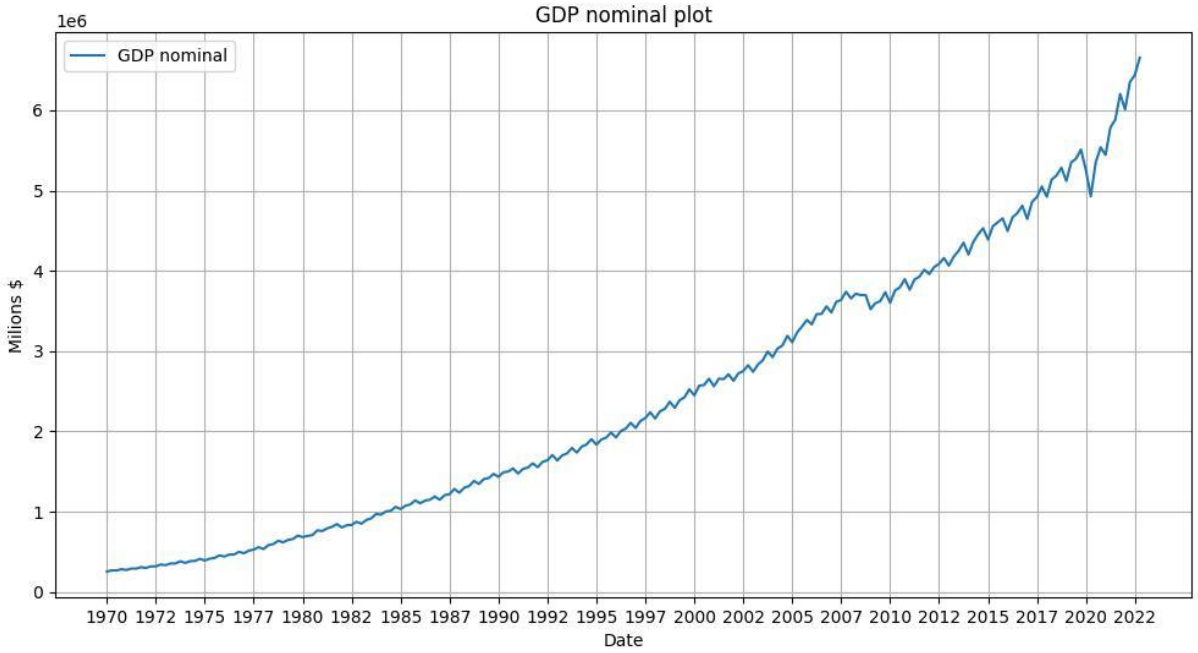
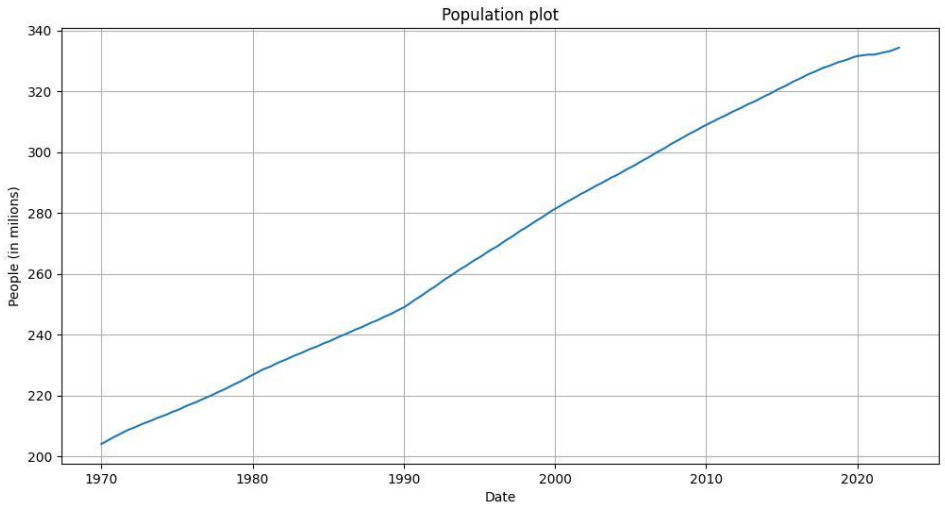
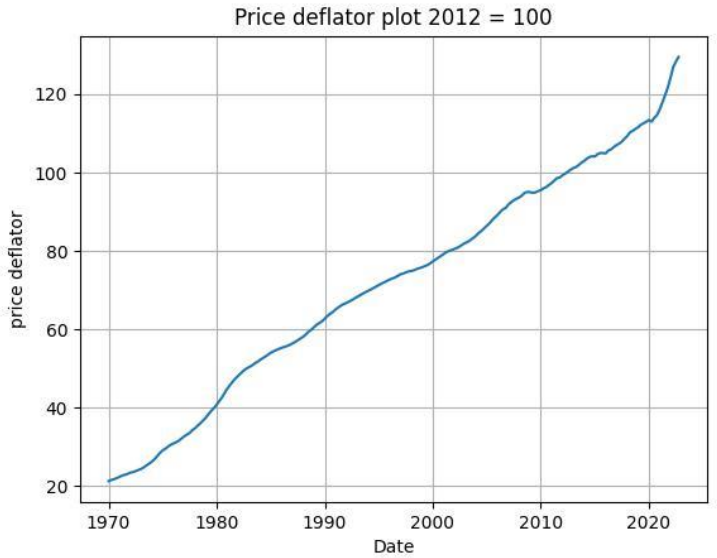
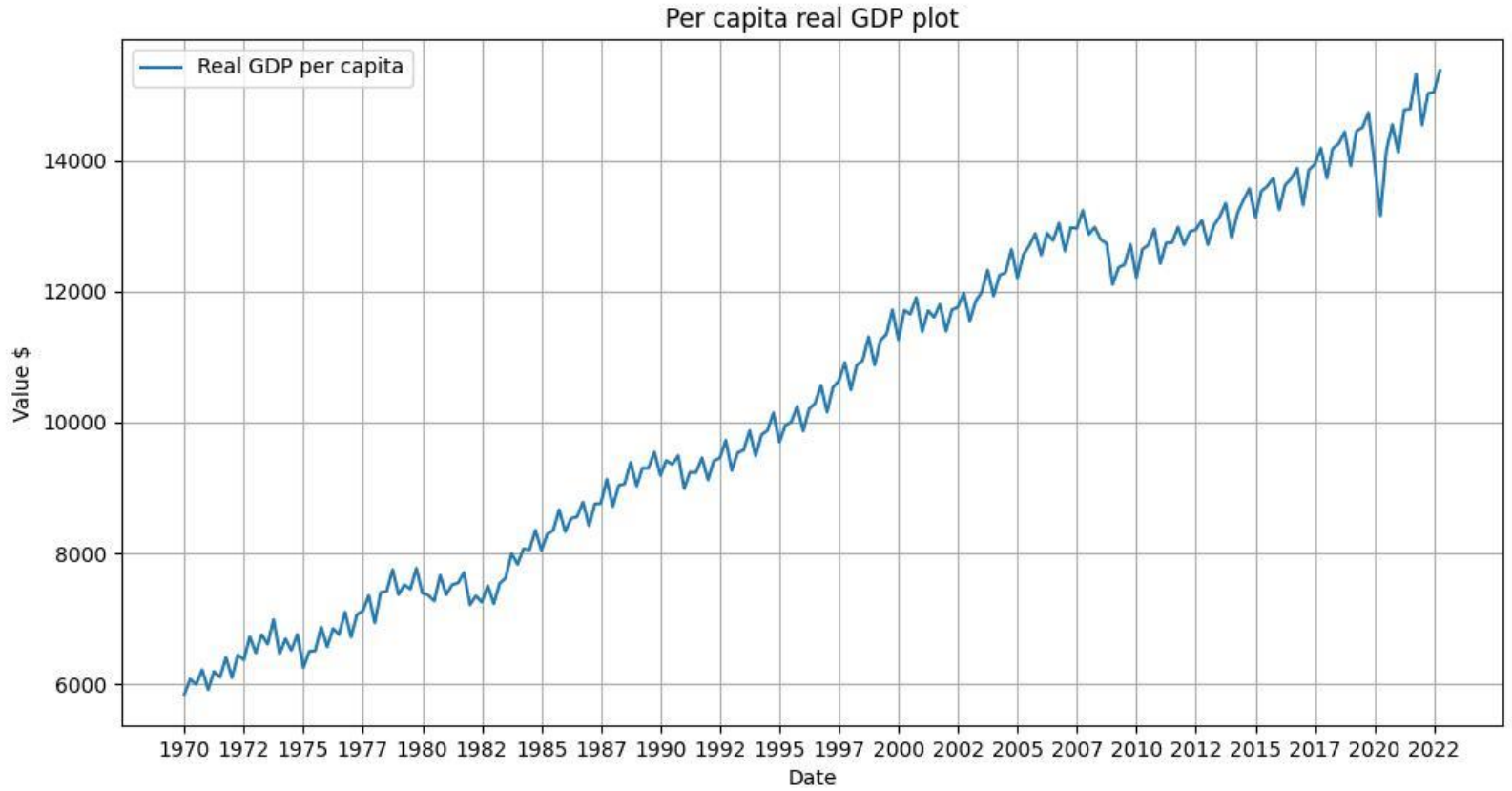


- Nominal GDP US (millions $): increasing trend; presence of seasonality; presence of cycles.
