Labour Force and Employment in Pakistan, 1961—86: A Preliminary Analysis

by

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INTRODUCTION

As the need for a long-run perspective in development planning becomes recognized in Pakistan, the long-term problems of the economy are bound to become policy issues of great importance. The future employment of a rapidly increasing labour force is one such problem, although it cannot, of course, be separated from the problems of growth of investment and output. Although planning goals have, in the past, been set essentially in terms of growth of national and per-capita income, planners cannot ignore the problem of employment. Large numbers of the existing labour force are now either unemployed or under-employed[1], and to these are added the new entrants to the labour force as population increases. At the same time, a large shift in the occupational pattern of the labour force (but not necessarily a net transfer) away from the agricultural sector into the nonagricultural sector is necessary for the growth of the economy and per-capita income. It is for these reasons that a properly conceived employment objective should be incorporated in the planning process, especially in a long-run perspective plan.

The purpose of this paper is to project for Pakistan the future growth of population and labour force in order to examine the magnitude and complexity of the employment problem which Pakistan faces. The projections cover a period of 25 years from January 1961 to January 1986. The terminal date is so chosen that it roughly coincides with that of the proposed perspective plan (July 1965-June 1985) which will reportedly aim at tripling per-capita income from the level of 1961, achieving equality in per-capita incomes of East and West Pakistan, and reaching a stage of full employment by 1985[2].

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[1] The census estimate of employment in the technical sense of being 'without a job' has little meaning in an economy with a small capitalist wage-sector. Only 1 per cent of the labour force was found unemployed in 1961. *See, Population Census of Pakistan, 1961. Census Bulletin No. 5,* (Karachi: Manager of Publications), p.i. An estimate of 6.3 million for 1960 *i.e.*, about 21.6 per cent of the labour force, is made by Dr. Mahbubul Haq in his book, *The Strategy of Economic Planning.* (Karachi: Oxford University Press, 1963).

[2] Planning Commission, Government of Pakistan, *Approach to the Third Five Year Plan.* (Karachi: Manager of Publications, June 1963), p. 2.

Section II presents the population and labour-force estimates, with a detailed explanation of their derivation. The population estimates are made for the sole purpose of estimating the labour force; and our purpose has not been to make any precise forecast, but to derive a realistic conservative estimate of the magnitudes involved. The employment problem and the policy implications are discussed briefly in Section III. It is presumed throughout that since interwing labour mobility is practically nil, the growth of the labour force and the employment problem have to be considered separately for East and West Pakistan, with a view to achieving balance of supply and demand in each wing. Therefore, all estimates and discussions are, as far as possible, made separately for the two wings.

II. LABOUR-FORCE PROJECTION FOR PAKISTAN, 1961—86

Labour force in these projections means civilian labour force as defined in the *Population Census of Pakistan, 1961*. All persons aged 10 completed years or over, who work (or are looking for work) for profits, wages or salary, or help any member of the family in agriculture, trade or profession constitute the labour force[3].

As a rule, it is considered more reliable to estimate the future labour force from future population estimates by age and sex rather than fit a smooth growth curve to the base-year estimate. Since no such population estimates are available, two alternative population projections are made by the component method[4] in which the future number of males and females in each age group are estimated separately. The population Projections I and II are based on: *i*) the reported age distribution of population in the 1961 Census (corrected for implied net underenumeration in ages 0-24); *ii*) the assumption of constant fertility, measured in terms of sex-age adjusted birth rates corresponding to a crude birth rate of 57 per thousand for East and 52 per thousand for West Pakistan; *iii*) the standard assumption of 105 male births for every 100 female births; and *iv*) alternative assumptions of constant mortality (Projection I) and declining mortality (Projection II), both measured in terms of expectation of life at birth. For projecting population in ages 0-59, survival ratios from appropriate model life tables are used, and population in ages 60 and above are projected by using survival ratios estimated from the censuses of 1951 and 1961. The projections are made for 5-year intervals of time and 5-year age groups, except for age 60 and above which

[3]The definition excludes housewives, but includes unpaid family labour. No specific period of reference was provided for agricultural workers; for nonagricultural workers, the period of reference was the week prior to the enumeration date, but no minimum working hours were specified. For further details, *see, Population Census of Pakistan, 1961. Census Bulletin No. 5, op. cit*, pp. i-ii.

[4] This method and its advantages over other methods are discussed elaborately in, United Nations, *Methods of Population Projections by Sex and Age*. (New York: United Nations, 1956), pp. 3-4.

is lumped together for lack of 5-year age-grouping in the base year. No such detailed projection could be made for the population of the Tribal Areas in West Pakistan since the base-year age distribution was lacking. The population in these areas is projected by applying the rate of growth of rest of the population of West Pakistan. No allowance is made for any net gain or loss of population through migration, on the assumption that it will have no significant effect on future population growth. A set of constant sex-age specific participation rates[5], based essentially on the 1961 Census, are applied to these projections to obtain the corresponding labour-force projections for future dates.

The detailed projections are shown in the Appendix Tables A-I to A-VI. The projection techniques and the underlying assumptions are spelled out in the following paragraphs.

The 1961-census age distribution of population[6] (excluding non-Pakistanis and the population of Tribal Areas of West Pakistan), corrected for estimated underenumeration and misstatement of age in younger age-groups, is taken as the base population for the projections. The corrections, suggested by Dr. Karol J. Krotki, are given in Table I.

TABLE I

(in '000')

East Pakistan			West Pakistan		
Male	Age-group	Female	Male	Age-group	Female
950	0—4	815	750	0—4	850
—150	5—9	60	—	5—9	450
230	10—14	825	—	10—14	400
500	15—19	500	150	15—19	450
400	20—24	250	400	20—24	500
1,930		**2,450**	**1,300**		**2,650**

Note: Based on Dr. Karol J. Krotki, "Population Size, Growth, and Age Distribution: Fourth Release from the 1961 Census of Pakistan", *Pakistan Development Review*, Summer 1963, p. 292 and p. 296. A slight departure is made from Dr. Krotki's corrections for ages 0-14 in East Pakistan in order to remove the highly unrealistic results which became evident when his corrected numbers in these ages were tested for estimating numbers in future and past years.

5 This rate is defined as the percentage of persons in the labour force among the population of a given sex age-group.

6 Office of the Census Commissioner, *Population Census of Pakistan, 1961. Census Bulletin No. 3.* (Karachi: Office of the Census Commissioner, Ministry of Home Affairs, Government of Pakistan).

These corrections resulted in a net addition of 8.33 million (4.38 million in East and 3.95 million in West Pakistan) to the 1961-census age distribution of population and a lowering of the masculinity ratio from 111 to 106 (108 to 104 in East, and 116 to 107 in West Pakistan). No correction is made for the census population of Tribal Areas numbering 3.438 million which are shown as a distinct part of the base population of West Pakistan.

