No. 85 COMPLETE LIFE TABLES FOR PAKISTAN AND PROVINCES: 1962-1965

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Farhat Yusuf* Naseem Iqbal Farooqui

INTRODUCTION

In view of the importance of life tables in demographic and actuarial work we have presented in this paper alternate sets of complete life tables for Pakistan and its provinces. These life tables are based on the demographic data collected by the Population Growth Estimation Project (PGE) during the four years of its operations: 1962-1965. Although abridged life tables based

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on one, two and three years PGE data are available this is the first attempt to prepare alternate sets of complete life tables.

DATA

In PGE information about vital events (births and deaths) was collected through two independent systems of data collection, that is, the registration system (LR) and the enumeration system (CS), while the base population statistics were collected only through the CS system $^2.$ Vital events statistics collected through the LR and CS systems were matched and the data were adjusted by using a probability model to account for vital events missed by both the systems of data collection4. The LR, CS and the

See 5,4,20, also see Khan's life tables for the former province of Punjab 2. 1.

For methodological details of the PGE Project see <u>/</u>1,]] .7.

For details of matching operations see $\sqrt{147}$. 3.

As a result of matching the LR and CS reports of vital events, all confirmed vital events were classified into three categories:

⁽a) matched events,
(b) non-matched LR events, and
(c) non-matched CS events.

From these three categories an estimate of the number of events missed by both the LR and CS systems was derived, under the assumption that the two systems were statistically independent, by dividing the product of categories (b) and (c) by category (a). For details of the Chandra-Deming (CD) formula see _ 6_7.

adjusted vital events - in PGE terminology they were referred to as Chandra-Deming (CD) events, and the mid year populations reported for each sample area were multiplied by appropriate raising factors to arrive at the provincial and national estimates⁵.

The following four years' PGE data were utilized in the preparation of life tables: (a) the LR estimates of deaths by sex and age of deceased, (b) the CD estimates of deaths by sex and age of deceased, (c) the LR estimates of live births by sex of the baby, (d) and CD estimates of live births by sex of the baby and (e) the CS estimates of mid year populations by sex and age. We have deliberately not utilized the CS mortality data because we believe that the CS estimates of mortality were too low?.

LIMITATIONS OF THE DATA

As expected PGE data were subject to many sampling and non-sampling errors <u>13</u>,11,18,1<u>9</u>7.

Table I shows some estimates of the sampling errors in the selected age-sex specific death rates based on the LR and CD estimates for East and West Pakistan. It appears from the table that the age specific death rates for males in East Pakistan showed a greater

^{5.} For details of estimation procedures see $\sqrt{18}$.

^{6.} The 1962-63 data were taken from $\sqrt{11}$ $\sqrt{7}$ and the 1964-65 data were taken from $\sqrt{15,16,17}$.

^{7.} See chapter 9 of $\sqrt{117}$.

TABLE I - SOME MEASURES OF RELIABILITY OF THE LR AND CD ACE-SEX SPECIFIC DEATH RATES FOR EAST AND WEST PAKISTAN

	West Pakistan		East Pakistan	Province
CD	LR	CD	LR	Sytem
+5+ 15-14 1-14	+24 12-17- 12-1-0	+2+ +15-44 1-14	45+ 15-44 1-11:	Age Range
.129100 .009906 .004619 .028229	.00771# .003593 .023286	.158700 .010130 .004216 .036152	.154338 .008315 .003640 .030940	Rate
.081755 .008615 .000496	.010203 .001237 .006585 .003720	.017790 .002184 .008215 .003860	.013311 .002014 .008920 .003819	MALES
.061218 .094641 .105405 .133794	.089280 .201840 .188250 .164700	.090546 .205838 .196758	.085630 .250850 .243260	CV**
.126900 .014897 .006117 .026500	.022021 .011476 .005167	.125100 .012501 .007617 .035533	.122180 .009809 .006213 .031065	Rate
.016342 .001876 .005210	.018655 .002242 .005325 .002390	.016923 .006465 .004500	.014704 .001926 .007260 .003747	FEMALE SE*
.114538 .132244 .081623 .094725	.138260 .220910 .113810 .126240	.114913 .166974 .084257 .126322	.123750 .166480 .120880 .122620	CV**

^{*} Standard error ** Coefficient of warfation

range of variation than those for males in West Pakistan, while the age specific death rates for females in East Pakistan showed smaller range of variation than the rates for females in West Pakistan. On the whole none of the death rates had a coefficient of variation of less than 8.2 per cent, showing thereby that the age-sex specific death rates used in the computation of the present set of life tables were subject to large sampling fluctuations.

Among the non-sampling errors the major component was due to the coverage and response errors. Unfortunately we had no measures to study the extent of the lack of

TABLE II - MYERS' INDEXES FOR LR AND CD DEATHS AND CS POPULATIONS BY SEX AND PROVINCE

Sex	System	East Pakistan	West Pakistan
Males	LR Deaths	81.96	85.06
	CD Deaths	78.19	86.23
	CS Populations	43.95	55.08
Females	LR Deaths	81.68	78.79
	CD Deaths	75.62	74.53
	C S Populations	43.31	51.92

coverage in the PGE Project. However, we have been able to study the incidence of misreporting of ages by computing Myers' indexes for the single year age distributions of the populations and the deceased people

(Table II). It appears from the table that there were no significant differences among the age distributions of the deceased people of either sex who were reported by LR or CD systems in East or West Pakistan. However, the single year age distributions for the deceased people were much more distorted than the corresponding age distributions for the living populations. Further, it was noted that more than half of the age reports for both living and deceased people ended in digits 0 and 5 showing thereby the strong preference which the respondents had for these digits. Because of the erratic pattern of the single year age distributions it was decided to use the single year age data only upto age 12 and the quinquenial age groups starting from 10-14 to ages 80 and over.

