Nazneen Mansoori

Covid-19 Lockdown Impact on Commodity Prices

Project Assignment

1. Answer 1

For web-scraping above data and consolidating it is a cleaned format for the months of February, March and April 2020, refer to following python scripts-

* 1. prices.py (scrapy run spider here)
  2. crawllerrun.py (execution of prices.py and data cleaning)
  3. Final Output file - cleaned\_output\_panel\_data\_4.csv

1. Answer 2 and 3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Overall Summary** | | | | |
| **Type of Goods** | **Commodities** | **No. of Observation** | **Mean** | **Standard Deviation** |
| **Non-Perishable Goods** | Rice | 8237 | 33.59 | 7.94 |
| Wheat | 7633 | 28.87 | 6.73 |
| Atta (Wheat) | 8231 | 30.50 | 5.82 |
| Gram Dal | 8167 | 66.64 | 8.45 |
| Tur/Arhar Dal | 8103 | 89.91 | 9.84 |
| Urad Dal | 8180 | 100.26 | 17.46 |
| Moong Dal | 8226 | 101.65 | 15.04 |
| Masoor Dal | 8207 | 69.47 | 9.79 |
| Sugar | 8218 | 39.47 | 2.91 |
| Groundnut Oil (Packed) | 6186 | 139.64 | 20.81 |
| Mustard Oil (Packed) | 7971 | 117.40 | 16.74 |
| Vanaspati (Packed) | 8133 | 88.87 | 14.67 |
| Soya Oil (Packed) | 5909 | 99.51 | 11.80 |
| Sunflower Oil (Packed) | 7497 | 107.71 | 13.46 |
| Palm Oil (Packed) | 6587 | 88.90 | 11.26 |
| Gur | 8115 | 46.25 | 9.93 |
| Tea Loose | 8086 | 217.47 | 47.38 |
| Salt Pack (Iodised) | 8210 | 15.92 | 3.88 |
| **Perishable Goods** | Milk @ | 8160 | 45.84 | 6.66 |
| Potato | 8218 | 24.37 | 6.88 |
| Onion | 8217 | 32.62 | 10.74 |
| Tomato | 8149 | 22.00 | 10.05 |

Table1: Summary statistics of all the data points from all cities

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Pre-Lockdown** | | | **Post - Lockdown** | | |
| **Type of Goods** | **Commodities** | **No. of Observation** | **Mean** | **Standard Deviation** | **No. of Observation** | **Mean** | **Standard Deviation** |
| **Non-Perishable Goods** | Rice | 4613 | 33.27 | 7.99 | 3624 | 33.98 | 7.86 |
| Wheat | 4287 | 28.72 | 6.70 | 3346 | 29.06 | 6.75 |
| Atta (Wheat) | 4605 | 30.06 | 5.78 | 3626 | 31.07 | 5.82 |
| Gram Dal | 4598 | 65.22 | 7.82 | 3569 | 68.48 | 8.87 |
| Tur/Arhar Dal | 4548 | 86.97 | 8.27 | 3555 | 93.68 | 10.39 |
| Urad Dal | 4593 | 97.89 | 17.74 | 3587 | 103.30 | 16.62 |
| Moong Dal | 4603 | 97.02 | 12.42 | 3623 | 107.53 | 15.99 |
| Masoor Dal | 4602 | 67.17 | 8.72 | 3605 | 72.40 | 10.27 |
| Sugar | 4603 | 39.09 | 2.95 | 3615 | 39.96 | 2.79 |
| Groundnut Oil (Packed) | 3483 | 137.00 | 20.65 | 2703 | 143.05 | 20.51 |
| Mustard Oil (Packed) | 4485 | 117.10 | 16.64 | 3486 | 117.78 | 16.86 |
| Vanaspati (Packed) | 4556 | 88.23 | 14.96 | 3577 | 89.68 | 14.26 |
| Soya Oil (Packed) | 3265 | 98.49 | 11.83 | 2644 | 100.77 | 11.65 |
| Sunflower Oil (Packed) | 4225 | 106.54 | 13.38 | 3272 | 109.23 | 13.41 |
| Palm Oil (Packed) | 3669 | 88.85 | 12.00 | 2918 | 88.96 | 10.25 |
| Gur | 4567 | 45.77 | 9.37 | 3548 | 46.88 | 10.57 |
| Tea Loose | 4540 | 216.52 | 44.80 | 3546 | 218.68 | 50.47 |
| Salt Pack (Iodised) | 4600 | 15.80 | 3.80 | 3610 | 16.08 | 3.97 |
| **Perishable Goods** | Milk @ | 4569 | 45.52 | 6.49 | 3591 | 46.23 | 6.86 |
| Potato | 4600 | 23.17 | 6.58 | 3618 | 25.90 | 6.94 |
| Onion | 4599 | 36.32 | 11.71 | 3618 | 27.92 | 6.95 |
| Tomato | 4591 | 21.93 | 10.32 | 3558 | 22.10 | 9.69 |

