Transforming Indian Agriculture under Modi 2.0

Ashok Gulati
Infosys Chair Professor for Agriculture
Indian Council for Research on International Economic Relations (ICRIER)

Stanford King Centre on Global Development,
Stanford University
June 3–4, 2019
Outline

- Promises and Performance under Modi 1.0 and Aspirations under Modi 2.0
- Changing Goal Post midstream: Doubling Farmers Incomes by 2022–23
- Emerging Challenges and the Reform Agenda for Modi 2.0
Promises and Performance under Modi 1.0

- Remunerative prices for farmers by implementing Swaminathan Recommendation (MSP to be equal to Cost C2 plus 50 percent margin)

- Reform Public Distribution System (PDS) for food: Unbundle Food Corporation of India
FCI reforms...first high powered committee of Modi 1.0

- **Key Recommendations of Shanta Kumar Panel**
  - Gradually cash transfers for food and fertilizer subsidy
  - Restricting food subsidy to 40 percent bottom population (instead of 67 percent under NFSA, 2013)
  - Keep only strategic stocks of 15–20 MMT;

- **Progress**: Except POS machines in PDS, food system remains as messy as ever

- (Food subsidy 1.84 lakh crore, pending bills of FCI even higher; stocks bulging, high inefficiency)
Skirted to 50 percent margin over Cost A2+FL...announced in the last year of Modi 1.0

Cost A2+FL is about 38 percent lower than Cost C2

Actual market prices remained 10–30 percent below announced MSPs...leading to shrinking margins
Performance: Growth trends—Overall and Agri-GDP (Rao, Vajpayee, Manmohan, Modi)

Growth Rate (%)

- Agriculture Growth
- Overall GDP Growth
- Ratio of Agri-Growth to Overall GDP Growth

**1991-92 to 1995-96**
- Agriculture Growth: 2.4%
- Overall GDP Growth: 5.2%
- Ratio of Agri-Growth to Overall GDP Growth: 46.1%

**1998-99 to 2003-04**
- Agriculture Growth: 2.9%
- Overall GDP Growth: 6.0%
- Ratio of Agri-Growth to Overall GDP Growth: 48.4%

**2004-05 to 2008-09**
- Agriculture Growth: 3.1%
- Overall GDP Growth: 8.4%
- Ratio of Agri-Growth to Overall GDP Growth: 36.4%

**2009-10 to 2013-14**
- Agriculture Growth: 4.3%
- Overall GDP Growth: 7.2%
- Ratio of Agri-Growth to Overall GDP Growth: 59.6%

**2014-15 to 2018-19**
- Agriculture Growth: 2.9%
- Overall GDP Growth: 7.6%
- Ratio of Agri-Growth to Overall GDP Growth: 38.4%
Agri-trade surplus declined sharply under Modi 1.0, though India still remains a net exporter.
Sagging Gross Capital Formation in Agriculture as percentage of agri-GDP
Sources of farmers’ incomes

- **Cultivation**
  - 2002-03: 46%
  - 2012-13: 48%
  - 2015-16: 35%

- **Livestock**
  - 2002-03: 4%
  - 2012-13: 12%
  - 2015-16: 8%

- **Wages and Salaries**
  - 2002-03: 11%
  - 2012-13: 32%
  - 2015-16: 50%

- **Non-farm**
  - 2002-03: 8%
  - 2012-13: 8%
  - 2015-16: 43%
Likely future: 10–15 years

- India likely to surpass China’s population of 1.44 billion by 2024;

- Overall GDP growth hovering around 7 percent;

- Increasing urbanisation: 600 million by 2030

- Demand pressures for more and better food, feed, fiber with limited land and depleting water tables

- agri–GDP will have to/can grow at 4–5 percent provided we undertake some fundamental reforms
Number of agri-holdings more than doubled, from around 71 million in 1970–71 to 145.7 million in 2015–16.

Average holding size fallen from 2.3 hectares in 1970–71 to 1.1 in 2015–16.

