

Can countries escape low-level equilibrium poverty traps ? Bangladesh vs Niger

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Focus of the presentation

- Low-level equilibrium poverty traps (LLEPT). In the Harrod Domar model, LLEPT occur when

$$\mathbf{g/c = s/v - d - n < 0}$$

- In mid 1970s both BDGs & NIG faced extreme poverty, both unable to exit LLEPT
- Both joined the Least Developed Country group
- Now, BGD is about to ‘**graduate from LDC**’ & to become an ‘emerging economy’—while NIG is running into a ‘Malthusian trap’. Why?

Initial similarities in 1970s

- **Common causes of 'LLEPT'**

- low income/c, widespread poverty (82% BGDS 1974)
- 90% jobs in subsist. agric, low urbanization
- Agriculture highly vulnerable to whether shocks
- High dependence of food imports and aid
- High dependence on overall aid (5-12 % GDP)
- Weak resource/export base (jute BGD, peanuts NIG)
- Low household savings

- High TFR (7)& pop growth rate (3.1 BDG, 2.8 NIG)
- Low LEB (36 NIG, 46 BGD)
- High child malnutr.(63% BGDS!) Low gender parity

Initial differences

- Population size (5mn Niger, 70 BDG)
- Population density (120 times higher in BGD)
- Land-man ratio (higher in Niger, but dry land)
- Irrig./land yields (per ha) 6 times higher in BGD
- More stable macroeconomy in BGDS
- Higher level of 1ary-2ary educ in BGDS
- Distance to harbour (1040 Km from Niamey)

Population data	Niger			Bangladesh		
	1975	1995	2015	1975	1995	2015
Total population (million)	5,1	9,3	19,9	71,2	118,4	160,1
Pop. density people/sq.km	4,1	7,4	15,7	547,4	909,8	1236,8
Urbanization rate %	11.4	15.7	18.7	9.8	21.6	34.3
Population growth rate %	2,79	3,37	4,02	3.06	2,22	1,20
Birth rate (per 1000)	55,8	55	49,8	46,8	33	20.4
Death rate (per 1000)	27,4	21,4	9,4	19,8	9,3	5.5
TFR	7.52	7.74	7.63	6.91	4.06	2.23
Contraceptive prev.rate %	...	2.3	12.2	...	36.6	59.2
Net migration rate	-0,6	-0,1	-0,3	-0,5	-1,5	-2,8

	Niger				Bangladesh		
Agriculture – food security	1975	1995	2015		1975	1995	2015
% rural population	90	89	85*		85*	54.4	40.0*
Arable land (ha) per capita	1.89	1.49	0.83		0.13	0.07	0.05
Fertilizer consumption kg/ha			1.0				279.0
Yields/ha (millet Niger, rice Bgdh)	346	291	447		1831	2593	4618
Food import & aid/food consumption	21.6	32.3	20.9		17.6	17.3	19.5

	Niger			Bangladesh		
Social situation	1975	1995	2015	1975	1995	2015
Literacy rate	10**	14.4	19.1		47.5	61.9
1ary enrolment rate	10.6	23.4	54.6	70.3	72.4	89.9
2ary enrolment rate	1.6	5.6	15.6	16.6	40.5	52.6
Gender parity index 2 educ	0.54	0.53	0.78	0.49	0.75	1.09
U5MR (per 1000)	325	293	104	260	129	41
Life Expectancy at Birth	36.6	45.2	59.8	46.3	59.6	71.9
Child malnutrition (%)	45.0	43.0	37.9	63.8	58.0	32.9
Poverty rate	...	82.4	45.7	38.5	35.0	18.5
Human Development Index	...	0.212	0.353	...	0.386	0.579

Economy	Niger			Bangladesh		
	1975	1995	2015	1975	1995	2015
GNI/c PPP	578	955	...	1050	3339
GDP growth rate	- 2.8	2.6	3.6	- 4.1	5.1	6.6
Export/GDP	19.2	17.7	17.2	2.9	10.9	17.3
Export manufactures/GDP	8.4	0.8	10.0	57.3	85.0	92.8
FDI/GDP	2.1	0.4	7.3	0.1	0.0	1.7
Gini coefficient						
Budget deficit/GDP (gross)	10.8	13.9	16.7	3.2	4.6	5.4
BoP deficit/GDP	1.1.	-8.0	-15.0	-2.7	-2.1	1.3
ODA/GDP	13.2	14.8	11.4	5.5	3.2	1.3
Inflation rate	9.1	10.6	1.0	10.3	6.2

A. Evolution of BGDS's economy & society



A very difficult beginning

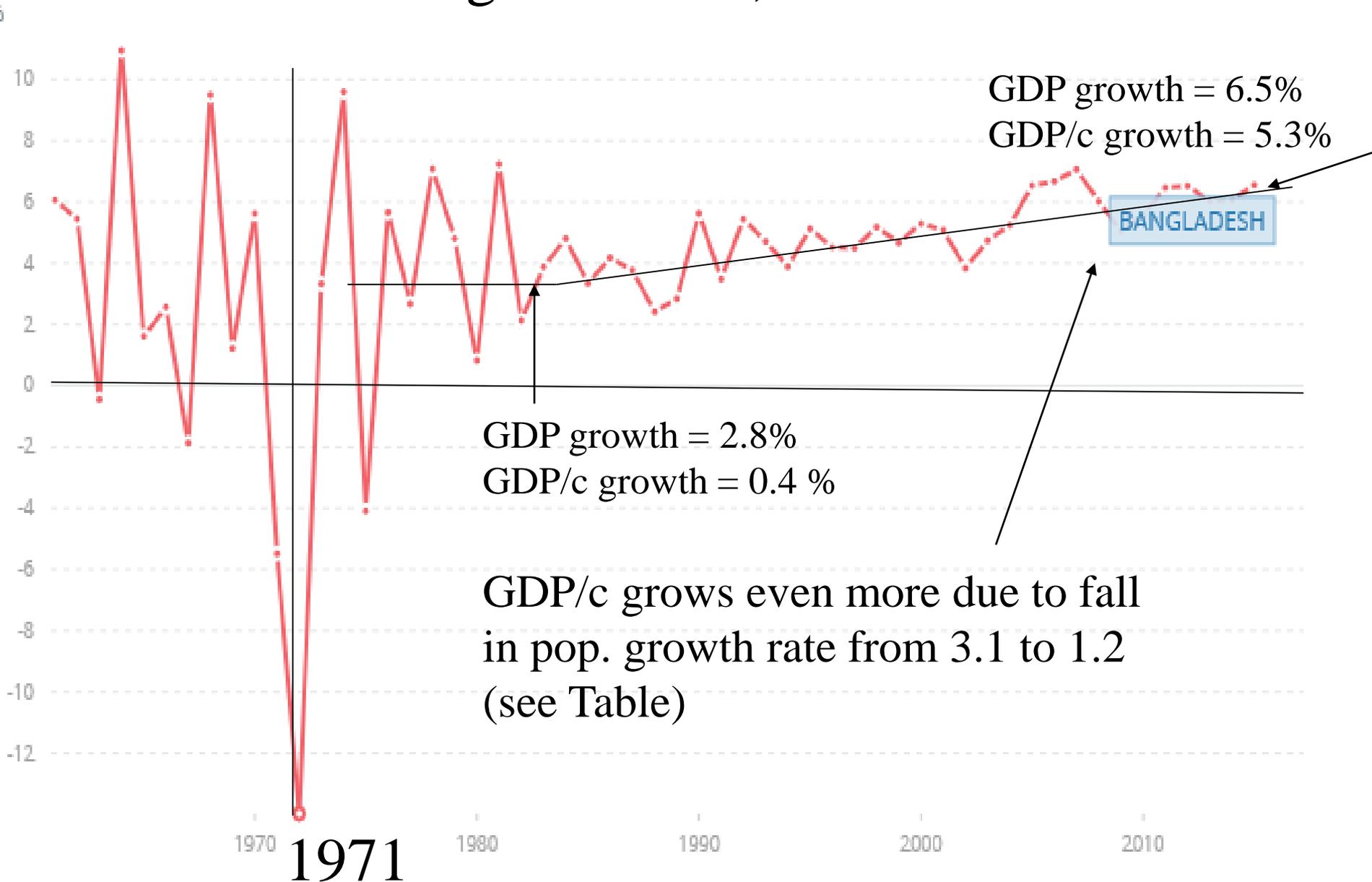
- Devastating war to gain Independence in 1971
- Followed by 2 years of floods & 1974 famine (1.5 mn estimated deaths)
- BGDS was seen as ‘utmost basket case – no hope’
- Garret Hardin & ‘lifeboat ethics: the case against helping the poor’



