The role of Extension and Research in the Agricultural Transformation

Keynote address by
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Outline

- The role of research and extension in the economic transformation
- Key issues in extension
- Partial Solutions
- The way forward

The role of research and extension in the economic transformation

Economic Transformation and Agricultural Productivity Growth

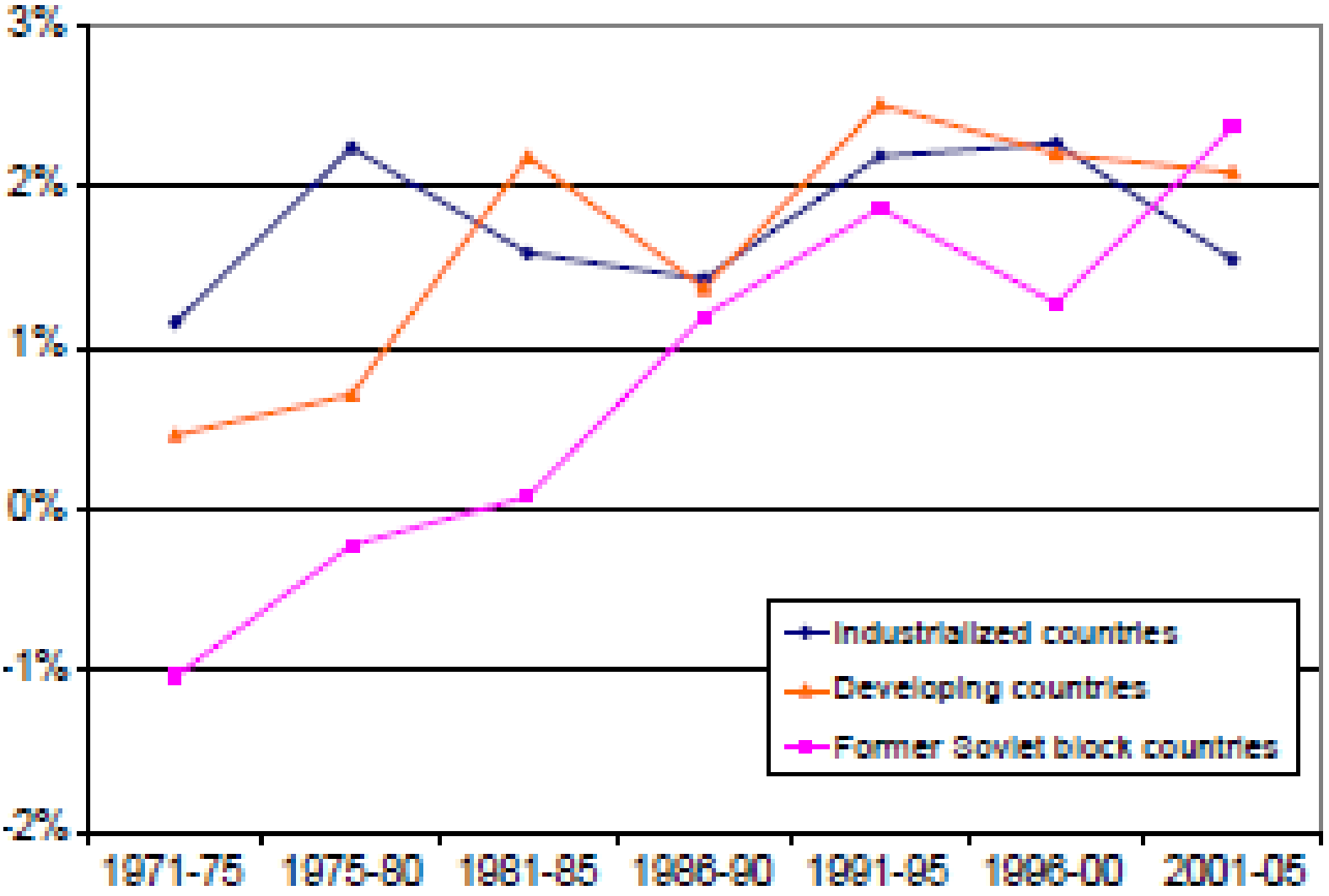
- For low income countries which are heavily dependent on agriculture, increasing agricultural productivity is a precondition for economic transformation
- It allows agricultural productivity to catch up with rapidly growing nonagricultural productivity
- And releases labor from agriculture, while also providing for
  - the rapidly increasing demand for food and agricultural raw materials,
  - space for increasing agricultural trade
  - and a growing rural demand for industry

Agricultural Productivity Growth and Technology Capital

1. Total factor productivity growth:
   the difference between growth of an index of output and growth of an index of inputs
2. Capacity to innovate new technologies
   number of researchers /1000 ha
3. Capacity to master the new techniques
   number of agricultural extension agents/1000ha
   and years of education of males above 25 years

Measured for 87 developing countries by Evenson and Fuglie, 2008.

