INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

sustainable solutions for ending hunger and poverty

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Input Subsidy Programs in Asia

Insights from Asian Agriculture

INPUT SUBSIDY PROGRAM IN SUB-SAHARAN AFRICA

12 MAY 2014

FOOD AGRICULTURAL ORGANIZATION (FAO)

ROME, ITALY

1.1 Input subsidy: concepts (1)

Q: Why input subsidy?

A: To address *market failures*

Q: Why is addressing market failure important?

A: Because in the presence of market failures, additional output from the marginal unit of input is lower than the potential

Q: How do I know input subsidy addresses market failure?

A: Subsidy addresses market failure when:

The value of additional crops due to input subsidy is greater than IMPORT COSTS

1.1 Input subsidy: concept (2)

Potential marginal product of maize due to fertilizer use

Actual marginal product of maize due to fertilizer use

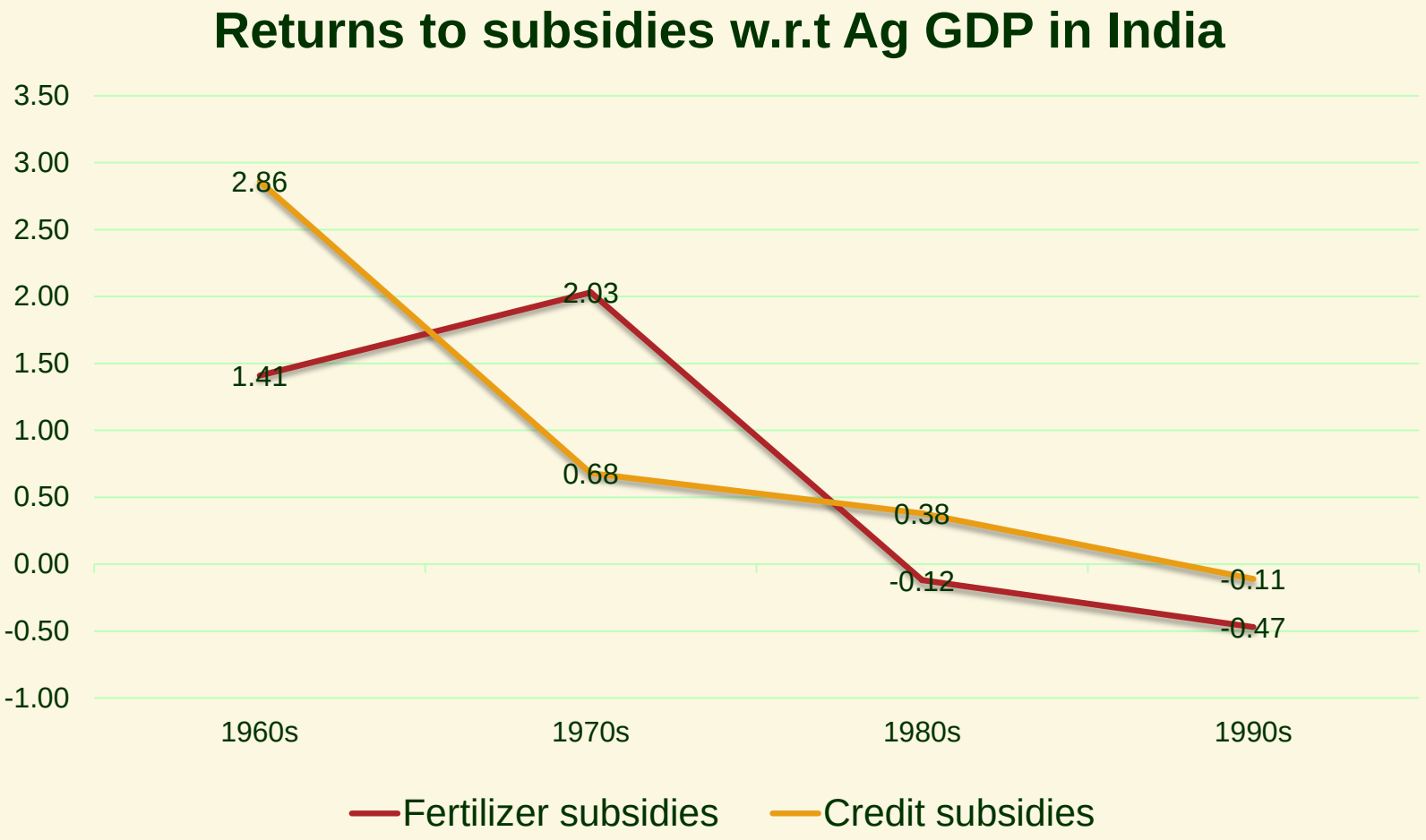
$$\left(\frac{\partial M}{\partial F}\right)^{P} = \left(\frac{\partial M}{\partial F} + \sum_{i=1}^{n} \varphi_i\right)$$

