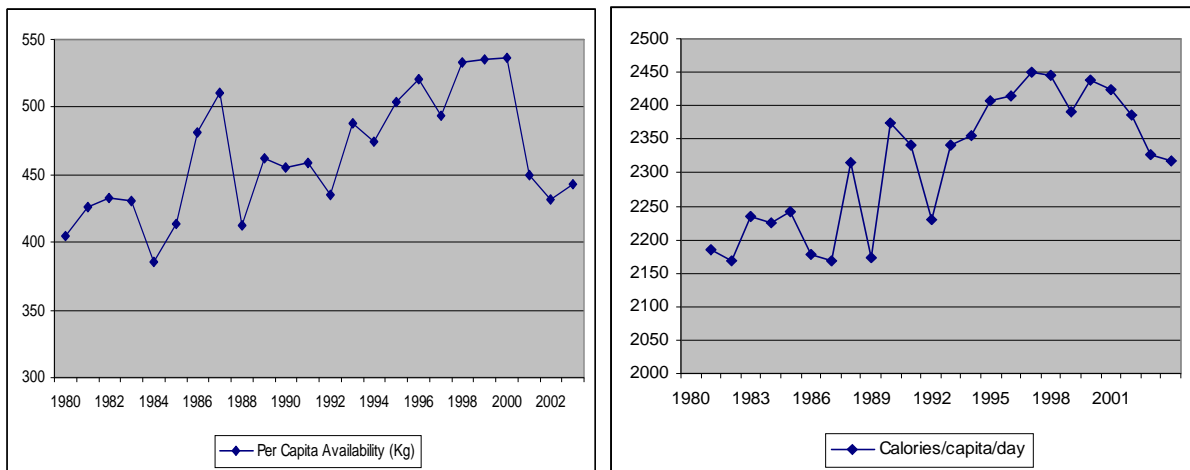


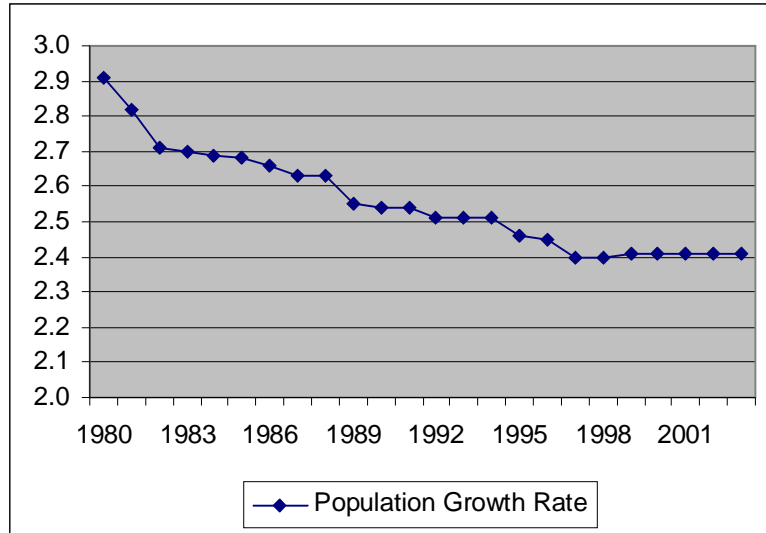
Source: Based on FAO's Food Balance Sheets Data