Bouncing back: 5 successive phases

- (i) ODA & food output gradually stabilize GDP g.r.
- (ii) Green Revolut. raises sharply rice yields/ha
- (iii) Population policies reduce TFR, raise GDP/c
- (iv) export of ready-made garment drive growth
- (v) emigration & remittances (15 bn in 2015)

BGDS: GDP growth rate, 1961- 2015



GDP growth decomposition by 5 drivers/periods

	1974-80	1981-90	1991-04	2005-11
Fertility reduction	0.04%	0.37%	0.65%	0.42%
	2.64%	35.89%	22.49%	8.24%
RMG Industry	0.00%	0.07%	0.63%	0.79%
	0.00%	6.56%	21.77%	15.39%
ODA	0.34%	0.05%	-0.23%	-0.05%
	25.34%	4.92%	-7.83%	-0.96%
Remittances	0.24%	0.12%	0.39%	1.18%
	18.15%	11.68%	13.38%	22.96%
Green Revolution	0.57%	0.46%	0.63%	0.73%
	42.42%	44.75%	21.76%	14.22%
Other factors	0.15%	-0.04%	0.83%	2.06%
	11.46%	-3.80%	28.44%	40.14%
Average GDP/c growth	1.33%	1.03%	2.91%	5.14%
Standard deviation of GDP/c growth	4.13%	1.15%	0.89%	0.33%
Average under-5 mortality rate	210‰	170‰	102‰	56‰

(i) Aid (+ initial recovery agriculture)

- 1971-5: inflow of food/relief aid essential for survival
- '75 ODA & ODA/soft loans were 5.5 & 9.3 % GDP
- 1971-'99 total aid/soft loans = 42 bn US\$ (in '99 RMG X & remittances were 4 & 2 bn)
- Food, commodity and project (now important) aid
- Latter is little efficient (20% disbursement rate)
- Important flow of aid to NGO (more efficient)
- 2010 grants =1.2 bn (1.5% of GDP) vs RMG+remitt=9 bn)

(ii) Rapid rise of food production

- Large increase in areas under Green Revolution

- Improved HYV seeds + fertilizers
- Spread of 'tubewells' raise irrigated area (thks to private & govmt action) watertable is 10-15 mt deep
- multicropping (first 'aman', now also 'boro' and 'karif')
- Liberalized imports of engines/pumps was key for 'boro'

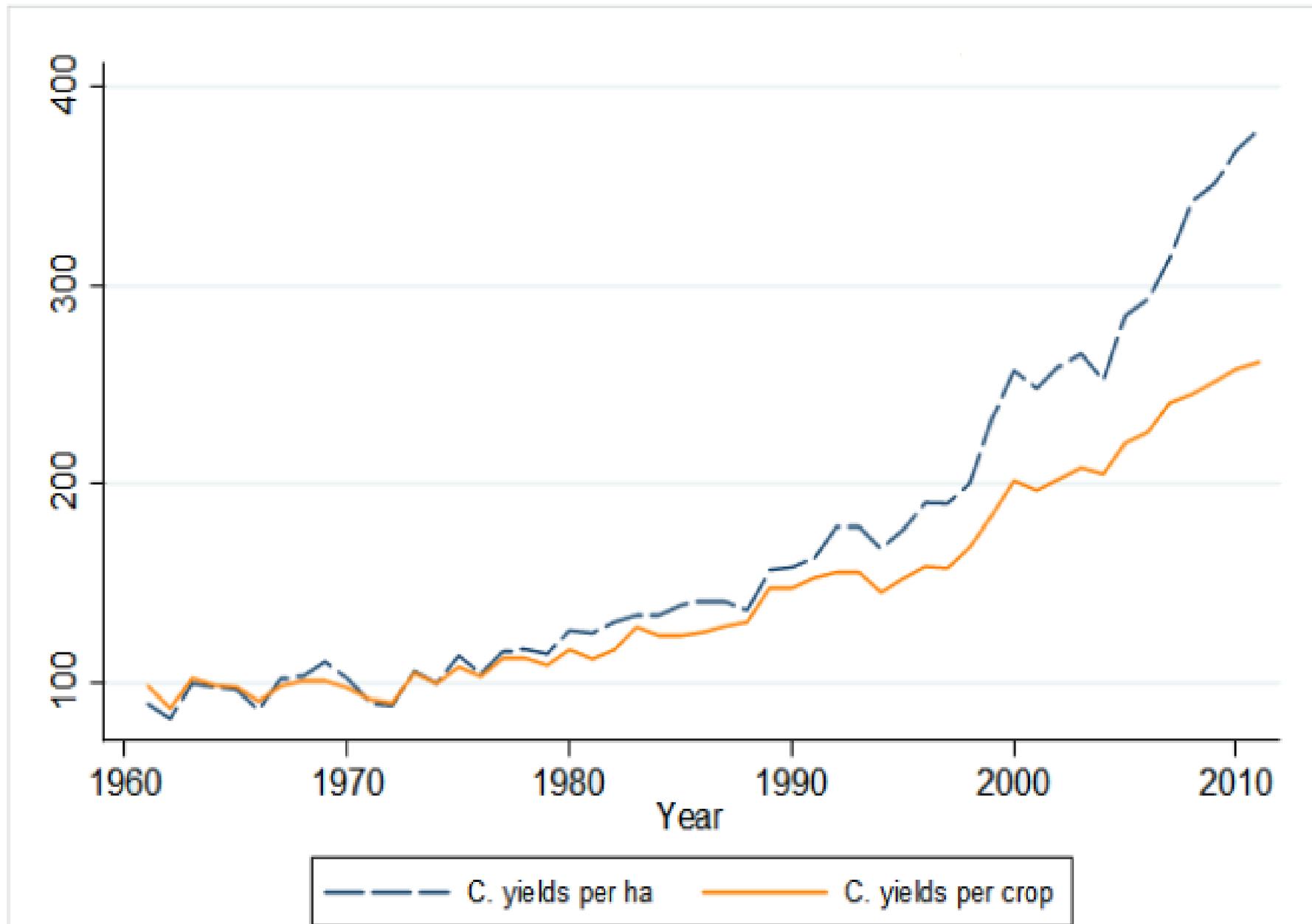
- Rice production grows rapidly (chart)

