APPENDIX B

ADJUSTMENT OF LABOR FORCE DATA

Limitations of the Labor Force data

Labor Force Survey (LFS), the only reliable source of data on labor force in Bangladesh, is conducted in a discontinuous manner for the years 1981, 1983-84, 1984-85, 1985-86, 1989, 1990-91, 1995-96 and 1999-2000. There are several problems associated with the data from this source.

i) The data from these surveys are discontinuous with unequal intervals, so that only few points can be considered as reference points in this study.

ii) Divisions do not report 'employed' labor force, but reports only 'economically active' labor force which includes both 'employed' and 'unemployed' portions of the labor force. But since this study considers the 'employed' portion of the labor force, 'employed' labor force for every division has to be estimated using national employment rate.

Besides, there are specific limitations of data from certain surveys.

i) 1984-85 LFS considered a major portion of unpaid family helper (UFH) category as inactive population, so that the UFH portion of this survey has to be adjusted to make figures from this survey consistent with the definition of other surveys considered in this study.

ii) 1989 LFS is conducted for calendar year, whereas the others are conducted for financial years. Since the other variables for this study are reported for financial years, the data from LFS 1989 has to be considered as data for the financial year 1989-90. Besides, this LFS reports for the four former administrative divisions of the country and not for the six new administrative divisions, so that data for the new divisions has to be estimated.

iii) 1995-96 LFS reports for all age groups starting from age 10 years at the national level, whereas it reports for labor force of 15 years and over at

the division level. Hence the divisional labor force for the age group 10-14 has to be estimated from the national figure of labor force of the same age group.

Adjustments on Labor Force data for the year 1984-85

Labor force data have to be adjusted for the year 1984-85 for the differences of definition considered in different surveys. Table B1 presents economically active population and employed population of Bangladesh for different surveys. It can be observed from the table that, there is a sudden increase in the labor force volume from 29.5 million in 1984-85 to 50.7 million in 1989. The reason behind this jump can be traced in the sudden increase in the category Unpaid Family Helper (UFH), which is confirmed by the Report on Labor Force Survey (1990-91). The report states that, as a result of inclusion of certain activities as economic activities in the later surveys, the female labor force increased suddenly from 3.2 million in 1985-86 to 20.1 million in 1990-91 under the category of UFH. All surveys before 1989 including LFS 1984-85 excluded workers involved in certain activities like ploughing / irrigation / planting, weeding and hoeing, harvesting / collecting, threshing / cleaning, husking / drying / boiling, growing vegetable and spices, processing and preservation of food, raising livestock and poultry, etc. The specification of labor force which excluded these activities is termed as ‘usual definition’ in the report and the specification which included them is termed as ‘extended definition’. So, all surveys before 1989 reports labor force in the ‘usual definition’. LFS 1989 and LFS 1990-91 report labor force as per the ‘extended definition’. LFS 1995-96 and LFS 1999-2000, however, report labor force volume in both definitions for purpose of comparison.

Table B1

Economically Active and Employed Population in different surveys

Year	Economically Active (thousand)	Employed Population (thousand)	Rate of Employment (%)
1984-85	29510	28977	98.19
1989	50744	50148	98.83
1990-91	51155	50158	98.05
1995-96	56014	54597	97.47
1999-2000	60291	58066	96.31

Table B2 shows Unpaid Family Helper (UFH) and Housewives / Household Works (HH) as percentage of economically active population. It can be observed that, percentage of UFH is very low in LFS 1984-85 compared to other surveys, while percentage of HH is unusually high in LFS 1984-85. It is obvious from these comparisons that a major portion of rural household workers was considered under the HH category and hence as inactive population in LFS 1984-85, while the same portion was considered under the UFH category in the later surveys. Therefore, a portion of HH account in 1984-85 has to be transferred to UFH account in order to adjust for the difference in definition of UFH.

Table B2

UFH and HH category as reported in different surveys

Year	10+ pop.	Economic Active		UFH		HH	
	(,000)	(,000)	% of pop	(,000)	%of pop	(,000)	% of pop
1984-85	67213	29510	43.91	5186	7.72	24766	36.85
1989	70819	50744	71.65	22955	32.41	n.a.	n.a.
1990-91	73530	51155	69.57	23653	32.17	9649	13.12
1995-96	86432	56014	64.81	21896	25.33	11961	13.84
1999-00	91636	60291	65.79	21277	23.22	12968	14.15

One of the two measures can be taken to estimate how much of HH account should be transferred to UFH account. Either the percentage of UFH can be extrapolated back to correct the 1984-85 UFH volume, or the percentage of HH can be extrapolated back to correct the 1984-85 HH volume (and transfer the difference to UFH account). 1989 data is not considered in the comparison, as the survey conducted this year did not report labor force accounts HH.