METHODOLOGY

Age specific death rates (m_X) were computed for all ages above 0 by using the formula:

$$m_X = \frac{d_X}{p_X}$$

where d_X was the four years' total of the estimated number of deaths of persons who died between age x to x+1 and p_X was the four years' total of the estimated number of persons who were of age x. The infant mortality rate, that is m_O , was computed by dividing the four years' total of the estimated number of infant deaths by the four years' total of the estimated

number of live births. Two series of age specific death rates, namely the LR and CD rates, were used depending on whether d_X was the LR or CD estimate of deaths 8 . All m_X values were computed separately for males and females in East and West Pakistan.

Because of the erratic pattern of the m_{χ} values it was felt necessary to graduate them by using Gompertz curves of the form:

$$m_X = k.a^{b^X}$$

where k, a and b were constants and x was the age at death. Since the risk of mortality decreases with age upto age 12 and then increases with age, it was decided to use two sets of Gompertz curves. The first set was used to graduate single year m_x values from age 01 to 12 and the second set was used to graduate the nm_x values given in quinquenial age groups 15-19 to 80 and over. The constants of the two sets of Gompertz curves are presented in Table III. It may be noted that the graduated m_x values for age 12 and age 17 (i.e. the mid point of age group 15-19) were joined

^{8.} Denominators of both the LR and CD rates were the same, however, in case of the infant mortality rates the denominators for LR rates were the LR estimates of live births and in case of the CD infant mortality rates they were the CD estimates of live births.

^{9.} $n^{m}x$ stands for the mortality rate of persons aged x to x+n.

TABLE III -THE CONSTANTS OF GOMPERTZ CURVES FITTED TO THE LR AND CD ACE-FEX SPECIFIC DEATH RATES FOR EAST AND WEST PAKISTAN

			1 · 1	£. 1
	to 75-79		L to 12	Age Range
		:		
CD	L _R	CL	LR	System
East Pakistan West Pakisten	East Pakistan West Pakistan	Bast Pakistan West Pakistan	East Pekistan West Pakistan	Frovince
Males Females Males Females	Males Females Males Females	Males Females Males Females	Males Females Males Females	Sex
.569300 .117500 .274000	.615665 .082194 .753275 .091357	1.970400 2.189800 2.344600 2.077100	1.677725 1.626204 1.482378 1.706241	Log a
1.122300 1.231700 1.161400 1.250000	1.110860 1.256440 1.087080 1.230782	.851000	.893714 .829011 .777678 .564612	ď
241500 .691800 .191300 .635700	339632 -541972 -454722 -445675	.094970 057900 288300 .274800	190070 .073493 .140890 .445226	log k
	EastMales.5693001.12230024PakistanFemales.1175001.231700.65WestMales.2740001.161400.15PakistanFemales.0860001.250000.63	East Males .615665 1.11086033 Pakistan Females .082194 1.256440 .54 West Males .753275 1.087080 .45 Pakistan Females .091357 1.230782 .44 East Males .569300 1.12230024 Pakistan Females .117500 1.231700 .65 West Males .274000 1.161400 .15 Pakistan Females .086000 1.250000 .63	CI East Males 1.970400 .851000 .05 Pakistan Females 2.189800 .86070005 Males 2.344600 .86580028 Pakistan Females 2.077100 .781600 .27 Heast Males .61565 1.11086028 Pakistan Females .082194 1.256440 .54 Males .753275 1.087080 .45 Pakistan Females .091357 1.230782 .44 Males .569300 1.12230024 Pakistan Females .117500 1.231700 .65 Pakistan Females .274000 1.161400 .15	IR

by a straight line so as to interpolate the graduated m_X values for ages 13, 14, 15 and 16 years. Further, the second set of Gompertz curves were used to interpolate the graduated m_X values for each single year of age from age 17 to 79 years.

The probability of dying between age x to x+1, q_{x} , was computed by using the formula:

$$q_{x} = \frac{2m_{x}}{2+m_{x}}$$

for all ages beyond 0. The q_0 was assumed to be equivalent to $m_0.^{10}$ The other columns of the life tables were derived by using the standard actuarial formulae $\sqrt{5}$.

RESULTS

In Pakistan, as in many other developing countries, the death rates have registered a substantial decline over the past two decades \[\int 10,12, 13_7 \]. The crude death rate in Pakistan was estimated to range between 29-32 deaths per 1000 population in 1951 \[\int 10_7 \]. The 1962-65 average crude death rates estimated by the PGE Project were as follows:

	LR	CD
Pakistan	16	20
Pakistan	15	18

^{10.} The seperation factors could not be calculated due to the nonavailability of the pertinent data.

