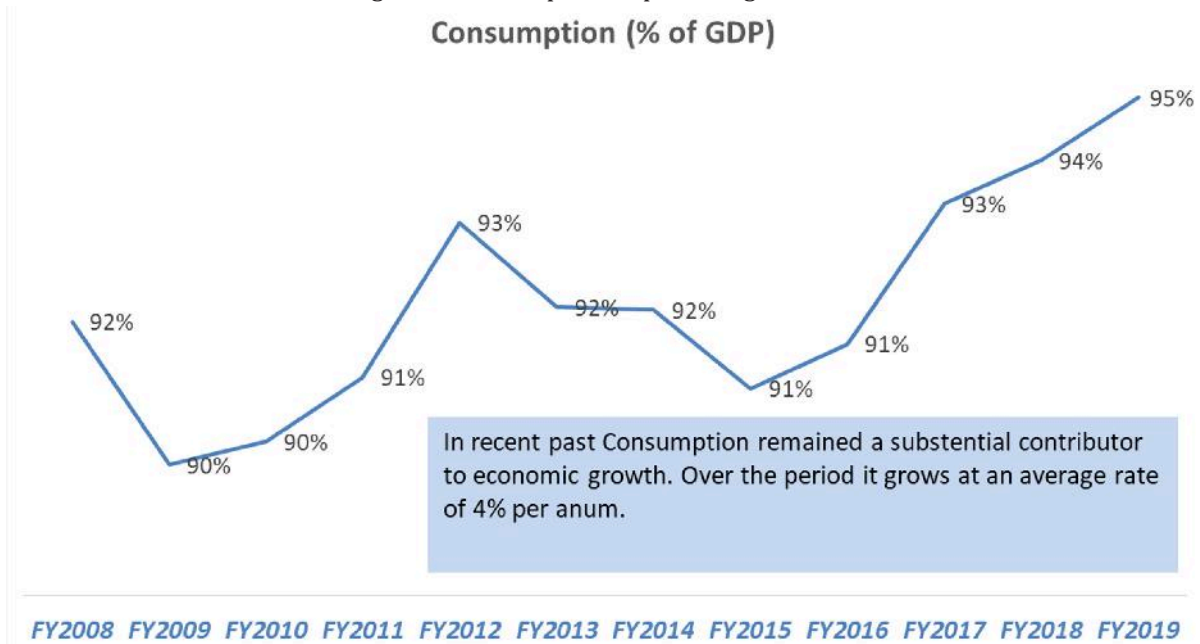
Recently an increasing tendency of exports is also considered to be an aid to GDP growth. Though Pakistan is a small open economy surrounded by comparative Exporting Giants, China, India and a growing competitor Bangladesh but Pakistani Exports show average increasing trend during last five decades. Exports contribute sizeable share to GDP in Pakistan economy; since 2017 export's percentage share to GDP shows steady increasing trend see figure.4. The trade openness policy also worked well over the recent past and since 2015 the trade openness index follow upward trend, see figure.5.

Boost in Exports; a possible reason might be persistent lockdown in India amid severe spread of COVID-19 pandemic. The lockdown slowed down the Indian Economy including exports; Pakistani exporters successfully exploit this situation and benefited from this spillover effect. Another possible reason to increasing patterns of Exports might be exporters' response to an anticipated stimulus by the government.

