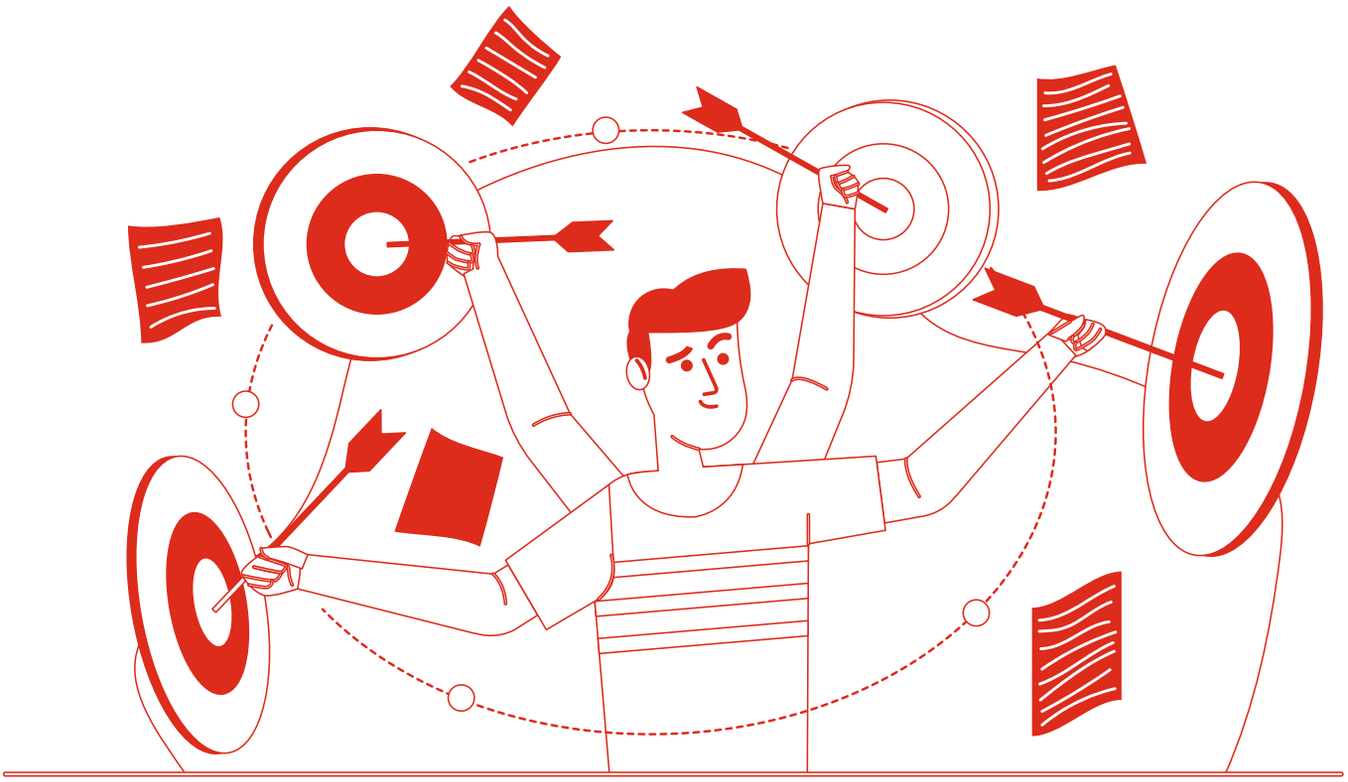
To be in the 1%
You have to do what 99% won't



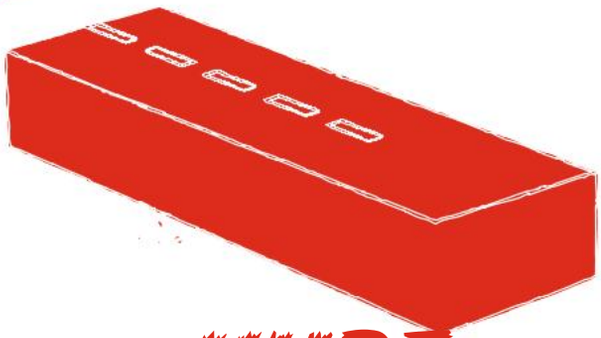
You get what you FOCUS on.
So FOCUS on what you want!

CA VINOD REDDY

True Humility is staying teachable, Regardless of how much you already know....

Believe you Can..... & You are Half Way There

CA Vinod Reddy



If You Focus on HURT, you will continue to suffer, if you focus on LESSON, You will continue to GROW!

