APPENDIX 1

Aspects of unemployment and employment in Manipur
QUESTIONNAIRE

UNEMPLOYED

1. Name of the respondent

   a. Sex ……. b. Age …. c. Qualification…..

2. Current address:
3. Place of birth:
4. Educational history

s.no.	Name of school/college	Board/university	Medium of instruction	Main subject	Percentage secured

5. Father's name

a. Age b. Qualification c. Occupation

6. Type of family

a. Joint b. Nuclear c. Female headed

7. Religion……..
8. Total monthly expenditure of the family……
9. Total cultivable area owned in acres……..
10. Total area cultivated
    a. Area leased in
    b. Area leased out

11. Household profile

Sl.no.	Sex	Age	Relation to respondent	Education level	Employed/ unemployed	Occupation	
						Main	Subsidiary

12. How long have you been unemployed?

13. What was your qualification when you entered the labour force ?

14. What do you do when you are unemployed?

a. Actively search for job

b. Get further training

c. Keep waiting

15. Have you tried to improve your chance of employment through additional training/higher education ?

16. If you have been looking for a job, has your job expectation remained the same ?

17. What is your search strategy?

a. read employment news

b. read newspaper and advertisement

c. prepare for competitive examination

d. through family network

e. Engaged in further study

18. Have you ever been employed ?

a. yes b. no

19. If yes, give details of last employment

a. Duration

b. Status/rank

c. Government/private,/cooperative society/NGO/others

20. Reasons for quitting the last job

a. work not remunerative enough

b. unpleasant environment

c. harsh employer

d. health hazard

e. non availability of employment benefits

f. others

21. State the source of livelihood :

22. Have you ever migrated in search of job ?

23. If you are offered a suitable job, would you accept it ?

a. Outside your district yes/No

b. Outside your state yes/No

EMPLOYED

1. Name of the respondent…….

   a. Sex ……. b. Age …. c. Qualification…..

Educational history

s.no.	Name of school/college	Board/university	Medium of instruction	Main subject	Percentage secured

2. Were you born where you are currently staying ?

3. Father's name

a. Age b. Qualification c. Occupation

4. Type of family

a. Joint b. Nuclear c. Female headed

5. Religion……..

6. Total monthly expenditure of the family……..

7. Total cultivable area owned in acres

8. Total area cultivated

a. Area leased in

b. Area leased out

9. Household profile

Sl.no.	Sex	Age	Relation to respondent	Education level	Registration in employment exchange	Occupation	
						Main	Subsidiary

10. Year of joining the present job

11. Status/rank at the time of joining

12. Nature of employment

a. Government

b. private

c. Cooperative society

d. self employment

13. If you are self employed, specify

a. Type of work

b. Income per day/week/month

14. Present status/rank

15. Nature of employment

a. permanent

b. Contract

c. daily wage

d. others

16. Particulars of present employment

a. wage rate per day/week/month

b. Duration of working hours per day

c. Distance of workplace from residence

d. No.of days worked in a week

e. Facilities provided by the employer (tick)

i. provident fund facilities

ii. medical treatment expenses

iii. any other (Please specify)

17. Is this your first employment ?

18. If no ,how many times have you switched jobs ?

19. Details of last employment in the case of job switch

Employer	Wage rate	Type of work	Duration of employment	Workng hours per day	Reasons for quitting the job

20. How did you get the current job ?

a. Open competition

b. personal contact

c. Die-in –harness

d. Through employment exchange

e. regularization through contract

21. Job search strategy

a. Through news paper

b. Personal contact

c. Through electronic media

22. Are you satisfied with the current employment ?

a. yes b. No

23.If no, which is a dominant reason

a. Poor working condition

b. low salary

c. No prospect for promotion

d. others

24. Are you looking for an alternative job ?

25. Are you working on any subsidiary job ? If yes, give details

26. Time use pattern in a day

Sl.no	Name of activities	Hours engaged	Paid/unpaid

Appendix 2

Using Shapely decompositions we get

$\Delta y=\Delta\omega[1/3(e_{t=1}a_{t=1}+ e_{t=0}a_{t=0}) +1/6(e_{t=1}a_{t=0}+ e_{t=0}a_{t=1})] + \Delta e[1/3(\omega_{t=1}a_{t=1}+ \omega_{t=0}a_{t=0}) +1/6(\omega_{t=1}a_{t=0}+ \omega_{t=0}a_{t=1})] + \Delta a[1/3(\omega_{t=1}\ e_{t=1}+ \omega_{t=0}e_{t=0}) +1/6(\omega_{t=1}e_{t=0}+ \omega_{t=0}\ e_{t=1})]$

The first term is the contribution of changes in output per worker, the second term the contribution of changes in the employment rate and the third term the contribution of changes in the demographic component.