This motivates us to estimate projections of Exports to validate above discussion. Considering the autoregressive and moving averages structure of exports, we employ ARFIMA (Granger and Joyeux 1980) modeling technique to estimate projections. A stable increasing projections are anticipated which is expected to contribute to GDP, this aids the economy on recovery path see figure.6.
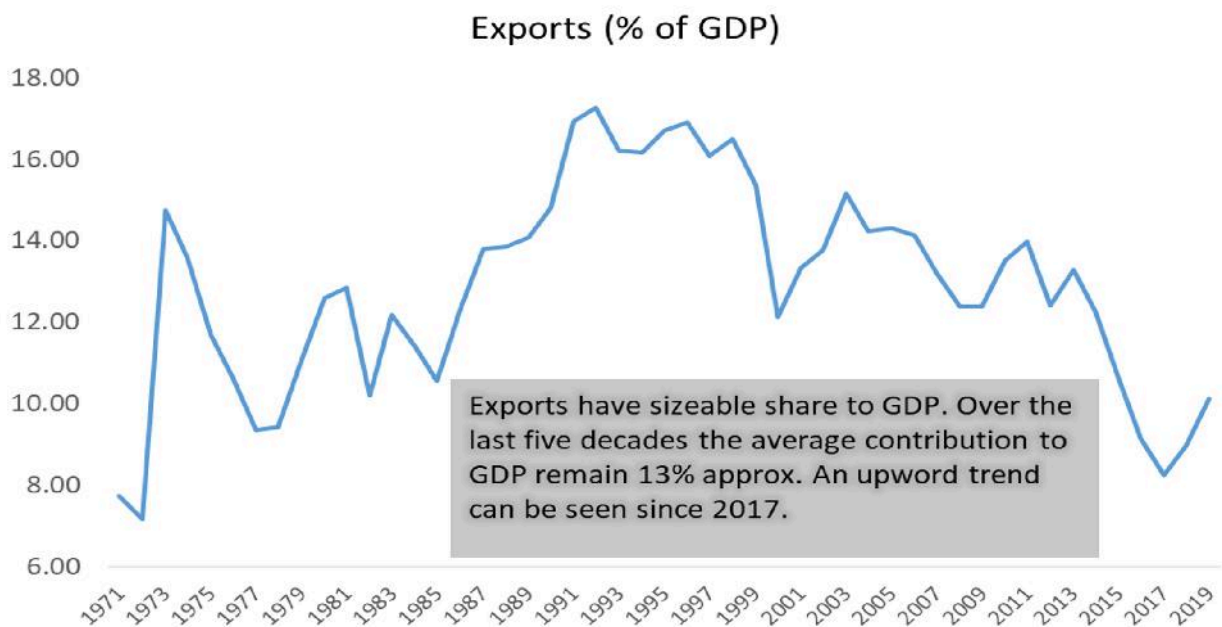
Figur.4. Exports historic share to GDP

Exports (% of GDP)

18.00
16.00
14.00
12.00
10.00
8.00
6.00

Exports have sizeable share to GDP. Over the last five decades the average contribution to GDP remain 13% approx. An upword trend can be seen since 2017.

1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019

Figure. 5. Trade Openness Index [(Exports + Imports) / GDP x 100]