Growth Rate of TFP has accelerated



Interaction of capacity to Innovate and Capacity to master is strong

- TFP growth rates tended to rise at higher levels of either II or TM capital
- Marginal improvements to research capacity, were associated with faster TFP growth.
- However, marginal increases in extension-schooling, without commensurate improvements in research capacity did not improve productivity performance

Key issues in Extension

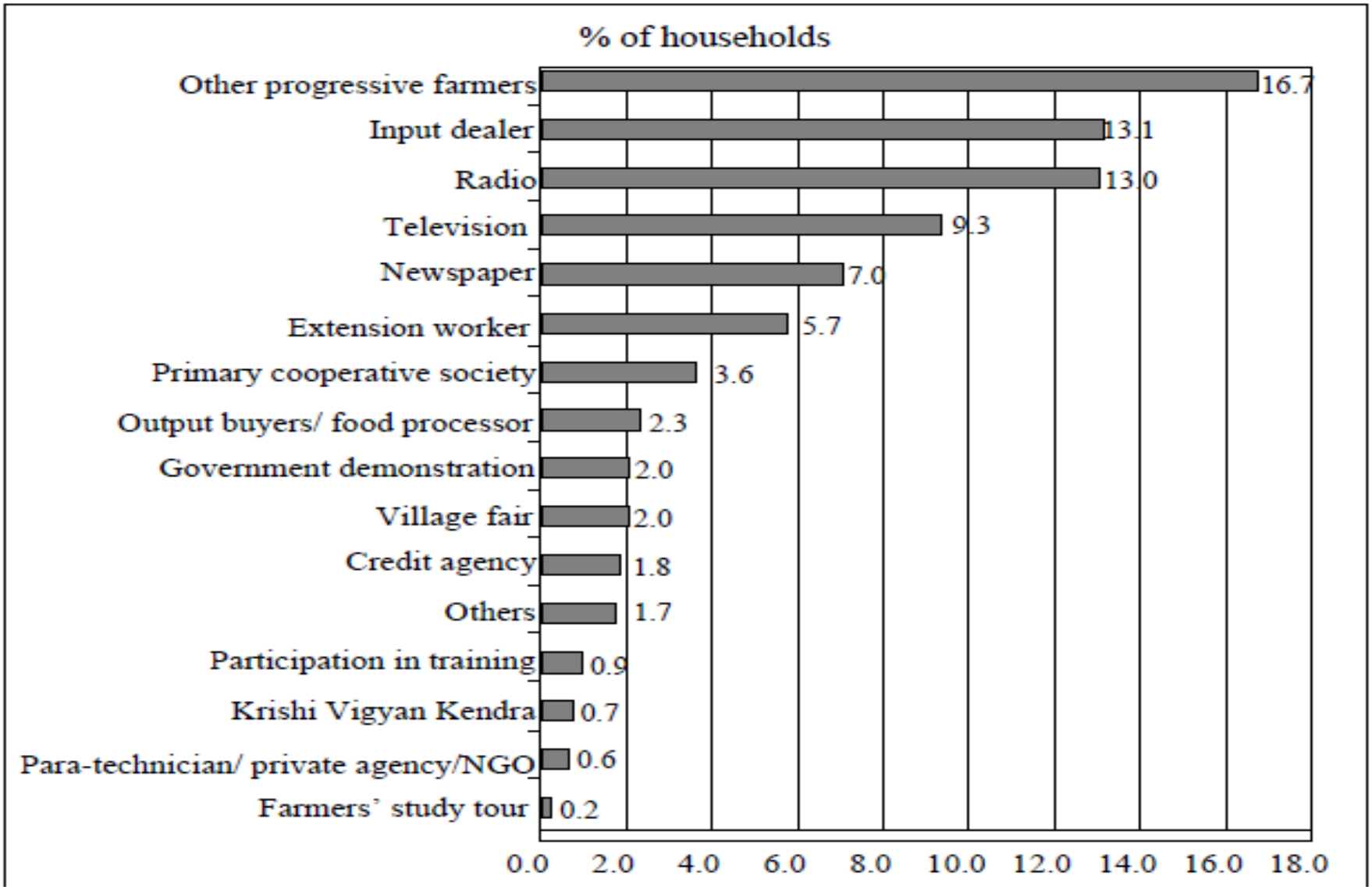
A longstanding issue: Extension must be adapted to

- To different crops, livestock products and farming systems
- To widely heterogeneous local conditions
- To heterogeneous farmer populations: poor and prosperous, male and female, different education levels

More recent issue: The rising information requirements

- Most appropriate technological options
- Optimal use of inputs
- Consumer and market demands for products
- Quality specifications for produce
- Mixed farming, animal husbandry, fisheries
- Sourcing reputable input suppliers
- Where and when to buy inputs and sell produce
- Access to credit and loans
- Sustainable natural resource management and coping with climate change
- Off-farm income-generation options

Many Actors and Limited Coverage: India



Source: Derived from data reported in NSSO (2005, 7)

Note: *Krishi Vigyan Kendra* refers to Farmer Information and Advisory Centres.