- Average kilocalories/c rise above av. requirement

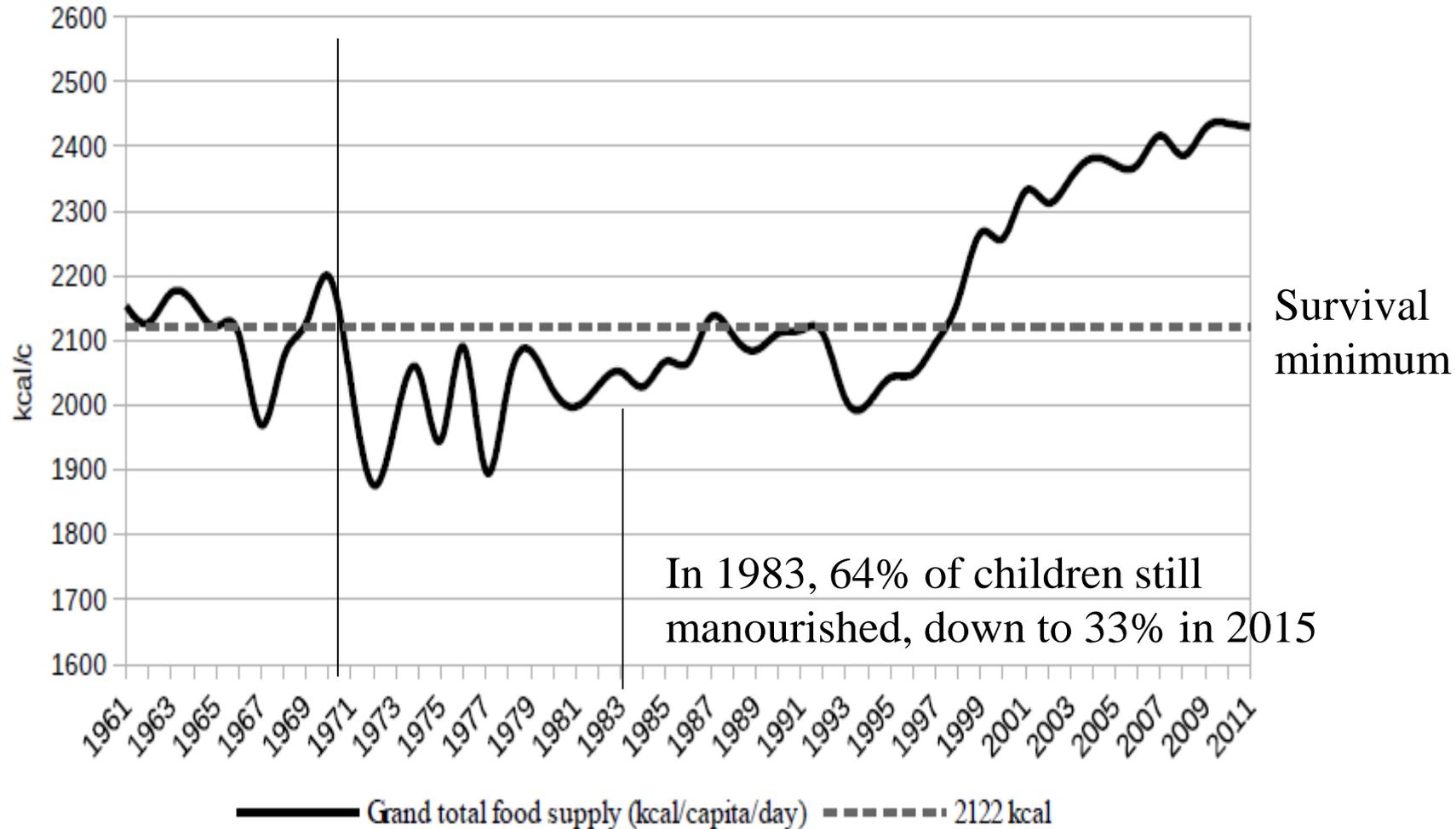
- Subsidized food imports from India (& tiny food aid) stabilize prices in bad years

- Large complementary gains in other social areas

Figure 3. Trend of cereal yields (per hectare and per crop)



Trend in Kilocalories supply/c: average food Security achieved in 1991- but not for all



Faster social gains than richer India & Pakistan tks to key role of NGOs & rising Govmt outlays

Poor but impressive

Wealth and health

		Bangladesh	India	Pakistan
Income per person, \$PPP*	1990	540	874	1,200
	2011	1,909	3,663	2,786
Life expectancy at birth, years	1990	59	58	61
	2010	69	65	65
Infant (aged <1) deaths per 1,000 live births	1990	97	81	95
	2011	37	47	59
Child (aged <5) deaths per 1,000 live births	1990	139	114	122
	2011	46	61	72
Maternal deaths per 100,000 live births	1990	800	600	490
	2010	194†	200	260
Infant immunisation rate, %	1990	64	59	48
	2008	94	66	80
Female (aged 15-24) literacy rate, %	1991	38	49	na
	2009	77	74	61
Underweight children, % of total	1990	62	60	39
	2007	36†	44	31

