

Labour Force Participation Rates in Pakistan: 1901-1961

by

GHAZI MUMTAZ FAROOQ*

Projection of future patterns of population change or economic growth is usually improved when trends over considerable time-periods are available for extrapolation or are used as a check on underlying assumptions. However, historical demographic data for Pakistan are limited. Before independence in 1947, data were available only for India as a whole or for districts, some of which were divided between Pakistan and India at the time of independence.

By detailed examination and analysis of district reports from the censuses of India, it is possible to reconstruct demographic changes for the areas now comprising Pakistan. Two such studies have been undertaken in the Demographic Section of the Pakistan Institute of Development Economics: the first was a study of boundary changes and population changes from 1881 to 1961 [29]. The second, reported here, is a study of the labour force of Pakistan, 1901-1961.

This paper, thus, provides a detailed examination of the labour force of Pakistan from the turn of the century to the most recent census. Part of the data used in this study is drawn from the 1951 and 1961 population Censuses of Pakistan. For the period 1901 to 1931, data from the Indian censuses are adjusted and estimates of labour-force participation¹ rates made for the area².

* The author is a staff economist at the Pakistan Institute of Development Economics and is presently engaged in graduate study at the Pennsylvania University, U.S.A.

The author wishes to acknowledge with gratitude the comments and guidance given by Dr. John D. Durand, Chairman, Graduate Group in Demography at the University of Pennsylvania and Dr. Lee L. Bean, Advisor in the Institute. Sincere thanks are also extended to Dr. Sultan S. Hashmi of the Institute for his suggestions. However, any error in the study is to be attributed to the author alone.

¹The terms *participation rate* and *participation in economic activity* are used as synonyms and refer to the percentage of the total population in the labour force. The age-specific participation or activity rate is defined as the percentage of economically active persons among the population of a given age group. Also throughout this paper, the terms *economically active population* and *labour-force participants* are used interchangeably, referring to all those persons who contribute to the supply of labour for the production of economic goods and services including those unemployed but available for work.

²In Appendix A, these estimates are compared with the ones obtained for India by the Thorners [16]. The nonavailability of detailed information of economic activity by districts of India did not allow us to make estimates for the areas now comprising Pakistan prior to 1901. Similarly, because of World War II, economics data for 1941 are not available.

Census Enumerations and Definitions of the Labour Force

In this section of the paper, we shall examine the concepts used in measuring labour-force participation in the various censuses and limitations of the data.

It should be noted at the outset that one of the difficulties in measuring labour-force participation rates is the variation in definitions of the labour force in the various censuses. The 1961 Census of Pakistan includes a person 10 years-and-over in the labour force, if he or she was working for profit or earning wages or salary, helping any member of his/her family, or was not working but looking for work (during the last week if a person was nonagricultural worker but no reference period was used if a person was an agricultural worker) [30].

The 1951 Census definition differed from the above in two respects. First, the minimum age limit for economic enumeration was 12 years and, second, the content of the definition itself was different. A person had to be *self-supporting* or *partially self-supporting* to be included in the labour force in 1951. As will be seen subsequently, the use of different words in two censuses has an important bearing, particularly on the count of unpaid female family workers.

The concept used by the British Indian Census (1901-1931) authorities to work out the economic status of the population was as follows:

Earners are those persons who actually work or carry on business, whether personally or by means of servants; or who live on rent, pension, *etc.*, or who have a share in a coparcenary property or trade or financial concern and are supported or principally supported thereby. Enter all other persons as dependents [37, p.254].

This definition for classifying the population into earners and dependents was invariably used in all the censuses except in the 1931 Census when an additional term *working dependents* was used. The persons were treated as "working dependents" if they merely assisted other members of the family at their work. Here the definition is close to the one used in the 1961 Census of Pakistan.

A person was included in the labour force if he/she was returned as occupied. However, the persons falling in the occupational category which consisted solely of the receipt of *unearned income* or in the group titled as "non-productive" were excluded.

Specifically, the following are the criteria laid down for each census year labour-force estimate:

In the 1901 Census the workers include all "actual workers" having productive occupations. Non-workers include all "dependents" and "actual workers" reported in non-productive occupations including disreputable workers (prostitutes including *saqins* and *Neuchis*, procurers, pimps, receivers of stolen goods, witches and cow poisoners), independent workers (receivers of total income from house rent, shares and other property not being land; receivers of allowances from patrons or relations, educational or other endowments, scholarships, *etc.*), mendicancy (not in connection with a religious order), pensioners, and inmates of asylums, prisoners, *etc.*, and religious mendicants.

For the 1911, 1921 and 1931 Censuses, the workers include all "actual workers" returned in productive occupations. The non-workers include all "dependents" and all "actual workers" and working dependents enumerated in non-productive occupational categories. The non-productive workers include persons living principally on their income (non-cultivating proprietors) taking rent in money or kind, house-rent receivers, proprietors (other than agricultural land), fund and scholarship holders, and pensioners and unproductive workers (monks, nuns and religious mendicants, inmates of jails, asylums, monasteries and alm houses, beggars, vagrants, prostitutes, *etc.*, and other unclassified non-productive).

It was only in 1931 that the information for dependents by sex was given (excluding the North-Western Frontier Province in West Pakistan). However, in all the censuses, the total population and workers were reported by sex enabling us to estimate the number of dependents by sex.

In 1941, the economy measures during World War II prevented tabulation of the economic and other characteristics of the population. Therefore, no estimate could be made of the labour force for the 1941 Census.

The censuses of British India (1881-1931) covered the areas now in Pakistan, Burma, the protectorate of Aden, and the present-day India (here named as the Indian Union). The censuses covered in these tables (1901-1931) excluded a large number of people from the tabulation of economic activities though they were counted in the population enumeration. In the following tables, we have referred both to the total population and classified population (*i.e.*, the population tabulated by economic activities) for each census year by sex. For calculating labour-force participation rates for Pakistan, the classified population was considered.

Pakistan was separated from India in 1947, and Burma in 1936. Burma had constituted a single (well defined) state throughout the census period, and for Pakistan we consolidated the information available for the following areas:

Baluchistan State, Sind district and Khairpur State from Bombay, North-Western Frontier Province, Bahawalpur State, and West Punjab including

Rawalpindi and Multan Divisions; Lahore, Sialkot, Gujranwala and Sheikhupura districts. These areas now constitute West Pakistan.

East Pakistan included Dacca and Chittagong Divisions, Jessore, Khulna, Rajshahi, Rangpur, Dinajpur, Bogra, Pabna districts, and about half of the figures recorded for Nadia (these areas belonged to the former province of Bengal) and Sylhet districts from Assam.

Most of these units came intact to Pakistan. The Lahore district, however, was given to West Pakistan except for part of one tehsil. Similarly, part of one tehsil of Gurdaspur district (given to India) was assigned to West Pakistan. In the absence of occupational data below the district level, we took the whole of Lahore district as part of Pakistan and excluded the whole of Gurdaspur district.