Trade Openess Index %

32.87%

33.13%

30.71%

32.28%

31.14%

29.21%

28.67%

28.39%

27.78%

26.43%

25.58%

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
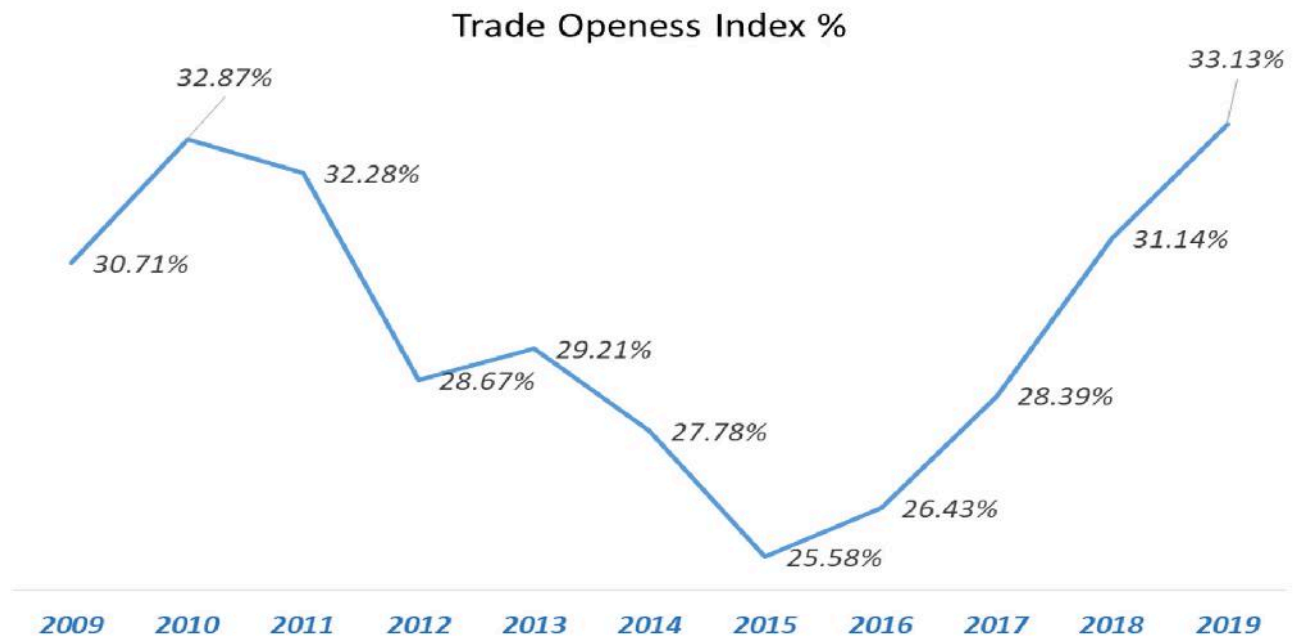
Figure .6. Export's Projections

Export's Projections in Billion USD

FY2024, 28.55

A tentative ARFIMA (1, 0.173, 1) model predicts that future exports may increase up to 28.55 billion USD in the FY 2024.

FY2019, 27.54

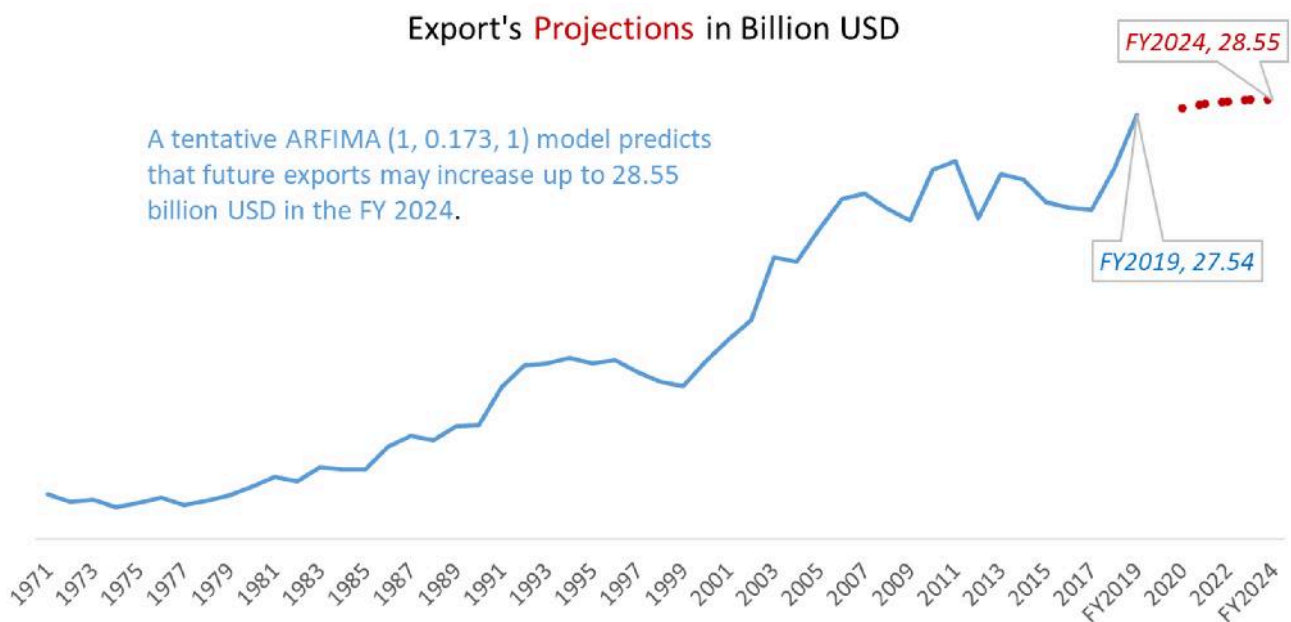1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 FY2019 2020 2022 FY2024

Remittances are the most deliberated variable because of its significant contribution to foreign reserves and importance for preservation of trade balance. Government quarters widely propagate and over exaggerate the expected increase in home remittances and relate this increas to their policies for expatriates.

