

Green Revolution in India and Its Significance in Economic Development: Implications for sub-Saharan Africa

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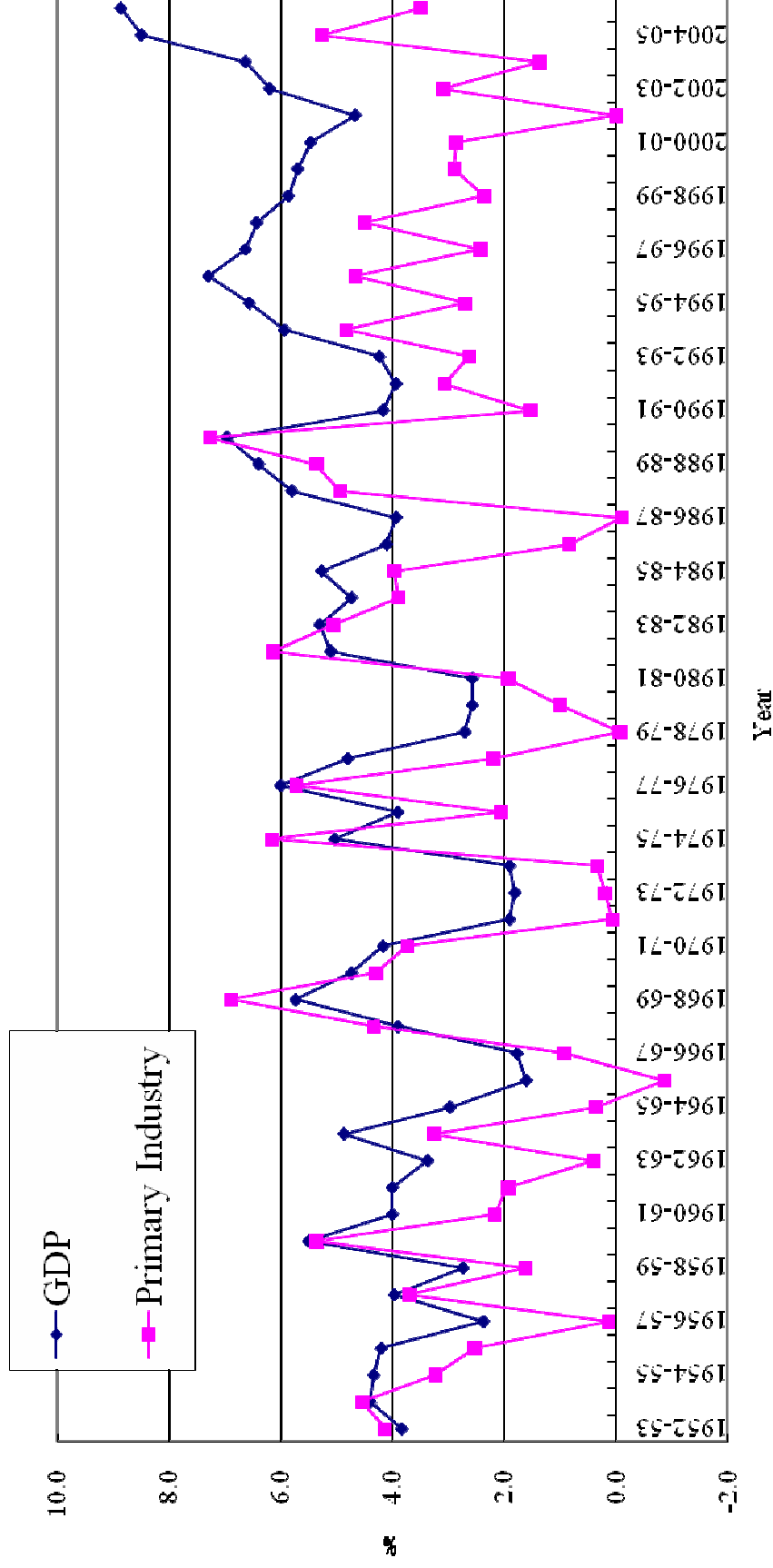
Kyoto University, Japan



Objectives of the paper

- To analyze the historical role of the Green Revolution in South Asia (especially in India) in its overall economic development process
- To show the logic why Green Revolution is essential before starting sustainable economic development with industrialization
- To consider the possibilities of Green Revolution in the context of contemporary sub-Saharan Africa