For the same reasons in Bengal, the whole of Malda and Jalpaiguri districts were taken as part of India and the whole of Dinajpur district as part of East Pakistan. The pre-independence population of the districts of Nadia (which was divided approximately half and half) and Sylhet (three thanas and part of a fourth were assigned to India) were taken as reported in the 1961 District Census Reports of Pakistan (which reported population figures for each census year from 1901 to 1961) and labour-force figures were adjusted proportionately according to these population totals for each census year.

To check the accuracy of the crude activity rates thus obtained, a comparison will be made with the estimates obtained for India for the corresponding period [see Appendix A].

Limitations of the Data

A high degree of illiteracy combined with the lack of sufficiently trained enumerators in Pakistan affects reliability of statistics adversely. Serious doubts have been cast on the reliability, even of the data in urban centres where people are comparatively more educated and well aware of the importance of census reporting [40, p. 2]. A higher degree of misreporting in rural areas (which constituted 86.4 per cent of the total population in 1961) is certainly plausible.

Reliability of the data regarding working status is somewhat doubtful as the enumerators and respondents may not bother to report exact economic activity as it involves answering comparatively lengthy and complicated questions. Also, the very identification of the "economically active population" is complex, and particularly in an agrarian economy like Pakistan which is characterised by seasonal variation in the demand of labour according to the planting and harvesting periods. If enumeration is done at the time of planting or harvesting, it is conceivable that the size of the labour force will be over-estimated as a higher proportion of intermittent, casual and unpaid family

workers may be reported. Conversely, in the off seasons, these seasonal workers may be enumerated as neither working nor looking for work. This phenomenon may especially be true for females who will be reported as engaged in "household work" only (for details, *see* [26, pp.88-89]). Because of these problems it is important to review carefully the data used in this study.

Some of the problems of the 1961 and 1951 Censuses data, with major emphasis on the 1961 data, are as follows:

a) The 1961 Census concealed child labour by eliminating the persons below 10 years from enumeration on working status. However, the 1961 Census probably had a better coverage than the 1951 Census, which put the lower age limit at 12 years-and-over.

It is important to note that in Pakistan, the age limit for economic enumeration has a pronounced effect on age-reporting. The lowering of the age limit in 1961 resulted in overreporting of the age group under 10 which, in turn, may have inflated the activity rate for the age group 10-14. This can be attributed to the tendency of enumerators to understate the age of persons in the age group 10-19, particularly those not economically active. By understating the ages, the enumerators, who had the prerogative to estimate age, could save one-third of the work by not completing questions about economic characteristics of the respondent. It is interesting to note that for the same reason the age group 10-11, in particular, was very heavily overreported in 1951 (for details, *see* [16, pp.54-58]).

b) "The census was undertaken from January 12 to the dawn of February 1, 1961 which is a time when economic activity, specially agriculture, is relatively sluggish. It is likely that this might have prompted underestimation of the labour force" [26, p.90]. But in the absence of relevant data at other time periods, it is not possible to measure the effect of the time selected for enumeration on the economic activities of the population.

c) The question asked on the economic status in 1961 seems to manifest two different concepts; the "gainful worker" concept was applied to the agricultural population and the "labour force" concept to the nonagricultural population. Use of gainful worker concept may, in fact, inflate the agricultural labour force. Even though agricultural work is highly seasonal, the seasonally employed persons could have been included in the labour force [7, pp.90-91]. This seems to be particularly true for older persons in agriculture, who might have been enumerated as economically active even though their contribution might be nominal [8].

d) It is suggested that the 1961 Census definition of nonagricultural workers based on activity during a brief time interval of one week would have

some effect of excluding from the labour force some persons who might otherwise be reported as economically active if the time interval would have been larger. Some special efforts should have been made to identify and classify such persons as active.

e) The 1961 Census does not seem to be free from the actual error committed which flows from the interpretation of the notion "looking for work". The lack or apparent lack of suitable jobs may discourage members of the "fringe group"³ from seeking jobs [35, p.1]. Needless to say if the notion of "seeking work" is not interpreted broadly, the underreporting of female labour-force participants is to be expected, particularly in developing countries, where economic conditions may restrict the number of so-called "suitable jobs". In the case of Pakistan, this factor seems to be operating even more strongly. As a traditional society, men are preferred generally to most jobs. Due to the high rate of unemployment and underemployment⁴, it can easily be visualized that few job opportunities are left for females—a deterrent factor in reporting of females even as "looking for work".

It is quite conceivable that these factors might have been operating even more rigorously during the 1951 Census period when the economy was even less developed.

The pre-independence censuses are subject to similar problems. It was admitted in the 1931 Census, that:

It is not easy to make with confidence an estimate of the accuracy of the results obtained. At every stage, errors can be introduced by malice or ignorance . . . the instructions for filling in some columns of the schedule were necessarily somewhat complicated and, particularly in the remote areas, district census officers found it sometimes difficult to make enumerators understand them [37, p.XIV].

The terminology of working status adopted by the pre-independence censuses appears to be misleading. The 1931 Census states:

Earners are those persons who actually work or carry on business, whether personally or by means of servants ; or who live on rent, pension, *etc.*, or who have a share in a coparcenary property or trade or financial concern and are supported or principally supported thereby. Enter all other persons as dependents [37, p.254]⁵.

³ *Fringe group* refers to the group of persons on the outskirts of labour force. This group is not clearly in or out of the labour force and may join the labour force if suitable jobs are offered, otherwise may remain in the non-economic status if jobs of their choice are not available.

⁴ Data are not consistent but the Third Five-Year Plan reports an estimate of 20 per cent.

⁵ Labour force included "earners" and "working dependents" (the persons who merely assisted other members of family at their work).

More or less the same terminology of working status was used in the earlier censuses. To take pensioners in a strict sense that is to regard persons receiving rent or holding a share in a coparcenary property or trade or financial concern, as earners (even though they would not be actively participating in economic activity) is misleading.

Furthermore, the political and religious conditions seem to have distorted enumerations. The government had been subjected frequently to a campaign of misrepresentation. For instance, the 1931 Census took place at a time of "civil disobedience" and obstruction to the census was a plank in the Indian Congress Party platform [37, p. XIV].

Due to strong religious feelings, particularly in Bengal, it was commonly claimed by both the Hindus and the Muslims that enumerators of the other community had, first, swelled the numbers of their co-religionists by making fictitious entries and, second, had undercounted persons of the other faith. Possibility of misreporting is quite conceivable because of strong religious feelings prevalent particularly in the 1930's and 40's. Consequently, as demonstrated below, very low crude activity rates were reported in 1931 compared to earlier census years, particularly for East Pakistan (formerly East Bengal) and this seems very unrealistic. It is interesting to note that the ratio of workers per 100 males slumped from 68 in 1921 to 58 in 1931 and for West Bengal (non-India) from 61 to 52 during the same period. The decline in the female participation rate was no less remarkable. The ratio of workers per 100 females contracted from 33 to 27 for the present-day India and from 16 to 10 for West Bengal from 1921 to 1931 [16, Text 5-6]. The Great Depression of the 30's does not seem to be an adequate explanation for this decline in the activity rate particularly in a predominantly agrarian economy.