Although these figures confirmed the declining trend in mortality levels in Pakistan, however, it is difficult to ascertain the absolute drop in the death rates. The main difficulty is the lack of reliable demographic statistics. Further, it is not possible for us to say whether the LR or the CD rates represent the true levels of mortality in Pakistan. For this reason we have presented alternate sets of complete life tables based on the LR and CD estimates on the belief that they represent the lower and upper limits respectively of the mortality levels in Pakistan (Tables IV through XI). In the following paragraphs we will describe some salient features of the complete life tables presented in this paper so as to emphasize the observed interprovince and sex differences in the mortality levels in Pakistan. For this purpose we will mainly utilize the $\boldsymbol{q}_{\boldsymbol{x}}$ and $\boldsymbol{e}_{\boldsymbol{x}}$ columns of the life tables.

As regards the interprovince differences in the mortality levels it was noted that the infant mortality rates in East P akistan were higher than the rates in West Pakistan - by 10.6 percent for LR estimates and by 22.8 percent for CD estimates. On the other hand the infant mortality rates for females in East Pakistan were slightly lower than the corresponding rates in West Pakistan, however, the differences were rather negligible. For nearly all ages beyond infancy the males and females in East Pakistan were exposed to greater

risks of dying than their West Pakistani counterparts. These findings were corroborated when we compared the $\mathbf{e}_{\mathbf{x}}$ columns of the complete life tables for East and West Pakistan, which showed that at all ages and for both males and females the life expectancy was higher in West Pakistan.

While studying the sex differences in mortality Tevels in Pakistan it was noted that in East Pakistan the infant mortality rates for males were higher than the rates for females. This is in conformity with the pattern observed by the United Nations in many countries of the world 137. However, in West Pakistan the situation was reversed and the sex differential in infant mortality was rather small. Further, it was noted that at almost all ages in the reproductive life span (viz 15-50 years) females were exposed to greater risks of dying than males. However, once the females survived the reproductive period they were likely to live longer than males.

Many factors could be contributing to the observed interprovince and sex differentials in mortality. As regards the interprovince differentials, mortality in East Pakistan appears to be higher compared to West Pakistan. This may be a real difference or may be due to sampling and non-sampling errors affecting the PGE data. For example, it is possible that the quality of field work in East Pakistan was better than in West Pakistan and therefore deaths could have been under-reported in West Pakistan. However, no quantitative

measures of the relative efficiency of field work in both provinces have been prepared so far. Regarding the sex' differentials, it seems that females in reproductive ages were exposed to somewhat greater risks of dying than males. This pattern is frequently observed in high mortality countries. In part this is undoubtedly due to mortality arising from child birth and its complications. The additional burden that child birth imposes on the women in countries with low health conditions Is substantial. The observed sex differentials may also be explained by the fact that given the limited medical and public health facilities and the position of women in Pakistani society, It is quite likely that females are not cared for as much as males. This is particularly important in case of women of child bearing age.

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TABLE TO: : COMPLETE LIFE TABLE FOR EAST PAKISTAN MALES BASED ON THE LR ESTIMATES OF MORTALITY: FGE 1962-1965

-		e e e			 	
 **	g ^x	ı 1 _x	d _x	$\mathbf{L}_{\mathbf{x}}$	$^{ ext{T}}_{\mathbf{x}}$	e X
0012345678901123456789012345678	0.1543382 0.0201807 0.0141141 0.0101236 0.0075616 0.0058242 0.0046113 0.0037424 0.0031052 0.0026279 0.0019811 0.0017586 0.0018582 0.0020686 0.0021360 0.0023613 0.0024451 0.0025337 0.0026276 0.0027270 0.0028323 0.0029441 0.0030629 0.0031890 0.0031890 0.0031890 0.0031890 0.0037809 0.0037809 0.0037809 0.0037809 0.0037809 0.0037809 0.0047770 0.0050210 0.0050210 0.0050210 0.0050210	100,5666 82,6668 82,6698 80,2569 80,279,120 79,1876 78,1961 77,77777 77,086 78,1961 77,77777 77,086 76,465 76,465 76,465 76,465 76,975 77,777 77,986 77,987 78,987	15,434 1,769 1,169 611 1,168 1,209 1,168 1,209 1	893,5425 993,5278 809,52978 809,6269718 809,778,777777777776 809,778,77777777777777777777777777777777	5,166,064 802 5,166,064 9,166,064 9,195,165 9,197,195 4,197,195 4,197,195 4,197,195 4,197,195 4,197,195 4,197,195 4,197,195 1,197,	561.324.0524.27010001234.5780257037048383833333333333333333333333333333

FABLE	IV : CONTIN	WED :				
:						
44123456789012345678900123456789012345678901234567890123456789012345678901234567890123456789012345678	0.0055640 0.0055640 0.0058668 0.0061930 0.0065451 0.0069249 0.0073356 0.0077803 0.0082618 0.0087841 0.0093514 0.0093514 0.0093514 0.0130502 0.0121744 0.0130502 0.0140084 0.0150587 0.01408491 0.0204203 0.024203 0.024203 0.024203 0.0260938 0.0284091 0.0309855 0.0336506 0.0370450 0.0466116 0.0466161 0.046661 0.046695 0.0732139 0.0812724 0.0903750 0.1006812 0.1123377 0.1255413 0.1255413 0.1405087 1.0000000	71,107 71,107 71,107 70,667 70,204 69,2669 68,1004 66,2706 66,	400 440 440 440 440 440 440 451 481 556 705 705 783 884 905 1,118 905 1,187 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,287 1,288 1,287	71,70,4361 71,717,70,4361 69,4361 69,4386 66,715,889 66,715,859 67,755 755 755 755 755 755 755 755 755 75	2,242,238 2,170,511 2,099,194 2,028,307 1,957,871 1,957,871 1,818,447 1,749,509 1,6613,320 1,546,131 1,479,591 1,413,737 1,48,608 1,284,246 1,220,695 1,158,609 1,035,408 975,617 916,23 1,035,408 803,032 748,050 644,159 542,515 495,249 449,317 364,852 495,349 4406,317 364,852 221,369 191,476 117,402 97,945 81,066	31,17,35 29,570 29,570 27,089 26,28,690 22,58,360 20,08 19,360 17,17 15,09 12,17 16,477 15,18 11,27 11