Avoiding any theoretical channel we observe remittances series and found that since July 2018 an average increasing trend is observed in monthly home remittances see figure.7; Kingdom of Saudi Arabia and UAE are the major contributors followed by USA and UK. Recently lifting ban on visa, by Kuwait government, is expected to further increase home remittances in near future; that aid to recovering economy in years to come.

The best part ; we make data speak and explore the historic pattern of annual remittances time series and tentatively identify data generating process of the remittances over time and utilize this information to estimate projections. A steady increasing projections depict future course, according to our estimates by the year 2025 remittances may grow more than 25 billion USD. We can hope for recovering economy in near future with added remittances and its impact on other economic indicators.
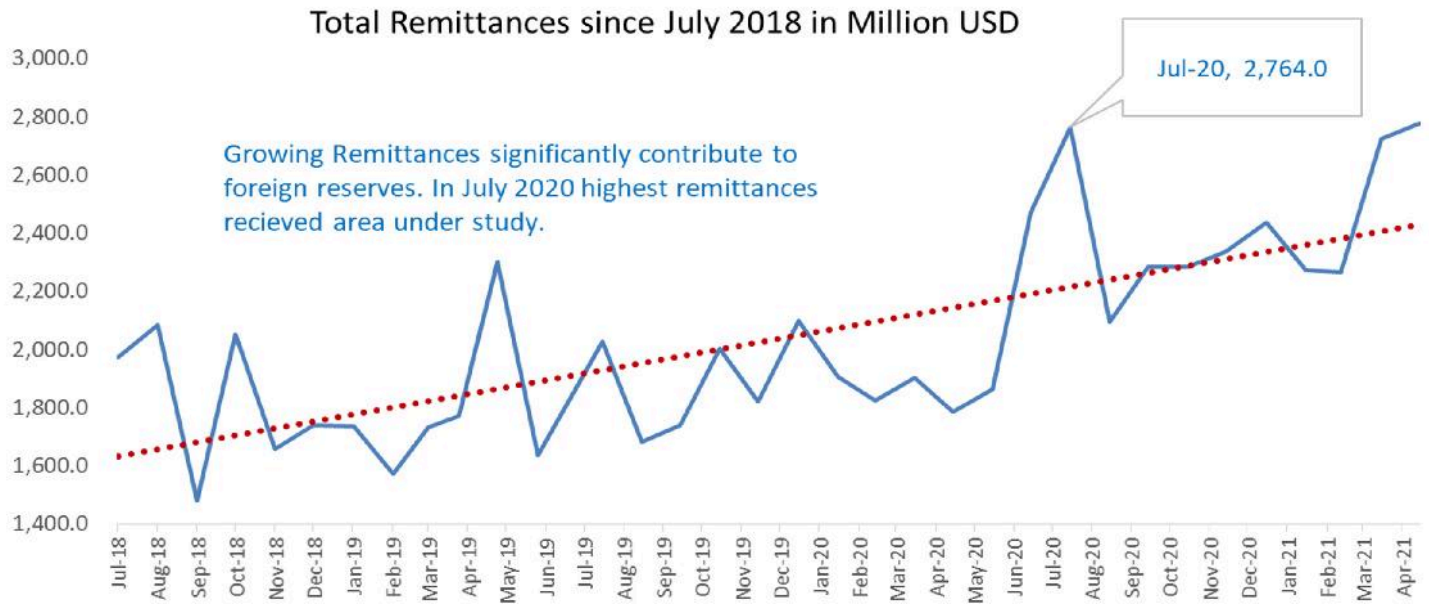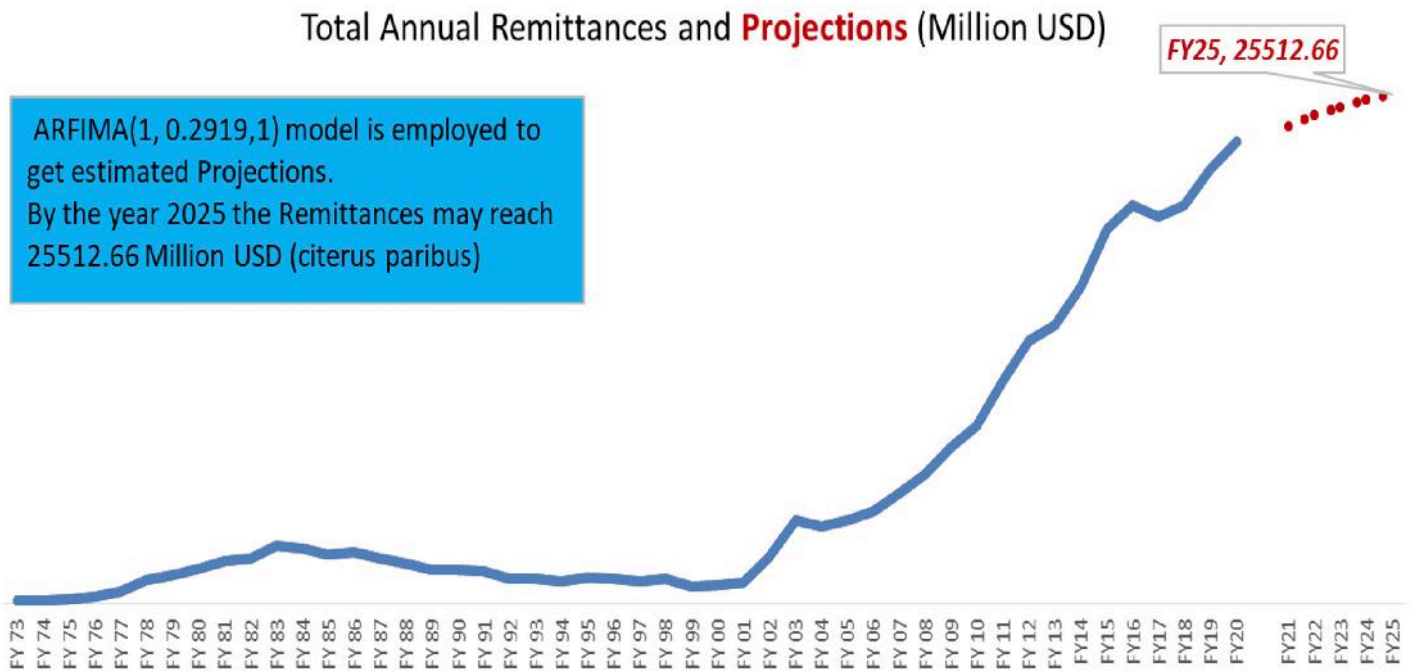
Figure. 7. Monthly Home Remittances in Million USD

Total Remittances since July 2018 in Million USD

Jul-20, 2,764.0

Growing Remittances significantly contribute to foreign reserves. In July 2020 highest remittances recieved area under study.

Figure. 8. Historic Pattern of Annual Remittances and Projections

Total Annual Remittances and **Projections** (Million USD)

FY25, 25512.66

ARFIMA(1, 0.2919,1) model is employed to get estimated Projections.
By the year 2025 the Remittances may reach 25512.66 Million USD (citerus paribus)

Inflation is the most concerned phenomenon for general public and consequently for governments; stabilizing prices is the most important fragment of any government manifesto. Higher inflation rate overshadows the nominal income, create panic in general public, increases government expenditures and outshines savings etc. Through several intersections the impact of high Inflation transmit to other economy building variables and slows down economic activities; until economy starts course correction. At critical point individuals temporarily change consumption pattern in response to inflated prices; also government intervenes to stabilize prices through mix of monetary and fiscal channels.