Prior to independence, the measurement of economic activity was based on a count of "gainful workers" whereas in the 1951 and the 1961 Censuses the "labour force" concept was used for at least measuring non agricultural economic activity⁶. However, in a predominantly agrarian economy of the pre-independence period, not much difference in the probable magnitude of reporting can be expected if either of the two concepts is used.

Finally, all the censuses (pre- or post-independence period) seem to suffer from the general problems of underreporting women in the labour force. Due to strict *purdah* system, concealing of the female population⁷ and especially

⁶ According to the "gainful worker" standard, the economically active are simply those who report some usual occupation in the census without referring to when the work was done. The "labour force" standard counts only the number of people actually at work (or seeking work) during some particular period [5, p.264]. For a detailed discussion of the effects of a shift in gainful worker concept to labour-force concept, see [4, p.26; 19, p.13; 20].

⁷ A recent study has shown marked deficit of females in the age groups 10-14 and 34-60 [35, Fig. 2]. As known well in the literature on labour force, usually the probability of females participating in economic activity is quite high in these age groups, i.e., when they are not yet married (in age group 10-14 and when, generally, they have completed the child-bearing and rearing stage, when they are over (30 or 35 years). This further supports the underestimation of female activity rates.

underreporting female economic activity may be expected. The latter is likely to be more true since working women are usually held in low esteem in the society [9].

Industrial Composition of Labour Force by Province

Before analysing labour-force participation rates, it seems advisable to give, as a background, a brief description of the industrial composition of the labour force of Pakistan.

Table I presents the percentage distribution of labour force for 1951 and 1961 for agricultural and nonagricultural occupations. Taking the proportion of labour force in nonagricultural industries as an indicator of the economic situation, Pakistan's economy is clearly predominantly agricultural, and East Pakistan seems to have increased its dependence upon agriculture over the past ten years. The percentage of employment in agriculture in East Pakistan increased from 83.2 in 1951 to 85.3 in 1961.

Comparatively, West Pakistan seems to be better placed as it had three-fifths of its working labour force engaged in agriculture in 1961, 5.4 per cent less than in 1951. These diverse industrial characteristics of the two provinces may explain partly the marked differences in their relative labour-force participation rates, as seen in a following section.

TABLE I

PAKISTAN: LABOUR FORCE IN AGRICULTURE AND NONAGRICULTURE OCCUPATIONS BY PROVINCE, 1951 AND 1961

Province and year	Population* (in 000)	Labour force (in 000)			% of labour force in agriculture
		Total	Agricul- tural	Nonagri- cultural	
1951					
Pakistan	72,993	22,393	16,903	4,490	75.5
East Pakistan	41,932	12,886	10,715	2,171	83.2
West Pakistan	31,061	9,506	6,187	3,319	65.1
1961					
Pakistan	90,283	30,206	22,491	7,715	74.5
East Pakistan	50,840	17,443	14,865	2,578	85.3
West Pakistan	39,442	12,763	7,426	5,137	59.7

* 887,000 persons in 1951 and 3,438,000 persons in 1961 of the Frontier Region are excluded from the population total.

Sources: [31; 49, Table 2].

Trend of Labour-Force Participation by Sex and Province, 1901-1961

Tables II, III and IV show the trend of participation rates by sex separately for Pakistan, East Pakistan and West Pakistan. As mentioned before, these estimates are based on Pakistan censuses of 1961 and 1951, and on the data collected for the areas now comprising Pakistan. Because of World War II the economy measures prevented tabulations of the economic returns in the 1941 Census; thus no estimates of the labour force for 1941 could be made.

It is evident from Table II that there has been a continuous increase in the number of persons in the labour force from 15.4 million in 1901 to 30.2 million in 1961, the average annual growth rate⁸ being 1.13 per cent per annum, only slightly less than the growth rate of 1.14 per cent for the population. The higher population growth rate, however, is responsible for increasing the dependency ratio from 1,957 non-workers per 1,000 workers in 1901 to 1,989 to 1,000 in 1961. In East Pakistan, the growth rate of labour force surpassed the population growth rate (0.99 per cent per annum as against 0.94 per cent) while in West Pakistan, the population growth was higher (1.45 per cent as against 1.33 per cent).

In Pakistan, as a whole, the participation rates appear almost to be the same in 1961 as in 1901, the overall crude participation rate changing, only slightly, from 33.8 per cent in 1901 to 33.5 per cent in 1961. In general, the participation rate declines to 1951 with a significant drop in 1931 which, as indicated above, is probably due to census errors. As suggested above, the activity rate of 25.2 per cent reported for East Pakistan, in particular, is not reliable.

⁸ Average annual growth rate is computed by the following formula: where,

$$\frac{P_2}{P_1} = e^{rn}$$

r = average annual growth rate
or

$$r = \frac{\log \frac{P_2}{P_1}}{n}$$

P_2 = total population (or labour force) in 1961.

P_1 = total population (or labour force) in 1901.

n = number of years (*i.e.*, 60).

TABLE II

POPULATION, LABOUR FORCE, AND CRUDE LABOUR-FORCE PARTICIPATION
RATES BY SEX, 1901-1961

Year	Sex*	Total population	Labour force	L. F. as % of total population	Dependents per 1,000 labour- force participants
		(in 000)			
1901	BS	✓45,475	15,377.	33.8	1,957
	M	23,653	14,016	59.3	
	F	21,822	1,361	6.2	
1911	BS	49,282	16,007	32.5	2,079
	M	25,843	14,804	57.3	
	F	23,439	1,203	6.1	
1921	BS	51,477	16,610	32.3	2,099
	M	27,109	15,252	56.3	
	F	24,368	1,358	5.6	
1931	BS	56,821	15,717	27.7	2,615
	M	30,005	14,541	48.5	
	F	26,816	1,176	4.4	
1951	BS	73,880	22,699	30.7	2,255
	M	39,142	21,382	54.6	
	F	34,738	1,317	3.8	
1961**	BS	✓90,283	30,206	33.5 (32.5)	1,989
	M	47,517	26,443	55.7 (54.2)	
	F	42,766	3,763	8.8 (8.5)	

* M refers to males, F to females, and BS to both sexes combined.

Sources: [Appendix B; 32].

** Figures in parentheses are the crude labour-force participation rates at the age limit of 12 years.

TABLE III

POPULATION, LABOUR FORCE, AND CRUDE LABOUR-FORCE PARTICIPATION
RATES BY SEX, 1901-1961

(EAST PAKISTAN)

Year	Sex*	Total population	Labour Force	L.F. as % of total population	Dependents per 1,000 labour- force participants
		(in 000)			
1901	BS	28,937	9,640	33.3	2,005
	M	14,716	8,918	60.6	
	F	14,257	722	5.1	
1911	BS	31,605	9,982	31.6	2,166
	M	16,141	9,276	57.5	
	F	15,465	706	4.6	
1921	BS	33,235	10,531	31.7	2,156
	M	17,051	9,611	56.4	
	F	16,184	920	5.7	
1931	BS	35,573	8,955	25.2	2,972
	M	18,296	8,237	45.0	
	F	17,277	718	4.2	
1951	BS	41,932	12,866	30.7	2,254
	M	21,937	11,887	54.2	
	F	19,995	999	5.0	
1961**	BS	50,840	17,443	34.3 (33.2)	1,915
	M	26,349	14,802	56.2 (54.3)	
	F	24,491	2,641	10.8 (10.4)	

* M refers to males, F to females, and BS to both sexes combined.

