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**Subject : Mathematics**

**Title of the thesis : Mathematical modelling of demographic analysis in yemen with special reference to life table**

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## **ABSTRACT**

### **Objectives:**

In actuarial science, a life table (also called a mortality table or actuarial table) is a table which shows, for a person at each age, what the probability is that they die before their next birthday. From this starting point, a number of statistics can be derived and thus also included in the table:

- The probability of surviving any particular year of age.
- Remaining life expectancy for people at different ages.
- The proportion of the original birth cohort still alive.
- Estimates of a cohort's longevity characteristics.

Life tables are usually constructed separately for men and women because of their substantially different mortality rates. Other characteristics can also be used to distinguish different risks, such as smoking-status, occupation, socio-economic class, and others, also used extensively in biology and epidemiology. The

concept is of importance, as well, to product life cycle management.

The aim of this research is to construct life table for Republic of Yemen by using Orphanhood techniques, Partial growth balance techniques and Preston and Coal techniques.

### **Methods :**

This research uses the indirect techniques for demographic estimation and also uses the logit system techniques, simple regression model, weighted arithmetic means, and interpolating linear to construct life tables.

Also the significant different tests and covariance matrix are used to determine which are the best techniques to construct life tables in the case of the Republic of Yemen.

### **Conclusions:**

There is significant difference between the techniques which are used to construct the life tables in the Republic of Yemen and the best were Preston and Coal techniques and the life expectancy of females was higher than the life expectancy for males in all techniques in this research.

Also the study showed an unexpected rise in expectations regarding the survival of females compared to males at birth and also shows a decline in death rates among females compared to that of males.