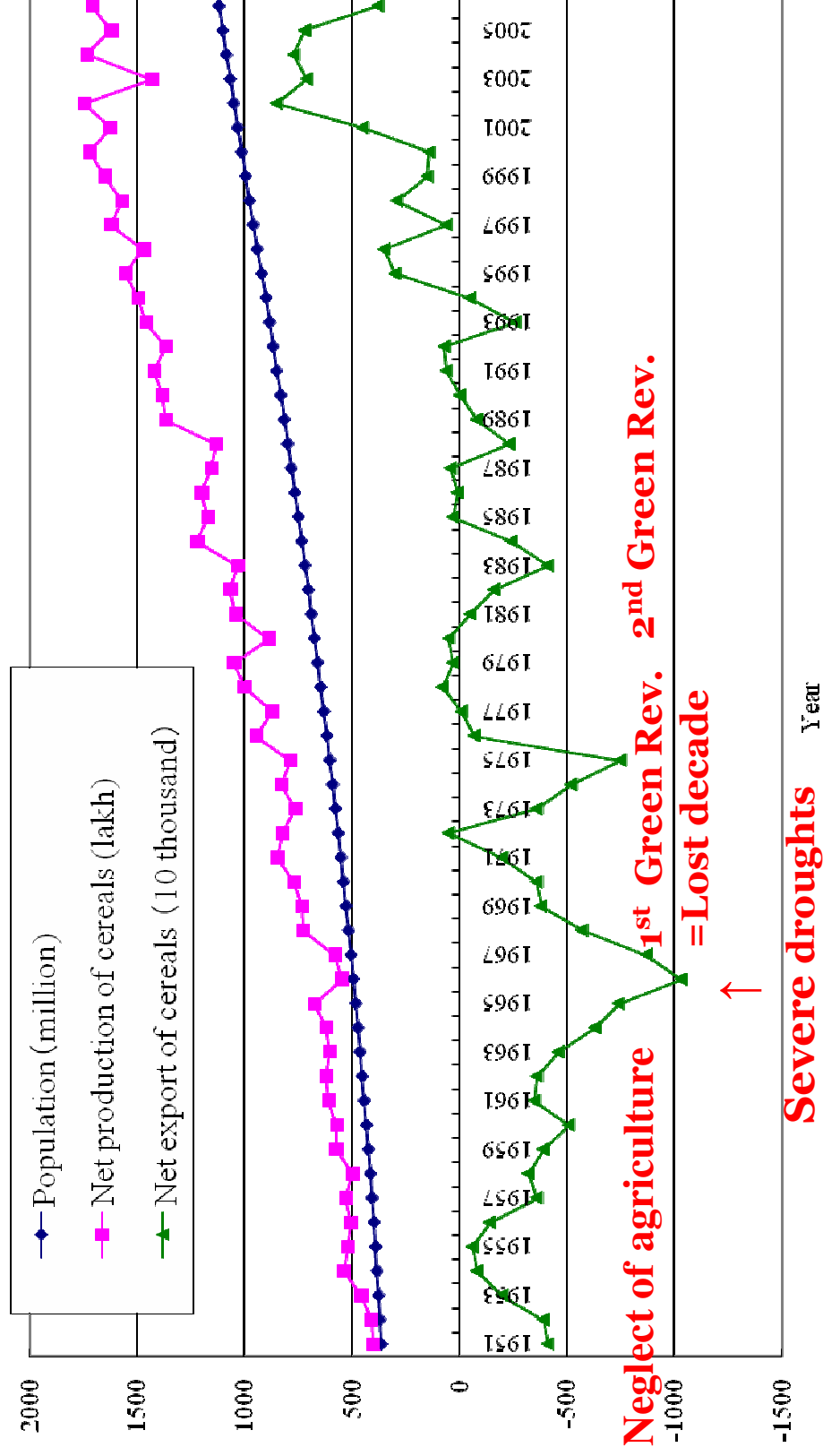
Accelerated economic growth in India after the 1990s