Premium for market failures

Two questions:

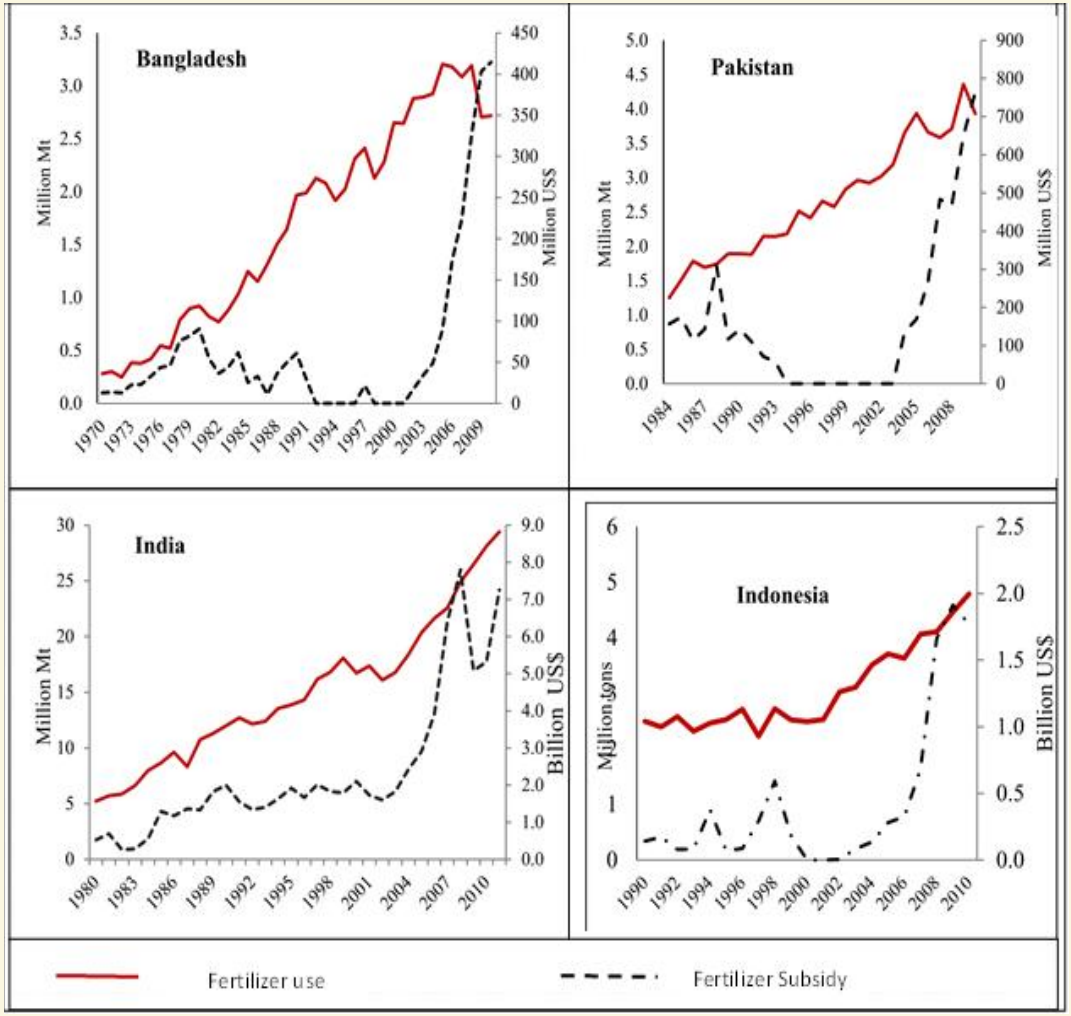
1. What policy or combination of policies get us to the potential level of marginal product?
2. How to generate evidence on policy action?