** Figures in parentheses are the crude labour-force participation rates at the age limit of 12 years.

Sources: [Appendix B; 30].

TABLE IV

POPULATION, LABOUR FORCE, AND CRUDE LABOUR-FORCE PARTICIPATION RATES BY SEX, 1901-1961

(WEST PAKISTAN)

Year	Sex*	Total population	Labour force	L.F. as % of total population	Dependents per 1,000 labour-force participants
		(in 000)			
1901	BS	16,502	5,737	34.8	1,877
	M	8,937	5,098	57.0	
	F	7,565	639	8.4	
1911	BS	17,676	6,025	34.1	1,934
	M	9,702	5,528	57.0	
	F	7,974	497	6.2	
1921	BS	18,243	6,079	33.3	2,001
	M	10,059	5,642	56.1	
	F	8,184	437	5.4	
1931	BS	21,248	6,762	31.8	2,142
	M	11,709	6,304	53.8	
	F	9,539	458	4.8	
1951	BS	31,948	9,812	30.7	2,256
	M	17,204	9,495	55.2	
	F	14,744	317	2.2	
1961**	BS	39,442	12,763	32.4 (31.8)	2,090
	M	21,168	11,641	55.0 (54.1)	
	F	18,274	1,122	6.1 (6.0)	

* M refers to males, F to females, and BS to both sexes combined.

Sources: [Appendix B; 32].

** Figures in parentheses are the crude labour-force participation rates at the age limit of 12 years.

The overall stability can partly be explained in terms of age structure of the population. It has been observed that unless there are unusual changes in the cultural and socio-economic structure, (absent in case of India or Pakistan) the age structure remains the basic factor determining the crude activity rate⁹. As a result of continuing high levels of fertility, with no appreciable migration into or out of the Indo-Pakistan subcontinent, the age structure has been relatively stable [14, p. 33]¹⁰.

However, if we decompose the historical trend into two periods, 1901-1951 and 1951-1961, decline (though not very significant) in activity rate can be observed in the first period and an increase in the second period. It is interesting to note that India also experienced a secular decline during 1901-51 [10, pp. 389-413]. Also Indian data indicate a significant increase of activity rates between the intercensal period 1951-61¹¹.

Reasons for the Decline in Labour-Force Participation Rate during 1901-51

One of the factors producing the 1901-1951 decline for Pakistan was probably the continuous migration overtime to the now-Indian areas. This factor seems to be more important for East Pakistan where participation rate declined more regularly than in West Pakistan. Bengal gained from migration up to 1911, but started to lose afterward. Outmigration exceeded immigration [50, p. 201]. Moreover, as Bengal had, within its limits, the most industrialized as well as some of the least developed areas of the country, some intra-state migration probably took place to Calcutta and West Bengal from East Bengal (now East Pakistan). East Bengal had a densely settled population, was economically retarded, and was frequently hit by dire famines. Thus, the area of East Bengal continually lost population primarily through migration. The chief economic attractions for these persons, as Zachariah says, were the industrial activities in Calcutta and environs, mining in Bihar-Orissa, and the tea gardens and cultiveable waste lands in Assam and Bengal [47, p. 204]. But considering the magnitude of the population and the labour force, this movement would have been relatively small and not enough to have substantial impact on the overall activity rate. Similarly, though the areas now included in West Pakistan (the North-Western Zone of the subcontinent) also suffered from sex selective emigration continuously from 1901 to independence [47, pp. 214-215], the magnitude of this migration also does not seem to be important enough to explain much of the decline¹².

⁹ For a detailed discussion on how age structure of the population determines crude activity rates, see [22, pp.1-16; 49, pp.571-592].

¹⁰ For discussion of past trend of age distribution of Indo-Pakistan population, see [14, pp. 31-33; 17, pp.85-88].

¹¹ As in case of Pakistan there is disagreement as to whether the increase was genuine or merely due to a change in the census definition.

¹² Observing a secular decline in the economic activity rate in India, assuming other factors constant, we can outrightly reject "migration" as the explanation for the secular decline in activity rate in Pakistan.

The introduction of legislation controlling child labour and the diffusion of education, both at the primary level and in terms of increased years of schooling, may also in part be mentioned as factors influencing the declining participation rates. Even though no direct census evidence is available the fact that only about 10 per cent of the males and 2 per cent of the females in Pakistan had 5 years or more of schooling in 1961 [42, Table 35] suggests that reduction of child labour has not been of such a magnitude as to account for an appreciable decline in labour-force size. "Urbanization" may be yet another factor that may be linked with limiting the size of the working population. In case of Pakistan, however, a significant process of urbanization was not seen during the period 1901-51. The proportion of the urban population increased from 5.1 per cent in 1901 to only 10.4 per cent in 1951 [1, p.126].

More important are the demographic factors affecting the crude activity rate. As cited earlier, the fertility rate remained high at a constant level but mortality varied. In India, as a whole, famines and epidemics kept the population almost stationary up to 1921. Coale and Demeny suggest that the 1921 age distribution was affected by the extraordinary influenza epidemic that began in 1918, but post-World War I age distributions have been affected by declining mortality [15, p.37]¹³. Coale suggests "that most recent mortality improvements in the past have produced a younger population than would have resulted from unchanged mortality, other factors remaining the same" [12, p.114]. It may be sage to assume that a continuous post-World War I improvement of mortality resulted in a younger population, thereby reducing the average rate of participation in economic activities¹⁴. But in the absence of detailed mortality statistics by age, the exact effect of mortality changes on the age structure and hence on the crude activity rate cannot be precisely measured. Further it is not known whether age specific activity rates remained unchanged during this period.

Comparability of 1951 and 1961 Censuses

After years of declining participation rates, the situation reversed during 1951-61. As Table II shows, the rate leaped from 30.7 per cent in 1951 to 33.5 per cent in 1961. This observation appears to be more striking when we find comparatively an unfavourable age structure reported in the 1961 Census (the adolescent segment of population—under 10 years—expanded from 28.4 per cent in 1951 to 35.1 per cent in 1961) [33, Statement No. 2]. In addition, urbanization increased and educational opportunities expanded. What then are the factors responsible for the apparent increase?

¹³ For detailed discussion on effects of declining mortality, see [10 ; 13].

¹⁴ However, as the course of fertility remains the principal determinant of age structure, the mortality improvement may not explain the entire secular decline in crude activity but only a part.

One of the significant factors accounting for the increased participation rate is a change in definition in the 1961 Census, the lowering of the minimum labour force for enumeration from 12 years in 1951 to 10 years in 1961 provides better coverage of economic activities. This change in the age limit is entirely reflected in terms of the male crude activity rate. Eliminating the age group 10 and 11 from the 1961 Census, Tables II, III and IV indicate that the female crude activity rate is reduced by only one-tenth of 1 per cent for West Pakistan, four-tenths of 1 per cent for the whole country; the corresponding reduction in the male crude activity rate is 0.9, 1.9 and 1.5 per cent, respectively. This suggests that male reporting of economic activity is relatively more sensitive if the labour-force statistics are assumed to be correct or if the degree of misreporting is the same for both sexes in the age group 10-11. The appreciable increase of about 2 per cent points in the male activity rate observed for East Pakistan with the backward shift of age limit by two years seems to suggest the importance of child labour—an important aspect of an agrarian economy.