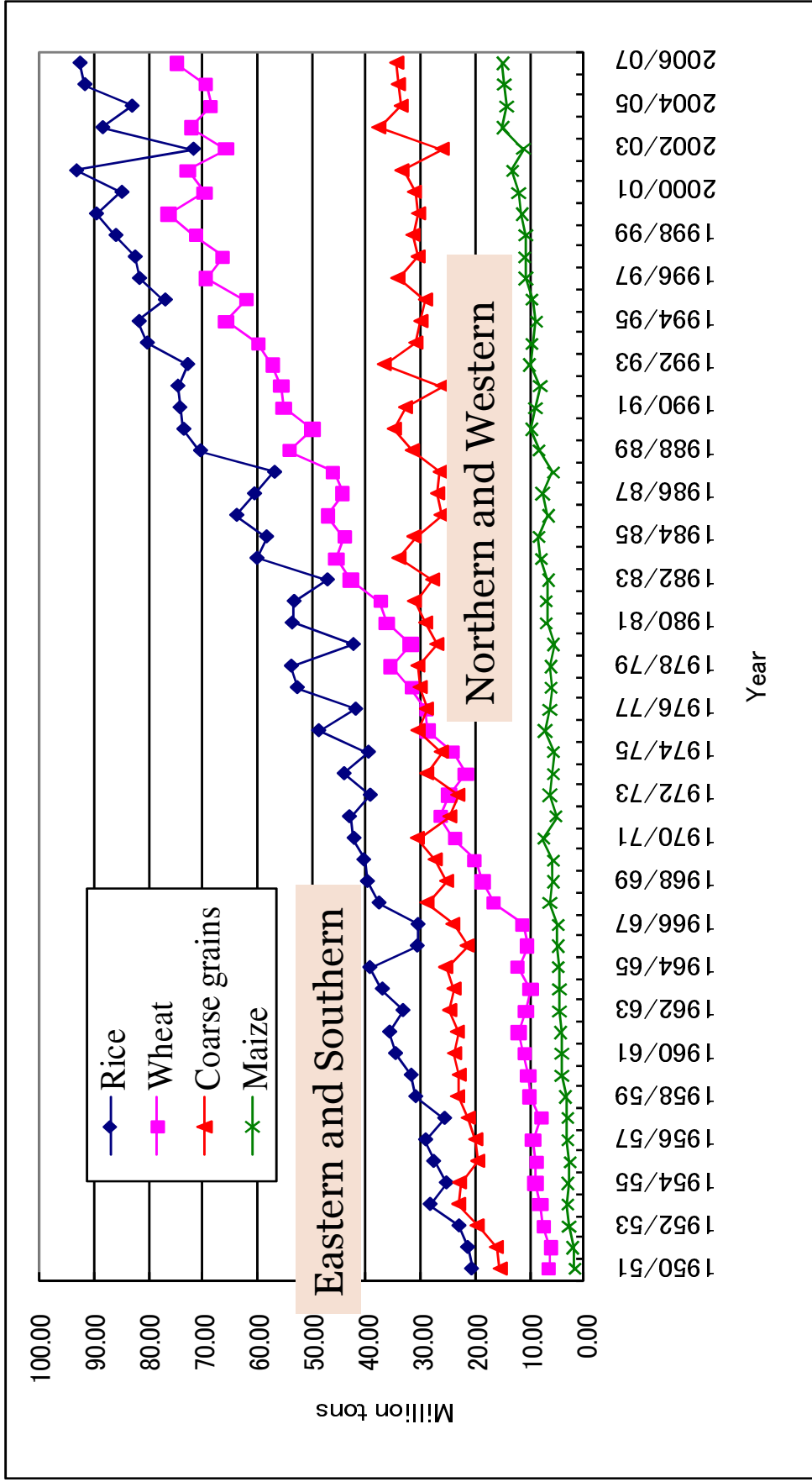
Impact of liberalization policies?