2.1 Historical evidence: returns to subsidy



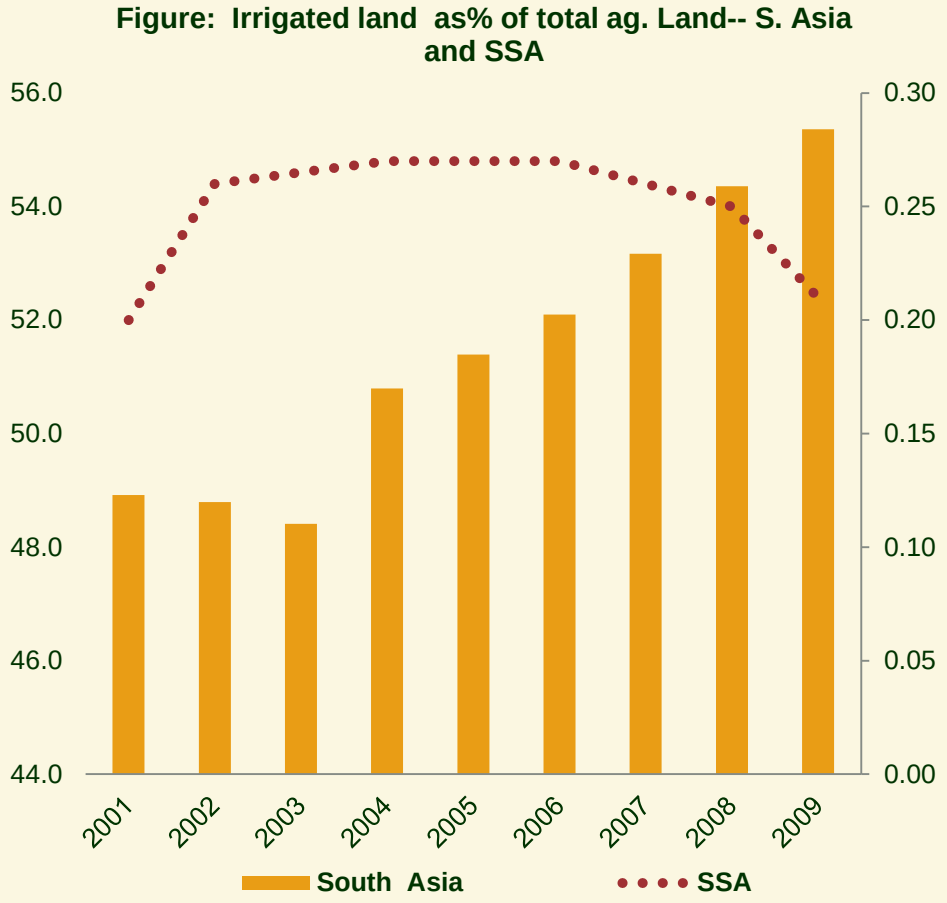
2.2 Historical evidence: political economy (1)

1. Fertilizer subsidy accelerated in all countries
2. Fertilizer consumption didn’t decline when subsidies were eliminated
3. Political economy is the strongest consideration