TABLE V COMPLETE LIFE TABLE FOR MAST PAKISTAN FUNCTION BASED ON THE LIPESTIMATES OF MORPALITY: 1982-1965:

x	$\mathfrak{d}_{\cdot}^{\mathbf{X}}$	1_{x}	ď.	L _x	T_{x}	e _x
C012345678901234567890123456789012345678	0.1221802 0.0260576 0.0154085 0.0059502 0.0069203 0.0051189 0.0032391 0.0027272 0.0023646 0.0021008 0.0019045 0.0017559 0.0018520 0.0043620 0.0045646 0.0045646 0.0045646 0.0045646 0.0045646 0.0045646 0.0045646 0.0047507 0.0049734 0.0050571 0.005971 0.0051464 0.0052414 0.0052414 0.0052414 0.0052414 0.0052419 0.0056904 0.0056904 0.0056904 0.0056904 0.0056904 0.0056904 0.0056904	100,000 87,785 84,1740 85,1740 82,7639 82,7452 81,75298 81,1538 81,1538 81,1538 80,75167 79,4114 78,069 779,4114 78,069 779,76,925 76,175 777,695 777,695 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,773,784 777,784 777,784 777,784 777,785 777,785 777,785 777,785 777,785 777,785 777,785 777,785 777,785	12,218 2,287 1,317 838 577 424 328 266 223 193 171 155 142 153 348 350 3554 357 369 369 373 369 385 390 385 401 407 413 420 427 435 443 453 462	91,447 86,837 83,759 83,759 83,759 82,551 82,551 81,878 81,634 81,426 81,426 81,932 80,785 80,6341 79,992 79,641 79,992 79,641 79,992 79,641 79,283 78,575 78,214 77,883 77,112 76,741 76,383 77,151 76,783 77,4801 73,574 73,574 73,575	5,298,861 5,207,404 5,207,408 4,952,408 4,952,408 4,786,805 4,704,630 4,622,752 4,541,119 4,459,649 4,297,367 4,135,650 4,055,038 4,216,455 4,135,650 4,055,038 3,974,697 3,894,705 3,974,697 3,815,076 4,055,038 3,974,697 3,815,006 4,055,038 3,974,697 3,815,076 3,190,868 3,190,868 3,190,868 3,190,868 3,190,868 2,962,924 2,812,915 2,738,515 2,962,924 2,812,915 2,798 2,799 2,372,798 2,300,965	9203244475045544680123445678899000111222333 2999988765433210355999887654332110355998876543323333333333333333333333333333333333

344444444455555555556666666667777777777899012345678901234567890+	0.0066451 0.0068491 0.0070692 0.0073073 0.0075649 0.0078443 0.0084778 0.0084778 0.0088379 0.0092308 0.0096609 0.0101322 0.0106503 0.0112204 0.0118501 0.0125469 0.0133198 0.0141795 0.0151381 0.0162108 0.0174137 0.0187683 0.0202978 0.0262525 0.0288306 0.0174137 0.0187683 0.0202978 0.0262525 0.0288306 0.0317944 0.0352204 0.0391936 0.0492407 0.0556100 0.0631335 0.0720535 0.0826917 0.0954315 0.107494 0.1292433 0.1516573 0.1788864 1.0000000	71,644 70,169,1690 70,1699,1699,1699,1699,1699,1699,1699,169	473 484 499 555 557 557 566 667 778 880 1070 1070 1070 1070 1070 1070	70,988 70,429 69,439 69,439 69,439 68,349 66,469 66,469 66,469 66,49 66,49 66,49 66,49 66,49 66,49 66,49 66,49 66,49 66,49 66,49 66,49 67,69 68,144 69,49 69	2,29,582 2,158,253 147,682 2,088,9566 2,0188,9566 1,949,5724 1,8746,7448 1,7679,613 1,6043,361 1,6043,361 1,413,445 1,413,221 1,0039,622 1,109,62	31.34 329.95.96.83 222222222222222222222222222222222222