Many Options for Provision and Financing of Extension and Advisory Services

	Financing the Service			
Provision of the service	**Public sector**	**Farmers**	**Private companies and NGOs**	**Farmer-Based Organizations FBOs**
Public-sector organizations	(1) Public-sector extension services provided free to farmers	(4) Fee-based public-sector extension services	(7) Private companies or NGOs contract extension agents from public-sector extension agencies	(10) FBOs contract staff from public-sector extension agencies
Private-sector companies and NGOs	(2) Publicly funded contracts to private extension service providers or NGOs; publicly funded vouchers	(5) Private-sector companies or NGOs provide fee-based extension services	(8) Embedded services: Companies provide information with input sale or marketing of products	(11) FBOs contract extension agents from private service providers or NGOs
Farmer-based organizations (FBOs)	(3) Publicly funded contracts to FBO extension providers	(6) Extension agents hired by FBOs, farmers pay fees	(9) NGOs fund FBOs to hire extension agents that provide services free to FBO members	(12) FBOs hire extension agents and provide services free to members

The key issues (1)

- Complex information requirements
  - Specialization options are better for private and third sector
- Reaching many small and dispersed farmers
  - Concentrating on favorable zones is easier for private sector
- Targeting of poor farmers and women
  - Poorly resolved among all sectors
- Poor research-extension linkages
  - Incentives for researchers and cultural differences are major barriers for all sectors
- Diversion to other duties than extension
  - Most severe for public sector

The key issues (2)

- Weak accountability to farmers
  - Most severe for services which are provided for free, and not embedded in inputs
- Weak incentives to perform
  - Especially in public services without cost recovery
- Weak political commitment and underfunding
  - Affects all services that are partially or fully financed from local or central governments
- Paucity of rigorous impact evaluation
  - Makes it very difficult to decide on most appropriate option

Partial solutions

Decentralization of public extension

- Can deal better with heterogeneity
- Can improve accountability, incentives, and coordination with other local agencies
- May lead to more political interference, loss of economies of scale, and poorer research-extension linkages
- Most countries are trying to introduce some decentralization and devolution
- Evidence remains mixed, it depends how well it is implemented

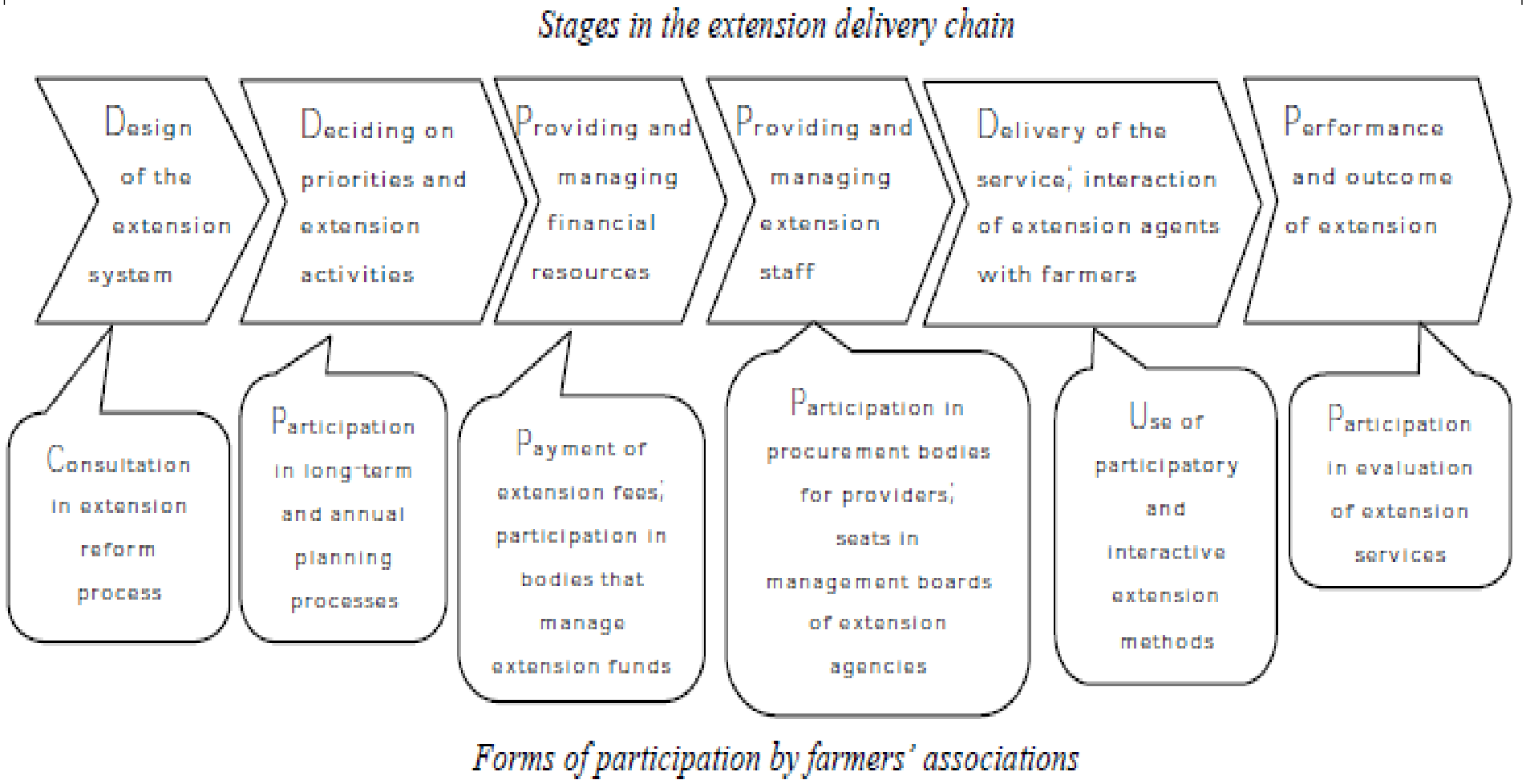
Full or partial fee for services rendered

