Population forecasts Methods:

(1) Arithmetical increase method:

In this method, the average increase of population for the last three or four decades is worked out and then for each successive future decade, this average is added. This method gives low results and it is to be adopted for large cities which have practically reached their maximum development.

(2) Geometrical increase method:

In this method, it is assumed that the percentage increase in population from decade to decade remain constant. From the available census record, this percentage is fixed and then population of each future successive decade is worked out. This fixation of percentage is case of developing cities should be done carefully. Otherwise this method is likely to give high results. This method gives better results for old cities which are not undergoing future development.

(3) Incremental increase method: This method combines the above two methods. The population of each successive future decade is first worked out by the arithmetical increase method and to these values incremental average per decade is added. It combines the advantages of both the above methods and hence, it gives satisfactory results.

Population forecasting Example

Problem No:01

The census record of a city show population asfollows:

Present = 50000

Before one decade = 47100

Before two decade = 43500

Before three decade = 41000

Work out the population after one, two and three decade by using arithmetical increase method.

Solution:

The average increase of population b/w successive decades up to present is worked out asfollows,

Present and first decade	=50000-47100	=2900
first and 2nd decade	=47100-43500	=3600
2nd and 3rd decade	=43500-41000	=2500
	TOTAL	=9000

Average increase per decade = 9000/3 = 3000.

Population forecasting Example

The population after each successive future decade is obtained by adding this average as follows:

Population after one decade = 50000+3000=53000

Population after two decade = 53000+3000=56000

Population after three decade = 56000+3000=59000

Answer

again work out the population by using Geometrical increase method.

Solution;

Present and 1st decade = (50000-47100) /47100 * 100 = 6.16

1st and 2nd decade = (47100-43500) /43500 * 100 = 8.28

2nd and 3rd decade = (43500-41000) /41000 * 100 = 6.10

TOTAL = 20.54

Average percentage = 20.54/3 =6.85 say 7

Population after one decade = 50000+ (50000*0.07)=53500

Population after two decade = 53500+(53500*0.07)=57245

Population after three decade = 57245+(57245*0.07)=61252

Answer

Population forecasting Example

again work out previous problem by using incremental increase method.

Solution:

Increase in population

present and first decades = 2900

first and second decades = 3600

second and third decades = 2500

Incremental increase

2900-3600 = -700

3600-2500 = 1100

Net = + 400

average incremental increase = 400 / 2 = 200

average arithmetical increase as worked out in problem No:01 = 3000

The population after each successive future decade is obtained by adding arithmetic increase and this average incremental increase as follows:

Population after one decade = 50000 + 3000 + (1*200)= 53200

Population after two decades = 53200 + 3000 + (2*200)= 56600

Population after three decade = 56600 + 3000 + (3*200)= 60200

Answer

Population forecasting Example

Problem No:02

The census record of a city show population asfollows:

Present	= 16000
Before one decade	= 14500
Before two decade	= 12000
Before three decade	= 10000

Work out the population after one, two and three decade by using arithmetical increase method a using Geometrical increase method.

Solution:

The average increase of population b/w successive decades up to present is worked out asfollows,

Present and first decade	=16000-14500	=1500
first and 2nd decade	=14500-12000	=2500
2nd and 3rd decade	=12000-10000	=2000
	TOTAL	=6000

Average increase per decade = 6000/3 = 2000.

Population forecasting Example

The population after each successive future decade is obtained by adding this average as follows:

Population after one decade = 16000+2000=18000

Population after two decade = 18000+2000=20000

Population after three decade = 20000+2000=22000

Answer

again work out the population by using Geometrical increase method.

Solution;

Present and 1st decade = (16000-14500) /14500 * 100 = 10.34

1st and 2nd decade = (14500-12000) /12000 * 100 = 20.83

2nd and 3rd decade = (12000-10000) /10000 * 100 = 20.00

TOTAL = 51.17

Average percentage = 51.17/3 = 17

Population after one decade = 16000+ (16000*0.17)=18720

Population after two decade = 18720+(18720*0.17)=21902

Population after three decade = 21902+(21902*0.17)=25625

Answer