Even after accounting for this change in the age limit, the overall activity rate was higher in 1961 than in 1951 for each province. But the sex-wise analysis of the information provided by Tables II, III and IV presents a different picture. Whereas the male activity rate in 1961 in West Pakistan declined by 1.1 per cent it remained constant in East Pakistan... However:

In 1951, a female must have been self-supporting or partially self-supporting to be included in the labour force. Given the patriarchal organization of the Pakistan family, it would be very difficult to secure acquiescence to this question. In 1961, it was only necessary to be *helping* a member of the family in order to be included in the labour force [6, p.590]¹⁵.

Hence, to a large extent, the increase in labour force in 1961 was due to a better coverage of female unpaid family workers who were largely excluded from the labour force in 1951. Thus, the generalization of an expanding labour force from 1951 to 1961 is doubtful.

Finally, the decline in the male activity rate in West Pakistan during 1951-61 requires an alternate explanation. It has often been observed that the male components of the population, and in particular the young male adult, are more mobile¹⁶ and hence more likely to be underreported [42, pp.36-38]. West Pakistan being comparatively more industrialized than East Pakistan (where the male activity rate remained constant during 1951-61) offers relatively

¹⁵ However, this problem of change in definition may not be generalized to males. Once in the age group 12-and-plus, the probability is that he will be participating in economic life if not pursuing education.

¹⁶ In a recent study, Thomas has shown highest intensity of primary migration at young adult ages for males [22, pp.336-42].

more economic incentives for migration from the backward areas to the industrial centres¹⁷. Presumably, given the high propensity to migrate of this young male adult group, the group might have been underreported. Since, in relative terms, the group's propensity to participate in economic activity is also very high, the overall male labour-force participation rate would have been pulled down.

The expansion of the armed forces during this intercensal period, especially with West Pakistan males, may be cited as yet another factor explaining the decline in the male activity rate in West Pakistan. This results from the inclusion of the armed forces in the total population but not in the labour force. But numerically this would explain only a minor part of the decline.

In contrast to the male participation rates, the female rates increase following a major decline in 1951, but at different degrees in East and West Pakistan.

Urbanization may partly explain the inter-wing differential decline in the female activity rate. As an earlier study has shown, urbanization in particular leads to curtailed female participation rate in Pakistan [23, Section 2.8]. Whereas the proportion of urban to total population remained more or less constant for East Pakistan (changing from 2.1 per cent in 1901 to 4.4 per cent in 1951) it increased from 10.4 per cent in 1901 to 22.6 per cent in 1951 for West Pakistan. But again the magnitude of urbanization does not seem sufficient to be the explanation of overall decline of female participation.

A part of the explanation for this pronounced contraction in the female activity rate in 1951 (as discussed in the preceding sub-section) may be attributed to the 1951 Census terminology of female workers, which resulted in substantial underreporting of unpaid female family workers. Reporting of only 1.7 per cent of the economically active women as unpaid family workers in 1951 [43, Table 2.5] in an agrarian economy like Pakistan itself reflects the degree on underreporting of female economic activity. In agrarian economy, the unpaid family workers generally form an important segment of the labour force. (For details, see [40, pp.7-10]).

The accuracy of the census statistics on economically active females can be assessed by studying the relationship between the reported number of female unpaid family workers in agriculture and the number of males classified as self-employed in agriculture. It is hypothesised that "in countries where the proportion of men who are employers or own-account workers in agriculture is high, the number of female unpaid family workers in agriculture should also be high"

¹⁷ Volume of net intercensal migration of males 10-and-plus to the principal cities of West Pakistan was more pronounced than of East Pakistan [2, Table 1].

[43, p.10]. Since 87.9 per cent of the male agricultural workers are self-employed [49, p. 21], and only 1.7 per cent of female workers were listed as unpaid family workers¹⁸, this suggests inaccurate female activity rate statistics.

Summary and Conclusions

In this paper we have examined the levels of labour-force participation in Pakistan for the period 1901 to 1961. Data for the period 1951 and 1961 were based on the two censuses taken in Pakistan for those dates, and data for the period 1901 to 1931 were derived from a detailed analysis of the district-by-district reports from the Indian census for the areas now included in Pakistan. No data were available for 1941 and therefore our historical analysis has one gap of twenty years.

The various census reports are found to have some discrepancies in terms of coverage and concepts from one period to another but the data present a fairly stable picture with the exception of 1931. From 1901 to 1951 the rate of labour-force participation appears to decrease gradually. In 1931, however, the participation rates are lower than for any other period. While the low labour-force participation rates may be in part due to the world-wide depression, the realistic explanation is that the political situation in the subcontinent and the passive resistance programme sponsored by the Indian Congress Party with direct emphasis on the census reduced the count of the working-force population substantially.

Ignoring the 1931 report of the labour force, two opposite trends are noted: a decline in the level of labour-force participation, 1901 to 1951, and an increase from 1951 to 1961. To explain these trends, several substantive and methodological factors have been examined.

A decrease in the rates of labour-force participation (1901 to 1951) may arise from the following factors among others: reduction in the use of child labour through legislation and expanded education opportunities. Since participation rates by age are not available, the analysis must rely upon indirect evidence. The very low levels of education in the country do not suggest that the reduction of the use of child labour has been a significant factor. Urbanization, which has been suggested to account for reduced levels of labour-force participation elsewhere, has proceeded so slowly in Pakistan that this factor does not appear to explain the reduction.

The observed decline in labour-force participation rates, 1901 to 1951, appears to be the function of demographic changes since the turn of the century.

¹⁸ The agricultural unpaid family workers were not separately identified in 1951 and by province, but it can safely be assumed that more of the unpaid female family workers would be concentrated in the agriculture sector.

The continued high level of fertility and the declining levels of mortality produce, a younger population and, *ceteris paribus*, a lower level of labour-force participation. This is consistent with the observation that the population has been growing more rapidly than the labour force.

Since the same demographic trends have continued from 1951 to 1961 it is unusual to find an increase in the level of labour-force participation for this period. The trend is even more remarkable given the continuing expansion of educational opportunities and the increase in the level of urbanization, particularly in West Pakistan. Part of the increase is, of course, due to the inclusion of those aged 10 and 11 in the labour force in 1961 but not in 1951. Adjusting for this change an increase remains. The increase, however, seems to be a statistical artifact. As Bean has shown in an earlier article, the increase can be attributed to a change in labour-force concepts between 1951 and 1961 so that unpaid family labour, particularly female, was excluded from the 1951 Census but included in the 1961 Census. Thus, the evidence suggests that an increasingly smaller proportion of the population provides the labour for a rapidly growing population. Without some reversal of the demographic trends, this situation may be expected to continue and to be accelerated by the expansion of educational opportunities (or requirements) and urbanization. As the demand for labour increases, however, an increase in the levels of female employment may reduce the effective dependency load placed upon the labour force in Pakistan [9].