→ **Role of the agricultural development in the 1980s**

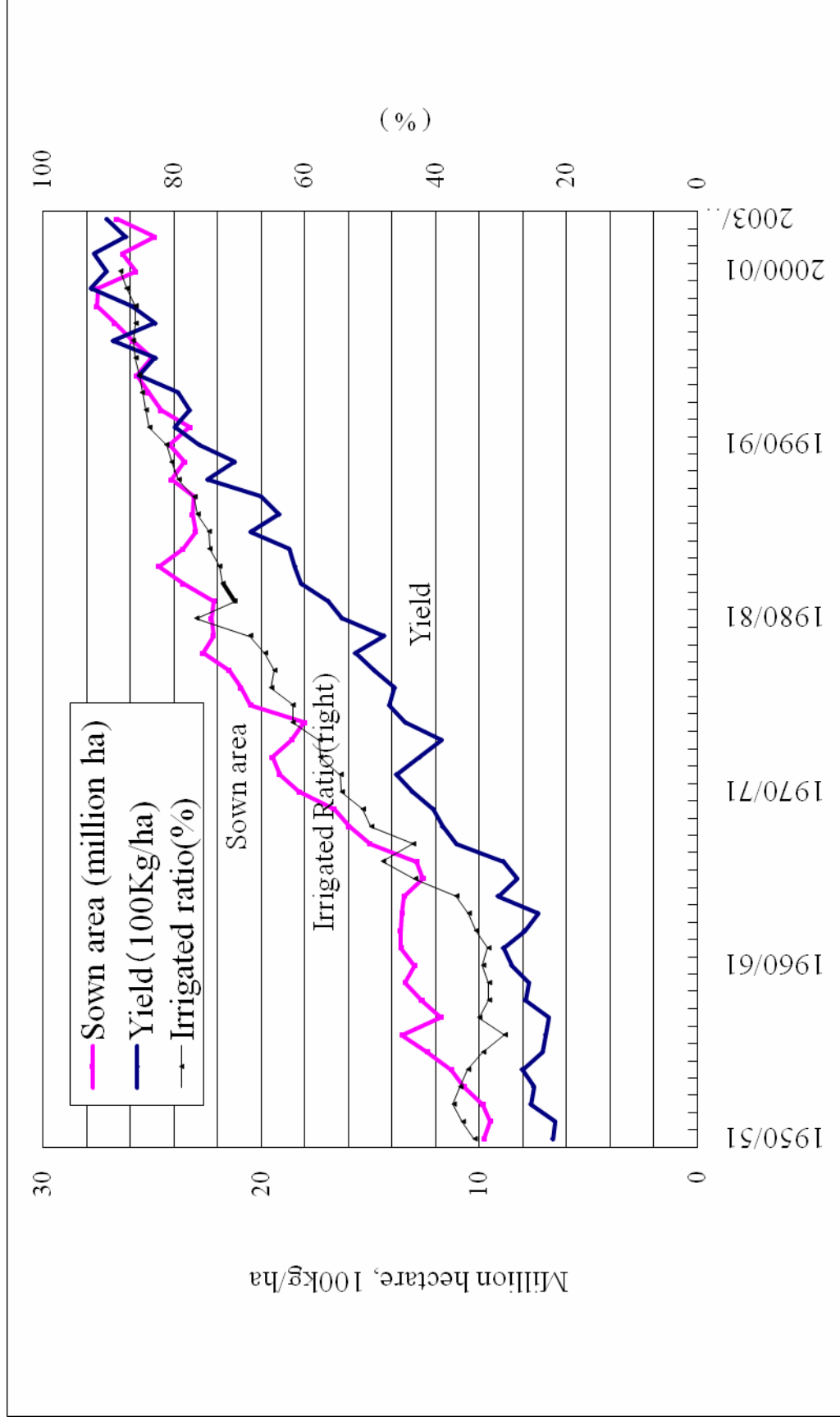
Food production, net export, and population in India