3.1 Differences in natural endowment (1)

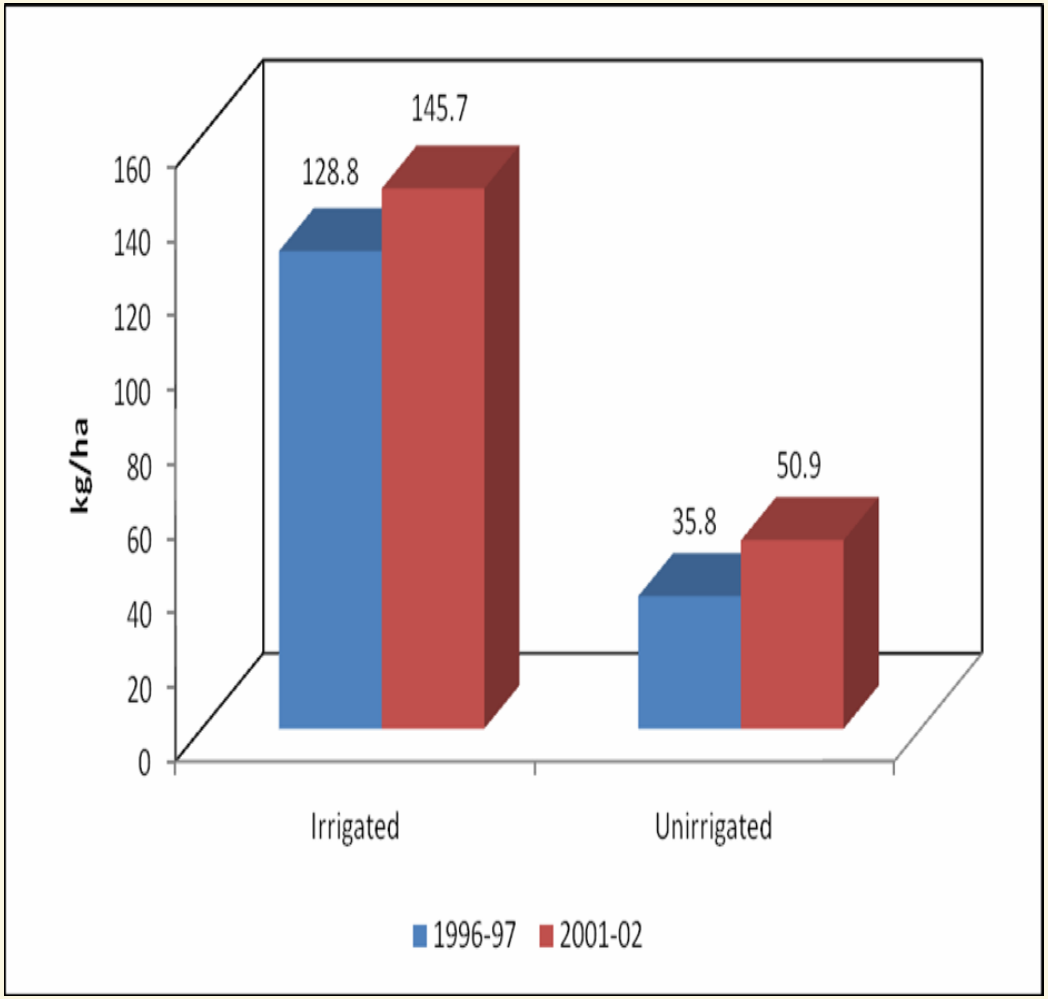
A. Irrigation potentials
- Irrigation potentials in Asia has been much higher
- In 2009, 56% of agricultural lands were irrigated.
- This compares with only 0.28% in SSA
- Cropping intensity is also lower in SSA-- generally one main crops



3.2 Differences in natural endowment (2)

Irrigation potentials makes a big difference

- Fertilizer use in Irrigation land is much higher than in non-irrigated land
- Use of fertilizer is non-irrigated land is only 1/3rd of irrigated land—this is similar to many SSA countries including Ethiopia and Kenya