REFERENCES

1. Abbasi, W. A., "Population of Pakistan — Summary View" in M. L. Qureshi, *Population Growth and Economic Development*. (Karachi: Pakistan Institute of Development Economics, 1960).
2. Afzal, Mohammad, *Migration and Supply of Non-Agricultural Male Labour Force in the Cities of Pakistan, 1960*. Mimeographed paper, P.I.D.E.
3. Akhtar, Jamila, "Literacy and Education: Fifth Release from the 1961 Census of Pakistan", *Pakistan Development Review*, Vol. III, No. 3, Autumn 1963.
4. Bancroft, Gertrud, *The American Labor Force : Its Growth and Changing Composition*. (New York: John Wiley & Sons, Inc., 1958).
5. Barclay, George W., *Techniques of Population Analysis*. (New York: John Wiley & Sons, Inc., 1964).
- ✓6. Bean, Lee L. et al., "The Labour Force of Pakistan: A Note on 1961 Census", *Pakistan Development Review*, Vol. VI, No. 4, Winter 1966.

- ✓ 7. Bean, Lee L., *Demographic Aspects of Potential Labour Force Growth in Pakistan*. Mimeographed paper contributed to the International Union for the Scientific Study of Population Conference, Sydney, Australia, 21st to 25th August, 1967.
8. Bean, Lee L., "Provisional Estimates of the Length of Working Life in Pakistan", *Pakistan Development Review*, Vol. VII, No. 2, Summer 1967.
- ✓ 9. Bean, Lee L., "Women in the Working Force in Pakistan", *International Labor Review*, April 1968.
10. India, *Census of India, 1961. Final Population Totals. Paper No. 1 of 1962*. (Delhi: The Manager, Government of India Press, 1962).
11. Pakistan, Central Statistical Office, *Statistical Pocket Book for Pakistan, 1963*. (Karachi: Manager of Publications, 1963).
12. Coale, A. J., "The Effects of Changes in Mortality and Fertility on Age Composition", *The Milbank Memorial Fund Quarterly*, Vol. XXXIV, No. 1, January 1956.
13. Coale, A. J., "Estimates of Various Demographic Measures through the Quasi-Stable Age Distributions" in Milbank Memorial Fund, *Emerging Techniques in Population Research*. Proceedings of the 1961 Annual Conference of the Milbank Memorial Fund. Pp. 175-193.
14. Coale, A.J., and Edgar M. Hoover, *Population Growth and Economic Development in Low-Income Countries. A Case Study of India's Prospects*. (Princeton, New Jersey: Princeton University Press, 1958).
15. Coale, A.J., and Paul Demeny, *Regional Model Life Tables and Stable Populations*. (Princeton: Princeton University Press, 1966).
16. Thorner, Daniel and Alice, *The Working Force in India, 1881-1951*. Mimeographed. (Bombay: Census of 1961 Project: Indian Statistical Institute, Bombay Branch).
17. Davis, Kingsley, *The Population of India and Pakistan*. (Princeton, New Jersey: Princeton University Press, 1951).
18. Demeny, Paul, "Estimation of Vital Rates for Populations in the Process of Destabilization", *Demography*, Vol. 2, 1965.
19. Durand, John D., *Labor Force in United States, 1890-1960*. (New York: Social Sciences Research Council, 1958).

20. Durand, John D., "Development of Labor Force Concept, 1930-40" in *Labor Force Definition and Measurement*. (New York: Social Sciences Research Council, 1947). pp. 80-90.
21. Durand, John D., "Population Structure as a Factor in Manpower and Dependency Problems of Under-Developed Countries", *Population Bulletin of the United Nations*, No. 3.
22. Eldridge, T. Hope and D. S. Thomas, "Population Redistribution and Economic Growth, United States—III" in *Demographic Analysis and Interrelations*. (Philadelphia: The American Philosophical Society, 1964).
23. Farooq, Ghazi Mumtaz, *The People of Karachi: Economic Characteristics*. (Karachi: Pakistan Institute of Development Economics, 1966).
24. Haq, Mahbubul, *Strategy of Economic Planning, A Case Study of Pakistan*. (Karachi: Oxford University Press, 1963).
25. Haroon, Khurshid and Yasmin A. Jan, "Main Economic Characteristics of the People of Pakistan: Sixth Release From the 1961 Census", *Pakistan Development Review*, Vol. IV, No. 2, Summer 1964.
26. Hashmi, Sultan S., *Main Features of the Demographic Conditions in Pakistan*. (Karachi: Central Statistical Office, 1963).
- 26a. Kalra, B.R., "A Note on Working Force Estimates, 1901-61", *Census of India, 1961. Final Population Totals. Paper No. 1 of 1962*. (Delhi: The Manager, Government of India Press).
27. Louis, J. Ducoff, *Human Resources of Central America, Panama and Mexico 1950-80 in Relation to Some Aspects of Economic Development*. (New York: U.N. Economic Commission for Latin America, 1960).
28. Mauldin W. Parker and S. S. Hashmi, "Illustrative Estimates and Projections of the Population of Pakistan" in M. L. Qureshi, *Population Growth and Economic Development*. (Karachi: Pakistan Institute of Development Economics, 1959).
29. Pakistan Institute of Development Economics, *District Boundary Changes and Population Growth, 1881-1961*. To be published by the East Pakistan Geographical Society.
30. Pakistan, Office of the Census Commissioner, *Population Census of Pakistan, 1961: Population*. (Karachi: Manager of Publications).

31. Pakistan, Office of the Census Commissioner, *Population Census of Pakistan, 1961: Economic Characteristics*. (Karachi: Manager of Publications, 1963).
32. Pakistan, Office of the Census Commissioner, *Population Census of Pakistan, 1961: Census Bulletin No. 5*. (Karachi: Manager of Publications).
33. Pakistan, Office of the Census Commissioner, *Population Census of Pakistan, 1961: Age, Sex and Marital Status. Census Bulletin No. 3*. (Karachi: Manager of Publications).
34. Pakistan, Office of the Census Commissioner, *Population Census of Pakistan, 1961: Final Tables of Population, Sex, Urban-Rural, Religion. Census Bulletin No. 2*. (Karachi: Manager of Publications, November 1961).
35. Penniment, K.J., *The Influence of Cultural and Socio Economic Factors on Labor Force Participation Rates*. Paper read at the United Nations, World Population Conference, 1965. Belgrade, Yugoslavia.
36. Pakistan, Population Growth Estimation, *Interim Report No. 5*. (Karachi: Pakistan Institute of Development Economics, April 1964).
37. Porter, A.E., *Census of India, 1931, Part I: Bengal and Sikkim*. (Calcutta: Central Publication Branch, 1933).
38. Rukanuddin, A. Razzaque, *The Effect of Mortality on the Sex Ratio in Pakistan*. Mimeographed paper submitted to I.U.S.S.P. Conference in Sydney, August 1967.
39. Shafei El., A.M.N., "The Current Labor Force Sample Survey in Egypt (U.A.R.)", *International Labor Review*, Vol. LXXXII, No. 5, November 1960.
40. Slade, E.H., *Census of Pakistan 1951: Report and Tables, Vol. 1*. (Karachi: Manager of Publications, 1955).
41. Spate, O.H.K., *India and Pakistan*. (London: Mathuen; N.Y. : Dutton, 1951).
42. Spiegelman, M., *Introduction to Demography*. (Chicago: The Society of Actuaries, 1955).
43. United Nations, *Demographic Aspects of Manpower, Report-1, Sex and Age Patterns of Participation in Economic Activities*. (New York: Department of Economics and Social Affairs, United Nations, 1962).