In 2015–16, 86% of holdings were small and marginal (<2 ha) operating 47 percent area.
Challenge of Climate change & Fast depleting groundwater (2013)

Source: CGWB, 2017
Basic challenge on Policy Front:
Dual (but conflicting) objectives of agri-food policies

Remunerative prices for farmers

Access to food to consumers at affordable prices

Regulation of Domestic Markets & MSP pricing (ECA, APMC, MSP etc.)

Budgetary payments (Input subsidies)

General Support Services

Food Subsidies

Net Effect: India taxes its farmers and subsidies its consumers (OECD/ICRIER, 2018)

Source: Gulati (2019)
India “implicitly taxes” its agriculture...large input subsidies do not fully offset the effect of price-depressing policies (on average, taxation amounted to 14 percent of gross farm receipts, 2000–01 to 2016–17)

MPS and budgetary support, billion USD

OECD/ICRIER Study, 2018
How does India compare with OECD and other emerging economies?

**Producer Support Estimate (PSE):**
India taxes its farmers

**Consumer Support Estimate (CSE):**
India heavily subsidises its consumers

Policies that depressed farm prices together with food subsidies reduced consumption expenditure by 25% on average across all commodities.

OECD/ICRIER Study, 2018
PSEs of India, China and OECD

(India implicitly taxes its agri thru restrictive trade and marketing policies)

OECD/ICRIER Study, 2018
Plundering of Indian farmers... about USD 700 billion during 2000-01 to 2016-17

What the farmer is owed

Implicitly taxed through restrictive marketing and trade policies, farmers need a stable income policy

ASHOK GULATI

The National MFA government is not tinkering with its wonted "Law 10" exactions, as the entire sur研究表明，主要的“Law 10”征税活动将继续进行。这些“Law 10”征税活动包括土地、水、化肥、农药和水泥等的征税。这些征税活动已经对农民造成了沉重的负担。

One of the key findings of a major ICRIER-CORC study on agricultural policies in India (2018), which led to the creation of the "Law 10" regime, is that the tax burden on farmers has increased from 16 per cent of farm income in 2000-01 to 30 per cent in 2016-17.

The McKinsey Global Institute estimates the value of agricultural output in India at $700 billion per year, which is about 10% of the country’s GDP. If we assume that about 40% of this output is consumed by farmers, this works out to about $280 billion in farmer’s own consumption. This is equivalent to about 15% of the annual GDP of India. If we assume that about 50% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $140 billion in farmer’s own consumption. This is equivalent to about 8% of the annual GDP of India. If we assume that about 60% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $70 billion in farmer’s own consumption. This is equivalent to about 4% of the annual GDP of India. If we assume that about 70% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $35 billion in farmer’s own consumption. This is equivalent to about 2% of the annual GDP of India. If we assume that about 80% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $17.5 billion in farmer’s own consumption. This is equivalent to about 1% of the annual GDP of India.

The McKinsey Global Institute estimates the value of agricultural output in India at $700 billion per year, which is about 10% of the country’s GDP. If we assume that about 40% of this output is consumed by farmers, this works out to about $280 billion in farmer’s own consumption. This is equivalent to about 15% of the annual GDP of India. If we assume that about 50% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $140 billion in farmer’s own consumption. This is equivalent to about 8% of the annual GDP of India. If we assume that about 60% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $70 billion in farmer’s own consumption. This is equivalent to about 4% of the annual GDP of India. If we assume that about 70% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $35 billion in farmer’s own consumption. This is equivalent to about 2% of the annual GDP of India. If we assume that about 80% of this output is consumed by farmers but is not reflected in the farmers’ income, this works out to about $17.5 billion in farmer’s own consumption. This is equivalent to about 1% of the annual GDP of India.
## Attempts to change...Output pricing

**Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM–AASHA)**

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price Support Scheme (PSS)</strong></td>
<td>• To ensure physical procurement of agri-commodities</td>
</tr>
<tr>
<td><strong>Price Deficiency Payment Scheme (PDPS)</strong></td>
<td>• To compensate for the difference between MSP and selling/modal price</td>
</tr>
<tr>
<td></td>
<td>• Case Study: Bhavantar Bhugtan Yojana (BBY) – Government of Madhya Pradesh</td>
</tr>
<tr>
<td><strong>Pilot of Private Procurement and Stockist Scheme (PPPS)</strong></td>
<td>• To allow private agencies to procure commodities at MSP whenever market prices fall below notified MSP</td>
</tr>
</tbody>
</table>
Policies and Innovations needed

- Free up agri-markets, remove in-built consumer bias

- Produce more with less—towards precision farming, especially to save water

- Uberization of farm machinery; open up land lease markets

- Shift from price policy to income policy approach; rationalise subsidies and invest in agri-R&D, and shift focus from tonnage centric to farmer centric
Innovations on the horizon... Transforming Agriculture

**Wheat & Rice** – Bio-fortification (from food to nutritional security)

**Milk** – Selective Sexed Semen Technology

**Fisheries** – Cage Farming & Shrimp cultivation

**Poultry** – Vertically integrated operations for commercial & Low-input technology for backyard

**Cotton** – Bollgard II with Herbicide Tolerance (Monsanto)

**Fruits & Vegetables** – Entry of startups in post harvest management & processing
Innovations in water management: more crop per drop (about 10 m ha under micro irrigation)

New Hope for Indian Farming...
Innovations in Farm Mechanization – Custom Hiring and Uberization Model

• **Based on ‘pay as per use’ principle:** Efficient use of capital with small-holder economy

• **Govt. subsidy @ 40%** under Sub-Mission on Agricultural Mechanization (SMAM) Scheme: 1420 CHCs as on 2017-18

• **Uberization Model:** Privately driven by companies like Trringo (Mahindra & Mahindra); EM3 Agri services; TAFE, FarMart, Claro energy etc.
Innovations in Protected Agriculture

Protected cultivation

Polyhouse, Karnataka

Hydroponics

Aeroponics
Globally, Innovations in Precision Agriculture unleashing...can India catch up fast?

**Precision Technologies**

- Geographical Information System (GIS) (guidance systems)
- Sensors (Yield, Nitrogen, Moisture)
- Unmanned Aerial Vehicles (UAV’s)/Drones
- Artificial Intelligence
- Big Data, Internet of Things

**What they do**

- Efficient field coverage, reduce fuel and other input costs
- Facilitate variable rate application of inputs
- Surveillance, imagery, spraying pesticides
- Machine learning for assessing real time information
- Analysis of data collected on field, facilitates planning
### Innovations in Budgetary Transfer policies

**Direct Income Transfer – A tectonic shift in incentives**

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PM KISAN</strong> (Govt. of India)</td>
<td>Rs 6000 per year to small &amp; marginal farmer families (upto 5 acres)</td>
</tr>
<tr>
<td><strong>Rythu Bandhu</strong> (Govt. of Telangana)</td>
<td>Rs 4000 per acre, per season, to farmers (landowners) for FY 2018–19</td>
</tr>
<tr>
<td><strong>KALIA</strong> (Govt. of Odisha)</td>
<td>Rs 5000 per farm family (small &amp; marginal) per cropping season for 2018–20*</td>
</tr>
<tr>
<td><strong>Mukhyamantri Krishi Aashirwad Yojana</strong> (Govt. of Jharkhand)</td>
<td>Rs 5000 per acre per year to 22.76 lakh poor and marginal farmers (upto 5 acres)</td>
</tr>
<tr>
<td><strong>Krishak Bandhu Scheme</strong> (Govt. of West Bengal)</td>
<td>Rs 5000 (upto 1 acre) per year*</td>
</tr>
</tbody>
</table>

* Scheme has other components also
Concluding Remarks

If we get our policies right, agriculture can still give the best results...

- Only three policy changes:
  - Setting the output, input and factor markets free
    - pruning of ECA & APMC laws; tapping e-commerce; opening land lease markets
  - Rationalisation of subsidies, increase investments & shift towards Direct Income Transfers
  - Encourage Innovations in Production Technologies to give more from less in a sustainable manner (Raise TFP)