Conclusions and Inferences

Regressions:

Regression 1: *FPIt= β0+β1(GDP per capitat) +β2(log (Population)t) +β3(Rainfallt)+ µt*

Initial regression consisted of variables GDP, Population and Rainfall. Though through further analysis it was found that high values of GDP and population led to the problem of heteroskedasticity and thus were changed to the aforementioned.

Despite our initial suspicions Food Production Index (FPI) does not significantly depend upon the rainfall received. According to the t-test, GDP per capita and log (Population) are the only two significant variables in determining the FPI. Our model is overall significant pertaining to the high F-stat value. An 88.51% R2 shows that both the independent explanatory variables explains the variation in FPI over the years to a great extent. Positive value coefficient estimates of both the GDP per capita and log(Population) (log taken to remove heteroskedasticity) suggests that FPI increases with increase in GDP per capita and Population. This might be due to fact that higher per capita income results in higher demand for food which in turn results in inflation in food prices thus finally resulting in an increase in supply.

Regression 2: *LPIt= β0+β1(GDP per capitat) +β2(log (Population)t) + µt*

Initial regression consisted of variables GDP and Population. Though through further analysis it was found that high values of GDP and population led to the problem of heteroskedasticity and thus were changed to the aforementioned.

Result of this regression analysis were particularly shocking. Though the model itself turned out to significant, GDP per capita was found to be an insignificant variable at 5% significance level. Population on the other hand was in fact significant and had a positive coefficient estimate leading to the conclusion that increase in population results in greater livestock production.

Regression 3:

Initial regression consisted of variables GDP, Population, FPI and LPI. Though through further analysis it was found that high values of GDP and population led to the problem of heteroskedasticity and thus were changed to the aforementioned.

As mentioned before, products like pulses, fruits and vegetables are assumed to be approximately similar with respect to effects of various factors like GDP and population. The overall model is insignificant. After regressing the available cereals demand data on the variables, each and every explanatory variable was insignificant in explaining the variation.

This was expected due several reasons:

* The data obtained was decade wise and thus very less no. of observations were available to run any meaningful regression.
* As time passed, social rigidity in India broke at an increasing rate. Thus as no. GDP per capita was increasing the no. of non-vegetarians were also increasing. Thus, keeping the amount of cereals consumed to be approximately same.
* Moreover, as seen in the previous regressions FPI and LPI themselves depend upon GDP per capita and Population. Thus running a regression with all four of them as explanatory variables might have created a problem of autocorrelation. Though in all fairness, even after excluding them variables were still insignificant.

Regression 4:

Initial regression consisted of variables GDP, Population, FPI and LPI. Though through further analysis it was found that high values of GDP and population led to the problem of heteroskedasticity and thus were changed to the aforementioned.

This regression was overall significant. Though after dropping the FPI, log(population) and GDP per capita data, comparing the unrestricted model with he restricted one resulted in LPI becoming significant from initial insignificance. Same trend was seen with the GDP per capita data. Though both of them combined resulted in GDP per capita becoming insignificant once again. This can be explained by the fact that LPI (supply of livestock products including meat) was itself dependent upon the GDP per capita of the country and thus any affect the GDP per capita might be having on the meat consumption is probably via LPI.

Other Analysis:

Fisheries Production :

As can be seen from the graph below production of fisheries have increased at an approximately constant rate through the years from 1990 to 2018 as expected from the increasing population of non-vegetarians India.

Net food grain availability per capita per year:

The per capita per year net availability of rice, wheat, cereals as a whole and food grains (total) have increased over the years with a dip or two in the recent years. But the availability of pulses and other cereals, which include cereals like bajra etc., have decreased and only recently began to stabilize.

Estimates of state-wise production of major livestock products 2016-17:

As can be expected,If you want to include

Production of wheat and rice from 1960 to 2019:

As can be seen from the graph, the wheat and rice production is steadily growing across the country with increasing technological development. The abnormal dips in the production of wheat and especially rice can be due to adverse weather conditions like draughts, floods etc.