Wheat as a minor crop to a dominant crop



Wheat Revolution in India



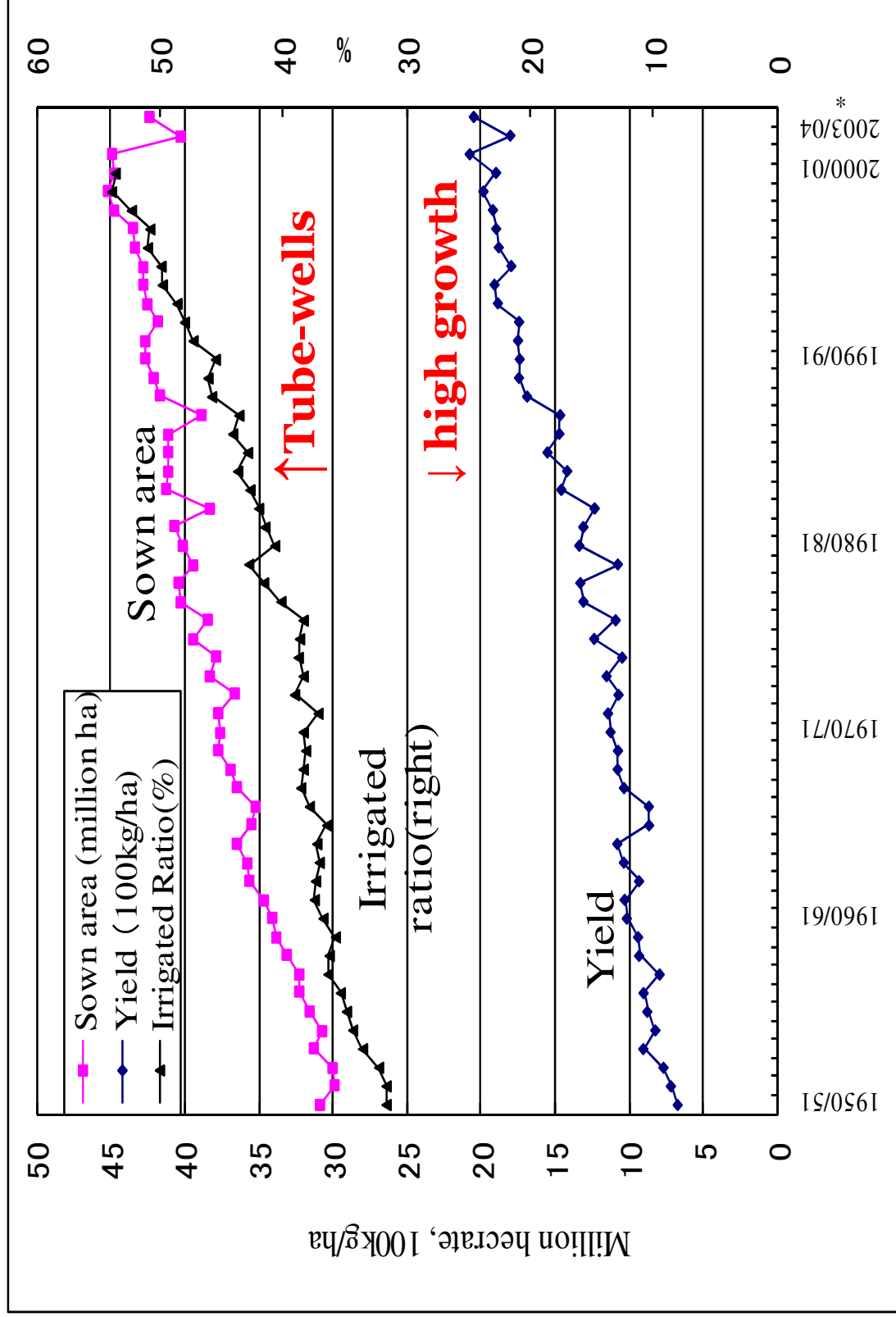
Nationwide agricultural development in the 1980s

| | 1950~60 | 1960~70 | 1970~80 | 1980~90 | 1990~96 |
|------------------|---------|---------|---------|---------|---------|
| Rice | 4.53 | 2.12 | 1.73 | 4.08 | 1.60 |
| Wheat | 5.79 | 7.73 | 4.15 | 4.29 | 3.64 |
| Coarse grains | 3.76 | 1.67 | 0.55 | 0.71 | -0.99 |
| Maize | 7.84 | 3.90 | 0.64 | 3.20 | 1.30 |
| Total | 4.45 | 3.10 | 2.07 | 3.38 | 1.81 |
| Pulses | 3.80 | -0.47 | -1.18 | 2.45 | -0.07 |
| Total Foodgrains | 4.35 | 2.63 | 1.76 | 3.31 | 1.66 |
| Oilseeds | 3.05 | 2.41 | 1.34 | 6.01 | 4.16 |
| Sugarcane | 5.62 | 2.54 | 2.27 | 4.38 | 3.72 |
| Cotton | 4.54 | 2.03 | 2.69 | 3.23 | 4.51 |
| Jute/Mesta | 5.60 | 0.32 | 2.13 | 1.28 | 2.18 |