TABLE VI: COMPLETE LIFE TABLE FOR WEST PAKTSTAN MALES BASED ON THE LR ESTIMATES OF MORTALITY: FGE 1962-1965

					*	The statement on the 11.7
X	$\mathbf{x}^{\mathbf{p}}$	1 _x	$^{\mathrm{d}}\mathbf{x}$	${ m L_x}$	$^{\mathrm{T}}\mathbf{x}$	e _Z
00000000000000000000000000000000000000	0.1395304 0.0194738 0.0194738 0.0108414 0.0068631 0.0048088 0.0029388 0.0024852 0.0021813 0.0019711 0.0016333 0.0017485 0.0017485 0.0017485 0.0023102 0.0023102 0.0023102 0.0023102 0.0025448 0.0025448 0.0026310 0.0027216 0.0029177 0.0030235 0.0031350 0.0035077 0.0035077 0.0035077 0.0037927 0.0037927 0.0037927 0.0039476 0.0046647 0.0048722 0.0050926	100,000 847,163,4884 847,4884 82,1882,1881 81,75598 81,75598 81,75598 81,97597 81,97598 81,97597 81,97599 81,97599 81,97599 81,97599 81,97799 81,97	13,956 9576 13,9579 1207 13,9579 1207 1307 1307 1307 1307 1307 1307 1307 13	985331440 985331440 9853331440 9853331440 9853331440 985333140 9853331440 985331440 985331440 9853140 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 98531440 9853140 98531440 98531440 98531440 98531440 98531440 98531440 9853140 9853140 9853140 9853140 98531	5,605 707,3317 707,605 707,3317 707,612,417 707,612,417 707,612,417 707,612,417 707,612,417 707,612,417 707,612,122 707,612,1380 7	566564 57890177777779 56554 5789017777779 56554 5789017777779 578901779018 578901777779 578901779018 578901777779 5789018 57890

39 0.0053267 74,447 397 74,247 2,596,277 34.87 40 0.0055759 74.050 413 73,844 2,522,028 34.06 41 0.0058410 73,637 430 73,422 2,448,184 33.25 42 0.0061236 73,207 448 72,983 2,374,762 32.44 43 0.0064250 72,759 467 72,526 2,301,779 31.64 44 0.0067466 72,292 488 72,048 2,29,253 30.84 45 0.0074574 71,295 552 71,029 2,085,655 20,25 47 0.0078502 70,763 556 70,485 2,014,626 28.47 48 0.0087209 69,626 607 69,325 1,874,224 26.92 49 0.0087209 69,626 607 69,325 1,874,224 26.95 50 0.0092040 69,019 635 68,702 1,804,901 26.15 52 0.0102828 67,719 696 67,371 1,668,147 24.63 53 0.0108796 67,023 729 66,659 1,600,776 23.88 54 0.0115242 66,294 764 65,912 1,574,117 25.14 56 0.0129678 64,729 839 64,310 1,463,075 21,68 57 0.0137759 63,890 880 63,450 1,338,765 20.95 58 0.0149678 62,087 968 61,603 1,403,075 21,68 58 0.015242 66,294 764 65,912 1,574,117 25.14 56 0.0129678 64,729 839 64,310 1,463,075 21,68 57 0.0137759 63,890 880 63,450 1,338,765 20.95 58 0.0146494 63,010 925 62,549 1,275,315 20.24 59 0.015240 60,103 1,065 59,571 1,090,552 18.15 62 0.0129678 64,729 839 64,310 1,403,075 21,68 63 0.0177240 60,103 1,065 59,571 1,090,552 18.15 62 0.0189552 59,038 1,117 58,480 1,030,981 17,466 63 0.0218464 56,749 1,228 56,135 915,166 16,13 63 0.0218876 55,521 1,287 54,878 859,031 17,466 63 0.0218869 54,234 1,477 50,735 698,414 12.96 67 0.0266989 52,885 1,412 52,179 750,593 14,19 69 0.0387353 45,160 1,749 44,286 594,809 11,18 73 0.0418783 45,411 1,818 42,502 460,651 1,818,021 10.05 75 0.0387353 45,160 1,749 44,286 504,809 11,18 73 0.0418783 45,411 1,818 42,502 460,651 1,818,021 10.05 75 0.0491137 39,708 1.950 38,733 377,770 9,50 38,936 204,078 204,078 6.94							
	4444444444555555555555666666666777777777	0.0055759 0.0058410 0.0061236 0.0064250 0.0064250 0.0067466 0.0070903 0.00785704 0.0082704 0.0082704 0.0082709 0.0097226 0.0102828 0.0102828 0.0102828 0.0122188 0.0122188 0.0122188 0.0122188 0.0122188 0.0155948 0.0155948 0.0155948 0.0166171 0.0166171 0.0189252 0.0202295 0.0216464 0.0231876 0.0248689 0.0266989 0.0266989 0.0266989 0.0358679 0.0357853 0.0418783 0.0418783 0.0418783 0.0418783 0.0418783	74,050 73,729,245 72,292,45 71,720,6219,49 71,720,6219,49 71,720,6219,49 71,720,6219,1038 67,02940,11038 67,02940,11038 67,02940,11038 67,02940,11038 67,02940,11038 67,752,78910 67,752,2887,995 57,752,499,754 48,1413 39,754 48,1413 39,758 31,558	413 430 448 448 509 5556 607 6365 696 729 764 839 923 968 1,065 1,172 8,061 1,228 1,228 1,228 1,477 1,642 1,749 1,818 1,9612 2,0619 2,162	73,444 73,428 72,528 72,528 72,529 72,5509 73,6509 73,7509 74,7509 74,7709 74,609 75,7718 76,609 76,7718 76,7718	2,522,028 2,448,184 2,301,779 2,229,205 2,014,626 1,944,124 1,874,224 1,874,224 1,874,224 1,874,224 1,874,225 1,668,147 1,668,147 1,560,117 1,468,205 1,403,075 1,212,766 1,090,581 1,090,581 1,090,581 1,090,581 1,090,581 1,090,581 1,090,581 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,591 1,090,593 1,090,	4.06 532 4.46 532 532 533 530 532 533 530 532 533 533 533 533 533 533 533