Table B3

Adjustment of HH category for the year 1984-85

Year	Population	HH	
	Aged 10+ (thousand)	% of 10+ Population	Estimated (thousand)
1984-85 [a]	67213	**12.47**	**8383**
1990-91	73530	13.12	n.a.
1995-96	86432	13.84	n.a.
1999-00	91636	14.15	n.a.

Note:

a 1984-85 percentage of HH in the population aged 10 and above is extrapolated from percentage of later years

n.a. not applicable

As the percentage of UFH is not consistent in the nineties, this study extrapolates percentage of HH back to 1984-85 using a linear trend model, which is shown in Table B3. The equation is shown below.

$$y = 0.1155x + 12.472 \qquad (R^2 = 0.9751)$$

where, y is estimated percentage of HH in the population aged 10 and above and x is time gap in years from the initial year of 1984-85.

The resulting estimate of percentage of HH in the population aged 10 years and above is also shown in Table B3. The mentioned model results in an estimate of 8383 thousand under the HH category, whereas the LFS value was 24766 thousand. The difference between the LFS and estimated value of HH account is 16383 thousand. This is the amount, which should be transferred to UFH account, which consequently will increase the economically active population and the employed population. The resulting percentage of UFH, which is 32.09%, is also consistent with the same percentage measures from other surveys.

Table B4

Adjustment of Economically Active Population for the year 1984-85 (thousand)

Item	LFS Report	Difference from LFS [a]	Value after Adjustment
HH	24766	-16383	**8383**
UFH	5186	16383	**21569**
Employed [b]	28977	16087	**45064**
Active [c]	29510	16383	**45893**

Note:

a Reduction in the HH category is added with UFH category and hence with economically active population too

b 98.19% of the increase in transferred UFH category is assumed as employed, since employment rate for 1984-85 from LFS is 98.19%, and added with employed population

c Active (economically active) population is equal to the total of employed and unemployed labor force in the LFS

The resulting HH volume, UFH volume, employed population and economically active population is shown in Table B4. It can be seen that, the amount transferred from HH to UFH category, which is 16383 thousand, is also the amount by which the economically active population increased to make the adjusted figure. However, the transfer amount is reduced by the unemployment rate from LFS and the reduced figure of 16087 thousand is transferred to the employed population to make the adjusted figure.

The adjustment of labor force at the national level for the year 1984-85 in the method as mentioned above will lead to the same sort of adjustment in the labor force for the major sectors. As the category UFH is entirely related to agricultural sector, the added UFH volume at the national level is also added with the 1984-85 volume of employed agricultural labor force. The adjustment and the resulting sectoral labor force data are presented in Table B5.

Table B5

Adjustment of employed labor force for the year 1984-85

Year	Non-Agr. Employed in LFS (thousand)	Agriculture Employed in LFS (thousand)	Added at National level For adjustment (thousand)	Adjusted Agriculture Employed (thousand)	Adjusted National Employed (thousand)
1984-85[a]	**12265**	16712	16087	**32799**	45064
1989-90[b]	**17577**	32571	n.a.	**32571**	50148
1995-96	**20067**	34530	n.a.	**34530**	54597
1999-00	**21397**	36669	n.a.	**36669**	58066

Note:

a UFH portion added in national data for adjustment is added with agricultural employed labor force

b data for the calendar year 1989 is taken as figure for the financial year 1989-90

The same sort of adjustment has to be made on the divisional labor force for the year 1984-85 for inclusion of mentioned activities under the category UFH. But the method of adjustment followed at the national level data cannot be followed at the division level, because data on UFH and HH is not available at the division level. However, it is seen from Table B6 that, LFS economically active labor force has increased by 55.52% to make the adjusted value at the national level. This study arbitrarily increases labor force volume of every division by the same percentage (55.52%) to get the adjusted value of active population for the divisions. Finally, the resulting figures of active population are reduced by the national rate of

unemployment to get the employed population for the divisions for the year 1984-85. The calculation and the resulting adjusted figures are shown in Table B6.

Table B6

Adjustment of divisional labor force for the year 1984-85

Unit of Observation	LFS Labor (,000)	Added UFH [a] (,000)	% of LFS increased at national	% of LFS to increase at division	Est. addition of UFH (,000)	Est. Active Pop. (,000)	Estimated Employed [b] (,000)
Barisal	2142	n.a.	n.a.	55.52	1189	**3331**	**3271**
Chittagong	5783	n.a.	n.a.	55.52	3211	**8994**	**8831**
Dhaka	9145	n.a.	n.a.	55.52	5077	**14222**	**13965**
Khulna	3705	n.a.	n.a.	55.52	2057	**5762**	**5658**
Rajshahi	6901	n.a.	n.a.	55.52	3831	**10732**	**10538**
Sylhet	1834	n.a.	n.a.	55.52	1018	**2852**	**2801**
National	**29510**	**16383**	**55.52**	**n.a.**	**n.a.**	**45893**	**45064**

Note:

a this is the labor force added at the national level with the LFS reported labor force

b Estimated economically active population for each division is multiplied by 98.19%, the national employment rate in the year 1984-85

Adjustments on Labor Force data for the year 1989-90

Labor force data from LFS 1989, which is conducted for a calendar year, is taken as labor force volume for the year 1989-90 in this study. This approximation should be fairly close to the actual figure, since later half of the calendar year 1989 is common with the financial year 1989-90. This approximation is applied at division level too.