Figure 1. Strategic and Tactical Components of Food Availability in Pakistan

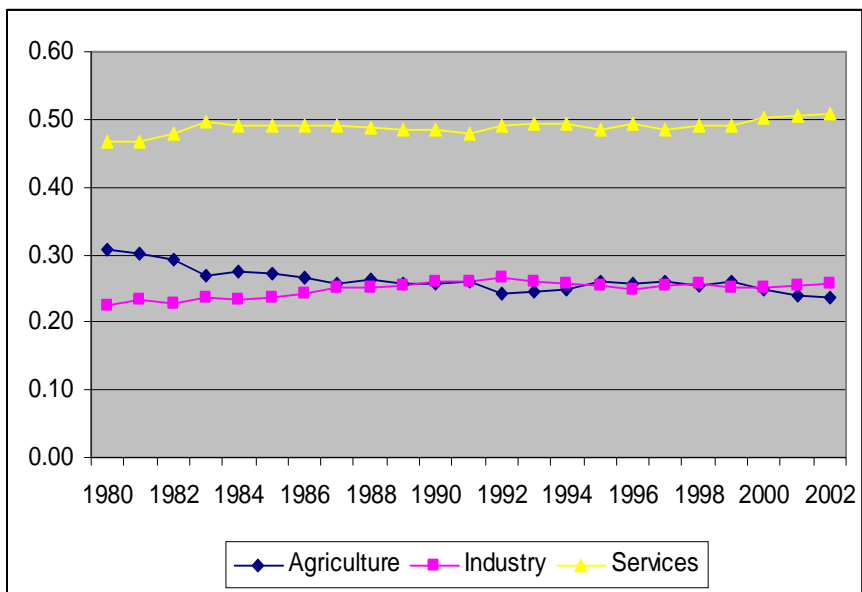


Source: Based on FAO's Food Balance Sheets Data

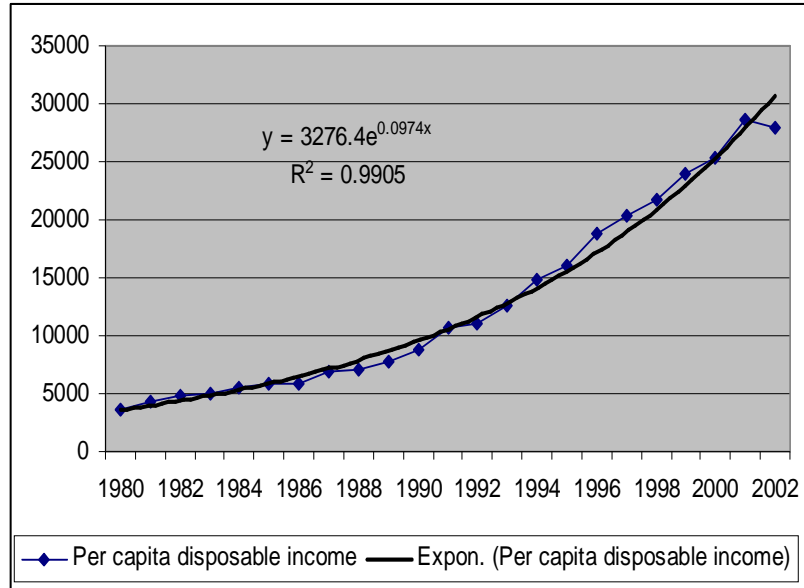
Figure 2. Per Capita Food Availability and Per Capita Calories



Source: Based on WDI-2005 of The World Bank.
Figure 3: Population Growth Rate

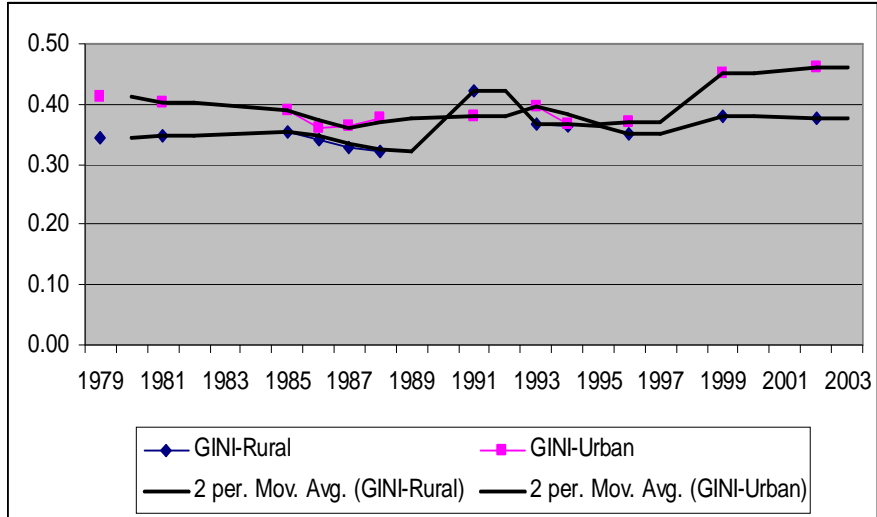


Source: Based on Government of Pakistan data.
Figure 4. Structural Changes in Economy of Pakistan



Source: Based on Government of Pakistan data.