No reliable estimate of current age-specific survival ratios is available for the Pakistan population. Mortality is best represented by a life table[7], but no life table has yet been constructed to depict the recent mortality experience of the Pakistan population. Any estimate of the sex-age specific survival ratio derived from the censuses of 1951 and 1961 may be quite misleading because of the unreliability of the age distributions, particularly in the 1951 Census[8], and also because of the considerable population gain to West Pakistan and loss to East Pakistan resulting from refugee migration during 1951-61. If satisfactory death-registration statistics were available for Pakistan, it would be preferable to compute the survival ratios by means of age-specific mortality rates derived from these data; but in the absence of such statistics, survival ratios from model life tables[9] have been used for projecting population in ages 0-59 for whom a 5-year age-grouping is available for the base year. Population in age 60 and above is projected by applying 10-year survival ratios roughly estimated from the censuses of 1951 and 1961.

The choice of an appropriate model life table has been made on the basis of particular assumptions about current and future mortality. The Pakistan population has been characterized in recent years by relatively constant fertility and declining mortality. Annual death rates have been calculated[10] from the corrected census data of 1961, as follows:

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7 "The life table is a life history of a hypothetical group, or *cohort*, of people, as it is diminished gradually by deaths". G. W. Barclay, *Technique of Population Analysis*. (New York: John Wiley and Sons Inc., 1959), p. 93.

8 In order not to mislead the unwary, a detailed age distribution of population was not shown in the final census reports of 1951. About the 1951-census age distribution of population it has been said that "the estimates are probably correct in classing persons as children, adults, or elderly people but within these wide groups accuracy is very doubtful", *Population Census of Pakistan, 1951. Census Bulletin No. 5. op. cit.*, p. 1.

9 The model life tables were constructed on the basis of a systematic study of mortality having extreme as well as intermediate mortality conditions. "Each model life table is designed to represent a typical combination of age-sex specific functions of mortality, or survival, corresponding to a given general level of mortality" shown in terms of the expectation of life at birth for both sexes combined. The actual combination of age-specific mortality rates of a particular population will always differ more or less from any pattern taken as typical for the same general mortality level. It may, therefore, be necessary to refer to more than one table for different age groups. *Methods of Population Projections by Sex and Age*, *op. cit.*, pp. 25-27 and Appendix Table V, pp. 80-81.

10 "Population Size, Growth and Age Distribution: Fourth Release from the 1961, Census of Pakistan", *op. cit.*

	Death Rate (per 1000)
East Pakistan	32—39
West Pakistan	26—33

It has been found after testing several model life tables that tables corresponding to a life expectancy of 32.5 years and 37.5 years are reasonably appropriate to represent these death rates, which are assumed to prevail in East and West Pakistan respectively for the period 1961-66. About future mortality two assumptions are made: *i*) Projection I: mortality remains constant with no improvement in life expectancy; *ii*) Projection II: mortality declines in a manner such that life expectancy increases by 2.5 years every five-year period and becomes 42.5 and 47.5 years for East and West Pakistan respectively for 1981-86. This rate of improvement in mortality is one which has been found to be normal on the basis of studies of worldwide mortality trends over a long period[11]. Quinquennial survival ratios from these model life tables are applied to each 5-year age group in ages 0-55 to calculate numbers in each 5-year age group in ages 5-59, five years later.

To calculate the number in age group 0-4 for future years the estimated number of births (by sex) during each 5-year period is multiplied by survival ratios for births[12] from appropriate model life tables. In view of a higher infant mortality[13] in Pakistan than the rates indicated by the model life tables just mentioned, tables corresponding to slightly lower life expectancies are chosen for the purpose of using survival ratios for births for different periods. These model life tables indicate the life expectancies at birth as shown in Table II.

TABLE II

	Projection I	Projection II				
	1961-66 to 1981-86	1961-66	1966-71	1971-76	1976-81	1981-86
East Pakistan	30	30	32.5	35	37.5	40
West Pakistan	31.25	31.25	32.5	35	37.5	40

11 United Nations, *Future Population Estimates by Sex and Age, Report III: The Population of South-East Asia (including Ceylon and China: Taiwan) 1950-1980.* (New York: United Nations, 1959), pp. 3-4.

12 This ratio (called P_b in model life tables) indicates the proportion of survivors to age-group 0—4, at the *end* of a 5-year period, out of the total number of births occurring *during* the 5-year period. These ratios are shown in *Methods of Population Projections by Sex and Age, op. cit.*, Appendix Table V, pp. 80-81.

13 Infant mortality is not the exact reciprocal of the survival ratio for births; but if the infant mortality rate is high, P_b will be low.

Since a 5-year age-grouping is not available for the base population of age 60 and above, model life table mortality or survival could not be used for estimating the future population of these ages. Satisfactory results were not obtained from reducing this population into 5-year age groups; hence an arbitrary method was adopted for the projection of this age group. The proportion of population of each sex aged 50 and above in 1951 who survived to reach ages 60 and above in 1961 is viewed as a 10-year survival ratio, and this ratio (with some changes) is projected into the future to estimate population aged 60 and above for 10-year intervals of time. The estimates for the mid-date of each 10-year period are obtained by interpolation. However, with this method, the actual ratios obtained for West Pakistan for the intercensal period 1951-61 appear too high when compared with model life table values. Therefore, these ratios are arbitrarily reduced for Projection I but are left unchanged for Projection II. Projection II assumes some slight improvement of the survival ratios in the future, except for West Pakistan males. The actual ratios used for the projections are shown in Table III.

TABLE III

TEN-YEAR SURVIVAL RATIOS (APPLIED TO POPULATION OF AGES 50 AND ABOVE)

		Projection I (for each decade beginning with 1951/61)	Projection II			
			1951-61	1961-71	1971-81	1981-91
East Pakistan	M	0.6155	0.6155	0.6492	0.6698	0.6892
	F	0.6175	0.6175	0.6668	0.6850	0.7030
West Pakistan	M	0.6442	0.7734	0.7734	0.7734	0.7734
	F	0.6418	0.6909	0.7299	0.7299	0.7299

Both the projections are based on an assumption of constant fertility. The measure of fertility used here is the sex-age adjusted birth rate, which is defined as the number of births per 1,000 of a weighted aggregate of numbers of women in the various 5-year age groups from 10 to 44. "The sex-age adjusted birth rate has the advantage over the crude birth rate, for measurement of fertility trends and for the estimation of future births, in that it eliminates the effects of changes in the sex-age structure of the population"[14]. The weights chosen here are listed in Table IV, along with the standard system of weights suggested by U.N. experts[15]. Since age-specific birth rates are not available, this rather arbitrary set of weights is used.

14 United Nations, *Population Growth and Manpower in the Philippines.* (New York: United Nations), p. 38. For a detailed discussion of the advantage of this rate, *see, Methods of Population Projections by Sex and Age, op. cit.*, pp. 42-45.

15 *Methods of Population Projections by Sex and Age, op. cit.*, p. 42.

TABLE IV

Age group (females)	Weights (used here)	Weights (standard system)
10—14	1	0
15—19	4	1
20—24	7	7
25—29	7	7
30—34	6	6
35—39	4	4
40—44	1	1

However, the set of weights used here may be considered proportional to the typical relative fertility rates of various age groups in a country having high fertility and prevalence of early marriage.