TABLE VII: COMPTETE LIME PARTE FOR WEST PAKISTAN FEMALES BASED ON THE LR ESTIMATES OF FORTALITY: PGE 1962-1965

			1			
x	${f q}_{f X}$	l _x	x	$^{ m L}_{ m x}$	$^{ extstyle T}\mathbf{x}$	e _x
001 001 001 000 000 000 000 000 000 000	0.1459636 0.0252965 0.0097060 0.0056378 0.0041469 0.0034863 0.0031609 0.0029908 0.0028991 0.00288198 0.0028041 0.0028041 0.0028952 0.0028041 0.0028952 0.0035708 0.0035708 0.0035708 0.0035952 0.0035954 0.0036903 0.0036903 0.0037345 0.0038824 0.0039954 0.0039954 0.0049599 0.0041221 0.0049110 0.0045117 0.0049220 0.0049220 0.0050421 0.0049220 0.0050421	100,000 85,2446 82,496 81,9634 81,9634 81,9634 81,9636 80,3963 80,3963 79,7485 79,7485 79,7497 777,766,6335 777,777,766,6335 777,777,777,777,777,777,777,777,777,77	14,596 2,160 808 465 340 285 257 243 226 227 223 2246 2280 2246 2280 2282 284 286 288 291 293 296 299 302 305 308 312 316 325 329 3345 358 3529 3374 3452 3588 365 372	89,783 84,108 82,204 81,489 81,489 81,489 81,489 80,7505 79,663 80,505 79,600 79,600 79,600 79,600 79,78,555 77,77,76,387 77,777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,76,285 777,77,76,285 777,785	5,678,614 5,588,831 5,581,883 5,521,883 5,521,883 5,521,76,389 5,176,389 5,014,470 4,852,968 4,612,810 4,722,683 4,612,810 4,722,683 4,612,810 4,612,810 4,612,810 4,612,810 4,612,810 6,612,81	794437441633297465454466655665543666666666666666666666

TABLE VII: CONTINUED

39 0.0053076 71,657 380 71,467 2,638,624 36.82 40 0.0054545 71,277 389 71,083 2,567,157 36.02 41 0.0056120 70,888 398 70,689 2,496,074 35.21 42 0.0057810 70,490 408 70,286 2,425,385 34.41 43 0.0059624 70,082 418 69,873 2,355,099 33.61 44 0.00615777 69,664 429 69,450 2,285,226 32.80 45 0.0063682 69,235 441 69,015 2,215,776 32.00 46 0.0065950 68,794 454 68,567 2,146,761 31.21 47 0.0068401 68,340 467 68,107 2,078,194 30.41 48 0.0071053 67,873 482 67,632 2,010,087 29.62 49 0.0073927 67,391 498 67,142 1,942,455 28,82 50 0.0077045 66,893 515 66,636 1,875,313 28.04 51 0.0084128 65,844 554 66,111 1,808,677 27.25 52 0.0084128 65,844 554 66,111 1,808,677 27.25 53 0.008154 65,290 576 65,002 1,676,999 25.69 54 0.0097385 64,102 624 63,790 1,547,889 24.14 55 0.0102680 63,478 652 63,152 1,483,799 24.91 55 0.0097385 64,102 624 63,790 1,547,889 24.14 58 0.0114923 62,144 714 61,787 1,358,162 21.86 59 0.012020 61,430 750 61,055 1,296,375 21.10 60 0.0129882 60,680 788 60,286 1,235,320 20.36 61 0.0136609 59,892 830 59,477 1,175,034 1962 62 0.018502 56,279 1,041 57,759 942,440 16.75 66 0.0200358 55,238 1,107 54,685 886,681 16.05 67 0.0217729 54,131 1,179 53,542 881,996 17.47 69 0.0258402 50,352 1,437 49,634 675,106 13.41 70 0.0285402 56,279 1,041 55,759 942,440 16.75 70 0.0285402 56,279 1,041 55,759 942,440 16.75 70 0.0285402 50,352 1,437 49,634 675,106 13.41 71 0.0314689 48,915 1,539 48,146 625,472 12.79 72 0.0348376 47,376 1,650 46,551 577,326 12.10 73 0.0387274 45,726 1,771 44,841 550,775 11.06 74 0.0432339 43,955 1,900 43,005 485,934 11.06 75 0.0484746 42,055 2,039 41,036 442,929 10.57 76 0.0546000 40,016 2,185 38,924 401,893 10.04 77 0.0617821 37,831 2,337 36,663 362,969 9.59 78 0.0702413 35,494 2,493 34,248 326,306 9.19 79 0.0302301 33,001 2,648 31,677 292,058 885 80+ 1.0000000 30,353 30,353 260,381 260,381	0.00545455 171,277 389 71,083 2,567,157 36.02 41 0.0056120 70,888 398 70,689 2,496,074 35.21 42 0.0059824 70,082 418 69,873 2,355,099 33.61 44 0.0061577 69,664 429 69,450 2,285,226 32.80 45 0.0063682 69,235 441 69,015 2,215,776 32.00 46 0.0065950 66,794 454 68,567 2,146,761 31.21 47 0.0068401 68,340 467 68,107 2,078,194 30.41 8 0.0071053 67,873 482 67,632 2,010,087 29,62 49 0.0077045 66,393 515 66,636 1,875,313 28.04 51 0.0084128 65,844 554 65,567 1,742,566 26,47 53 0.0084128 65,844 65,290 576 66,002 1,676,999 25.69 54 0.0097385 64,102 624 63,790 1,547,589 24.14 55 0.0097385 64,102 624 63,790 1,547,589 24.14 55 0.0102680 63,478 652 63,152 1,483,799 23.38 57 0.0129202 61,430 750 61,055 1,296,375 21.10 60 0.0129882 60,680 788 60,286 1,235,320 20.36 61 0.0138609 59,892 830 59,477 1,175,034 19,62 62 0.014923 62,144 714 61,787 1,358,162 21.86 63 0.0129882 60,680 788 60,286 1,235,320 20.36 61 0.0138609 59,892 830 59,477 1,115,557 18.89 62 0.014923 62,144 714 61,787 1,358,162 21.86 63 0.017334 57,260 981 56,770 999,210 17,45 66 0.0237418 52,952 1,056,933 18.17 76 0.0287428 48,915 1,375 1,024 778,454 14.70 79 0.0348376 47,376 1,650 44,983 31,677 292,309 9,59 77 0.0348376 47,376 1,650 44,008 1,611 57,775 1,064 1,075 1,076 1,076 1,076 1,076 1,076 1,076 1,076 1,076 1,076 1,076 1,076 1,077 1,0
taran da araba da ar	