Index Numbers

CA VINOD REDDY

1 Often we encounter news of price rise, GDP growth, production growth, etc. It is important for student of chartered accountancy to learn techniques of measuring growth / rise or decline of various economic & business data and reporting it with the help of index numbers.

2 **Definition of Index Numbers :**

1. Index number is ratio or avg of ratios of prices, quantities, values where 2 or more time periods are involved, one of which is the base period.
2. The value at base time period serves as standard point for comparison.

Examples : Sensex, CII, HDI, CPI, etc.

3 There are 2 broad types of index numbers

a.

b.

Simple index number is computed for one variable where as composite index number is calculated from 2 or more variables. Most index numbers are composite in nature.

4 All index Numbers are UNIT FREE.

5 Issues involved in the construction of index numbers

a. Selection of data.
b. Base period.
c. Selection of weights.
d. Use of averages
e. Choice of variable
f. Selection of formula

6

Price Relative = _____

_____

Quantity Relative =_____

_____

Value Relative = _____

_____

My Notes

7

Year (B.Year) 2016	Price of commodity A	Quantity of commodity A	Value of commodity A	Relatives		
				Price	Qty.	Value
2016	50	8				
2017	103	13				
2018	68	16				
2019	98	21				
2020	111	28				
2021	125	35				

8

Simple Aggregative Price Index Number =

Simple Aggregative Quantity Index Number =

Simple Aggregative Value Index Number =

9

Commodities	Year		
	2021	2022	2023
Cheese (per 10 gms)	12	15	16.80
Egg (per piece)	3	3.60	3.30
Potato (per kg)	5	6.00	5.70
Aggregate	20		
Simple Aggregative Price Index Number			

Commodities	Year		
	2021	2022	2023
Cheese (per 100 gms)			
Egg (per dozen)			
Potato (per 20 kg)			
Aggregate			
Simple Aggregative Price Index Number			

9 **Observations from above two tables :**

10 **Simple Aggregative Index Numbers do not satisfy unit test**

To overcome this limitation of simple aggregative index number we have introduced

11 **Weighted Aggregative Index Numbers :**

While finding weighted aggregative price index numbers we use weight as :

While finding weighted aggregative quantity index numbers we use weight as :

12

Weighted Aggregative Index Numbers	Price	Quantity
1. Laspeyre's		
2. Paasche's		
3. Marshall Edgeworth's		
4. Fisher's Ideal Indices		

13

$$\text{Chain Index} = \frac{(\text{Link relative of Current Year} \times \text{Chain Index of Previous Year})}{100}$$

My Notes

14

Year	Price	Link Relatives	Chain Indices
2011	50		
2012	60		
2013	62		
2014	65		
2015	70		
2016	78		
2017	82		
2018	84		
2019	88		
2020	90		
2021	103		
2022	108		

15

Limitations of Index Numbers :

1. Indices are collected mostly from samples.
2. They depict only broad trend and not real picture
3. There are many methods employed from constructing index numbers, the result gives diff values and this at times creates confusion.

16

Year	Wholesale Price Index	GNP at current Prices	Real GNP
2021	113.10	7499	
2022	116.30	7935	
2023	121.20	8657	
2024	127.70	9323	

$$\text{Deflated Value} = \frac{\text{Current Value}}{\text{Price Index of current year}}$$

My Notes

17

Year	Original Price Index	Shifted Price Index to the base 2020
2010	100	
2011	104	
2012	106	
2013	107	
2014	110	
2015	112	
2016	115	
2017	117	
2018	125	
2019	131	
2020	140	
2021	147	

$$\text{Shifted Price Index} = \frac{\text{Original Price Index}}{\text{Price Index of the year on which base has to be shifted}} \times 100$$

18

Tests of Adequacy : a. _____

b. _____

c. _____

d. _____

19 **When unit test of index numbers is said to be satisfied?**

_____

_____

_____

_____

My Notes

_____

_____

_____

_____

_____

20 When time reversal test is said to be satisfied?

- You will notice that Laspeyre's & Paasche's method do not satisfy Time-reversal test but Fisher's formula satisfy Time-reversal test.
- While selecting an appropriate index formula, the time reversal test and factor reversal test are considered necessary in testing the consistency.

21 When factor reversal test is said to be satisfied?

Fisher's formula satisfy time reversal test as well as factor reversal test.
Therefore, it is called as ideal index number.