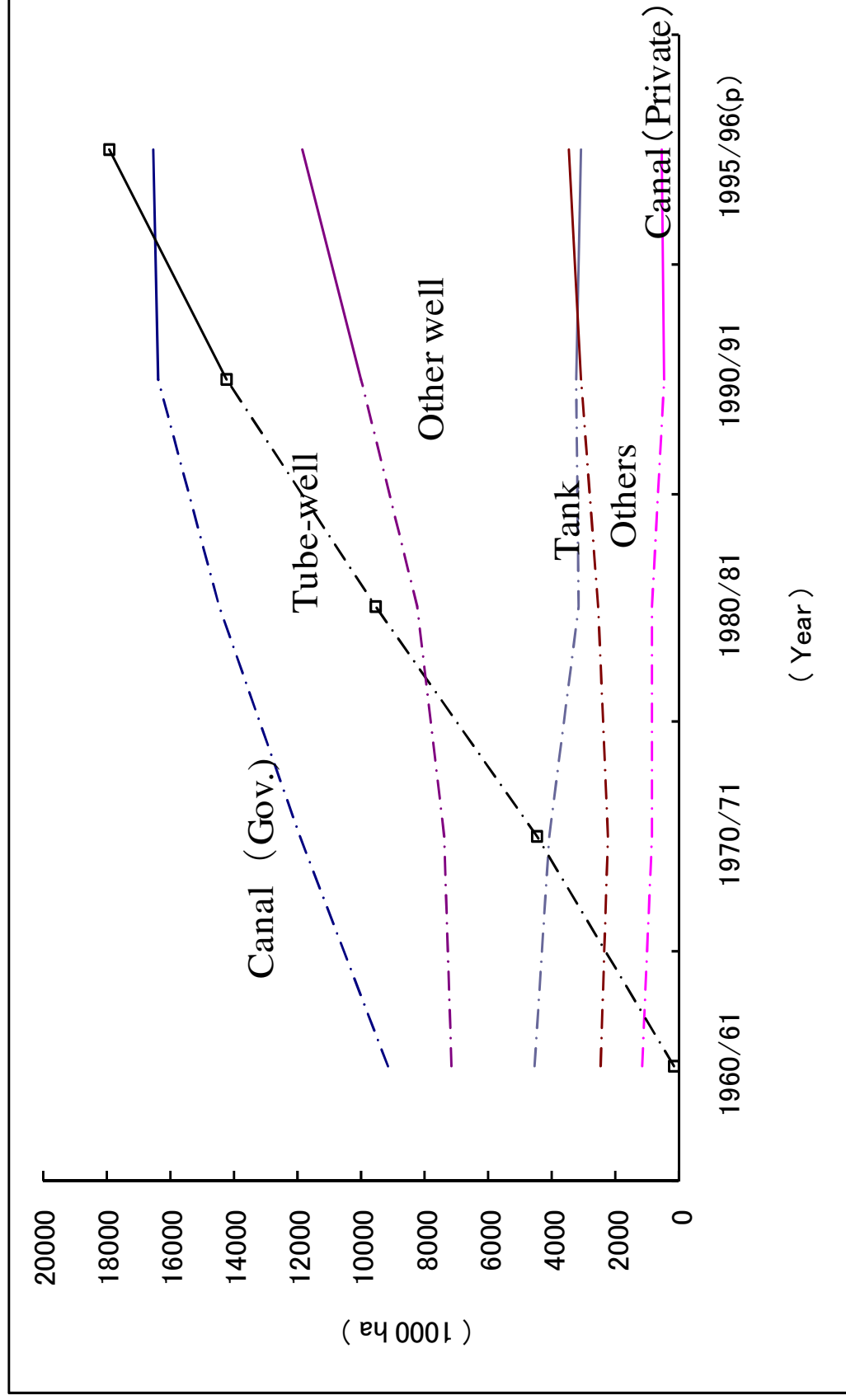
Note. The data are three year moving averages.

Rice Revolution in eastern and southern India and oilseeds and cotton revolutions in hitherto coarse grain producing areas.