A careful visual analysis of annual inflation (Consumer Price Index %) reveals that prices have no pattern at all, it fluctuates in response to prevailing economic conditions. Over the last five decades nation enjoyed lowest inflation rate of 2.53% in 2015, this is the period when petroleum prices were at lowest worldwide and Pakistan economy was on takeoff position. We utilize

fifty years data to identify structure of Inflation series and estimate projections from 2020 to 2024; we find a downward trend that indicates stabilizing prices in next five years. Currently inflation rate is around 11% which is expected to decrease by 8.94% by 2024, see figure.9. Stabilized prices expected to support economy on recovery path.

Figure. 9. Annual Inflation% and its Projection
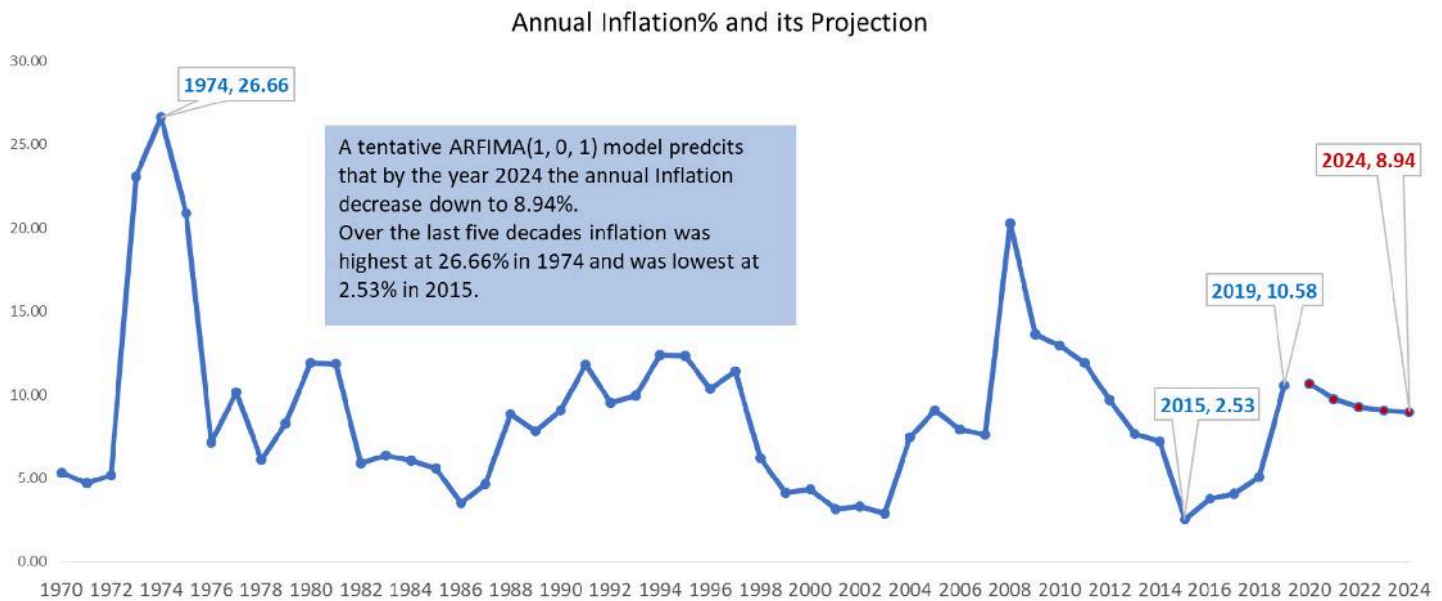
Avoiding theoretical channels we investigate most criticized and elaborated budget related macro variables such as GDP, Inflation, Remittances and Exports through visualization and future projections. These variables are associated with other economic indicators and ultimately have significant impact on overall economy. We conclude that Pakistan Economy is on recovery path.

References and data sources

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