- Population US (millions): increasing trend; smooth line.
- Price Deflator: increasing trend; no seasonality; base year 2012.

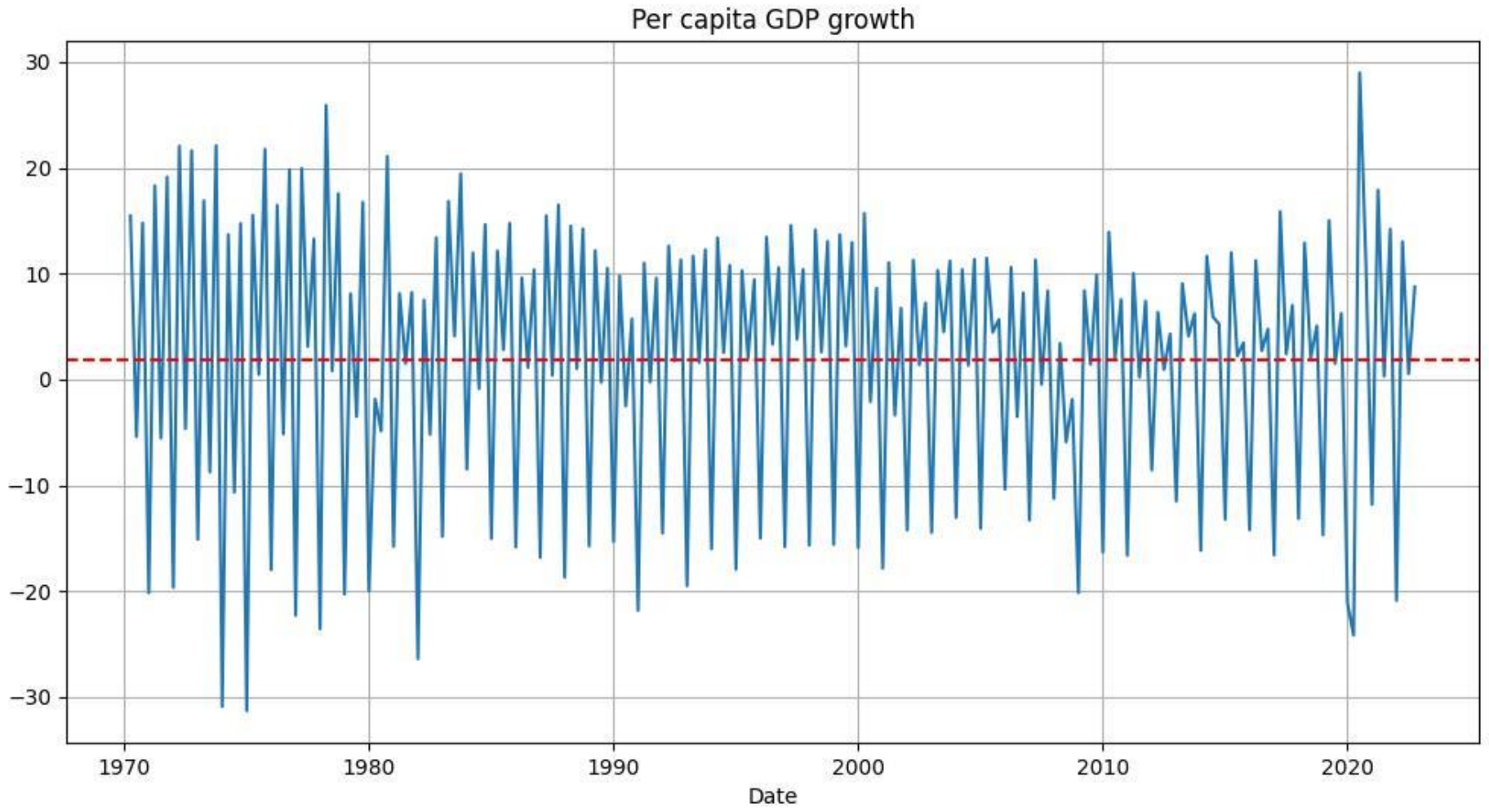




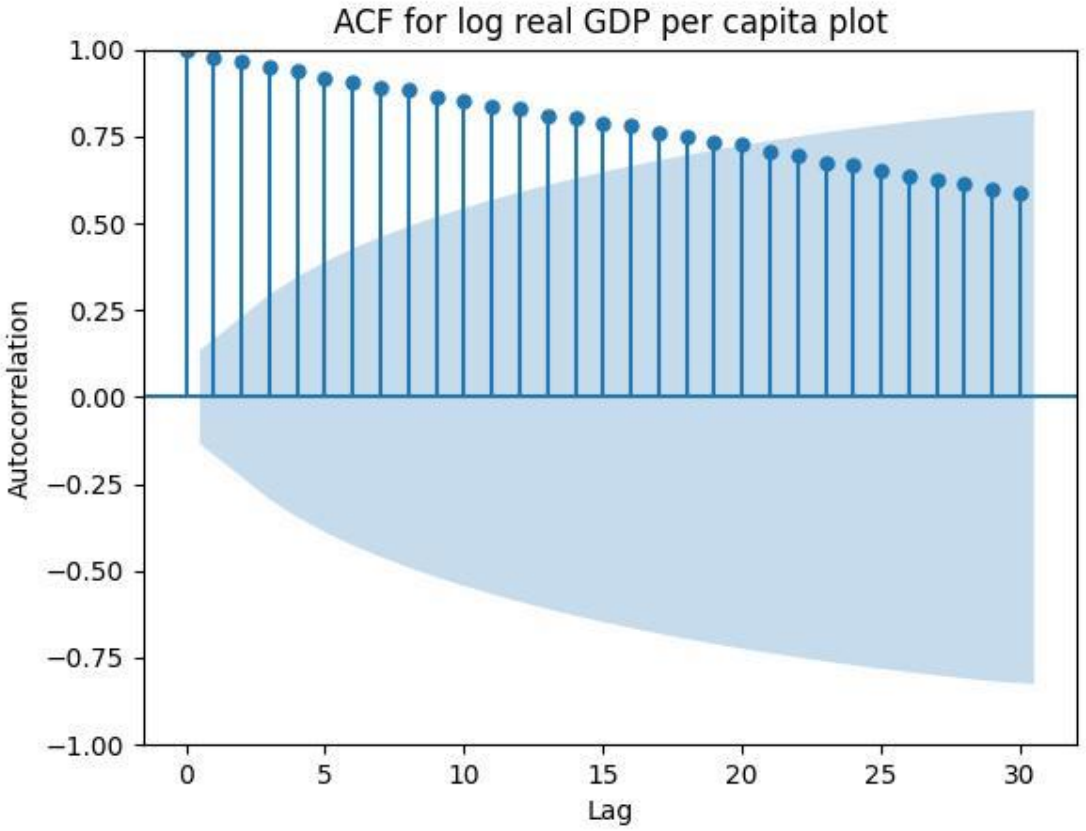