44. United Nations, *Demographic Year Book 1963*. (New York: Department of Economics and Social Affairs, United Nations, 1964).
45. United Nations, *Demographic Year Book 1964*. (New York: Department of Economics and Social Affairs, United Nations, 1965).
46. United Nations, *Population Growth and Manpower in the Philippines*. (New York: Department of Economics and Social Affairs, United Nations, 1960).
47. Sadie, Jan L., "A Statement on Demographic Aspects of Labor Supply and Employment" in *World Population Conference, 1965*, Vol. 1, Summary Report. (New York: Department of Economics and Social Affairs, United Nations, 1966).
48. United Nations, "Age Structure and Labor Supply" in *Proceedings of the World Population Conference, 1954*. Rome, 31 August—10 September, 1954, Papers: Volume III. (New York: Department of Economics and Social Affairs, United Nations, 1955).
49. United States, Department of Labor, *Labor Developments Abroad*. (Washington: Bureau of Labor Statistics).
50. Zachariah, K.C., *A Historical Study of Internal Migration in the Indian Subcontinent, 1901-31*. (New York: Asia Publishing House, 1964).
51. Zelnik, Melvin and M. R. Khan, "An Estimate of the Birth Rate in East and West Pakistan", *Pakistan Development Review*, Vol. V, No. 1, Spring 1965.

Appendix A

Comparison of the Present Estimates with Estimates Derived from Thorners Computations

Nearly the same procedure as described above was adopted by Daniel and Alice Thorner [16] and B. R. Kalra [26a] for their estimates of the Indian Union, with the exception that they halved the figures for Nadia and took the whole of Sylhet as part of Pakistan. This introduced the basis for divergence of our estimate of population and labour force for Pakistan, and that provided by Daniel and Alice Thorner for India.

In Tables A-1, A-2 and A-3 we have compared estimates derived from the Thorners computations and our estimates for the classified population and labour force. Estimates from Thorners computations for Pakistan were worked out by subtracting the figures for Burma, Aden and the Indian Union from those of British India¹.

As can be evidenced from the Summary Table estimates based on Thorners computations for the classified population are higher than our's for each census year. The explanation for this diversity is not difficult. It was, as mentioned earlier, due to different procedures for estimating the population of Sylhet and Kushtia (*i.e.*, Nadia), used by the present study and the Thorners².

Our estimates for the labour force were higher than the other set of estimate for both males and females in each census year. The range of total divergence was 44.8 thousand in 1901 to 460.5 thousand in 1921. By sex, the absolute difference in the two sets of estimates was more pronounced for males than females. In terms of percentages of the population in the labour force the maximum variability between the two estimates was 1 per cent (our estimate was 32.3 per cent compared to 31.3 per cent of Thorners) for the total population,

¹ Thorners study did not give labour-force estimates for Burma. The study provided estimates for only Indian Union and *subtracted areas* (*i.e.* Pakistan plus Burma) only. Same criteria were used for labour-force estimates of Burma 1901-31, as we used for Pakistan.

² Comparison of Thorners and our estimates for classified population of Sylhet are as follows:

	1901	1911	1921	1931
Thorners estimates	2,241,848	2,472,671	2,541,341	2,724,342
Present estimate	2,030,912	2,240,838	2,297,720	2,466,410

Thorners did not give the estimates for Nadia (Kushtia), now in Pakistan.

1.5 for males (56.3 compared to 54.8) and 0.5 (5.6 compared to 5.1) for females, all in the census year 1921.

These differences are reasonable. Estimates from Thorners computations for Pakistan were computed by the residual method (subtracting Indian Union and Burma's figures from the subcontinent) whereas our estimate was the result of the consolidation of the district-wise information for the areas now in Pakistan. In both studies, some arbitrary judgement was used where the same districts were divided between India and Pakistan, and also where the detailed information regarding non-productive activities was not available³. For instance, for some areas of Pakistan the figures for non-cultivating land-holders and likewise were not available. The common practice in use was not to report for the districts the groups in each suborder/order, the strength of which was less than 1,000.

However, the two estimates provided by Thorners and the present study support each other showing nearly the same trend of labour-force participation overtime.

³ Perhaps this is, in part, the explanation for difference (though not very significant) between Thorners estimates and Kalra's estimates of Indian Union working force.

SUMMARY TABLE

COMPARISON OF PRESENT ESTIMATES AND ESTIMATES DERIVED FROM THORNERS COMPUTATIONS OF POPULATION CLASSIFIED PERCENTAGE IN LABOUR FORCE BY SEX, 1901-31

Sex	1901		1911		1921		1931	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Population classified* (in 000)								
Both sexes	45,610	45,475	49,481	49,282	51,682	51,477	57,036	56,821
Males	23,721	23,653	25,945	25,843	27,215	27,109	30,116	30,005
Females	21,889	21,822	23,536	23,439	24,467	24,368	26,920	26,816
Classified population in labour force								
Both sexes	33.6	33.8	32.1	32.5	31.3	32.3	26.8	27.7
Males	58.9	59.3	56.8	57.3	54.8	56.3	47.2	48.5
Females	6.2	6.2	4.9	5.1	5.1	5.6	4.0	4.4

Col. (1) refers to estimates derived from Thorners computations.

Col. (2) refers to the present estimates.

* Population classified to the population tabulated by economic activities.

Sources: Tables A-1, A-2, and A-3.

TABLE A-1

**COMPARISON OF PRESENT ESTIMATES OF POPULATION AND LABOUR FORCE
WITH THE ESTIMATES DERIVED FROM THORNERS COMPUTATIONS, 1901-31**

PERSONS

	1901	1911	1921	1931
Total Population				
India (including Pakistan ¹ , Burma and Aden)	299,361	315,156	318,942	352,838
Indian Union ¹	238,179	251,905	251,210	278,870
Burma ¹	10,491	12,115	13,212	14,667
Pakistan ¹	45,648	51,090	54,463	59,249
Population Classified				
India (including Pakistan ¹ , Burma and Aden)	294,188	313,470	316,055	350,530
Indian Union	238,170	251,904	251,148	278,794
Burma ¹	10,364	12,039	13,169	14,647
Pakistan ¹	45,610	49,481	51,682	57,036
Pakistan ²	45,475	49,282	51,477	56,821
Labour Force				
India (including Pakistan ¹ , Burma and Aden)	135,810	143,405	140,373	140,746
Indian Union	115,716	121,019	117,670	119,438
Burma ²	4,762	6,487	6,553	6,019
Pakistan ¹	15,332 (33.6)	15,899* (32.1)	16,150 (31.3)	15,289* (26.8)
Pakistan ²	15,377 (33.8)	16,007 (32.5)	16,610 (32.3)	15,717 (27.7)

¹ Refers to estimates derived from Thorners computations.