Sources: World Bank; UNICEF; WHO; national statistics

* Purchasing-power parity †2011

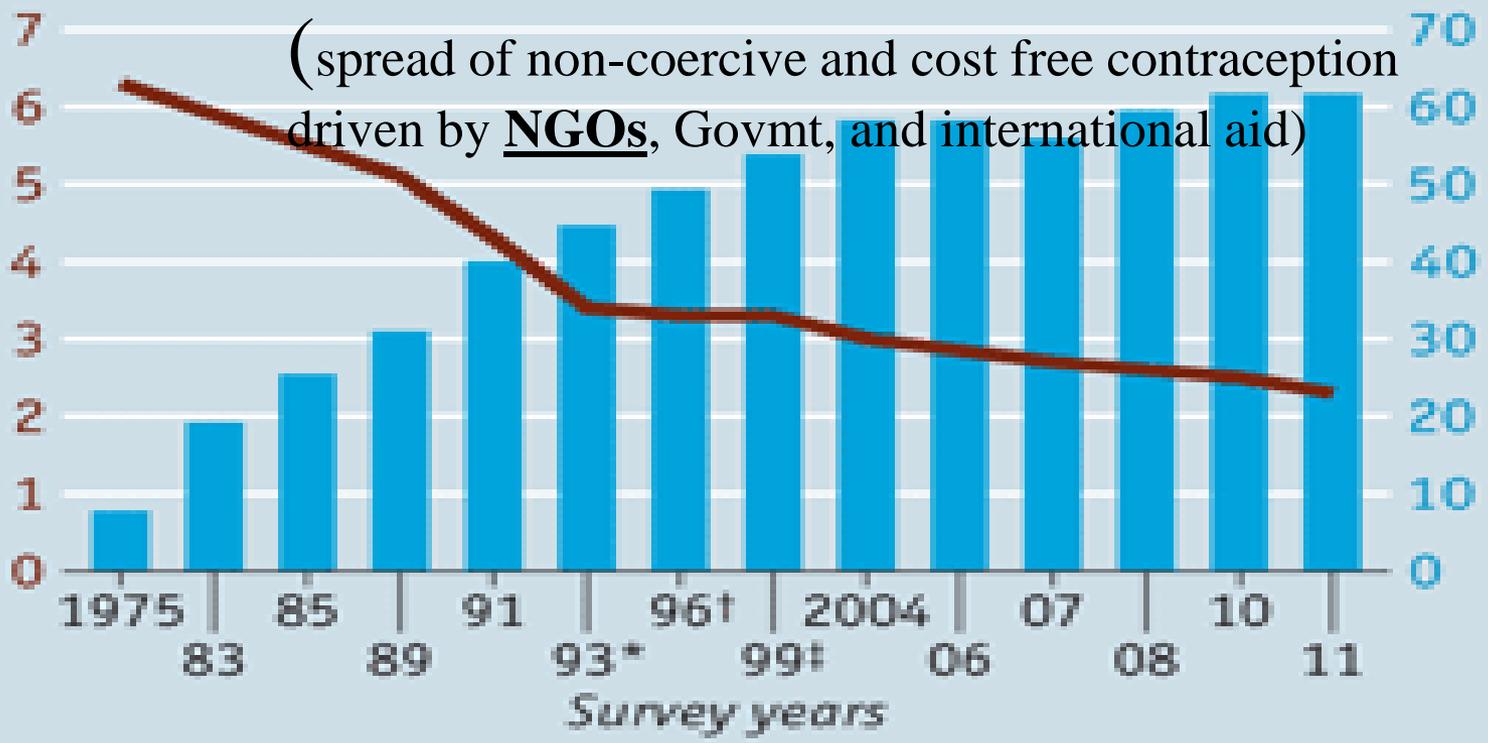
(iii) Rapid decline in TFR & pop. growth raises GDP/c

Mellowing fruitfulness

Fertility in Bangladesh

Total fertility rate

Contraceptive prevalence rate, %



(spread of non-coercive and cost free contraception driven by NGOs, Govmt, and international aid)

Source: World Bank *1993-94 †1996-97 ‡1999-2000

(iv) Rapid increase in exports of RMG

- At independence textile was marginal
- in 1979 Daewoo outsourced to BGD some production, because of MFA export quotas
- Daewoo trained in Korea 130 Bgd workers/manag.
- most of them later started their textile companies
- Positive impact LDC trade concessions (most favored nation, DFQF)
- In 2011 RMG exports > 20 bn, 2° largest exporter
- Now export diversification (mopeds, drugs, shrimps, etc)

(v) Migration and remittances

- > 9mn workers migrated over 1976-14, acceleration since 2000. Now 5.4 mn reside abroad.
- $\frac{3}{4}$ migrants to Gulf-ME, now SEA, EU & USA.
- 15 bn in remittances in 2014 (13% of GDP)
- Govmt introduce active migration policy. It created:
 - Ad hoc ministry and Bureau of Manpower, and Training to create new overseas jobs
 - subsidised insurances to migrants, supervises private recruiting agencies
 - pursued agreements with countries of destination
 - funded training programs
 - agreements with commercial banks for money-transfer

Country now in upbeat mood, soon will graduate from LDC group & become ‘emerging economy’

Recent New Year's celebration in Bangladesh



B. Evolution of Niger's economy and society

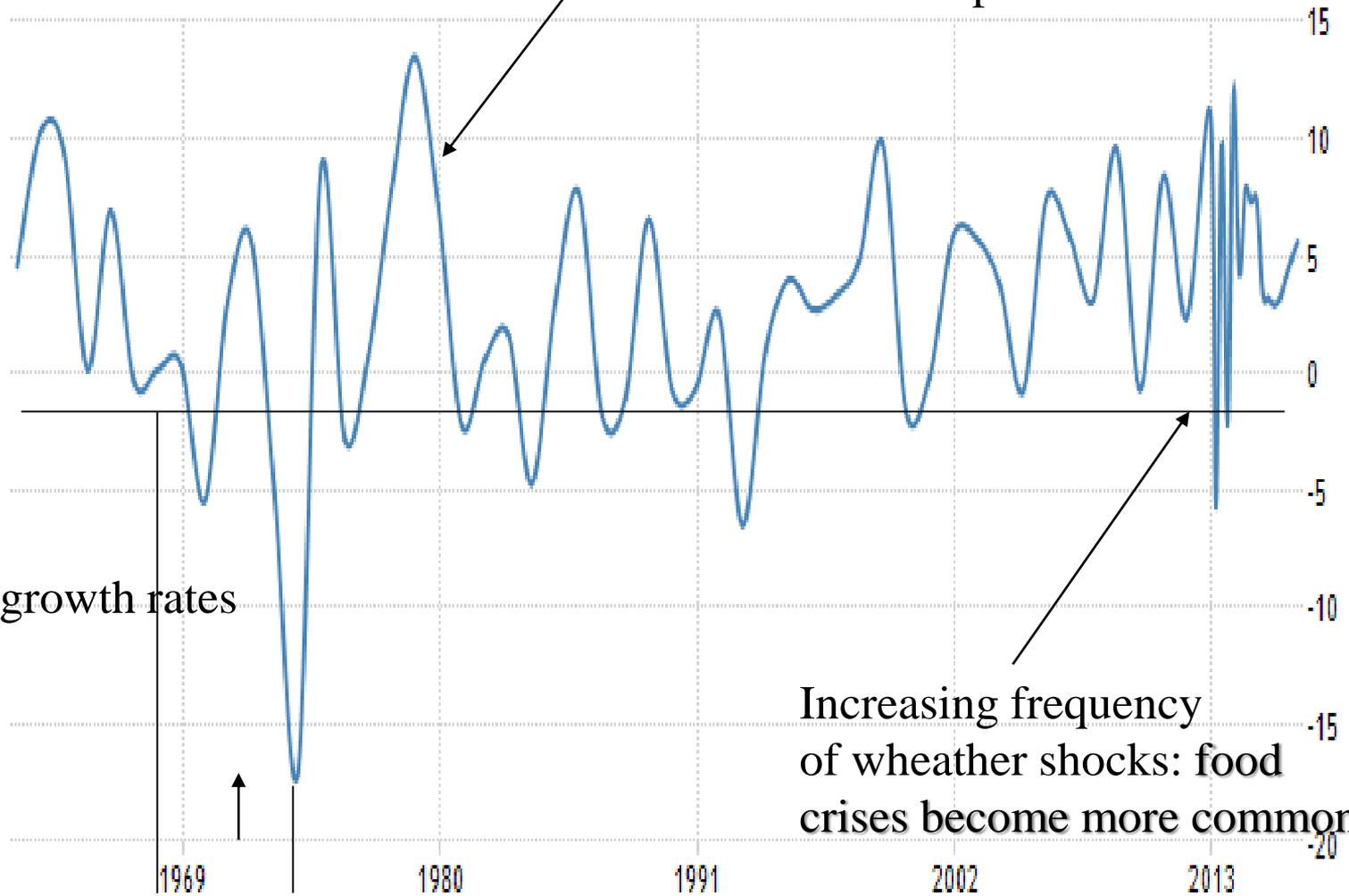


A. Niger's features

- 2/3 desert, landlocked, remote → high transport costs
- Remains undiversified (rainfed agriculture and cattle are key but limited ability to withstand recurrent droughts)
- Limited endowment of production factors (good land, water, h. capital, but some minerals) → persistent poverty
- Since 1979 heavy reliance on uranium exports (and since 2012 also on oil exports). → 'Dependent economy syndrome'
- High and accelerating population growth (now 4.02%) → Malthusian effects
- Weak public finance chronically dependent on aid → limited ability to respond to shocks