22 When circular test of index numbers is said to be satisfied?

23 A series of numerical figures which show the relative position is called as _____ .

24 Index number for the base period is always taken as
a. 200 b. 50 c. 150 d. 100

My Notes

25 _____ play very important part in construction of index numbers.

a. Weights b. Classes c. Estimations d. Students

26 _____ is particulars suitable for construction of index numbers.

a. AM b. GM c. HM d. None of these

27 Index number show _____ changes rather than absolute amounts of change.

a. Relative b. Percentage c. Major d. Minor

28 The _____ makes index numbers time reversible

a. AM b. GM c. HM d. Mode

29 The _____ of group indices gives General Index.

a. AM b. GM c. HM d. None of these

30 _____ Test is extension to time reversal test.

a. Factor Reversal Test b. Circular Test c. Both d. None

31 Factor Reversal Test is satisfied by :

a. Fisher's Index b. Laspeyre's Index c. Paasche's Index d. None of these

32 Laspeyre's formula does not satisfy :

a. Factor Reversal Test b. Time Reversal Test c. Circular Test d. All of these

33 The value at _____ time period serves as standard point for comparison

a. Base b. High c. My d. Past

34 Index numbers are often constructed from _____

a. Frequency b. Class c. Sample d. Temple

35 The ratio of price of a single commodity in a given period to its price in the base year is called as

a. Price Relative b. Close Relative

c. Cousin d. Price

36 $\frac{\text{Sum of prices of all commodities}}{\text{Sum of prices of all commodities in base year}} \times 100 = ?$

a. Price Relative b. Quantity Relative

c. Simple aggregative price index number d. Weighted aggregative price index number

37 P_{01} is the index for time.

a. 1 on 0 b. 0 on 1 c. 1 on 1 d. 0 on 0

38 P_{10} is the index for time.

a. 1 on 0 b. 0 on 1 c. 1 on 1 d. 0 on 0

39 P_{ab} is the index for time.

a. a on b b. b on a c. a on a d. b on b

40 When product of price index number and quantity index number is equal to corresponding value index number then the test that holds good is _____ .

a. Unit Test b. Time Reversal Test

c. Circular Test d. Factor Reversal Test

41 The formula should be independent of the unit in which or for which prices and quantities are quoted in :

a. Unit Test b. Time Reversal Test

c. Circular Test d. Factor Reversal Test

42 Fisher's ideal formula does not satisfy _____ test.

a. Unit Test b. Circular Test c. Time Reversal Test d. None of these

43 Laspeyre's and Paasche's method _____ time reversal test.

a. Satisfy b. Do not satisfy c. Sometimes satisfy d. Can satisfy

44 There is no such thing as unweighted index numbers.

a. True b. False

45 Theoretically GM is best avg in construction of index numbers but in practice, mostly AM is used -

a. True b. False

46 The number of tests of adequacy are _____

a. 3 b. 4 c. 8 d. 2

47 We use price index numbers _____

a. To measure and compare prices b. To measure prices

c. To compare prices d. None of these

48 If price of all commodities in a place have increased 1.25 times in comparison to their base period, the index number of prices of that place now is :

a.125 b. 25 c. 150 d. 225

49 If index number of prices at a place in 2022 is 250 with 2005 as base year then prices have increased on avg by

a. 250% b. 150% c. 350% d. 50%

50 If prices of all commodities in a place have decreased 35% over the base period prices, then index number of prices of that place now is ,

a. 35 b. 135 c. 65 d. None of these

51 Link relative index number is expressed for the period of 'n' is :

a. $\frac{P_n}{P_{(n+1)}}$ b. $\frac{P_n}{P_{(n-1)}}$ c. $\frac{P_{(n+1)}}{P_{(n-1)}}$ d. None of these

52 Fisher's ideal Price Index

$= \sqrt{\quad}$

53 Fisher's ideal Quantity Index

$= \sqrt{\quad}$

54 Consumer price index for the year 1957 was 313 with 1940 as the base year. The avg. monthly wages in 1957 of the workers in the factory be ₹ 160, their real wages is :

a. ₹ 48.40 b. ₹ 51.12 c. ₹ 40.30 d. None of these

55 Bowley's Index = $\frac{\text{Lasp. Index + Paasche's Index}}{2}$

My Notes

56

Commodity	Base Year		Current Year		
	Price	Quantity	Price	Quantity	
	20	125	22	150	
	28	163	32	170	
	30	128	32	150	
	38	193	42	200	
	42	186	42	193	
	45	176	48	192	
	60	185	56	198	
	70	198	75	210	

Find Lasp. Price Index =

Paasche's Price Index =

Marshall Edgeworth's. Price Index =

Fisher's Ideal Price Index =

Dorbish-Bowley's Price Index =

My Notes

Lasp. Quantity Index =

Paasche's Quantity Index =

Fisher's Quantity Index =

Marshall Edgeworth's. Quantity Index =

Dorbish-Bowley's Quantity Index =

57

Circular test is not met by Laspeyre's and Paasche's index OR Fisher's index.
The simple geometric mean of price relatives and weighted aggregative with fixed weights meets this test.

