Unit - V Topic - III

LIFE TABLES

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Life Tables

Definition: Life Table also called mortality table is a table which shows, for each age, the probability of death. It is also a measure of population's longevity. It is a table relating to life expectancy of human population or any other population.

"The life table is a life history of a hypothetical group of people, as it is diminished gradually by death. The record begins at the birth of each member and continues until all died." Barclay

- John Graunt (1663) and Edmond Halley (1678) owe the invention of this powerful statistical instrument, the life table or table of mortality.

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47-56	10
57-66	6
67-76	3

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Halley's Life Table

Age (years)	Expectation of life, years
0	33.5
5	41.55
10	39.99
15	36.86
20	33.61
25	30.38
30	27.35
35	24.51
40	21.78
45	19.22
50	16.81
55	14.51
60	12.09
65	9.73
70	7.53
75	5.99
80	5.74

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Types of Life Tables

I COHORT LIFE TABLE / Generation L.T

II PERIOD LIFE TABLE / Static L.T.

III COMPLETE L T

IV ABRIDGED LT

V SINGLE DECREMENTAL LT

VI MULTIPLE DECREMENTAL LT

I The cohort life table presents the mortality experience of a particular birth cohort → (People born at the same time)

All persons born in a year from the moment of birth through ~~consequ~~ consecutive ages in successive calander years.

II The period life table presents what would happen to a hypothetical cohort if it experienced throughout its entire life the mortality conditions of a particular time period.

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III A complete life table contains data for every year of age

IV Abridged table takes data by 5 or 10 years of age interval

In India a 5 year interval is selected

V Single decremental — Alive / dead.

VI Multiple decremental — causes of death

Assumptions of Life Table:

A life table is based on the following assumptions:

1. A hypothetical cohort of LT usually comprises of 1,000 or 10,000 or 1,00,000 births
2. The deaths are equally distributed throughout the year.

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3. It is assumed that there is no immigration or out-migration

4. The number of people (cohort) diminishes by death only.

5. There is no change in death rate overtime.

6. The life tables are constructed separately for males and females

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Age-Interval (1)	Probability of death (2)	Per 1,00,000 live births	
		No. of persons surviving at the exact Age (3)	No. of Deaths During the Age-Interval (4)
x to $x+n$	q_x	l_x	d_x
0-1	.0250	1,00,000	2500
1-5	.0051	97,500	500
5-10	.0031	97,000	300
10-15	.0026	96700	250
15-20	.0062	96450	600
20-25	.0083	95850	800
25-30	.0079	95050	750
30-35	.0087	94300	825
35-40	.0013	93475	1200
40-45	.0217	92275	2000
45-50	.0332	90275	3000
50-55	.0579	87275	5050
55-60	.0857	82225	7050
60-65	.0133	75175	10,000
65-70	.0460	65175	13,000
70-75	.2251	62175	14,000
75-80	.3814	48175	15,000
80 and above	.3919	33175	13,000

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1. Used to project future population.
2. Helps in determining the average life expectancy
3. Estimation of cause of death rates of males & females
4. Survival rates can be used to calculate net Migration rate
5. These tables are particularly used for formulating family planning programmes relating to Infant Mortality, maternal deaths, health [illegible]

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by a person falling in a specific age-group.

7. Instead of a single table, multiple tables can be constructed to analyse socio-economic data in a country.

Thus, these table are constructed by Demographers and are of great utility to other fields.

—x—.

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