NIGER GDP ANNUAL GROWTH RATE

Boom in uranium prices



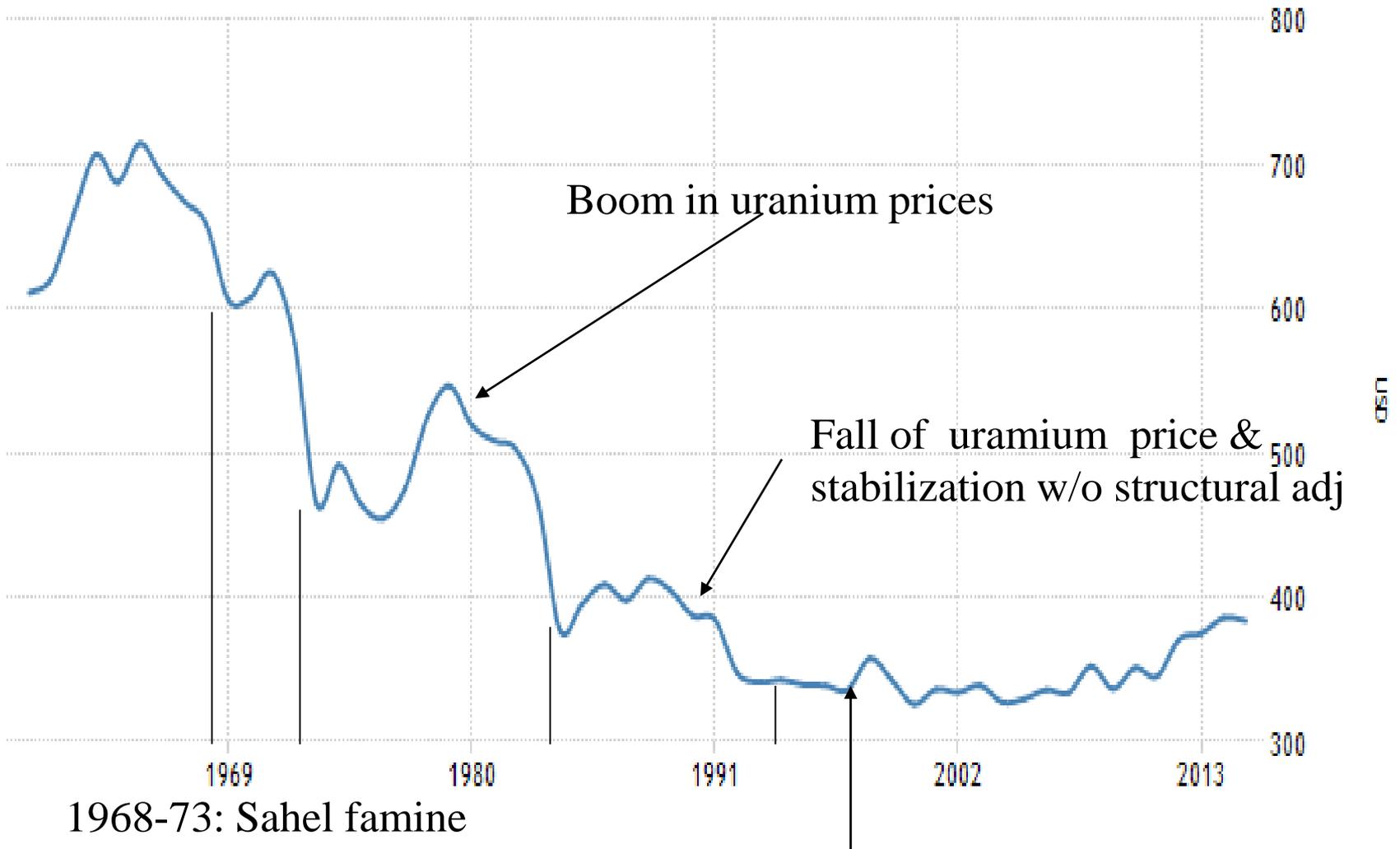
Negative growth rates

Increasing frequency of weather shocks: food crises become more common

Sahel famine: 1968-73 GDP drops 15%, 100k deaths

SOURCE: WWW.TRADINGECONOMICS.COM | INSTITUT NATIONAL DE LA STATISTIQUE DU NIGER

NIGER GDP PER CAPITA with population rising 3 -4 % a year



SOURCE: WWW.TRADINGECONOMICS.COM | WORLD BANK

UN 2012 Population Projections

250,000,000

Rising pop growth rate(highest in the world)

200,000,000

- low female education and social expenditure

- high demand for children (social norms)

- poligamy

- no investment in contraception (9%)

150,000,000

- no increase in age at marriage (15)