It has been estimated that the annual crude birth rates for East and West Pakistan during 1961-66 would be about 57 and 52 respectively[16]. With the set of weights chosen, annual sex-age adjusted birth rates equivalent to these are 55 and 49 respectively. These rates multiplied by 5 are applied to the mean weighted female population aged 10-44 for each 5-year period to calculate the number of births during each 5-year period. The standard ratio of 105 male births per 100 female births is assumed. The actual calculation of the number of births during each 5-year period upto 1986 is shown in the Appendix Tables A-VII to A-X.

The two projections are summarized in Table V which also shows the average annual growth rates for different periods. The prospective increase in population of East and West Pakistan during the period 1961-86 is 92.8 per cent and 86.6 per cent respectively in Projection I, and 115.6 and 106.8 per cent respectively in Projection II. These increases are obviously very large. Serious objections may be raised against the assumption of constant fertility made in both these projections. It may be contended, however, that a decline in fertility before 1976, even if it occurs, is unlikely to be significant for labour-force projections during the period under consideration. Moreover, any decline in fertility after 1976 will affect the population projections but not the labour-force estimates up to 1986. Since the population

16 "Population Size, Growth and Age Distribution.....", *op. cit.*

TABLE V

POPULATION OF PAKISTAN 1961-86, ACCORDING TO ALTERNATIVE PROJECTIONS BASED ON 1961 (CORRECTED) CENSUS DATA

Projection	1961	1966	1971	1976	1981	1986
a) POPULATION (IN MILLIONS)						
East Pakistan						
Projection I	55.22	62.39	70.30	80.58	92.77	106.47
Projection II	55.22	62.52	71.61	83.83	99.24	119.06
West Pakistan (including Tribal Areas)						
Projection I	46.82	52.79	59.34	67.35	76.68	87.38
Projection II	46.82	53.07	60.43	70.09	82.03	96.81
b) AVERAGE ANNUAL PER-CENT INCREASE						
	1961-66	1966-71	1971-76	1976-81	1981-86	1961-86
East Pakistan						
Projection I	2.5	2.5	2.8	2.8	2.8	92.8
Projection II	2.5	2.8	3.2	3.5	3.7	115.6
West Pakistan (including Tribal Areas)						
Projection I	2.4	2.4	2.6	2.6	2.7	86.6
Projection II	2.5	2.6	3.0	3.2	3.4	106.8

projections are made essentially for estimating the prospective size of the labour force, we need not be concerned with fertility after 1976. Any decline in fertility before 1976 is likely to be more than offset by the rather unrealistic assumption of constant mortality made in Projection I. For these reasons, the adult population (age 10 and above) in Projection I may reasonably be considered a low estimate and that in Projection II a high estimate for purposes of labour-force projection.

With respect to labour-force participation rates, the most commonly used practice is to examine past trends in sex-age specific participation rates and

project these trends into the future and apply these to the projected population. Because of lack of data, no clear trend can be obtained for the intercensal period (1951-61) in Pakistan. Available census information on overall participation ratios indicates virtually no change in participation, except a significant improvement in female participation during the period. This is shown in Table VI.

TABLE VI

CIVILIAN LABOUR-FORCE PARTICIPATION RATIOS IN PAKISTAN

(*per cent*)

	1951 Labour force (age 12 and above)			1961 Labour force (age 12 and above)		
	Both sexes	Male	Female	Both sexes	Male	Female
East Pakistan	30.73	54.18	5.00	33.16	54.30	10.42
West Pakistan	30.61	55.19	2.15	31.83	54.11	6.02

Source: Population Census of Pakistan, 1951 and 1961.

The difference in participation ratios in urban [17] and rural areas can be seen from Table VII. The urban participation ratio is lower than the rural ratio by about 5 points for both males and females in

TABLE VII

RURAL AND URBAN PARTICIPATION RATIOS IN 1961

(*per cent*)

	Labour force age 10 and above					
	Rural areas			Urban areas		
	Both sexes	Male	Female	Both sexes	Male	Female
East Pakistan	34.23	56.09	11.06	35.76	57.54	4.79
West Pakistan	33.16	56.18	7.18	29.86	51.48	2.71

Source: Population Census of Pakistan, 1961, Census Bulletin No . 5.

[17] Towns with a population of 5,000 and over are classified as "urban areas" in the 1951 and 1961 Censuses. *Census of Pakistan, 1951, Volume I*, p. 39; *Population Census of Pakistan, 1961, Census Bulletin No. 2*, p. 13.

to affect labour supply outside of domestic surroundings unless new investments create greater employment opportunities for women.

Considering these factors, it was decided to apply the age-specific participation rates obtained from the 1961 Census[19], with slight modifications. For males in ages 25-59, a constant participation rate of 95 per cent is used for both East and West Pakistan. This rate is slightly lower than the census estimates for East Pakistan and slightly higher for West Pakistan. For females aged 25-59, a constant participation rate of 20 per cent in East Pakistan and 10 in West Pakistan is assumed. This rate is slightly higher than the census estimates for East Pakistan and lower for West Pakistan.

The same sex-age specific participation rates are applied to the adult population in Projections I and II to obtain labour-force Projections I and II. The estimates for 1961 differ from the census figures because of the corrections made in population estimates and participation rates. The overall participation rate obtaining in West Pakistan for 1961 is applied to the Tribal Area population to estimate its labour force for 1961 which is assumed to have the same 5-yearly rate of growth as the West Pakistan labour force.

As shown in Table VIII below, labour-force Projection I for the twenty-five year period yields 89.30 per cent growth in East Pakistan and 79.04 per cent growth in West Pakistan. This is a minimum estimate, since it is based on a conservative projection of adult population and a conservative assumption of future participation rates. Projection II, which should be considered only a moderate estimate, indicates 105.6 per cent and 95.4 per cent growth in East and West Pakistan respectively.

III. EMPLOYMENT IMPLICATIONS

The projected labour force only indicates the size of the potential working population as it grows over time. Any rigorous analysis of employment implications of this growth requires further information about a number of other variables and their interrelations. In the absence of much of this information, a rather crude attempt is made here, on some simple assumptions, to give a rough estimate of the quantitative dimensions of the employment problem.

In the conservative Projection I, the total labour force of 32.92 million in 1961 will grow by 4.18 million by 1966, 8.71 million by 1971, and 27.92 million by 1986. It is hoped that these workers will be absorbed at higher levels of output per worker in order that per-capita income may rise. This result can be achieved in two ways: *i*) an intersectoral shift of labour into higher productivity activities, and/or *ii*) an improvement of intra-sectoral labour productivity.