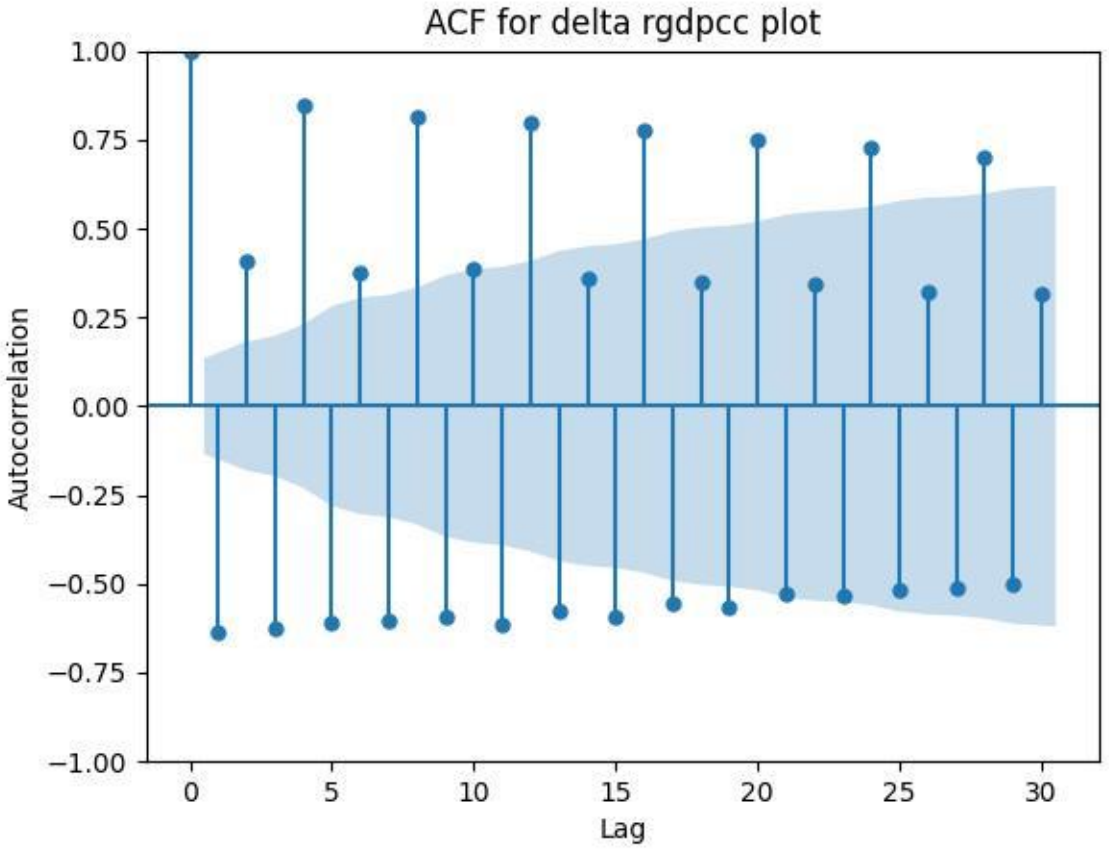
Real GDP per capita: increasing trend; seasonality more pronounced than nominal GDP; presence of cycles

$$real\ GDP\ per\ capita = \frac{\frac{nominal\ GDP}{price\ deflator\ * 0{,}01}}{population}$$