- pro-natalist culture

100,000,000

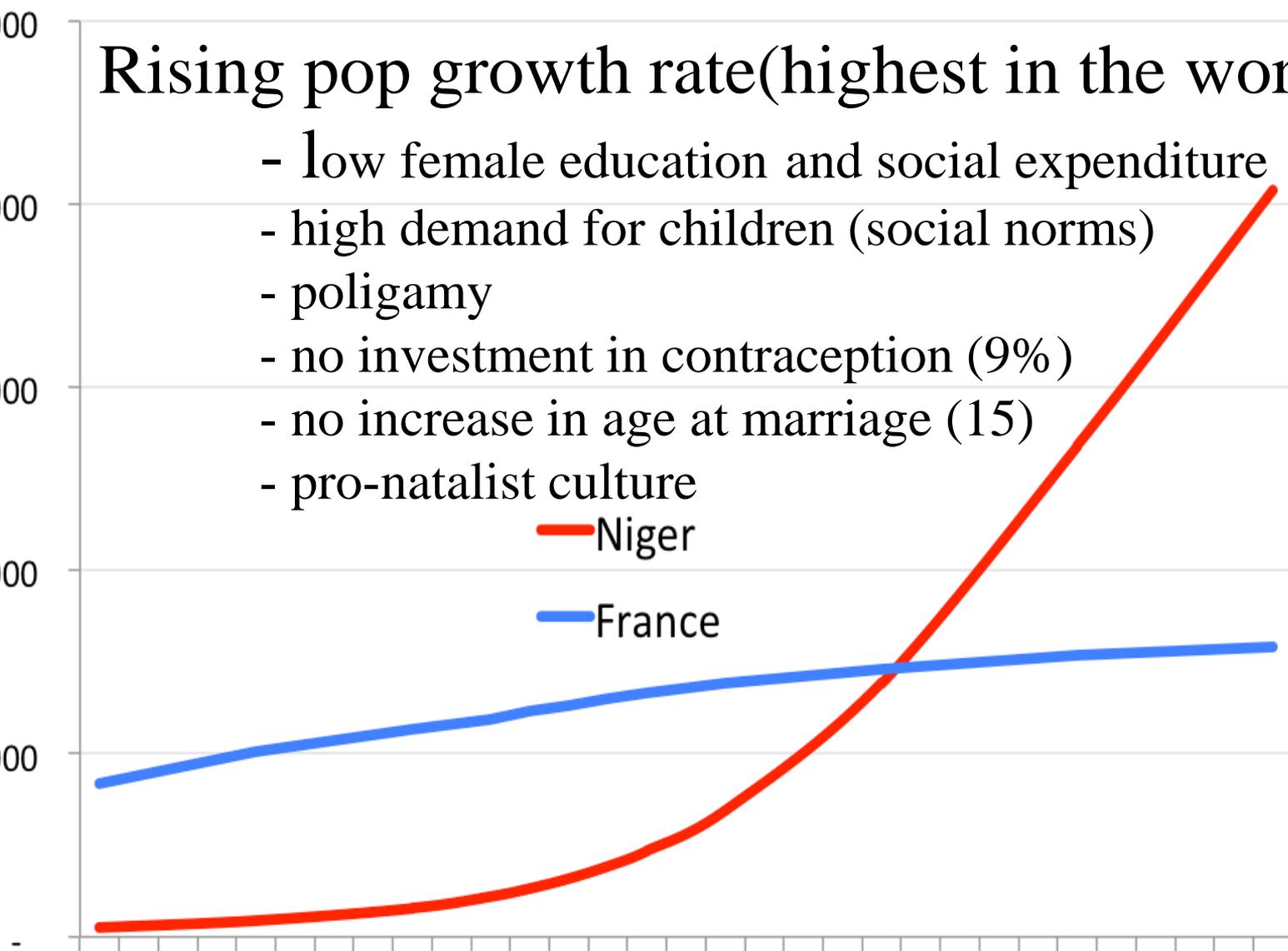
— Niger

— France

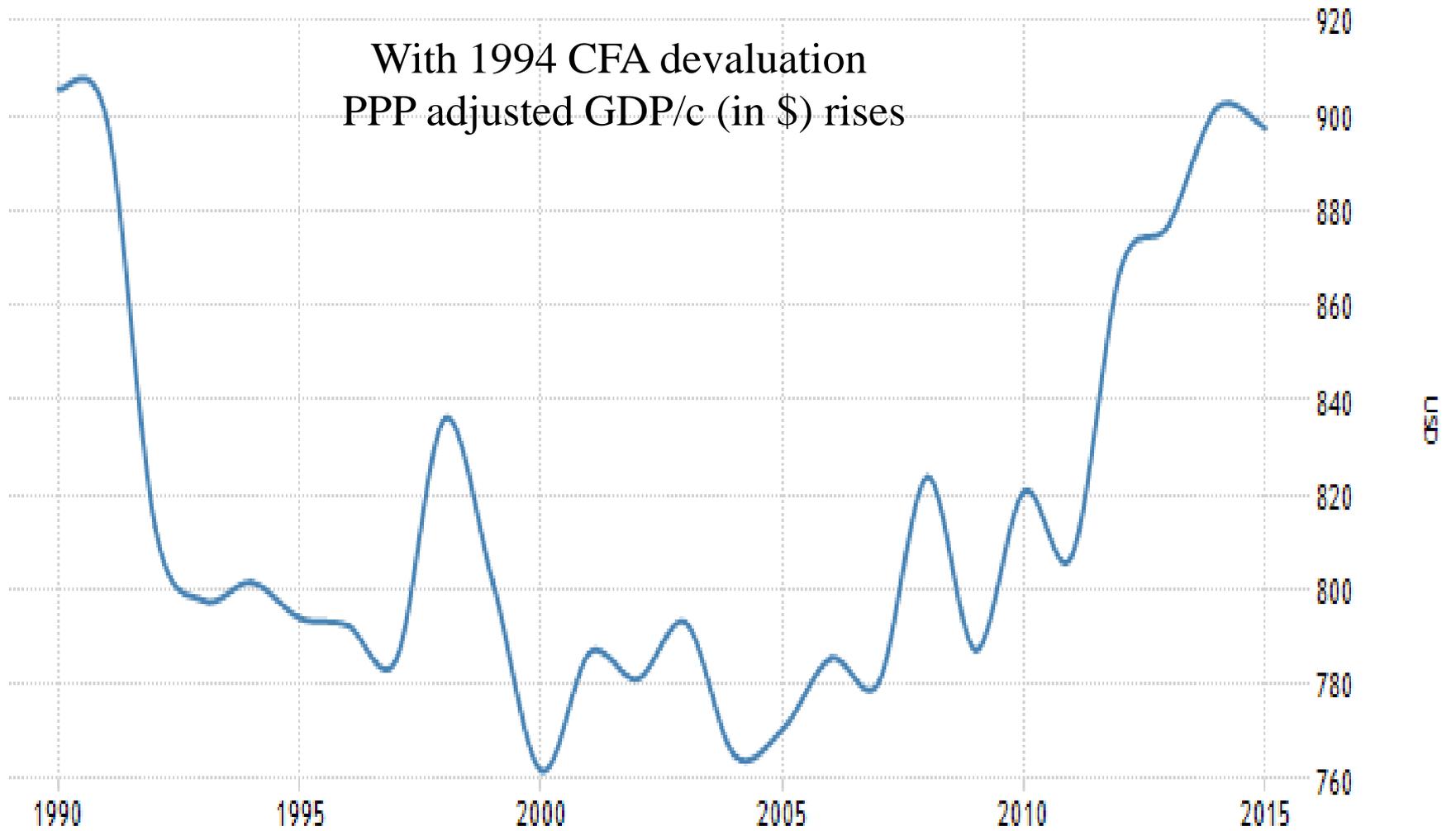
50,000,000

0

1950 1965 1980 1995 2010 2025 2040 2055 2070 2085 2100



NIGER GDP PER CAPITA PPP



5 successive development periods

(i) 1960-75: ‘slow growth driven by subsistence agriculture/livestock’ and exports (peanuts)

(ii) 1975-82: ‘growth driven by uranium exports’

(iii) 1983-93: Falling ToT, macro imbalances and WB’s ‘stabilization w/o structural change’