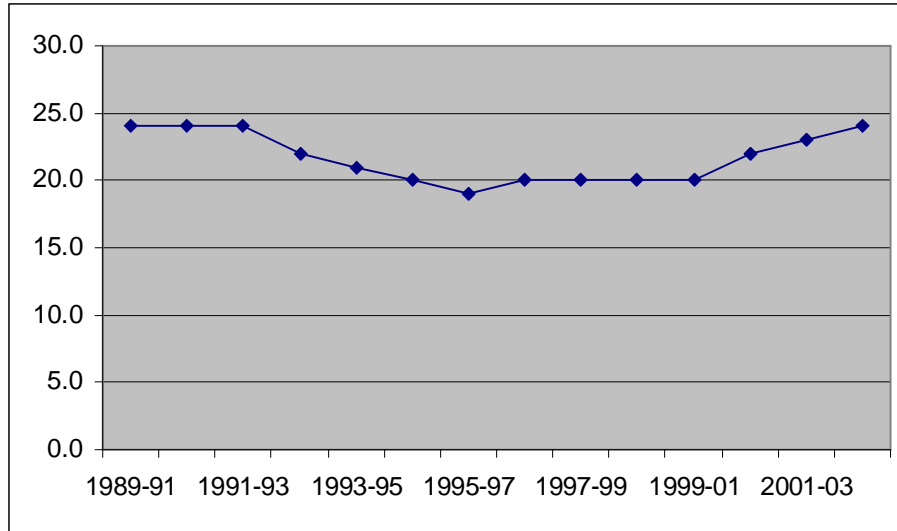
Figure 5. Per Capita Income Growth Rate



Source: Anwar (2005), CRPRID¹

Figure 6. GINI Index

¹ www.crpuid.org



Source: Based on WDI-2005 of The World Bank.

Figure 7. Prevalence of Malnutrition as % of Population

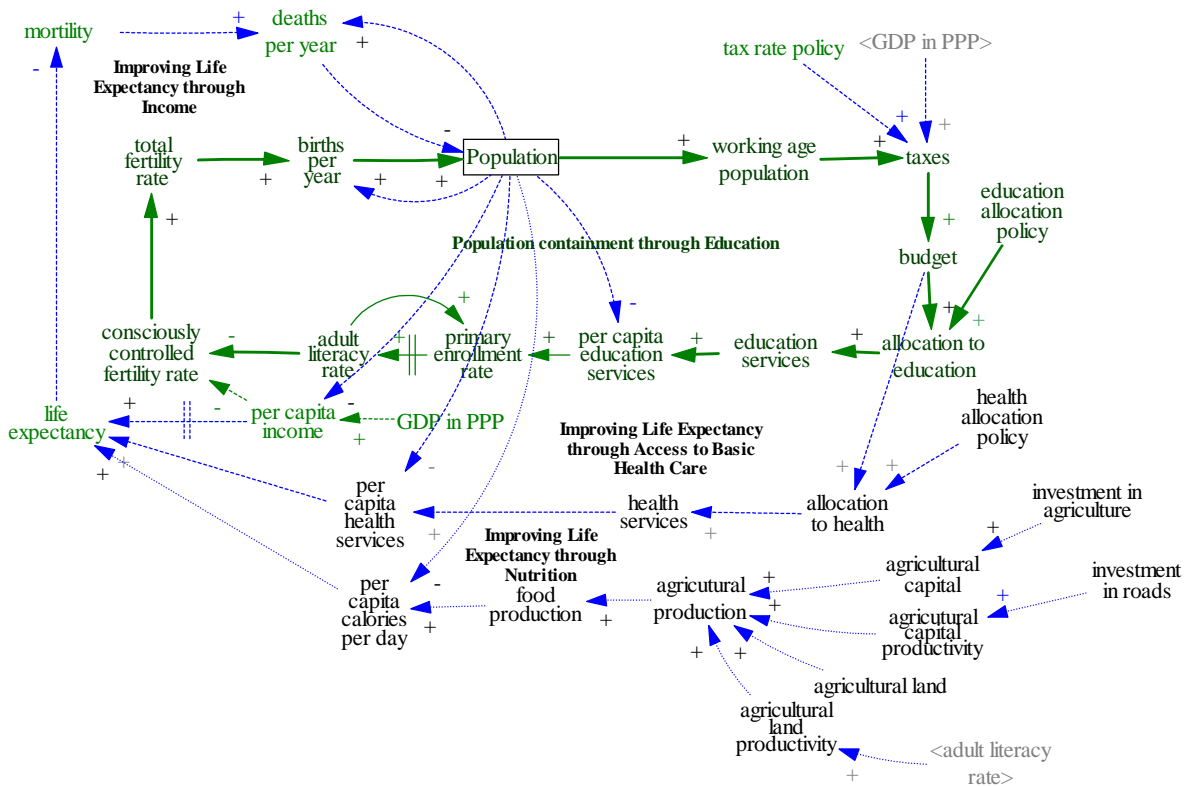
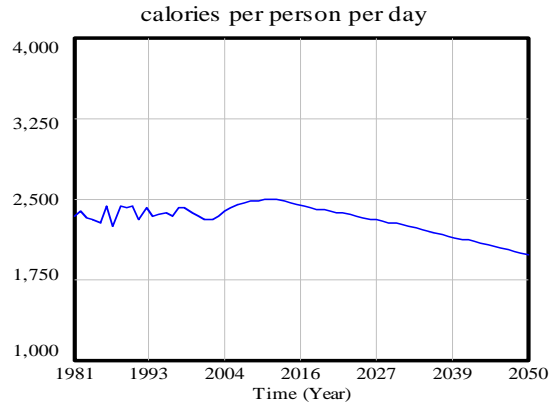


