ABSTRACT

LIFE TABLES CONSTRUCTION FOR THAILAND: WITH APPLICATIONS TO GOVERNMENT PENSION SCHEMES

by

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The study of "Life Tables Construction for Thailand: with Applications to Government Pension Schemes" concentrated on applying an indirect methodology that relied on demographic models in the estimation of mortality rates in order to construct the life tables for Thai males and females. The data for this analysis are obtained from population censuses, death statistics reported by the Ministry of Interior and the Ministry of Public Health, and also documents relevant to the analysis of government retirees and pension expenditures.

The main purpose of this study is to construct the life tables for Thai males and females after evaluating the system of death registration in Thailand. The resulting life tables functions are applied to the estimation of government pension expenditures along with the simulation of models of government pension schemes on

different assumptions of population projection.

Following the reason that mortality is highest at the extremes of age, the proposed procedure estimated mortality rates for the first five years of life using information on the number of children surviving by age of mother. For age 5 and above, the Bennette and Horiuchi's procedure developed in 1984 is applied. The proposed procedure shows awareness of the linkage of the two independent estimate by introducing a four-parameter logit life table system. To give smoothness to the outcome the computed values of the probability of dying were fitted to the model life table of the United Nations with a South Asian pattern. Major findings are as follows:

The results from the constructed life tables show that, the values of male and female life expectancy at birth in 1970-1980 are 61.007 and 64.817 respectively. In 1980-1990, the values increasing to 64.530 and 68.738. In 1990-2000, it is expected that the male life expectancy at birth is 68.454 while it is 72.357 for the female. The ten-year changes in both sexes are around 4 years as well as the differences between sexes. In 1970-1980, results from the constructed life tables are comparable to the Coale-Demeny "West Model" and confirm the results obtained from the direct approach by Suchart Prasith-rathsint. In 1980-1990, eventhough the results of the indirect approach are slightly lower than the results obtained from

the direct approach, they confirm the Survey of Population Change.

Three models of the civil servant government pension scheme are proposed: Model 1 - The official retirement age at 60. Model 2 - Alternative retirement age at 55 and Model 3 - Alternative retirement age at 65. On model 1, by applying the survivorship probabilities, the number of annual ordinary retirees and total pensioners along with the amount payable are estimated. On Models 2 and 3, according to the availability of data, the estimation process is done for the annual retirees only. On Model 1, in 1990 the total number of pensioners are estimated to be 78,951 and increasing to 96,610 after 10 years while the increasing amount of payment are around 3,600 and 7,200 million baht respectively. On Model 2, a reverse survivorship probabilities are applied, and it is expected that the number of annual ordinary retirees at age 55 in 1990 are 6,657 and moving to 8,625 in 2000. On Model 3, the survivorship probabilities are applied, and it is estimated that in 1990 the number of annual ordinary retirees to be 3,332 and will slightly increase to around 5,600 in 2000.

Simulation of models of government pension schemes on different assumptions of population provides information on labor force replacements. On Model 1, under the medium fertility assumption of population projection the percentages of labor force

replacement for males and females are 0.00782 and .00921 in 1990, and increasing to 0.01180 and 0.01386 in 2000. On Model 2, the percentage of replacement for males is 0.01114 in 1990 and moving to 0.01638 in 2000, while for females the percentages are 0.01249 and 0.01833 respectively. On Model 3, the percentage of labor force replacement is lower than the former models. Under the medium fertility of population projection, the percentage of labor force replacement for males is expected to be 0.00526 in 1990 and 0.00800 in 2000, which is a comparable pattern to those of 0.00657 and 0.00945 for females in 1990 and 2000 respectively.