19 *Population Census of Pakistan 1961, Census Bulletin No. 3, op. cit.*

TABLE VIII

LABOUR FORCE IN PAKISTAN

(*in millions*)

	1961	1966	1971	1976	1981	1986
			PROJECTION I			
East Pakistan						
a) Labour force age 10 and above	18.51	21.04	23.68	26.86	30.57	35.04
b) Cumulative increase over 1961		2.53	5.17	8.35	12.06	16.53
c) Index of labour force	100	113.67	127.93	145.11	165.15	189.30
West Pakistan						
a) Labour force age 10 and above	14.41	16.06	17.95	20.25	22.82	25.80
b) Cumulative increase over 1961		1.65	3.54	5.84	8.41	11.39
c) Index of labour force	100	111.45	124.57	140.53	158.36	179.04
			PROJECTION II			
East Pakistan						
a) Labour force age 10 and above	18.51	21.10	24.08	27.72	32.18	38.05
b) Cumulative increase over 1961		2.59	5.57	9.21	13.67	19.54
c) Index of labour force	100	114.0	130.1	149.8	173.9	205.6
West Pakistan						
a) Labour force age 10 and above	14.42	16.21	18.40	21.07	24.23	28.16
b) Cumulative increase over 1961		1.79	3.98	6.65	9.81	13.74
c) Index of labour force	100	112.5	127.7	146.2	168.2	195.4

Consider a two-sector economy such that $L_a + L_n = L$, $Y_a + Y_n = Y$ and $\frac{Y_n}{L_n} > \frac{L_a}{Y_a}$, where L is labour force (including employed, unemployed and underemployed), Y is income (output) and the subscripts 'a'

and 'n' refer to the agricultural and the nonagricultural sectors. Then, output per worker

$$\frac{Y}{L} = \frac{Y_a}{L_a} \cdot \frac{L_a}{L} + \frac{Y_n}{L_n} \cdot \frac{L_n}{L}$$

$$= \frac{Y_a}{L_a}\left(1 - \frac{L_n}{L}\right) + \frac{Y_n}{L_n} \cdot \frac{L_n}{L}$$

$$= \frac{Y_a}{L_a} + \frac{L_n}{L}\left[\frac{Y_n}{L_n} - \frac{Y_a}{L_a}\right]$$

If output per worker is raised solely through a shift of labour force, keeping $\frac{Y_a}{L_a}$ and $\frac{Y_n}{L_n}$ constant, $\frac{Y}{L}$ becomes an increasing function of $\frac{L_n}{L}$ only:

$$\Delta\left(\frac{Y}{L}\right) = \left[\frac{Y_n}{L_n} - \frac{Y_a}{L_a}\right] \cdot \Delta\left(\frac{L_n}{L}\right)$$

If the level of $\frac{Y_n}{L_n}$ is not very high, development through this course has very important implications which can be seen for Pakistan from Table IX. To achieve a mere 10-per-cent increase in $\frac{Y}{L}$ in five years, as is implied in the Second Plan, it would require that the nonagricultural sector not only absorb the entire addition to the labour force during 1961-66 but also receive a net transfer of 0.76 million workers from the agricultural sector. The magnitude of such a net transfer would be 5.42 million workers by 1971 if the income targets of the proposed Third Five Year Plan are to be realized in this way. This is extremely unrealistic and probably has no historical parallel at such an early stage of growth. (Furthermore, it implies an absolute decline in agricultural output as labour force in that sector decreases.)

TABLE IX

LABOUR-FORCE DISTRIBUTION AND GROWTH OF OUTPUT PER WORKER

(*Sectoral labour productivity assumed constant at the level of 1961:* $\frac{Y_n}{L_n}$ =Rs. 1,175; $\frac{Y_a}{L_a}$ =Rs. 515; (at 1949-53 prices))

Year	Y (million Rs.)	L (million)	Y/L (Rs.)	Index of Y/L	$\frac{L_n}{L}$	L_n (million)	L_a (million)
1961	22,606	32.92	687	100	.260	8.56	24.36
1966	28,031	37.10	756	110	.364	13.50	23.60
1971	36,440	41.63	875	127	.545	22.69	18.94

Notes: *a*) Total labour force as in Projection I, with intersectoral proportions in 1961 based on the *Population Census of Pakistan, 1961.*

b) National income in 1961, based on C.S.O. estimates for 1960/61 at 1949-53 prices, and broken down for the two sectors.

c) National income in 1966 based on 24-per-cent increase in five years projected in *The Second Five Year Plan* (*Revised Estimates*) *1960-65.*

d) National income in 1971 based on 30-per-cent increase in five years aimed at in the Third Plan (*Approach to the Third Five Year Plan, 1965-70*).

If per-capita income is to increase significantly, it is obvious that, along with intersectoral shifts of the labour force, an improvement of labour productivity in agriculture and industry will be necessary, although it may be highly difficult to realize (particularly in agriculture). During the decade 1951-61, Pakistan experienced a decline of labour productivity in both sectors. As shown in Table X, productivity per worker fell from Rs. 1,366 to Rs. 1,311 in the nonagricultural sector, and declined even further in agriculture, from Rs. 640 to Rs. 577. Per-capita income remained constant only because of an improvement in the participation ratio from 30.7 per cent to 32.6 per cent, and an increase in $\frac{L_n}{L}$ to 26 per cent from 24.5 per cent.

TABLE X

Year	Labour productivity at constant prices (1949-53)			Population (Index)	National income (Index)	$\frac{L_n}{L}$	Participation ratio
	$\frac{Y_a}{L_a}$	$\frac{Y_n}{L_n}$	$\frac{Y}{L}$				
1951	640	1,366	818	100	100	24.5%	30.7
1961	577	1,311	769	123.7	123.4	26%	32.6

Note: Based on: *a*) C.S.O. national-income estimate for 1950/51 and 1960/61 at constant prices of 1949-53; and *b*) population and labour force (excluding Tribal Areas) as shown in *Population Census of Pakistan, 1961*. For the sake of comparability of data between 1951 and 1961, the labour-force figures from the 1961 Census are used instead of the estimates for 1961 presented in Section II above.

In the absence of a regional breakdown of national-income estimates, is it not possible to show the behaviour of labour productivity and *per-capita* income separately for East and West Pakistan. However, a reasonable guess about the direction of the change may be made on the basis of changes in intersectoral distribution of the labour force during the decade 1951—61 as shown in Table XI. In East Pakistan the proportion of the labour force in the nonagricultural sector declined from 16.8 to 14.7 per cent, while in West Pakistan, it rose to 40.7 per cent from 34.9 per cent. Out of 3.97 million workers, added to the labour force in East Pakistan, only 0.35 million were absorbed in the nonagricultural sector, while in West Pakistan 1.82 million out of an increase of 3.04 million were absorbed in this sector. Even if it is assumed that the values of $\frac{Y_n}{L_n}$ and $\frac{Y_a}{L_a}$ (shown in Table X) are roughly true for both East and West Pakistan for both years, these shifts of labour force would imply a decline of overall labour productivity from Rs. 768 to Rs. 687 (a 10.5-per-cent fall) in East Pakistan and from Rs. 893 to Rs. 878 (a decline of 1.7 per cent) in West Pakistan. But since during this

period the labour force in agriculture increased by 3.62 million (34 per cent) in East Pakistan compared with a smaller increase of 1.22 million (20 per cent) in West Pakistan, it would be more reasonable to assume a larger percentage decline in $\frac{Y_a}{L_a}$ in East Pakistan than in West Pakistan. This would indicate a fall in overall labour productivity in East and some rise in West Pakistan.