58

In 1980, the net monthly income of an employee was ₹ 800 p.m. The consumer price index was 160 in 1980. It rises to 200 in 1984. If he has to be rightly compensated the additional amount to be paid to employee is

a. ₹ 175 **b. ₹ 185** **c. ₹ 200** **d. ₹ 125**

My Notes

59

Uses of Index Numbers

a. Framing suitable policies in economics & business.

b. They reveal trends and tendencies.

c. They are used for forecasting the future.

d. They are useful in deflating.

e. Useful to measure changes in cost of living.

60

The purpose determines the type of index numbers to use.

a. True b. False

My Notes

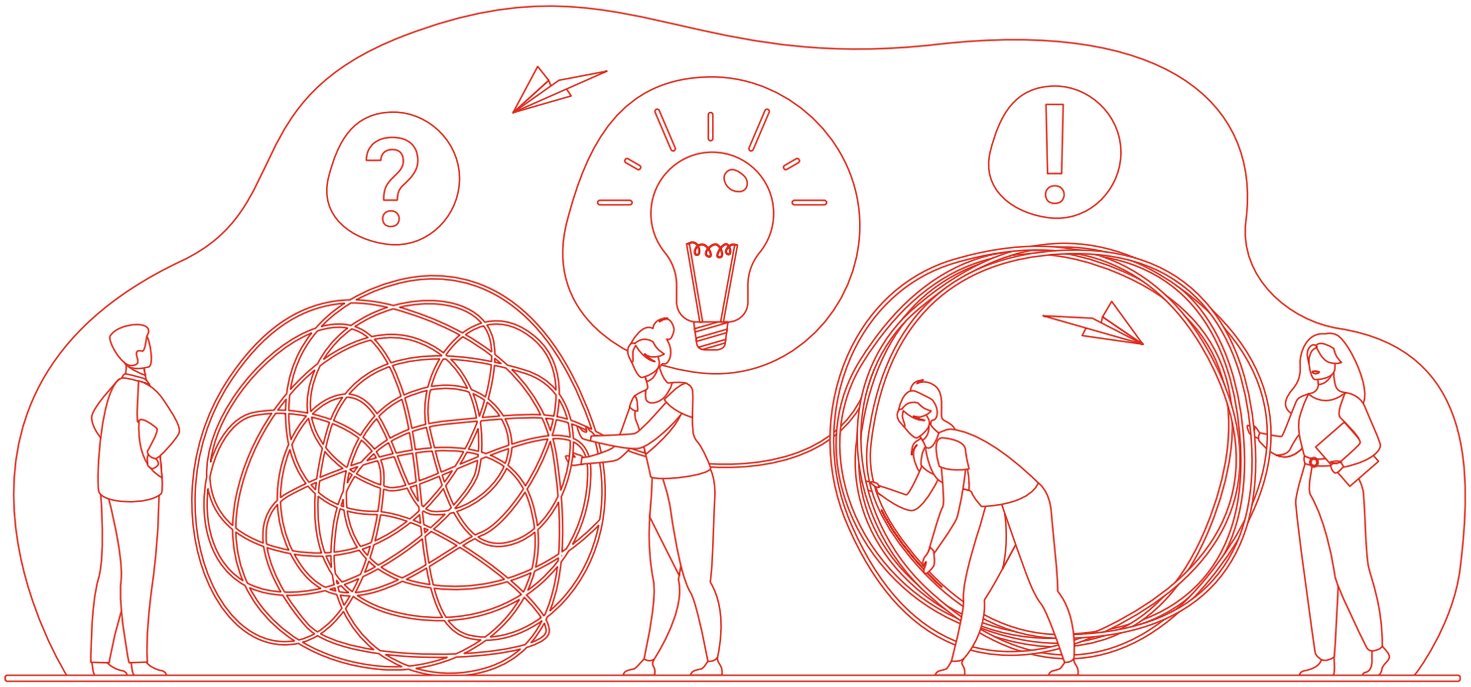
We FALL
We BREAK
We FAIL

BUT THEN
We RISE
We HEAL
We OVERCOME

CA VINOD REDDY

What makes life so difficult?