- May improve targeting to problems faced by specific farmer groups, commodities
- Has great potential to improve accountability
- Makes targeting to poor farmers and women very difficult
  - Can be resolved by stratifying farmer groups and differential services/recovery from each
  - And via extension vouchers
    - But experience with vouchers has not been very encouraging
- Cost recovery does have a role to play, but it is limited

Private sector involvement

- Can resolve incentives issue
- Works well for embedded services associated with input supply and output marketing
- Contracting private organizations for providing extension services has proven quite difficult
  - Political interference in contracting
  - Limited ability of farmers to define priorities and monitor performance
  - Paucity of capable private providers
  - Does not come cheaper than public extension
- Private sector involvement is still promising, but not a panacea

Farmer Participation can be helpful in many ways



Source: Authors, adapted from World Bank and IFPRI (2010, Figure 2.2).

Community-based extension

- A partial remedy for market and state failure
- Particularly suitable for areas where collective action is required
  - NRM, water and pest management, cooperative input supply, output marketing
- Less suited for farm-specific advice and diverse farming systems
- Requires competent service providers
- Entrenched top down attitudes may make it hard to implement farmers' priorities
- Communities are not immune to elite capture
- Difficult to organize communities beyond villages
- Mixed evidence on impact, depends on how implemented

Farmer's Field Schools

- Highly intensive and participatory approach that spread from IPM to many other areas
- Not a uniform method, but an approach that can be tailored to specific issues
- Evidence of impact is mixed
- Evidence of spillovers to other farmers is negative
- As a consequence the high costs lead to a major fiscal sustainability issues

Mobile applications

- Very rapidly expanding range of services for technology, marketing, input supply, payments
- Building on near universal access to cell phone, and growing access to internet
- Can raise productivity and farm incomes when the information is of good quality and timely
- Still requires improvements in content, supporting infrastructure, access to financial services and markets, and farmer education
- More difficult to use for poor farmers

The way forward (1)

- To achieve more rapid productivity growth, both research and extension need to be strengthened in tandem
- Increasing the reach of extension and targeting it to poor farmers and women requires much stronger political commitment and public finance
- Participation of farmers and accountability to them has to improve in all systems

The way forward (2)

- There are no silver bullets or unique models that will lead to enhanced extension performance
- Instead, solutions have to be tailored to the context and the problems to be addressed
- To scale up, reach the wide range of objectives and target groups, the state has to use a wide range of approaches
- These will involve both direct state provision and collaboration with, and delegation/contracting to other actors

The way forward (3)

- Embedded services by the private sector will work well for medium to large farmers in well-endowed regions
- Community-based approaches are strong, or even necessary for NRM, water management, cooperative marketing
- Government provision and/or finance of private and third sector providers is necessary to scale up services to farmers in less favored zones and poor and women farmers
- Mobile applications will become part of, or complementary to all other services

In order to reach more farmers, and especially poor and women farmers:

The challenge is to combine the best of different approaches

Proper assignment of responsibilities to different actors will be essential, as well as significant government co-finance