TABLE VINI: COMPLETE LIFE TABLE FOR EAST PAKISTAN MALES BASED ON THE CD ESTIMATES OF MORTALITY: PGE 1962-1965

. х	$\mathbf{q}^{\mathbf{x}^{\cdot}}$	1 x	$^{ m d}{f x}$	$\mathbf{r}^{\mathbf{x}}$	\mathbf{x}^{T}	ex
00 01 02 3 04 05 06 7 08 9 01 11 2 3 14 5 16 7 18 19 02 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3	0.1587600 0.0552314 0.0327546 0.0201940 0.0133108 0.0053560 0.0069756 0.0053855 0.0042908 0.0035935 0.0030952 0.0026964 0.0022974 0.0022974 0.0022974 0.0024969 0.0025966 0.0026964 0.0025966 0.0026964 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0027961 0.0037928 0.0037928 0.0037928 0.0037928 0.0037928 0.0037928 0.0037928 0.0037928 0.0047885 0.0047885 0.0052860 0.0055840	100,000 84,130 79,483 76,880 75,327 74,324 73,629 73,115 72,409 71,926 71,732 71,582 71,425 71,261 71,097 70,750 70,566 70,376 70,376 69,766 69,750 69,328 69,093 68,598 68,065 67,780 67,482 66,158 67,789 66,158	15,870 4,647 2,603 1,5503 1,5503 1,6914 3206 223 194 157 164 1177 184 190 1235 241 2235 241 2235 241 2235 336 2235 340 3569 3404	88,891 81,342 78,104 74,104 74,977 73,3918 72,5278 71,650	4,584,889 4,495,998 4,414,656 4,360,370 4,185,544 4,111,567 4,038,197 3,892,712 3,892,712 3,892,743 3,748,396 3,533,405 3,462,062 3,319,871 3,249,032 3,178,374 3,037,625 2,967,547 2,887,676 2,888,579 2,689,368 2,758,579 2,689,368 2,758,579 2,887,676 2,887,688 2,758,579 2,887,676 2,887,689 2,689,368 2,758,579 2,415,000 2,445,120 2,347,077 2,272,119 2,145,108 2,078,428 2,078,429 1,946,120 1,880,524	45.44.54.55.24.57.99.22.44.55.55.55.55.55.55.55.55.55.55.55.55.

TABLE VIII: CONTINUED

344444444445555555555566666666677777777890+	0.0065783 0.0069756 0.0073727 0.0078689 0.0088606 0.0094551 0.0100493 0.0107420 0.0115331 0.0124224 0.0133108 0.0142971 0.0153808 0.0166601 0.0179377 0.0195078 0.0211734 0.0229340 0.0211734 0.0229340 0.0211734 0.0229340 0.0258478 0.0358458 0.0358458 0.03531490 0.0480187 0.0480187 0.0531490 0.0590062 0.0654834 0.0728464 0.0728466 0.1019265 0.1144527 0.1287425 0.1287425 0.1287425 0.1629466 0.1841293 0.2085274 0.2357871 1.0000000	64,598 64,6468 64,647 63,648 662,485 663,579 663,579 67,693 67,693 67,693 683 693,707 693 693 693 693 693 693 693 693 693 693	428 4573 4573 4573 4573 4573 4701 4	454721071710512706404478134383757623593765 64433821071710512706404478134383757623593765 64433821071710512706404478134383757623593765 64433837761710512706404478134383757623593765 644338377671710512706404478134383757623593765	1,815,540 1,756,1911 1,756,1911 1,682,9031 1,6596,1971 1,3710,725,827,907 1,1311,0015 1,13	3109990247050631001372285446063237312633809 22265433221009877665544433333 2222222221111111111111111111111
	4	1-22	-1-22	ーンラー・ン	47,017	ノ・ニノ