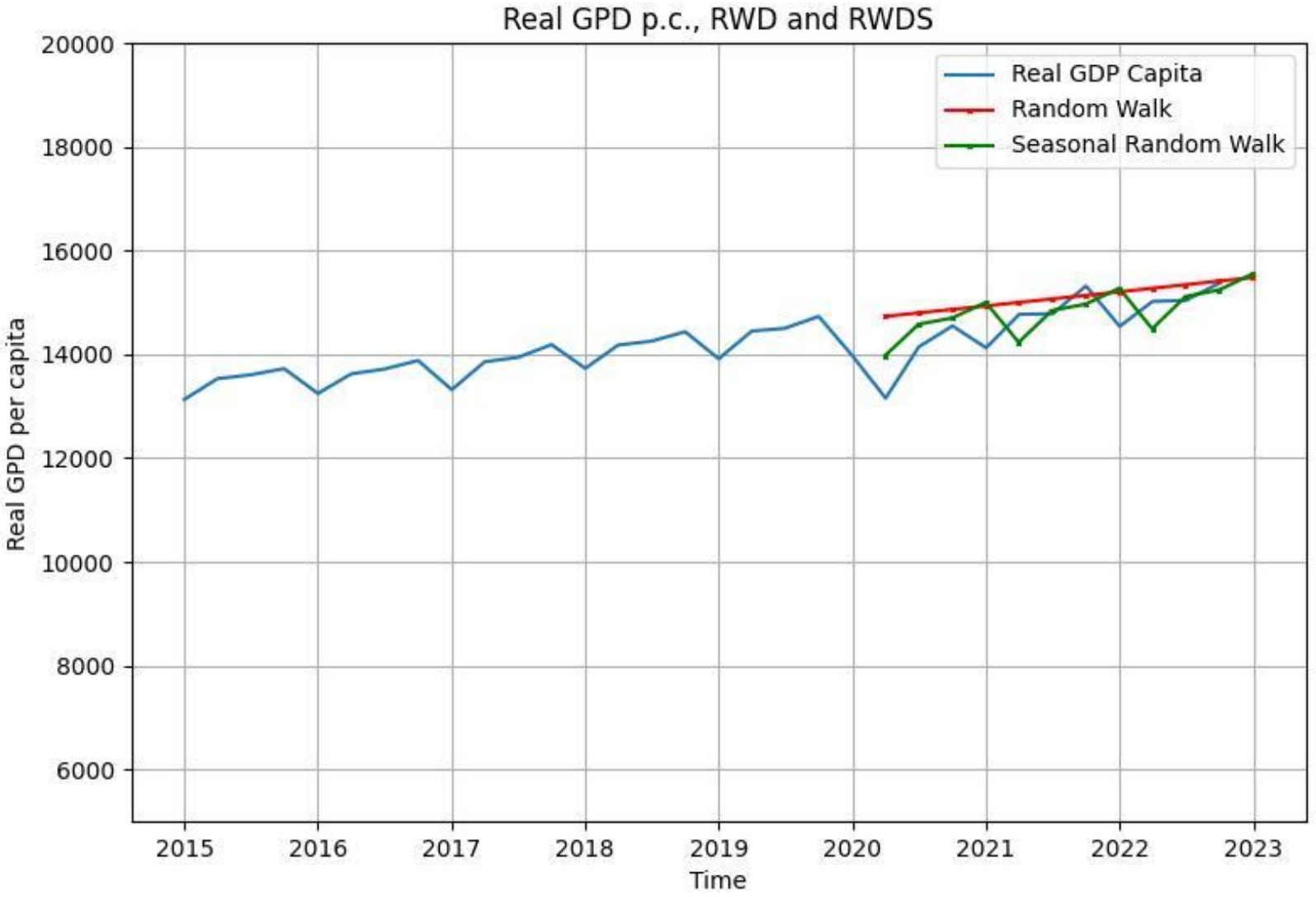


Sample mean = 1.832

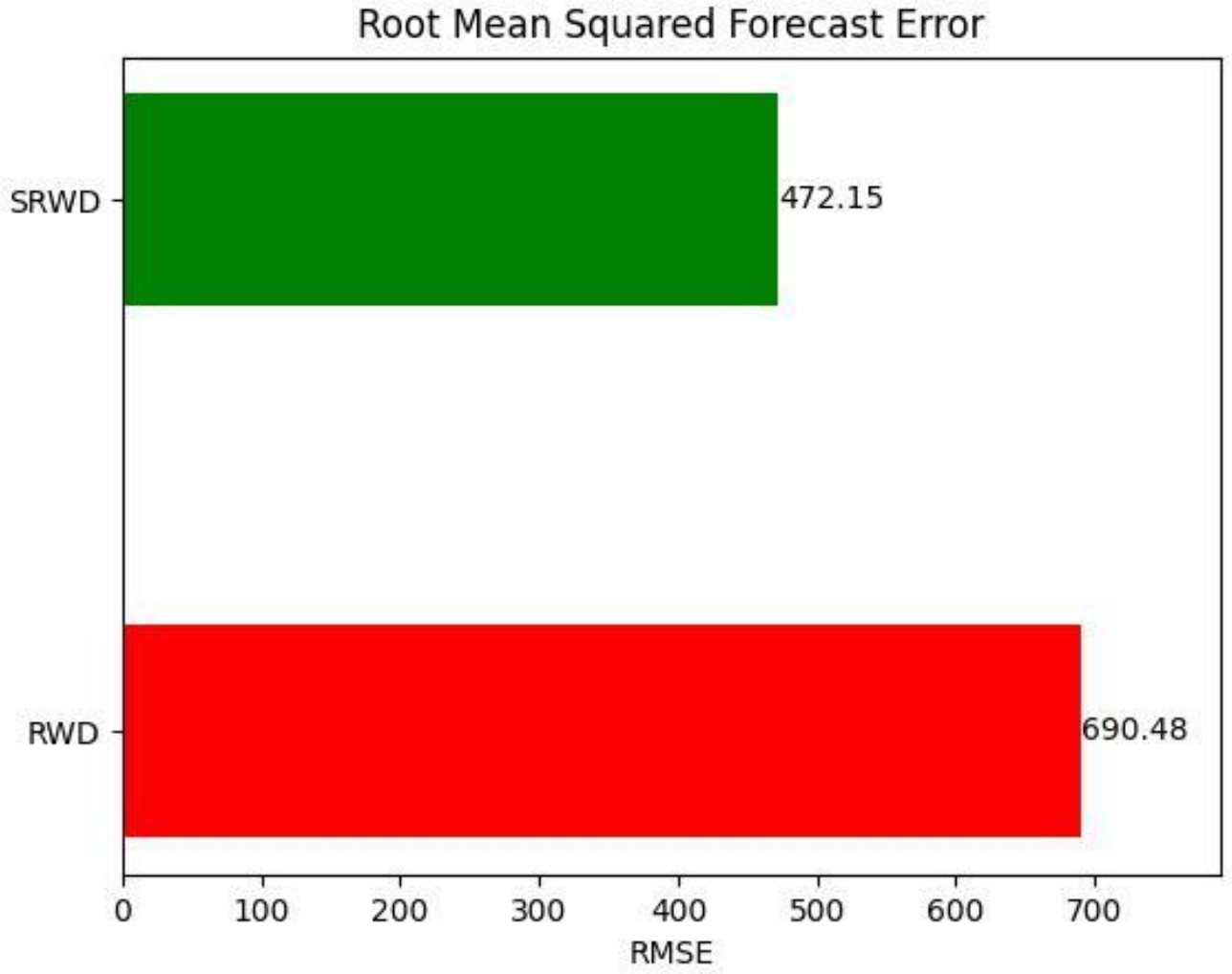




- Real GDP per capita (log) (left plot): statistically significant autocorrelation, with a decreasing trend, until lag 20.
- Per capita GDP growth (right plot): presence of seasonality (high AC at lag 4, 8, 12, etc.); significant AC until lag 10, after that only quarter-matching lag are significant until lag 26.



- RWD: linear increasing trend; it is expected since we computed the forecast as Y_t = Y_t-1 + c (drift computed as average change between 1970 and 2020).
- SRWD: increasing trend; much closer to the real values than the regular Random Walk with Drift; it is expected seen the presence of seasonality in the GPD per capita



As seen from the previous plot, the Seasonal Random Walk with Drift perform better than the regular RWD in modelling our data. In fact, the Root Mean Squared Forecast Error for SRWD is 32% lower than the RMSE for the RWD.