The fraction of growth that can be linked to changes in output per worker is

$\Delta\omega[1/3(e_{t=1}a_{t=1}+ e_{t=0}a_{t=0}) +1/6(e_{t=1}a_{t=0}+ e_{t=0}a_{t=1})]/ \Delta y$

The fraction of growth that can be linked to change s in the employment rate is

$\Delta e[1/3(\omega_{t=1}a_{t=1}+ \omega_{t=0}a_{t=0}) +1/6(\omega_{t=1}a_{t=0}+ \omega_{t=0}a_{t=1})]/ \Delta y$

The fraction of growth that can be linked to changes in the share of total is population of working age

$$\Delta a[1/3(\omega_{t=1}\ e_{t=1}+ \omega_{t=0}e_{t=0}) +1/6(\omega_{t=1}e_{t=0}+ \omega_{t=0}\ e_{t=1})]/ \Delta y$$

Percentage growth between two periods can be expressed as follows:

$$\frac{\Delta y}{y} = \bar{\omega}\ \frac{\Delta y}{y} + \bar{e}\ \frac{\Delta y}{y} + \bar{a}\ \frac{\Delta y}{y}$$

APPENDIX 3

Data derived from the CSO and NSSOs various rounds.

States	Year	Workforce in absolute				Sectors NSDP (in lakhs)				LF	Popn
		Agri	Indus	Serv	total	Agri	Indus	Serv	total		
AP	1993-94	314770	27147	61614	403531	119488	33594	47801	200883	460199	924181
	1999-00	266468	33242	74413	374123	110880	35839	77132	223851	377512	1071271
	2004-05	364701	32745	118543	515989	118658	95409	104726	318793	520807	1204409
	2011-12	354732	36114	130282	521128	163376	136038	198935	498349	522544	1416108
ASM	1993-94	5789509	433760	1992399	8215668	1157649	683375	1381617	3222641	8716228	23522065
	1999-00	5253260	609060	3218749	9081069	1192307	721969	1722923	3637199	9544220	26183546
	2004-05	7216758	821530	2855557	10893844	1262798	1195811	2259465	4718074	11237858	28389991
	2011-12	6059080	1431262	3319792	10810134	1542153	1361974	3790061	6694188	11349055	31701272
MNP	1993-94	410545	94657	233221	738423	73573	66266	97405	237244	751482	1963691
	1999-00	526209	73108	226007	825324	87960	122500	142629	353089	849738	2243524
	2004-05	625971	141787	266960	1034718	115476	169696	175158	460330	1057097	2504004
	2011-12	430989	329133	325766	1085888	131873	176396	332956	641225	1126755	2919054
MGY	1993-94	745022	43326	201293	989641	75631	51945	158382	285958	994911	1912261
	1999-00	765311	45472	202071	1012854	114007	94654	230765	439426	1022638	2255835
	2004-05	885434	105888	275264	1266586	142961	144652	296957	584570	1277777	2559063
	2011-12	748043	156487	418269	1322799	166959	319971	543412	1030342	1331922	3040918

MZM	1993-94	203307	15600	81066	299973	--	--	--	--	302630	741534
	1999-00	231237	27525	115424	374186	60335	25696	102815	188846	380630	865904
	2004-05	286041	24126	126425	436592	58905	36467	144588	239960	440957	966788
	2011-12	276431	52827	170526	499784	95832	70813	273884	440529	499784	1074308
NGD	1993-94	277266	20710	153711	451687	61277	31281	158160	250718	462158	1409305
	1999-00	566817	32374	254681	853872	100005	36654	185301	321960	882623	1894318
	2004-05	670964	52231	253357	976552	194249	67207	280690	542146	1001114	1985414
	2011-12	439332	55297	231059	725688	25855	115855	554709	929119	879922	1977352
SKM	1993-94	90753	20524	64284	175561	23200	14880	34291	72371	177231	442826
	1999-00	107820	21072	70558	199450	20686	21746	61746	104178	206430	525619
	2004-05	128901	32796	83368	245065	28337	43121	79608	151066	251091	567731
	2011-12	197296	40319	83140	320755	51713	266178	136860	454751	324464	618026
TRP	1993-94	390888	112749	443833	947470	144050	29195	184193	357438	980003	2873909
	1999-00	365194	76979.7	508283	950367	177115	81643	293871	552629	970416	3150570
	2004-05	384640	158029	532358	1075027	213044	185357	418568	816969	1289275	3381246
	2011-12	391976	677864	375499	14453391	353968	326841	761306	1442115	1657670	3725101
States	Year	Workforce				Sectors NSDP (in Billions Rs)				LF	Popn
		Agri	Indus	Serv	total	Agri	Indus	Serv	total		
India	1993-94	242856589	56590442	79411420	378858451	4299.81	4068.47	8599.62	16967.9	382637090	897432676