TABLE IX: COMPLETE LIFE TABLE FOR EAST PAKISTAN FEMALES BASED ON THE CD ESTIMATES MORTALITY: PGE 1962-1965

x	$\mathbf{x}^{\mathbf{p}}$	1 _x	$^{ m d}{f x}$	$^{ m L}_{ m x}$	$^{\mathrm{T}}\mathbf{x}$	e _x
012345678901234567890123456789012345678	0.1251000 0.0635167 0.0360387 0.0220541 0.0138041 0.0050870 0.0050870 0.0059950 0.0031949 0.0022974 0.0029955 0.0036932 0.0050870 0.0057832 0.0064789 0.0065783 0.0066776 0.0067770 0.0068763 0.0069756 0.0069756 0.0070749 0.0071742 0.0072735 0.0074720 0.0074720 0.0076705 0.0076705 0.0076705 0.007697	100,493 81,938 776,493 776,493 776,494 776,494 776,494 777 777 777 777 777 777 777 777 777	12,559,760 12,59,760 11,075,322 12,075,751 12,075,751 12,075,751 12,075,751 12,075 12,075 12,075 12,075 12,075 13,	91,2456 91,	4,459,159 4,459,159 4,459,159 4,459,159 4,459,159 4,138,073 1,107	493017852109924867075431098642086413975 49301785210992486707543109864208641369 45555555544444444444444333333333333333

TABLE IX : CONTINUED

34444444445555555555666666777777778990123456789012345678901234567890+	0.0096532 0.0099502 0.0102472 0.0105441 0.0108409 0.0112365 0.0116320 0.0125211 0.0131135 0.0136068 0.0141985 0.0148883 0.0151838 0.0153650 0.0172499 0.0182323 0.0192136 0.0203900 0.0216628 0.0230317 0.0240083 0.0263483	022073382309797761506176387420427649651431 022073382309797761506176387420427649651431 022073382309797761506176387420427649651431 1022073382309797761506176387420427649651431 1022073382309797761506176387420427649651431 1022073382309797761506176387420427649651431	58023405669312820156545413513226251253147121 58023405669777889990156545413513226251253147121 11,111,111,111,111,111,111,111,111,11	600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,1532083372443839425186812802023183973 600,479,15320833472443839425186812802023183973 600,479,15320833472438394251868812802222222222222222222222222222222	1,799,347 1,7199,362 1,76599,19636 1,5941,9636 1,5941,9636 1,4258,366 1,4258,366 1,4268,366 1,4268,366 1,4268,366 1,4268,366 1,4268,366 1,4268,366 1,4268,466 1,4268,	22099753210998899024715940854558396694239085 22097765443222222111111111111111111111111111111

TABLE X : COMPLETE LIFE TABLE FOR WEST PAKISTAN MALES BASED ON THE CD ESTIMATES OF MORTALITY : PGE 1962-1965

						
	T _X	1 _x	$^{\mathrm{d}}\mathbf{x}$	$^{ m L}{}_{ m x}$	$^{\mathrm{T}}\mathrm{x}$	6.70
001234567890123456789012345678	0.1291000 0.0668858 0.0239107 0.0169550 0.0106431 0.0070749 0.0049875 0.0036932 0.0027961 0.0022974 0.0017984 0.0015987 0.0028955 0.0029955 0.0029955 0.0031949 0.0031949 0.0031949 0.0034939 0.0034939 0.0034939 0.0036932 0.0036932 0.0037928 0.0037928 0.0038924 0.0038924 0.0038920 0.0041912 0.0042908 0.0045894 0.0048880 0.0049875 0.0053855 0.0053855 0.0058826 0.0058826	100,000 81,000 81,000 81,000 81,000 77,1401 76,018 77,1601 77,1601 77,100 77,10	12,923,9450 91053,9450	935, 656, 776, 657, 777, 777, 777, 777, 77	4,861,3684,111,642,111	455555555555555544年444444433335333333333

TABLE X : CONTINUED

TABLE XI : COMPLETE LIFE TABLE FOR WEST PAKISTAN FEMALES BASED ON THE CD ESTIMATES OF MORTALITY : PGE 1962-1965

x	O,	1 :	\mathbf{x}	T,	· ф .	Δ
• • «	$\mathbf{q}^{\mathbf{x}}$	-x	×	$\mathbb{L}_{\mathbf{x}}$	$^{\mathrm{T}}\mathbf{x}$	ex
··· 0012345678901234567890123456789012345678	0.1269000 0.0962353 0.0459209 0.0183304 0.0111376 0.0075712 0.0055844 0.0043903 0.0035935 0.0031949 0.0027961 0.0025966 0.0029955 0.0033942 0.0045894 0.0051865 0.0053855 0.0053855 0.0054849 0.0056838 0.0056838 0.0056838 0.0056838 0.0056838 0.0057832 0.0058826 0.0059821 0.0062802 0.0062802 0.0062802 0.0063796 0.0063763 0.0068763 0.0069756 0.0069756	100,3108 75,905,236 75,905,236 75,905,236 71,972,180,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,973,193 71,97	12,40240 690240	917964356574089309217999740221662426747459987743223930921799974022166624267474599863930921799974022166666666666666666666666666666666666	4,6923730594473356333421456955310448620473621 4,663364214214569555310448620473621 4,663364214214569555310448620473621 4,66365433556333333333333333333333333333	4556665555555555555544444444444333333333

TABLE XI : CONTINUED

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