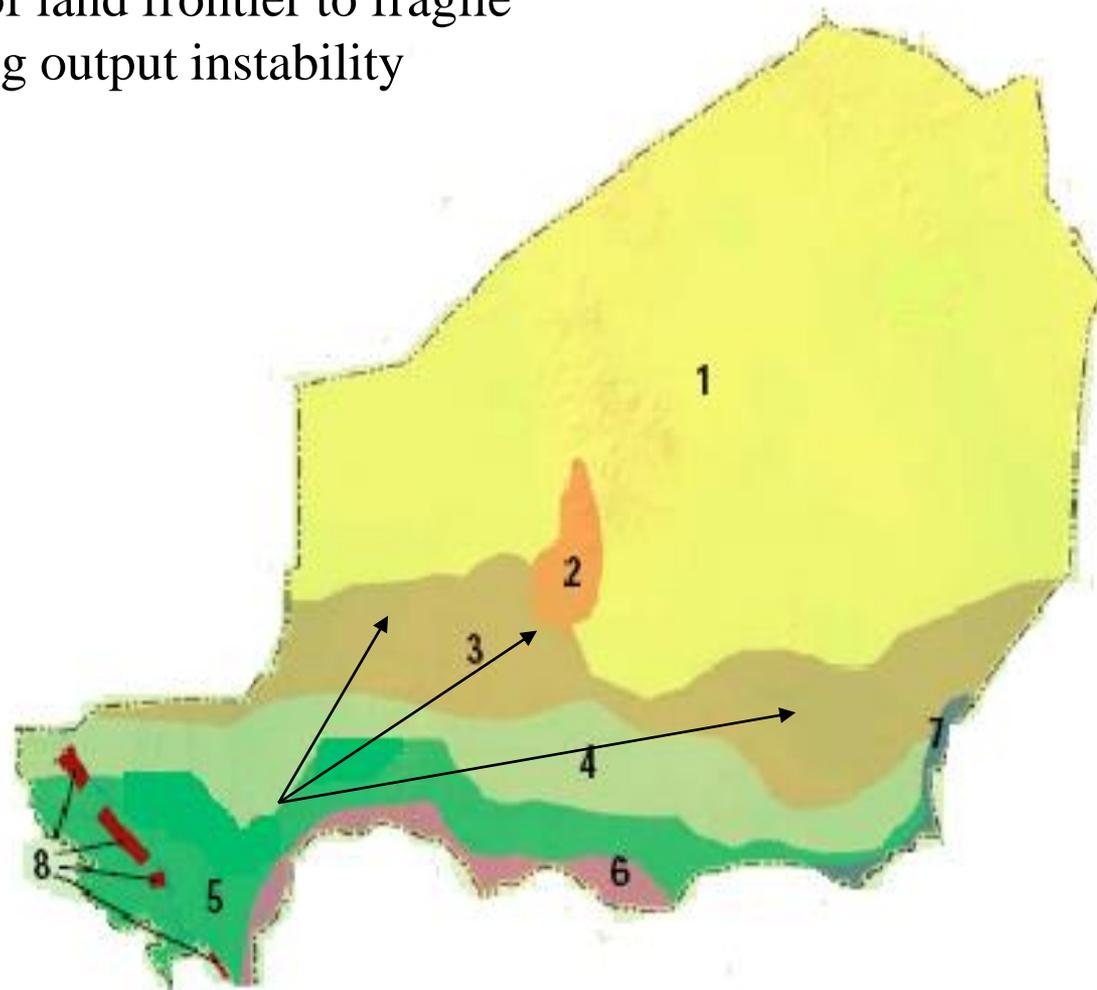
(iv) 1994-2005: CFA devaluation & export-lead growth of primary commodities

(v) Recovery due to yield gains & oil-uranium exp

Agricultural zones in Niger

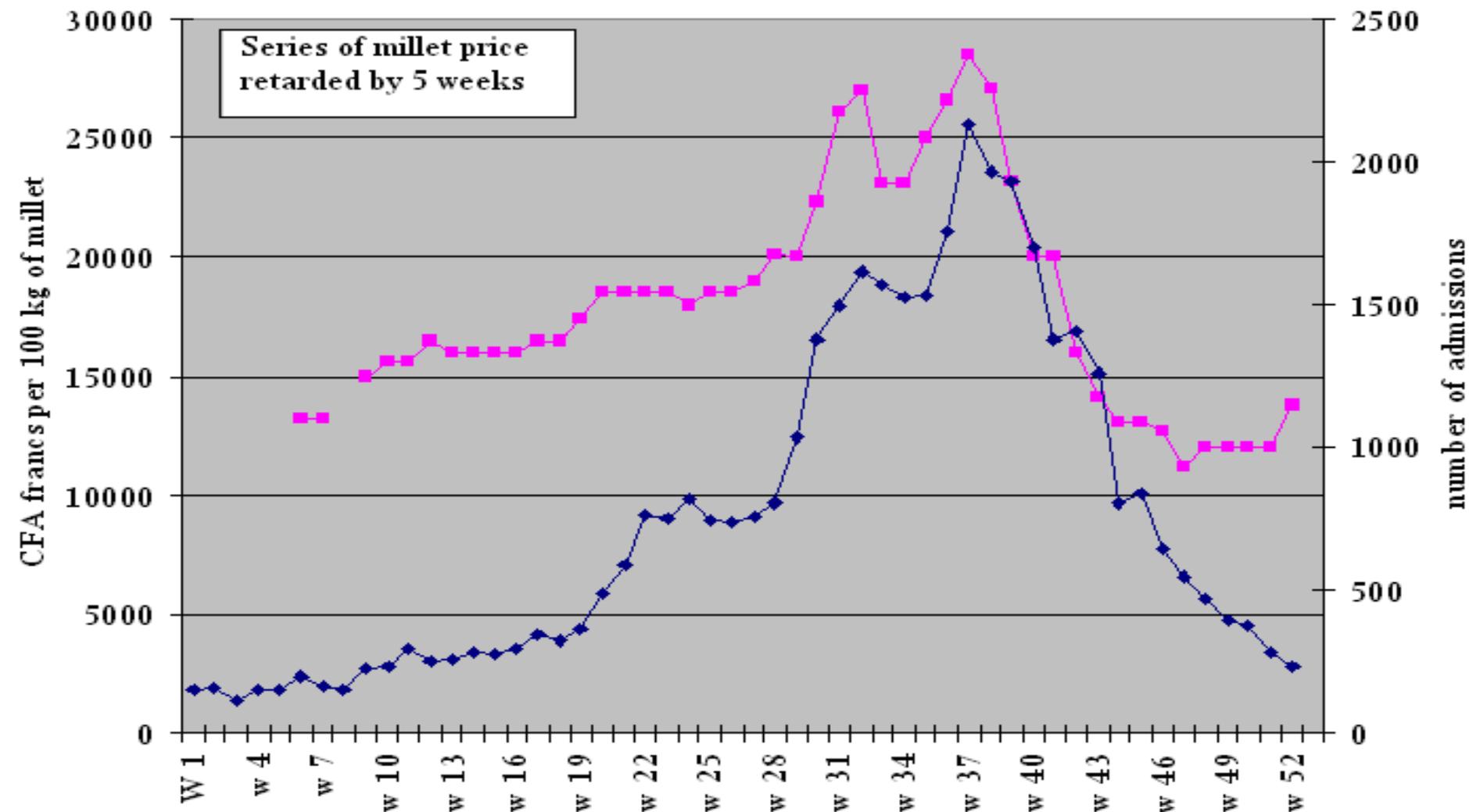
Expansion of land frontier to fragile lands – rising output instability

- 1 desert
- 2 Air Mountains cultivation
- 3 Pastoral
- 4 Agropastoral
- 5 Rain-fed agriculture
- 6 irrigated cash-cropping
- 7 Kamadougou - Lake Chad irrigated and flood retreat cultivation
- 8 Niger river irrigated rice



- (i) Subsistence agric driven growth 1960-78
- with no GreenRev, agric vulnerable to drought
 - 1968-74 drought reduced sharply growth & and killed (in the entire Sahel) 100.000 people
 - GDP/c rose 0.8 % year, a near-Malthusian trap.
 - Due to pop. growth, new fragile lands cultivated
 - But – despite minimal improvements – yields/ha did not rise while famines became more frequent
 - In 1960s, cereal imports only in bad years. By the 80s-90s became key for food security– but risks (covarian shocks, transp cost, price contagion)