² Refers to the present estimates.

* Includes Aden as Indian Union figures did not include Aden in 1911 and 1931.

TABLE A-2

COMPARISON OF PRESENT ESTIMATES OF POPULATION AND LABOUR FORCE
WITH THE ESTIMATES DERIVED FROM THORNERS COMPUTATIONS, 1901-31

MALES

	1901	1911	1921	1931
Total Population				
India (including Pakistan ¹ , Burma and Aden)	149,952	161,339	163,996	181,829
Indian Union ¹	120,837	128,327	128,509	143,022
Burma ¹	5,342	6,183	6,757	7,491
Pakistan ¹	23,743	26,797	28,691	31,284
Population Classified				
India (including Pakistan ¹ , Burma and Aden)	149,866	160,448	162,465	180,621
Indian Union ¹	120,832	128,326	128,476	142,991
Burma ¹	5,282	6,145	6,736	7,481
Pakistan ¹	23,721	25,945	27,215	30,116
Pakistan ²	23,653	25,843	27,109	30,005
Labour Force				
India (including Pakistan ¹ , Burma and Aden)	93,812	97,703	96,414	101,112
Indian Union ¹	76,804	79,308	77,602	82,772
Burma ²	3,003	3,659	3,901	4,128
Pakistan ¹	13,975 (58.9)	14,736* (56.8)	14,911 (54.8)	14,212* (47.2)
Pakistan ²	14,016 (59.3)	14,804 (57.3)	15,252 (56.3)	14,541 (48.5)

¹ Refers to estimates derived from Thorners computations.² Refers to the present estimates.

* Includes Aden as Indian Union figures did not include Aden in 1911 and 1931.

TABLE A-3

**COMPARISON OF PRESENT ESTIMATES OF POPULATION AND LABOUR FORCE
WITH THE ESTIMATES DERIVED FROM THORNERS COMPUTATIONS, 1901-31**

FEMALES

	1901	1911	1921	1931
Total Population				
India (including Pakistan, Burma ¹ and Aden)	144,409	153,817	154,947	171,009
Indian Union ¹	117,342	123,578	122,700	135,848
Burma ¹	5,149	5,932	6,455	7,177
Pakistan ¹	21,905	24,292	25,773	27,965
Population Classified				
India (including Pakistan, Burma ¹ and Aden)	144,322	153,022	153,590	169,909
Indian Union ¹	117,338	123,578	122,671	135,803
Burma ¹	5,081	5,894	6,434	7,167
Pakistan ¹	21,889	23,536	24,467	26,920
Pakistan ²	21,822	23,440	24,368	26,816
Total Workers				
India (including Pakistan, Burma ¹ and Aden)	41,998	45,702	43,959	39,635
Indian Union ¹	38,912	41,711	40,069	36,666
Burma ¹	1,730	2,828	2,652	1,891
Pakistan ¹	1,356 (6.2)	1,163* (4.9)	1,238 (5.1)	1,078* (4.0)
Pakistan ²	1,361 (6.2)	1,203 (5.1)	1,358 (5.6)	1,177 (4.4)

¹Refers to estimates derived from Thorners computations.

²Refers to the present estimates.

* Includes Aden as Indian Union figures did not include Aden in 1911 and 1931.

Appendix B

1901-1931 Census References

EAST PAKISTAN

1. Census of India, 1901; *The Lower Provinces of Bengal and their Feudatories*, Part II. The Imperial Tables, Vol. VI-A. (Calcutta: Bengal Secretariat Press, 1901).
2. Census of India, 1901; *Assam*, Part II. Tables Vol. VI-A. (Calcutta: Bengal Secretariat Printing Office, 1901).
3. Census of India, 1911; *Bengal*, Part II, Tables, Vol. V. (Calcutta: Bengal Secretariat Book Depot, 1913).
4. Census of India, 1911; *Assam*, Part II, Tables, Vol. III. (Shillong: Assam Secretariat Printing Office, 1912).
5. Census of India, 1921; *Bengal*, Part II, Tables, Vol. V. (Calcutta: Bengal Secretariat Book Depot, 1923).
6. Census of India, 1921; *Assam*, Part II, Tables, Vol. VI-A. (Shillong: Assam Secretariat Printing Office, 1923).
7. Census of India, 1931; *Bengal and Sikkim*, Part II, Tables, Vol. V. (Calcutta: Central Publication Branch, 1932).
8. Census of India, 1931; *Assam*, Part II, Tables, Vol. III. (Calcutta: Central Publication Branch, 1932).

WEST PAKISTAN

9. Census of India, 1901; *Baluchistan*, Part II, Imperial Tables, Vol. V-A. (Bombay: Times of India Press, 1902).
10. Census of India, 1901; *Punjab and the Native States*, Imperial Tables, I-VIII, X-XV, XVII and XVIII. (Lahore: Civil and Military Gazette Press, 1903).
11. Census of India, 1901; *Bombay*, Part III, Provincial Tables, Vol. IX-B. (Bombay: Times of India Press, 1902).

12. Census of India, 1911; *Baluchistan*, Part II, Tables, Vol. IV. (Calcutta: Superintendent, Government Printing, 1913).
13. Census of India, 1911; *N.W.F.P.*, Part II, Tables, Vol. XIII. (Peshawar: The Commercial Press, 1912).
14. Census of India, 1911; *Punjab*, Part II, Table, Vol. XIV. (Lahore: Civil and Military Gazette Press, 1912).
15. Census of India, 1911; *Bombay*, Part II, Imperial Tables, Vol. VII. (Bombay: The Government Central Press, 1912).
16. Census of India, 1912; *Baluchistan*, Part II, Tables, Vol. IV. (Calcutta: Superintendent, Government Printing, 1923).
17. Census of India, 1921; *N.W.F.P.*, Part II, Tables, Vol. XIV. (Peshawar: N.W.F.P. Government Press, 1922).
18. Census of India, 1921; *Punjab and Delhi*, Part II, Tables, Vol. XV. (Lahore: Civil and Military Gazette Press, 1922).
19. Census of India, 1921; *Bombay Presidency*, Part II, Imperial and Provincial Tables, Vol. IX. (Bombay: Government Central Press, 1922).
20. Census of India, 1931; *Baluchistan*, Part II, Tables, Vol. IV. (Lahore: Civil and Military Gazette Press, 1933).
21. Census of India, 1931; *N.W.F.P.*, Part II, Tables, Vol. XV. (Peshawar: Manager, Government Stationery and Printing, 1933).
22. Census of India, 1931; *Punjab*, Part II, Tables, Vol. XVII. (Lahore: Civil and Military Gazette Press, 1933).
23. Census of India, 1931; *Bombay Presidency*, Part II, Tables, Vol. XVII. (Bombay: Government Central Press, 1933).