Then again, an adjustment has to be made on the divisional labor force data for the year 1989 to estimate data for two separated divisions. Before nineties,

Bangladesh was divided into 20 districts under 4 divisions. After that, the administration was divided into 64 districts under 6 divisions. Dhaka and Rajshahi divisions remains the same, whereas Sylhet division separated from greater Chittagong division (now two divisions: Chittagong and Sylhet) and Barisal division separated from Khulna (now two divisions: Khulna and Barisal). LFS 1989 and LFS 1990-91 reports labor force for 4 greater divisions. This study divides the labor force of the greater divisions into the separated divisions in a ratio equal to the ratio of population of the new divisions as per Population Census 1991. Finally, the resulting figures of active population are reduced by the national rate of unemployment to get the employed population for the divisions for the year 1989. The estimation for the year 1989-90 is shown in Table B7.

Table B7

Adjustment of divisional labor force for the year 1989-90

Greater Division	Separated Division	1991 Census Pop. Greater Division (,000)	1991 Census Pop. Separated Division (,000)	Popula-tion ratio of separated to greater	LFS Total 89-90 Old Division (,000)	Estimated Total 89-90 Separated Division (,000)	Estimated Employed [a] (,000)
Chittag.	Chittag.	27288	20523	0.75	12662	**9523**	**9411**
	Sylhet		6765	0.25		**3139**	**3102**
Dhaka	Dhaka	32665	32665	1.00	15364	**15364**	**15184**
Khulna	Khulna	20151	12688	0.63	10363	**6525**	**6448**
	Barisal		7463	0.37		**3838**	**3793**
Rajshahi	Rajshahi	26209	26209	1.00	12354	**12354**	**12209**
National / Total		**106315**	**106315**		**50744**	**50743**	**50147**

Note:

a Estimated economically active population for each division is multiplied by 98.83%, the national employment rate in the year 1989-90

Chittag. Chittagong

Adjustments on Labor Force data for the year 1995-96

Data for the year 1995-96 for the national level can be obtained directly from the LFS, since the survey reports for all age groups at the national level. But LFS in this year does not report the age group 10-14 years for the divisions. However, since this specific age group is 11.28% of the active population aged 15 years and above, the active population 15 and over for each division is increased by 11.28% to get the figure for active population 10 and over. Finally, the resulting figure of economically active population for every division is reduced by national rate of unemployment. The estimation is shown in Table B8.

Table B8

Adjustment of the divisional labor force in the year 1995-96

Unit Of Observation	LFS Labor Age 15+ (,000)	National Labor age 10-14 (,000)	National % of 10-14 of 15+	Division % of 10-14 of 15+	Estimated labor age 10-14 (,000)	Total Estimated labor age 10+ (,000)	Estimated Employed [a] (,000)
Barisal	5983	n.a.	n.a.	11.28	675	**6658**	**6489**
Chittagong	8827	n.a.	n.a.	11.28	996	**9823**	**9574**
Dhaka	13665	n.a.	n.a.	11.28	1541	**15206**	**14821**
Khulna	6473	n.a.	n.a.	11.28	730	**7203**	**7021**
Rajshahi	12306	n.a.	n.a.	11.28	1388	**13694**	**13347**
Sylhet	3083	n.a.	n.a.	11.28	348	**3431**	**3344**
National	**50337**	**5677**	**11.28**	**n.a.**	**5677**	**56014**	**54597**

Notes:

a Estimated economically active population for each division is multiplied by 97.47%, the national employment rate

Adjustments on Labor Force data for the year 1999-2000

Data for the year 1999-2000 at the aggregate national level can be used directly from LFS. However, the economically active population for each division (obtained from LFS) has to be reduced by national rate of unemployment to get the employed population for that specific division. The calculation is shown in Table B9.

Table B9

Adjustment of the divisional labor force in the year 1999-2000 (thousand)

Unit of Observation	Total estimated labor 10+	Estimated Employed [a]
Barisal	5929	5710
Chittagong	11265	10849
Dhaka	17687	17034
Khulna	7449	7174
Rajshahi	14550	14013
Sylhet	3412	3286
National	**60292**	**58067**

Notes:

a estimated economically active population for each division is multiplied by 96.31%, the national employment rate in the year 1999-2000