Rice Revolution in the 1980s

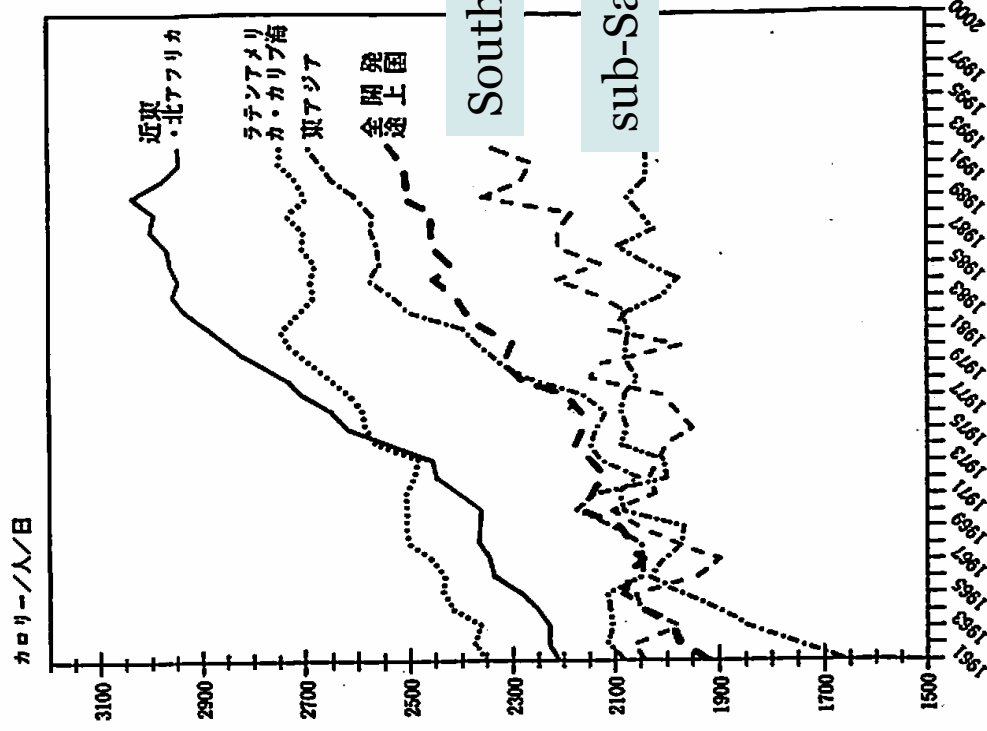


Minor irrigation development in India



Great **divergence** between South Asia and sub-Saharan Africa in the 1980s

Per capita calorie intake in developing countries



Rising real wages
Reduction of rural poverty

South Asia poverty

sub-Saharan Africa



Essence of Indian (and Bangladesh) experience

- In the 1980s rice Revolution in eastern (including Bangladesh) and southern India and yellow Revolution (oilseeds) in central India was taken place, which raised rural income and alleviate poverty to a certain extent.
- The engine of rice Revolution was the introduction of tube-well irrigation in hitherto rain-fed rice growing areas.
- Tube-well irrigation induced a widespread emergence and development of ‘groundwater market’, which was basically an efficient rural institution.



Logic of Green Revolution's role in economic development

- Nationwide agricultural growth with productivity growth
- ↓
- Uplifting income of majority of population (rural population) 'to a certain level'
- ↓
- Thus creating a large 'market' for non-agricultural products and services
- ↓
- Development of non-agricultural sector in a sustainable manner



Implications for sub-Saharan Africa I

- The key is how to raise income of majority of population to a certain extent
- Is a Green Revolution possible in sub-Saharan Africa?
- Disadvantages:
 - 1) Diversity of staple food (wheat and rice is relatively minor crop for farmers)
 - 2) Almost totally rain-fed
 - 3) Difference in food preference between rural and urban areas
 - 4) Labor scarcity (still) in rural areas
 - 5) Small market size for industrialization (small poor countries)



Implications for sub-Saharan Africa II

- The most prospective is a rice Green Revolution
- Possibility of NERICA (New Rice for Africa)
- May not be a widespread Green Revolution in rural Africa, but at least contribute to a substantial decrease of rice imports
- Importance of investment for agriculture in addition to investment in agriculture



**Thank you
for your attention !**