TABLE XI

INTERSECTORAL DISTRIBUTION OF LABOUR FORCE

Year	East Pakistan			West Pakistan		
	Agri-culture	Non-agri-culture	Total	Agri-culture	Non-agri-culture	Total
1951 (million)	10.72	2.17	12.89	6.19	3.32	9.51
(per cent)	(83.2)	(16.8)	(100)	(65.1)	(34.9)	(100)
1961 (million)	14.34	2.52	16.86	7.41	5.14	12.55
(per cent)	(85.3)	(14.7)	(100)	(59.3)	(40.7)	(100)
Increase (million) during 1951-61	3.62	0.35	3.97	1.22	1.82	3.04

Source: Based on labour force age 12 and above, *Population Census of Pakistan, 1961, Census Bulletin No. 5.*

There is a consensus of expert opinion, if not complete unanimity, that large-scale unemployment and underemployment exist in Pakistan's agriculture. In view of this, it would be highly speculative to enter into a discussion of future employment and labour productivity in this sector. Meaningful employment prospects for the future may best be estimated in terms of prospective additional employment created in the nonagricultural sector. A rough estimation of such new employment opportunities during 1960-65 can be made on the basis of the development expenditure and the expected increase in income during the Second Plan, which are shown in Table XII. Employment potential of this expansion of nonagricultural output depends on labour productivity in this sector. If it

TABLE XII

Sector	Development expenditure Rs. million (at 1960/61 prices)	Changes in income Rs. million (at 1949-53 prices)	Ratio of development expenditure to change in income	Per-cent increase in income
Agricultural sector	5,620	1,840	3.10	14.0
Nonagricultural sector	17,380	3,840	4.53	36.6
Total	**23,000**	**5,680**	**4.00**	**24.0**

Source: *The Second Five Year Plan (Revised Estimates)*, November 1961.

Note: 50 per cent of the expenditure on water and power is shown in the agricultural sector. This estimate is based on detailed information given in *The Second Five Year Plan*, (June 1960), p. 2 and p. 203.

remains unchanged at Rs. 1,175 (Table VIII) additional employment would be 3.27 million. If the output per additionally employed worker is the same as output per worker in large-scale manufacturing, Rs. 3,433[20], additional employment would be only 1.12 million. Since the larger part of the increase in output in this sector is expected from large-scale industry and transport, the latter employment figure may be the better estimate of the meaningful employment impact of the Second Plan. Even if the productivity per additionally employed worker is midway between these two figures, *i.e.*, at Rs. 2,304, the resulting employment is only 1.67 million, compared to the estimated 4.18 million increase in the labour force.

The preliminary estimate of development expenditure during the Third Plan (1965-70) is Rs. 43,000 million, of which Rs. 34,000 million would be for the nonagricultural sector and Rs. 9,500 million for agriculture[21]. This indicates a greater emphasis on the nonagricultural sector than in the Second Plan. If the ratio of development expenditure to increment in income remains the same as in the Second Plan and if output per additionally employed worker is also assumed to be Rs. 2,304, there would be additional nonagricultural employment for 3.27 million workers out of an addition of 4.53 million to the labour force during the period.

On the basis of these rough calculations, new nonagricultural employment might be 4.94 million during the ten-year period, 1961-71, which is far short of the estimated 8.71 million increase in the labour force. With still larger additions to labour force, the magnitude of the problem will be even more serious beyond 1971.

IV. SUMMARY AND CONCLUSIONS

It has been the purpose of this study to estimate the size of Pakistan's prospective labour force for the period 1961-86 and to indicate the quantitative magnitude and complexity of the future employment problem in the context of a prospective rise in per-capita income.

The larger part of this analysis has been devoted to a discussion of two alternative projections of population and labour force. In the minimum Projection I, the increase in the labour force is 8.71 million during 1961-71, and

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20 C.S.O., *Census of Manufacturing Industries, 1959-60.* (Karachi: Manager of Publications), p. 32.

21 Government of Pakistan, *Approach to the Third Five Year Plan, 1965-70.* (Karachi: Manager of Publications, June 1963). One-half of the expenditure on water and power is shown in agriculture in the above estimates. The development expenditure is presumably shown at current prices, and a slight deflation would be necessary to reduce it to 1960/61 prices. But since the estimate is preliminary no such adjustment is made.

27.92 million during 1961-86. Both in absolute and relative terms, the increase is higher in East Pakistan than in West Pakistan. The projected growth of the labour force is from 18.51 million to 35.04 million in 25 years for East Pakistan, while in West Pakistan during the same period it is from 14.41 million to 25.80 million.

The problem of employment is to absorb this growing labour force at higher levels of productivity, in order to raise per-capita income. Alternative ways of achieving this have been briefly analysed in Section III, in terms of a two-sector economy, and it has been shown with the help of very crude data on Pakistan that any significant improvement of labour productivity would require not only an increase of the proportion of labour force in the non-agricultural sector but also an improvement in labour productivity within each sector. The discouraging experience of Pakistan during 1951-61 has been briefly analysed in this context.

Since agriculture is already heavily burdened with surplus labour, it has been argued that significant employment opportunities would grow mainly in the nonagricultural sector as it increases in size and improves its productivity. Rough estimates have been made about such employment prospects during the decade 1961-71. Even on very liberal assumptions, it appears that, during the period 1961-71, out of this labour-force increase of 8.71 million, the non-agricultural sector would absorb only about 4.94 million, and about 3.77 million would be added to the agricultural labour force, which would increase from 24.36 million to 28.13 million. Meaningful employment opportunities will fail to keep pace with the increasing labour force. The agricultural labour force, which is already burdened with large-scale underemployment, will continue to receive large additions during the decade. This bleak prospect emphasizes the need for rapidly accelerating the rate of development expenditure and adopting an employment-oriented agriculture policy. This is by no means a new policy suggestion but its vigorous application is extremely urgent for Pakistan.

When the problem is split up between the East and West Wings, the prospects appear extremely discouraging for East Pakistan. The second-plan allocation of development expenditure is roughly Rs. 9,000 million in East Pakistan and Rs. 14,000 million for West Pakistan. A liberal assumption for the Third Plan may be a 50 : 50 allocation[22]. In view of this smaller development expenditure, a definitely worse employment situation in 1961 and a larger prospective

[22] These rough estimates are based on *The Second Five Year Plan, op. cit.*; *The Second Five Year Plan (Revised Estimates), op. cit.*; and *Approach to the Third Five Year Plan, op. cit.*

increase in the labour force, East Pakistan faces an even more acute employment problem than does West Pakistan. The colossal magnitude of the problem along with the interwing differences have to be carefully examined for a properly conceived employment objective, particularly in a long-run perspective plan.