Figure 8: Cognitive Map of the Model Structure



calories per person per day : Kal/(Person*Day)

Figure 9. Average Supply of Calories per Person per Day

Year	Production	Imports	Exports	Intermediate Uses & Waste	Changes in Stocks	Availability	Per Capita Availability (Kg)	Calorie s/ capita/ day
	(1000 Tonnes)							
1980	63737	1730	1392	32494	-1099	32680	404.6	2184
1981	70741	1540	1461	37109	-1851	35561	426.5	2168
1982	76022	1748	1158	40916	-1636	37331	433.3	2235
1983	72642	1937	1305	36716	-1844	38403	431.2	2226
1984	75017	1791	1826	38662	830	35490	385.4	2242
1985	74452	2322	969	37581	-1114	39338	413.4	2178
1986	74434	3705	1556	33487	-4217	47312	481.2	2169
1987	89739	2687	1500	38929	179	51819	510.4	2314
1988	81288	2650	1448	40409	-1102	43184	412.3	2174
1989	88779	3934	1119	43429	-1722	49889	462.5	2375
1990	88674	3991	1057	42889	-1761	50481	455.2	2340
1991	91221	3186	1419	43333	-2492	52148	458.3	2230
1992	95678	4045	1771	48083	-845	50714	435.1	2341
1993	97410	5157	1249	46075	-2950	58192	487.9	2355
1994	104700	4024	1381	49463	-96	57977	474.8	2408
1995	113172	5161	2461	56026	-3244	63090	504.2	2415
1996	114838	4777	1887	52887	-2020	66860	520.9	2450
1997	111866	4811	2113	50011	-574	65127	494.1	2445
1998	127421	4851	3206	59935	-3020	72151	532.9	2391
1999	130894	5787	3249	61231	-2290	74490	535.8	2438
2000	125666	5098	2654	54780	-3144	76474	536.1	2424
2001	119985	3983	3869	52398	1906	65796	449.8	2386
2002	125467	3695	3572	59259	1552	64779	432.1	2327
2003	132772	3533	4190	63631	484	68001	442.8	2316

Source: FAO, Food Balance Sheets Data.

Table 1: Food Availability in Pakistan

Scenario #	GDP Growth Rate	Agricultural Investment	Roads Investment	Human Development Expenditure
1	High	High	High	High
2	High	High	High	Reference
3	High	High	High	Low
4	High	High	Reference	High
5	High	High	Reference	Reference
6	High	High	Reference	Low
7	High	High	Low	High
8	High	High	Low	Reference
9	High	High	Low	Low
10	High	Reference	High	High
11	High	Reference	High	Reference
12	High	Reference	High	Low
13	High	Reference	Reference	High
14	High	Reference	Reference	Reference
15	High	Reference	Reference	Low
16	High	Reference	Low	High
17	High	Reference	Low	Reference
18	High	Reference	Low	Low
19	High	Low	High	High
20	High	Low	High	Reference
21	High	Low	High	Low
22	High	Low	Reference	High
23	High	Low	Reference	Reference
24	High	Low	Reference	Low
25	High	Low	Low	High
26	High	Low	Low	Reference
27	High	Low	Low	Low
28	Reference	High	High	High
29	Reference	High	High	Reference
30	Reference	High	High	Low
31	Reference	High	Reference	High
32	Reference	High	Reference	Reference
33	Reference	High	Reference	Low
34	Reference	High	Low	High
35	Reference	High	Low	Reference
36	Reference	High	Low	Low
37	Reference	Reference	High	High
38	Reference	Reference	High	Reference
39	Reference	Reference	High	Low
40	Reference	Reference	Reference	High