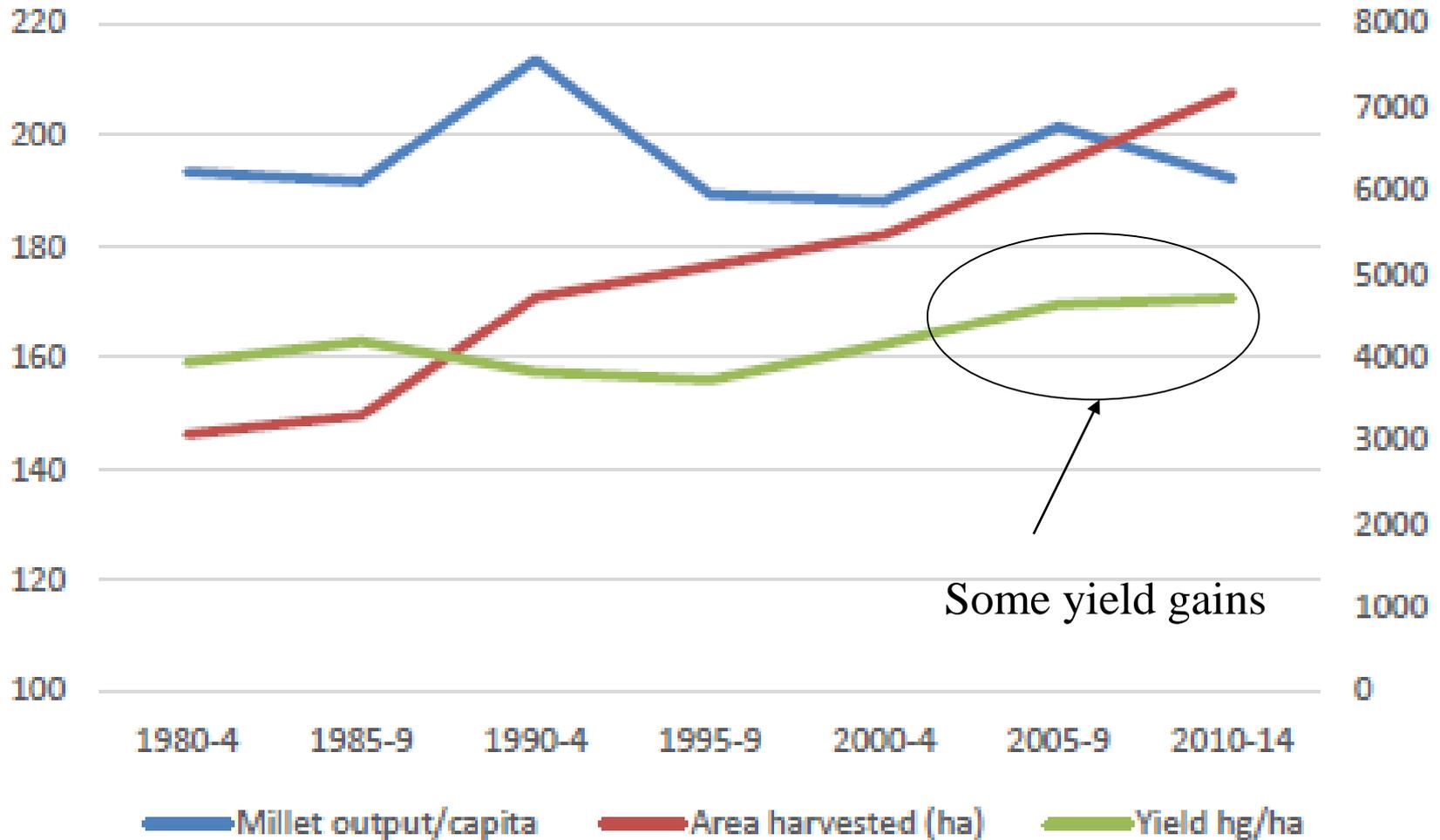
Impact of food crises on malnutrition: millet prices & child admissions to MSF feeding centers in Maradi during 2005 crisis



me (left) in (very arid) agro-pastoral area
(millet granaries in the background)



Harvested area rose 2.3 times & yields rose a bit, but millet output/c constant at low level as population rose three times



	Area harvested (ha)	Yield hg/ha	Production (tonnes)	Seed (tonnes)	Population (1000 persons)	Millet output/capita
1980-4	3071	3937	1210434	46355	6303	193
1985-9	3302	4182	1385941	53838	7244	192
1990-4	4716	3828	1802534	72610	8459	213
1995-9	5094	3728	1913953	76181	10075	189
2000-4	5467	4151	2276034	84234	12093	188
2005-9	6309	4635	2928499	98716	14553	201
2010-14	7168	4706	3375083	106303	17669	192

- (ii) 1978-92: Growth driven by uranium (U) boom
 - U prod. began in '71 but rose after '73-78 oil shocks
 - 1975-82 U boom: GDP rose 5.1, GDP/c 2.5% a year
 - mining doubled its contribution to GDP
 - budget revenue increased, spending on infrastructure accelerated
 - Govmt borrowed a lot against future U deliveries
 - Budget deficit shot up from 3.2 to 10.8% of GDP over 1978-81, pushing inflation to 25%

- (iii) 1983-1993 : dependency syndrome: fall of U price
- 1983-93. In 1983 U prices/demand collapsed, most difficult period in Niger's history. Real GDP -0.2 % GDP/c - 3.5%
 - ToT fell and RER appreciated → growing BoP & budget deficit + droughts, poor macro management
 - → WB-assisted SAP 'stabilization with no structural transformation'. With fixed CFA-ER & rising inflation, manufacturing firms shut down, FDI down
 - buildup of domestic & external payments arrears
 - BoP improved to (-2.5 %GDP) cutting imports of much-needed capital goods

(iv) The 1994-2003 CFA devaluation

- 1994-'03: 100% CFA franc devaluation in 1994 raised growth of GDP (3.8%) and GDP/c (0.4%).
- Helped by good rainfall and bumper crops the CFA devaluation spurred new agricultural exports
- Economy witnessed only limited diversification and relied increasingly on its primary sector (40% of GDP)
- Even this growth was below the level required for poverty reduction, esp. in view of rising pop growth (2.7 % over 1964-82, 3.3 % over 1983-'03).

(v) Moderate recovery 2005-15

- Some modest rise in millet yields/
- Discovery of oil and export since 2011
- Uranium prices recover, but collapsed in 2011-12
- Growth of GDP (6-7%) & GDP/c (2-3%)
- But structural problems unresolved:
 - Population growth accelerates to 4.02% over 2010-15
 - Large youth unemployment – emigration option?
 - food output remains unstable, crises every to 2-3 yrs
 - Very low physical & human capital accumulation
 - Weak institutions and business climate

In conclusion: what explains Niger poorer performance in relation to BGDS?

- Less favorable initial conditions
(distance, soil fertility, lower human capital)
- Policy choices:
 - Inability so far to trigger a Green Revolution
 - Socio-political unwillingness to deal with population problem, including limited promotion of emigration
 - Continued dependency on exp of uranium & now oil
 - Manufacturing contracted, no diversification
 - Low investment in physical & h.capital (social norms)
 - Continued aid dependence + dirigisme
 - Poor macro management