Appendix

TABLE A-I

POPULATION OF EAST PAKISTAN, 1961-86: PROJECTION[1]

(CONSTANT MORTALITY ASSUMPTION)

(in millions)

Sex and age in years	1961	1966	1971	1976	1981	1986
Male						
0—4	5.53	6.08	6.93	8.30	9.70	11.00
5—9	4.72	4.83	5.31	6.05	7.25	8.46
10—14	2.84	4.53	4.64	5.10	5.82	6.96
15—19	2.42	2.74	4.37	4.47	4.91	5.60
20—24	2.23	2.30	2.60	4.14	4.24	4.66
25—29	2.00	2.09	2.15	2.43	3.88	3.97
30—34	1.69	1.86	1.94	2.02	2.27	3.62
35—39	1.56	1.56	1.71	1.79	1.85	2.09
40—44	1.25	1.41	1.41	1.56	1.63	1.68
45—49	1.02	1.11	1.25	1.25	1.38	1.44
50—54	0.95	0.87	0.76	1.11	1.11	1.22
55—59	0.61	0.78	0.75	0.65	0.95	0.96
60 and above	1.46	1.65	1.86	1.96	2.07	2.30
10 and above	18.03	20.90	23.45	26.48	30.11	34.49
All ages	**28.28**	**31.81**	**35.69**	**40.83**	**47.06**	**53.96**
Female						
0—4	5.50	5.94	6.78	8.11	9.48	10.75
5—9	4.72	4.80	5.19	5.92	7.08	8.27
10—14	2.88	4.52	4.60	4.97	5.67	6.79
15—19	2.48	2.74	4.34	4.41	4.76	5.43
20—24	2.24	2.35	2.59	4.10	4.17	4.50
25—29	2.00	2.09	2.19	2.42	3.82	3.89
30—34	1.55	1.85	1.93	2.02	2.24	3.53
35—39	1.25	1.42	1.70	1.77	1.86	2.05
40—44	1.11	1.14	1.29	1.54	1.61	1.69
45—49	0.80	1.00	1.03	1.16	1.39	1.45
50—54	0.80	0.71	0.88	0.91	1.02	1.23
55—59	0.44	0.69	0.60	0.76	0.78	0.88
60 and above	1.19	1.34	1.50	1.66	1.85	2.04
10 and above	16.72	19.85	22.65	25.72	29.16	33.48
All ages	**26.94**	**30.59**	**34.62**	**39.75**	**45.72**	**52.50**
Total all ages (Male and Female)	**55.22**	**62.40**	**70.31**	**80.58**	**92.78**	**106.46**

Note: In all tables: *a)* January 31 of each year is referred to; and
b) Age is always given in completed years.

TABLE A-II

POPULATION OF WEST PAKISTAN, 1961-86: PROJECTION I

(CONSTANT MORTALITY ASSUMPTION)

(in millions)

Sex and age in years	1961	1966	1971	1976	1981	1986
Male						
0—4	4.05	4.40	5.00	5.81	6.72	7.68
5—9	3.46	3.64	3.96	4.50	5.23	6.05
10—14	2.10	3.35	3.53	3.83	4.36	5.07
15—19	2.06	2.04	3.25	3.42	3.72	4.23
20—24	2.03	1.98	1.95	3.11	3.28	3.56
25—29	1.59	1.92	1.88	1.85	2.95	3.11
30—34	1.33	1.50	1.82	1.77	1.74	2.79
35—39	1.13	1.25	1.40	1.71	1.66	1.64
40—44	1.04	1.04	1.15	1.30	1.58	1.54
45—49	0.84	0.94	0.95	1.05	1.18	1.43
50—54	0.83	0.75	0.83	0.84	0.93	1.05
55—59	0.45	0.70	0.64	0.71	0.72	0.80
60 and above	1.56	1.69	1.83	1.97	2.13	2.26
10 and above	14.96	17.16	19.23	21.56	24.25	27.46
All ages	**22.47**	**25.20**	**28.19**	**31.87**	**36.20**	**41.19**
Female						
0—4	3.98	4.30	4.89	5.68	6.57	7.51
5—9	3.47	3.58	3.87	4.40	5.11	5.91
10—14	2.12	3.35	3.47	3.74	4.26	4.94
15—19	2.06	2.05	2.24	3.35	3.61	4.11
20—24	1.95	1.97	1.95	3.09	3.20	3.45
25—29	1.46	1.84	1.86	1.85	2.92	3.02
30—34	1.20	1.36	1.73	1.75	1.73	2.74
35—39	0.96	1.12	1.28	1.61	1.63	1.62
40—44	0.87	0.89	1.04	1.19	1.50	1.52
45—49	0.67	0.80	0.82	0.96	1.09	1.38
50—54	0.64	0.61	0.72	0.74	0.87	0.99
55—59	0.36	0.56	0.53	0.64	0.65	0.76
60 and above	1.17	1.27	1.39	1.53	1.70	1.82
10 and above	13.46	15.84	18.04	20.45	23.16	26.35
All ages	**20.91**	**23.72**	**26.80**	**30.53**	**34.84**	**39.77**
Total all ages (Male and Female)	**43.38**	**48.92**	**54.99**	**62.40**	**71.04**	**80.96**
Population in Tribal Areas	**3.44**	**3.88**	**4.35**	**4.95**	**5.63**	**6.42**
Total West Pakistan, (including Tribal Areas)	**46.82**	**52.80**	**59.34**	**67.35**	**76.67**	**87.38**

TABLE A-III

POPULATION OF EAST PAKISTAN, 1961-86: PROJECTION II

(DECLINING MORTALITY ASSUMPTION)

(in millions)

Sex and age in years	1961	1966	1971	1976	1981	1986
Male						
0—4	5.53	6.08	7.13	8.70	10.64	12.86
5—9	4.72	4.83	5.39	6.41	7.92	9.79
10—14	2.84	4.53	4.66	5.22	6.23	7.72
15—19	2.42	2.73	4.38	4.52	5.08	6.08
20—24	2.23	2.30	2.16	4.20	4.35	4.91
25—29	2.00	2.09	2.17	2.47	4.00	4.18
30—34	1.69	1.86	1.96	2.05	2.35	3.84
35—39	1.56	1.56	1.73	1.84	1.93	2.24
40—44	1.25	1.41	1.43	1.60	1.71	1.83
45—49	1.02	1.11	1.27	1.30	1.47	1.60
50—54	0.95	0.87	0.97	1.12	1.17	1.35
55—59	0.61	0.78	0.73	0.83	0.97	1.03
60 and above	1.46	1.69	1.96	2.20	2.47	2.83
10 and above	18.03	20.95	23.87	27.35	31.73	37.61
All ages	**28.28**	**31.86**	**36.39**	**42.46**	**50.29**	**60.26**
Female						
0—4	5.50	5.94	6.97	8.50	10.37	12.53
5—9	4.72	4.80	5.27	6.27	7.73	9.55
10—14	2.86	4.52	4.62	5.10	6.09	7.54
15—19	2.48	2.74	4.35	4.47	4.94	5.93
20—24	2.24	2.35	2.61	4.15	4.29	4.76
25—29	2.00	2.09	2.20	2.46	3.95	4.12
30—34	1.55	1.85	1.95	2.06	2.32	3.78
35—39	1.25	1.42	1.71	1.82	1.94	2.22
40—44	1.11	1.14	1.30	1.59	1.70	1.85
45—49	0.80	1.00	1.04	1.20	1.48	1.60
50—54	0.80	0.71	0.90	0.94	1.10	1.37
55—59	0.44	0.69	0.62	0.79	0.84	1.00
60 and above	1.19	1.41	1.68	1.92	2.20	2.55
10 and above	16.72	19.92	22.98	26.50	30.85	36.72
All ages	**26.94**	**30.66**	**35.22**	**41.27**	**48.95**	**58.80**
Total all ages (Male and Female)	**55.22**	**62.52**	**71.61**	**83.73**	**99.24**	**119.06**