Table2: Summary statistics of data pre and post covid-19 lockdown on 24 March 2020.

I am not very clear about Dependent and independent variable for this regression analysis. For each commodity if I have price data and dummy variable with value 0 for pre-lockdown periods and value 1 for post lockdown periods. Still for regression analysis should I assume lockdown dummy as independent variable to see its impact on prices of each commodity. Although I am able to recall something line RDD design or regression where treatment and control groups are handled but its idea is still a bit hazy. I have studies average movement of prices pre and post lockdown.

\*\*\* For more summary statics refer to excel analysis.xlsx file present in the folder shared on email.

Chart 1 : Comparison of average price of each commodity pre and psot covid lockdown

As it can be seen from the above plot that average prices for all the commodities after covid-19 lockdown has been higher than pre-lockdown period. It is also interesting to observe that Onion prices has gone down after covid. Chart 2 looks at the variation of onion prices across each centre.

Chart 2: Average Price movement across each Centre

Looking at the Chart 2, average Onion prices has been lower post lockdown at each observation Centre across India. This trend has been observed for only single commodity. Which raises a question to deep dive into the reasoning behind this peculiar behavior.

Factors that can be considered for future research are-

1. Crop cycle of onion and other commodities included in the study
2. Import of onion at after and before lockdown
3. Government policy update related to onion prices in the market

\*\*\* To look at the commodity specific variation similar to Chart2 refer to Output3 tab in excel analysis.xlsx file.

1. Answer 4

Perishable Goods are those commodities which have very low shelf value and they need proper cool storage for longer duration. While Non-Perishable goods can be stored for longer period. All though they need extra care in term of pest prevention.

**Perishable Goods:** Milk @, Potato, Onion, Tomato

**Non-Perishable Goods:** Rice, Wheat, Atta (Wheat), Gram Dal, Tur/Arhar Dal, Urad Dal,

Moong Dal, Masoor Dal, Sugar, Groundnut Oil (Packed),

Mustard Oil (Packed), Vanaspati (Packed), Soya Oil (Packed),

Sunflower Oil (Packed), Palm Oil (Packed), Gur, Tea Loose,

Salt Pack (Iodised)

Chart 3: Average price movement pre and post covid-19

To create this chart, first daily prices were averaged across all the Centre in the data and then pre and post average value was calculated for the specified time period.

Observations:

1. There is higher variation for pulses in average value of daily averaged prices for pre and post lockdown period. This indicate that post lockdown there might have been decrease in import of these crops leading to increase in prices.
2. For food items like wheat, rice, sugar, salt, tomato and milk price variation is not vary high. This implies that there has been not much impact of covid in these commodities as they are regularly consumed food items in household. These items are basic food and increase in their price would have affected people severely during lockdown given its harsh impact on employment of seasonal worker and daily wage earners.

Further analysis of this data can be conducted based on research around this topic. Please consider this as preliminary findings from the scrapped data.

Note:

For plots of Price variation of each commodity across all the Centre present in the data, refer to Jupyter Script and Output folder.