41	Reference	Reference	Reference	Reference
42	Reference	Reference	Reference	Low
43	Reference	Reference	Low	High
44	Reference	Reference	Low	Reference
45	Reference	Reference	Low	Low
46	Reference	Low	High	High
47	Reference	Low	High	Reference
48	Reference	Low	High	Low
49	Reference	Low	Reference	High
50	Reference	Low	Reference	Reference
51	Reference	Low	Reference	Low
52	Reference	Low	Low	High
53	Reference	Low	Low	Reference
54	Reference	Low	Low	Low
55	Low	High	High	High
56	Low	High	High	Reference
57	Low	High	High	Low
58	Low	High	Reference	High
59	Low	High	Reference	Reference
60	Low	High	Reference	Low
61	Low	High	Low	High
62	Low	High	Low	Reference
63	Low	High	Low	Low
64	Low	Reference	High	High
65	Low	Reference	High	Reference
66	Low	Reference	High	Low
67	Low	Reference	Reference	High
68	Low	Reference	Reference	Reference
69	Low	Reference	Reference	Low
70	Low	Reference	Low	High
71	Low	Reference	Low	Reference
72	Low	Reference	Low	Low
73	Low	Low	High	High
74	Low	Low	High	Reference
75	Low	Low	High	Low
76	Low	Low	Reference	High
77	Low	Low	Reference	Reference
78	Low	Low	Reference	Low
79	Low	Low	Low	High
80	Low	Low	Low	Reference
81	Low	Low	Low	Low

Table 2: All Scenarios of Food Security

Indicators	Expected Values
Total Population	333.8 million
Average Life Expectancy	78 years
Average Adult Literacy Rate	88.7%
Average Access to Basic Healthcare	44.5%
Average Supply of Calories per person per day	1974
Average Access to Food	91.7%
Malnutrition Prevalence Rate	9.9%

Table 3. Food Security Indicators under Reference Mode Scenario

Rank	Economic Growth	Human Development Expenditure	GFCF Agriculture	GFCF Roads
1	Low	High	High-Reference-Low	High-Reference-Low
2	Reference	High	High-Reference-Low	High-Reference-Low
3	High	High	High-Reference-Low	High-Reference-Low
4	Low	High-Reference-Low	High-Reference-Low	High-Reference-Low
5	Reference	Reference	High-Reference-Low	High-Reference-Low
6	High	High-Reference-Low	High-Reference-Low	High-Reference-Low
7	Low	High-Reference-Low	High-Reference-Low	High-Reference-Low
8	Reference	High-Reference-Low	High-Reference-Low	High-Reference-Low
9	High	High-Reference-Low	High-Reference-Low	High-Reference-Low

Table 4. Ranking of Effective Scenarios to Contain Population

Rank	Economic Growth	Human Development Expenditure	GFCF Agriculture	GFCF Roads
1	Low	High	High-Reference-Low	High-Reference-Low
2	Reference	High	High-Reference-Low	High-Reference-Low
3	High	High	High-Reference-Low	High-Reference-Low

Table 5. Characteristics of Most Effective Scenarios to Contain Population

Rank	Economic Growth	Human Development Expenditure	GFCF Agriculture	GFCF Roads
1	High	High	High-Reference-Low	High-Reference-Low
2	Reference	High	High-Reference-Low	High-Reference-Low
3	Low	High	High-Reference-Low	High-Reference-Low
4	High	Reference	High-Reference-Low	High-Reference-Low
5	Reference	Reference	High-Reference-Low	High-Reference-Low
6	Low	Reference	High-Reference-Low	High-Reference-Low
7	High	Low	High-Reference-Low	High-Reference-Low
8	Reference	Low	High-Reference-Low	High-Reference-Low
9	Low	Low	High-Reference-Low	High-Reference-Low

Table 6. Ranking of Effective Scenarios to Improve Human Development

Rank	Economic Growth	Human Development Expenditure	GFCF Agriculture	GFCF Roads
1	High	High	High-Reference-Low	High-Reference-Low
2	Reference	High	High-Reference-Low	High-Reference-Low
3	Low	High	High-Reference-Low	High-Reference-Low

Table 7. Characteristics of Most Effective Scenarios to Improve Human Development

	Rank	Economic Growth	Human Development Expenditure	GFCF Agriculture	GFCF Roads
Calories per person per day	1	High	High	High-Reference-Low	High-Reference-Low
	2	High-Reference	High	High-Reference	High-Reference-Low
	3	High-Reference	High	Reference-Low	High-Reference-Low
Access to food	1	High	High	High-Reference-Low	High-Reference-Low
	2	Reference	High	High-Reference-Low	High-Reference-Low
	3	Low	High	High-Reference-Low	High-Reference-Low

Table 8. Characteristics of Most Effective Scenarios to Improve Food Security