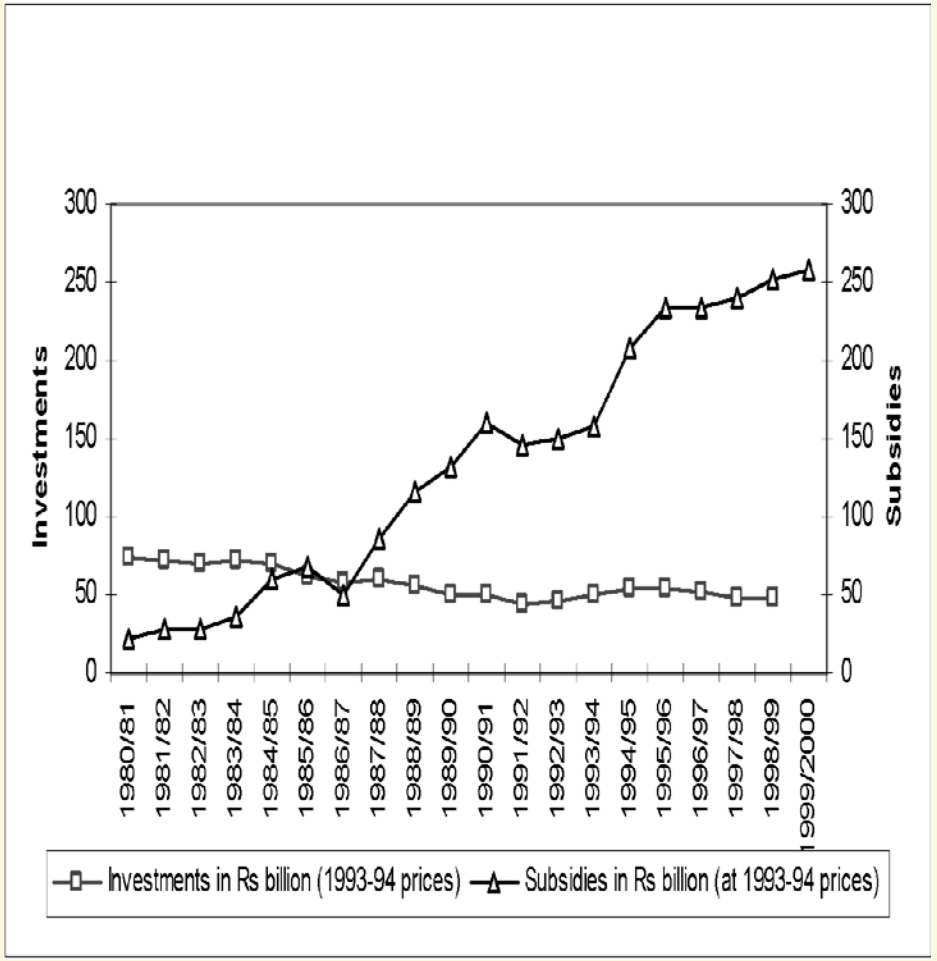
4.1 Differences in policies

Public spending by sectors in Bangladesh

Economic sector	1987-89	1990-92	1993-95	1996-98	1999-01	2002-04	2005-08
Agriculture Rural Dev. Water	11.7	11.1	10.8	11.5	11.5	11.4	14.2
Power development	7.4	5.7	6.8	5.3	5.2	6.1	3.7
Gas, Oil and Natural Resources	2.3	2.8	1.6	2.0	1.4	1.7	0.3
Transportation	4.2	5.9	9.1	8.7	8.6	7.8	4.4
Communication	1.8	2.2	3.4	2.1	3.1	4.2	3.3
Industries	3.9	0.9	0.9	0.6	1.1	1.0	0.7
Education and Religion	11.2	12.6	15.8	15.7	15.4	14.4	15.4
Social Welfare, W.A. and Y.D.	5.9	4.9	4.2	1.6	1.0	1.5	2.4
Physical Planning & Housing	1.6	1.9	2.1	3.2	3.7	3.4	3.0
Health & Family Welfare	5.9	6.5	7.0	6.7	6.3	6.1	6.7
OTHERS	44.2	45.5	38.4	42.7	42.5	42.4	46.0
Total Public expenditure	100.0	100.0	100.0	100.0	100.0	100.0	100.0

4.2 Differences in policies

- In Asia, policy focus was not only fertilizer and seed
  - In fact, in the early years of green revolution in India, investments in road, R&D, irrigation were higher than total ag subsidies
  - Similar trends for other countries.



4.3 Differences in policies

- Input subsidy programs in Asia did not involve price rationing:
  - Prices are determined at the factory gate (or the port if imported)
  - Anyone with a license can market any amount that's profitable to the dealers / traders
  - Crowding out in domestic market is not a serious issue, although they had their shares of problems

4.4 Differences in policies

- Incidence of subsidy varies depending of land distribution
  - When land distribution is more uniform, benefits of targeting may be small (considering diversion, leakage and admin costs)

Countries	% Share of HH	% Share of crop land	% share of fertilizer use
Bangladesh			
Less than 1 ha	91	54	60
1-2 Ha	6	25	26
Greater than 2 ha	3	21	14
India			
Less than 1 ha	64	23	29
1-2 Ha	19	21	24
Greater than 2 ha	17	56	47
Indonesia			
Less than 1 ha	77	47	51
1-2 Ha	14	30	30
Greater than 2 ha	9	23	19
Pakistan			
Less than 1 ha	53	11	19
1-2 Ha	18	17	17
Greater than 2 ha	29	72	64

Summary

Insight #1: Input subsidy did pay off in the early years of green revolution, but it was not subsidy alone.

Insight #2: Returns to fertilizer / credit subsidy declined sharply and turned negative 1980s onward.

Insight #3: Asia did not achieve productivity growth by focusing only on see and fertilizer. Complementary public investment were crucial

Insight #4: Fertilizer use in Asia and SSA are not comparable due to vast differences in irrigation potentials. Rate of fertilizer use in non-irrigated lands are not much different.

Summary (2)

Insights #5: Rationing subsidies can be challenging. While Asian system had its share of problems, but not rationing in the domestic markets, they avoided crowding out, rent seeking, leakage, and other moral hazards

Insight #6: If the land distribution is not highly skewed, the benefits of subsidy are not very unequally distributed.