	1999-00	244024541	65432337	93353735	402810614	5227.95	6036.31	10455.9	21720.16	407542735	1008864255
	2004-05	262687579	87339586	113817643	463844809	5654.26	8297.83	11308.52	25260.61	469276966	1098043585
	2011-12	232309545	115252138	127508961	475070644	7538.31	14806.56	15076.62	37421.49	486147420	1230752963

Note: AP=Arunachal Pradesh, ASM= Assam, MNP=Manipur, MGY=Meghalaya, MZM=Mizoram, NGD=Nagaland, SKM=Sikkim and TRP=Tripura; Agri=Agriculture and allied sectors, Indus= Industrial sector, Serv=Service Sector, LF= Labour Force and Popn= Population

-- represents data unavailable

APPENDIX 4

The Bai-PerronTest:

The growth rates of aggregate and sectoral NSDP may be estimated using the exponential function

$$\ln Y_t = a + gt + u$$

Where lnY, g, t and u denote the log of dependent variable i.e.income/sectoral income, growth rate, time trend and random disturbance term, respectively. The subscript t denotes time. The parameters of the above regression model – a and g– would vary from one growth regime to another, making it necessary to identify the change point. Therefore, it is to first estimate the breakdates of the above model for aggregate and sectoral NSDP and accordingly partition the data to estimate the period wise growth rates. The methodology for estimating the break dates is explained below. It has been drawn from Balakrishnan and Parmeswaran (2007).

The exponential growth model containing m+1 growth regimes and m break dates ($T_1, T_2, \ldots T_m$)

can be written as follows

$\ln Y_t = a_1 + g_1 t + u_t$; $t = 1,2, \ldots . T_1$

$\ln Y_t = a_2 + g_2 t + u_t$;
$t = T_1+1, \ldots . T_2$ ....(1)

.
$\ln Y_t = a_{m+1} + g_{m+1} t + u_t$; $t = T_m+1, \ldots ., \quad T$

The number of break points m and the break dates ($T_1 \ldots\ldots T_m$) are treated as unknown and estimated from the data.

Bai and Perron (1998,2003) have developed an approach to the problem of identifying breaks in a series based on the leastsquares principle common to regression analysis. The breakdates are estimated as globalminimisers of the sum of squared residuals from an OLS regression of (1) using a dynamic programming algorithm [Bai and Perron, 2003]. The procedure is as follows:

Given the number of breaksm, for each partition ($T_1, \ldots, T_m$) denoted $\{T_p\}$ the associated

least squares estimates ßp = $(a, g)_p$ are obtained by minimising the sum of squared residuals

$$\sum_{j=1}^{m+1} \sum_{t=Tj-1+1}^{Tj} [\ln Yt - aj - gjt]^2$$

The resulting estimates $\hat{\beta}$ are used to compute the sum of squared residuals denoted by $S_T(T_1 \ldots T_m)$ associated with the partition $\{T_p\}$.

Now the estimated breakpoints $(\hat{T}_1, \ldots, \hat{T}_m)$ are such that

$$(\hat{T}_1, \ldots, \hat{T}m) = \text{argmin}\,(T_1 \ldots T_m)\, S_T(T_1, \ldots, T_m)$$

where the minimisation is over all possible partitions $(T_1, \ldots, T_m)$ such that $T_i - T_{i-1} \geq h$ where h is the minimum length assigned to a segment and T_i is the ith breakpoint.

The procedure considers all possible combination of segments and selects the partition that minimises the sum of squared residuals. Thus the least squares estimates of breakdates are those that minimise the full sample sum of squared residuals in eq. (1). Bai (1997) has demonstrated that stationarity of regressors or disturbances is not required for consistency of the breakpoints estimated under the above procedure.

The above procedure is used to sequentially estimate the optimal break points for the series starting from one to the maximum allowed by T and h. The next step is to select the number of breaks in the time series. When the number of break points is unknown, a test based on the supF statistic has been proposed [Bai and Perron 1998], to choose the number of breakpoints.

In the current exercise Eviews 9 has been used to find out the breakdates.

Bai, J, andP Perron (1998): 'Estimating and Testing Linear Models with Multiple Structural Changes', *Econometrica*, 66:47-78.

– (2003): Computation and Analysis of Multiple Structural Change Models',*Journal of Applied Econometrics*, 18: 1-22..