

Practice Questions

Question 2: (5 Marks)

Prove that the population variance can be equal to the following:

$$\sigma^2 = \frac{1}{N} \sum_{i=1}^N (X_i - \mu)^2 = \frac{1}{N} \left[\sum_{i=1}^N X_i^2 \right] - \mu^2$$

where

N = population size

Question 3: (12 Marks)

The following table of data relates to the number of milk cartons collected in a month by students in several grade 1 classes:

<u>Interval (# of cartons)</u>	<u>Frequency</u>
0 < x ≤ 2	230
2 < x ≤ 4	240
4 < x ≤ 6	270
6 < x ≤ 8	260
8 < x ≤ 10	200

Compute the

- (i) mode,
- (ii) arithmetic mean,
- (iii) the median
- (iv) the variance
- (v) the standard deviation and
- (vi) coefficient of variation.

Question 4: (7 Marks)

A landscape contractor kept track of how long it takes to cut the lawn in the centre part of the University during the summer. The time varies from week to week. The cutting times are as follows:

x = cutting minutes

= {56, 90, 88, 58, 72, 65, 58, 65}

The contractor is interested in knowing the:

- (i) mean of cutting time
- (ii) mode of cutting time
- (iii) variance of cutting time
- (iv) coefficient of variation of cutting time
- (v) 32nd percentile
- (vi) 3rd quartile

(vii) interquartile range

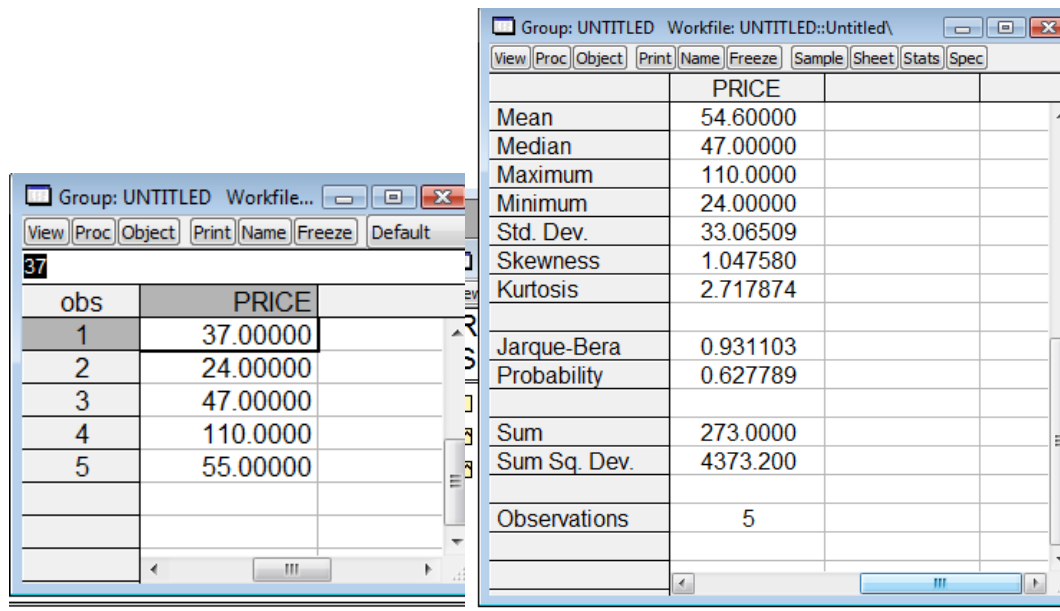
Question 5: (14 marks)

(a) Use the following data to construct the Paasche quantity index for 2000, with a base value of 100 in 1995: (Table your answer with the two entries.) (4 Marks)

Good	1995 Price	1995 Quantity	2000 Price	2000 Quantity
Peaches	1	5	2	6
Seeds	4	3	6	5

- (b) Generate the Fisher price index with a base value of 100 in 1995. (4 marks)
- (c) Determine whether the Marshall Edgeworth price index passes the time reversal test using the data above. (2 Marks)
- (d) Determine if the Fisher price index passes or fails the factor reversal test. (4

marks)

Question 6: Eviews (4 Marks)


The screenshot shows two windows from the EViews software. The left window displays a data table with 5 observations of 'PRICE'. The right window shows the 'STATISTICS' tab for the 'PRICE' series, providing various summary statistics.

obs	PRICE
1	37.00000
2	24.00000
3	47.00000
4	110.0000
5	55.00000

PRICE	
Mean	54.60000
Median	47.00000
Maximum	110.0000
Minimum	24.00000
Std. Dev.	33.06509
Skewness	1.047580
Kurtosis	2.717874
Jarque-Bera	0.931103
Probability	0.627789
Sum	273.0000
Sum Sq. Dev.	4373.200
Observations	5

Assume “Price” is a population of data.

- Is the data positively or negatively skewed?
- Determine Person’s measure of skewness.
- Determine the population variance (MSD).
- Determine the coefficient of variation for this population of data.