TABLE A-IV

POPULATION OF WEST PAKISTAN, 1961-86: PROJECTION II

(DECLINING MORTALITY ASSUMPTION)

(in millions)

Sex and age in years	1961	1966	1971	1976	1981	1986
Male						
0—4	4.05	4.40	5.08	6.15	7.35	8.75
5—9	3.46	3.64	4.00	4.68	5.17	6.88
10—14	2.10	3.35	3.54	3.90	4.58	5.60
15—19	2.06	2.03	3.26	3.46	3.82	4.49
20—24	2.03	1.98	1.96	3.14	3.34	3.71
25—29	1.59	1.93	1.89	1.87	3.02	3.23
30—34	1.33	1.50	1.83	1.80	1.80	2.91
35—39	1.13	1.25	1.41	1.74	1.72	1.73
40—44	1.04	1.04	1.16	1.33	1.65	1.64
45—49	0.84	0.94	0.96	1.08	1.24	1.55
50—54	0.83	0.75	0.84	0.87	0.99	1.15
55—59	0.45	0.71	0.65	0.74	0.77	0.88
60 and above	1.56	1.85	2.20	2.51	2.87	3.23
10 and above	14.96	17.33	19.70	22.44	25.80	30.12
All ages	**22.47**	**25.37**	**28.78**	**33.27**	**38.86**	**45.75**
Female						
0—4	3.98	4.30	4.97	6.01	7.16	8.53
5—9	3.47	3.58	3.92	4.58	5.59	6.72
10—14	2.12	3.35	3.48	3.81	4.47	5.48
15—19	2.06	2.05	3.25	3.39	3.73	4.39
20—24	1.95	1.97	1.96	3.13	3.27	3.62
25—29	1.46	1.84	1.87	1.87	3.01	3.16
30—34	1.20	1.37	1.74	1.78	1.80	2.90
35—39	0.96	1.12	1.29	1.65	1.70	1.73
40—44	0.87	0.89	1.05	1.22	1.57	1.63
45—49	0.67	0.80	0.83	0.99	1.15	1.49
50—54	0.64	0.61	0.73	0.76	0.92	1.07
55—59	0.36	0.56	0.54	0.66	0.69	0.84
60 and above	1.17	1.36	1.58	1.82	2.09	2.39
10 and above	13.46	15.92	18.23	21.08	24.40	28.70
All ages	**20.91**	**23.80**	**27.21**	**31.67**	**37.15**	**43.95**
Total all ages (Male and Female)	**43.38**	**49.17**	**55.99**	**64.94**	**76.01**	**89.70**
Population of Tribal Areas	**3.44**	**3.90**	**4.44**	**5.15**	**6.02**	**7.11**
Total West Pakistan (including Tribal Areas)	**46.82**	**53.07**	**60.43**	**70.09**	**82.03**	**96.81**

TABLE A-V

LABOUR FORCE IN PAKISTAN: PROJECTION I

(in millions)

Age group	Constant participation rate	1961	1966	1971	1976	1981	1986
		EAST PAKISTAN					
Male							
10-14	58	1.65	2.63	2.69	2.96	3.37	4.04
15-19	81	1.96	2.22	3.54	3.62	3.98	4.54
20-24	92	2.05	2.11	2.39	3.81	3.90	4.28
25-59	95	8.63	9.20	9.50	10.27	12.42	14.23
60 and above	87	1.27	1.43	1.62	1.71	1.80	2.00
Female							
10-14	13	0.37	0.59	0.60	0.65	0.74	0.88
15-19	17	0.42	0.47	0.74	0.75	0.81	0.92
20-24	18	0.40	0.42	0.47	0.74	0.75	0.81
25-59	20	1.59	1.78	1.92	2.12	2.54	2.94
60 and above	14	0.17	0.19	0.21	0.23	0.26	0.40
Total East Pakistan							
10 and above		18.51	21.04	23.68	26.86	30.57	35.04
15 and above		16.49	17.82	20.39	23.25	26.46	30.12
		WEST PAKISTAN					
Male							
10-14	38	0.80	1.27	1.34	1.46	1.66	1.93
15-19	72	1.49	1.47	2.34	2.47	2.68	3.05
20-24	88	1.79	1.74	1.71	2.74	2.88	3.13
25-59	95	6.84	7.70	8.24	8.76	10.22	11.72
60 and above	80	1.25	1.35	1.46	1.57	1.70	1.81
Female							
10-14	5	0.11	0.17	0.17	0.19	0.21	0.25
15-19	8	0.17	0.16	0.26	0.27	0.29	0.33
20-24	10	0.19	0.20	0.20	0.31	0.32	0.34
25-59	10	0.62	0.72	0.80	0.87	1.04	1.20
60 and above	8	0.09	0.10	0.11	0.12	0.14	0.15
Total West Pakistan							
10 and above		13.35	14.88	16.63	18.76	21.14	23.91
15 and above		12.44	13.44	15.12	17.11	19.27	21.73
Estimates for Tribal Areas							
10 and above		1.06	1.18	1.32	1.49	1.68	1.89
West Pakistan (including Tribal Areas)							
10 and above		14.41	16.06	17.95	20.25	22.82	25.80

TABLE A-VI

LABOUR FORCE IN PAKISTAN: PROJECTION II

(in millions)