'PEOPLE'



All things are difficult before they are EASY

CAVINOD REDDY

CLASSY is when you have
a lot to say
but you CHOOSE to remain
SILENT in front of fools

CA VINOD REDDY

People don't care for you,
when you are alone
They just care for you
when they are alone!

We are not our best intentions, We are what we DO!

CA VINOD REDDY

No matter where you are in life, GOD always has more in store. He never wants you to stop growing

Your .

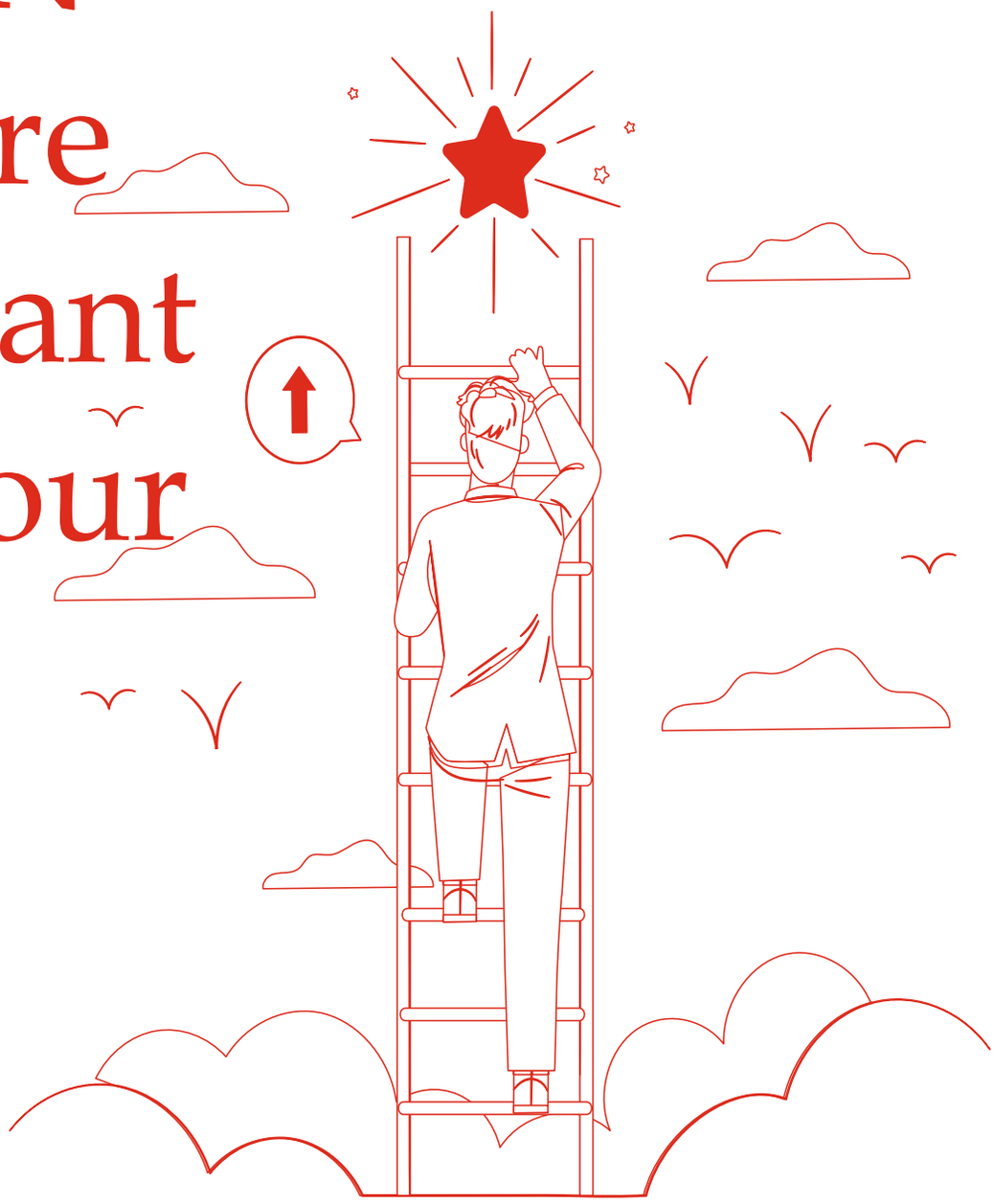
I CAN

is more

important

than your

I.Q



CA VINOD REDDY

FORM IS TEMPORARY

CLASS IS PERMANENT