Age group	Constant participation rate	1961	1966	1971	1976	1981	1986
		EAST PAKISTAN					
Male							
10-14	58	1.65	2.63	2.70	3.03	3.61	4.48
15-19	81	1.96	2.22	3.55	3.66	4.12	4.93
20-24	92	2.05	2.11	2.40	3.86	4.00	4.51
25-59	95	8.63	9.21	9.75	10.65	12.92	15.26
60 and above	87	1.27	1.47	1.70	1.91	2.15	2.46
Female							
10-14	13	0.37	0.59	0.60	0.66	0.79	0.98
15-19	17	0.42	0.47	0.74	0.76	0.84	1.01
20-24	18	0.40	0.42	0.47	0.75	0.77	0.87
25-29	20	1.59	1.78	1.94	2.17	2.67	3.19
60 and above	14	0.17	0.20	0.23	0.27	0.31	0.36
Total East Pakistan							
10 and above		18.51	21.10	24.08	27.72	32.18	38.05
15 and above		16.49	17.88	20.78	24.03	27.78	32.59
		WEST PAKISTAN					
Male							
10-14	38	0.80	1.27	1.35	1.48	1.74	2.13
15-19	72	1.49	1.47	2.35	2.49	2.75	3.23
20-24	88	1.79	1.74	1.72	2.77	2.95	3.27
25-59	95	6.84	7.70	8.30	8.96	10.62	12.43
60 and above	80	1.25	1.48	1.76	2.01	2.29	2.58
Female							
10-14	5	0.11	0.17	0.17	0.19	0.22	0.27
15-19	8	0.17	0.16	0.26	0.27	0.30	0.35
20-24	10	0.19	0.20	0.20	0.31	0.33	0.36
25-59	10	0.62	0.72	0.81	0.89	1.08	1.28
60 and above	8	0.09	0.11	0.13	0.15	0.17	0.19
Total West Pakistan							
Age 10 and above		13.35	15.02	17.05	19.52	22.45	26.09
Age 15 and above		12.44	13.58	15.53	17.85	20.49	23.69
Estimates for Tribal Areas							
Age 10 and above		1.07	1.19	1.35	1.55	1.78	2.07
Age 15 and above		0.99	1.08	1.23	1.41	1.62	1.88
West Pakistan (including Tribal Areas)							
Age 10 and above		14.42	16.21	18.40	21.07	24.23	28.16

TABLE A-VII

CALCULATION OF BIRTHS: 1961-86
EAST PAKISTAN (PROJECTION I)

1. WEIGHTED FEMALE POPULATION 10-44 YEARS OF AGE *(in millions)*

Age group	Weights	1961	1966	1971	1976	1981	1986
10-14	1	2.86	4.52	4.60	4.97	5.67	6.79
15-19	4	9.93	10.98	17.34	17.64	19.05	21.73
20-24	7	15.67	16.42	18.14	28.67	29.17	31.49
25-29	7	13.99	14.62	15.31	16.93	26.73	27.21
30-34	6	9.27	11.09	11.59	12.14	13.42	21.19
35-39	4	5.02	5.67	6.78	7.09	7.43	8.21
40-44	1	1.11	1.14	1.29	1.54	1.61	1.69
Total		57.85	64.44	75.05	91.98	103.08	118.31

2. CALCULATION OF BIRTHS

Period	Weighted mean female population (in millions)	Five-year birth rate per 1000 weighted female population	Number of births in each period (in millions)		
			Total	Male	Female
1961-66	61.14	275	16.81	8.61	8.20
1966-71	69.74	275	19.18	9.82	9.36
1971-76	83.51	275	22.96	11.76	11.20
1976-81	97.53	275	26.83	13.74	13.08
1981-86	110.70	275	30.44	15.59	14.85

TABLE A-VIII

CALCULATION OF BIRTHS: 1961-86
WEST PAKISTAN (PROJECTION I)

1. WEIGHTED FEMALE POPULATION 10-44 YEARS OF AGE (*in millio*

Age group	Weights	1961	1966	1971	1976	1981	19
10-14	1	2.12	3.35	3.46	3.74	4.26	4.9
15-19	4	8.27	8.19	12.96	13.40	14.46	16.46
20-24	7	13.64	13.81	13.68	21.64	22.36	24.14
25-29	7	10.19	12.87	13.03	12.91	20.43	21.12
30-34	6	7.21	8.20	10.36	10.49	10.39	16.44
35-39	4	3.83	4.49	5.11	6.45	6.53	6.47
40-44	1	0.87	0.89	1.04	1.19	1.50	1.52
Total		46.13	51.80	59.64	69.82	79.93	91.09

2. CALCULATION OF BIRTHS

Period	Weighted mean female population (in millions)	Five-year birth rate per 1000 weighted female population	Number of births in each period (in millions)		
			Total	Male	Female
1961-66	48.97	245	12.00	6.15	5.85
1966-71	55.72	245	13.65	6.99	6.66
1971-76	64.73	245	15.86	8.12	7.74
1976-81	74.87	245	18.34	9.40	8.94
1981-86	85.51	245	20.95	10.73	10.22

TABLE A-IX

CALCULATION OF BIRTHS: 1961-86
EAST PAKISTAN (PROJECTION II)

1. WEIGHTED FEMALE POPULATION 10-44 YEARS OF AGE *(in millions)*

Age group	Weights	1961	1966	1971	1976	1981	1986
10-14	1	2.86	4.52	4.62	5.10	6.12	7.55
15-19	4	9.93	10.98	17.42	17.88	20.42	23.80
20-24	7	15.67	16.41	18.23	29.08	29.99	33.38
25-29	7	13.99	14.62	15.41	17.22	27.62	28.81
30-34	6	9.27	11.09	11.68	12.40	13.96	22.68
35-39	4	5.02	5.67	6.85	7.27	7.78	8.88
40-44	1	1.11	1.14	1.30	1.59	1.70	1.85
Total		57.85	64.43	75.51	90.54	107.59	126.95

2. CALCULATION OF BIRTHS

Period	Weighted mean female population (in millions)	Five-year birth rate per 1000 weighted female population	Number of births in each period (in millions)		
			Total	Male	Female
1961-66	61.14	275	16.81	8.61	8.20
1966-71	69.97	275	19.19	9.83	9.36
1971-76	83.63	275	22.83	11.69	11.14
1976-81	99.07	275	27.24	13.95	13.29
1981-86	117.27	275	32.25	16.52	15.73

TABLE A-X

CALCULATION OF BIRTHS: 1961-86
WEST PAKISTAN (PROJECTION II)

1. WEIGHTED FEMALE POPULATION 10-44 YEARS OF AGE *(in millions)*

Age group	Weights	1961	1966	1971	1976	1981	1986
10-14	1	2.12	3.35	3.48	3.82	4.48	5.49
15-19	4	8.27	8.19	13.01	13.54	14.92	17.60
20-24	7	13.64	13.80	13.74	21.92	22.92	25.35
25-29	7	10.19	12.87	13.11	13.13	21.06	22.12
30-34	6	7.21	8.20	10.43	10.70	10.78	17.38
34-39	4	3.83	4.49	5.15	6.60	6.83	6.90
40-44	1	.87	·89	1.05	1.22	1.57	1.63
Total		46.13	51.80	59.98	70.93	82.57	96.48

2. CALCULATION OF BIRTHS

Period	Weighted mean female population (in millions)	Five-year birth rate per 1000 weighted female population	Number of births in each period (in millions)		
			Total	Male	Female
1961-66	48.97	245	12.00	6.15	5.85
1966-71	55.89	245	13.69	7.01	6.68
1961-76	65.90	245	16.15	8.27	7.88
1976-81	76.75	245	18.80	9.64	9.17
1981-86	89.53	245	21.94	11.24	10.70