Transforming developing country agriculture: Adoption constraints and value chain development

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1. Setting the scene: Continued role of Ag for development

- Broad agreement: Agriculture key for sustained growth and poverty reduction in "ag-based" countries (high share of Ag in GDP growth + high share of poor rural = most SSA, many SA)
- Yet, with a few country exceptions, SSA aggregate **performance has been lagging** in fertilizer use and cereal yields (GR)



- Under-investment in Ag relative to international norms (CAADP)
- Puzzle: Why? Perhaps lack of results in seeking modernization
 → Objective: Explain lack of modernization. Propose solutions.

Outline

- 1. Setting the scene: Role of agriculture for development
- 2. Re-interpret the role of ag-for-dev: Ag and Rural transformations
- 3. Address constraints to adoption
- 4. Address inclusive value chain development
- 5. Conclude: Logic of how we look at transformations

2. Interpreting the role of Ag-for-dev: Five observations

- 2.1. There exist multiple obstacles to modernization/ transformations in the developing country context
 - Extensive market failures: credit, insurance, information, market access
 - **Deficits in governance**: property rights, public goods (R&D, infrastructure), regulation (externalities), rule of law (contract enforcement, corruption)
 - Weak civil society organizations: coops, producer organizations

→ Suggests the need for modernization/transformation strategies in developing countries that are able to overcome these obstacles

2.2. Rural labor calendars important determinants of poverty



Figure 1. Urban and rural household labor calendars in Malawi

- Equal workloads for rural and urban households at **peak time**
- Rural poverty driven by seasonal deficit of work opportunities
- Poverty better reduced **in-situ** than via urban-based Structural Transformation (Christiaensen, Rodrik)
- \rightarrow Suggests importance of filling-in rural labor calendars

2.3. Path toward modernization/transformations

Stages of transformation	Processes
Asset building	Access to land and human capital for the
	landless and SHF
Green Revolution	Adoption/diffusion of new seeds and fertilizers
	for staple crops
Agricultural Transformation	Ag diversification toward high value crops
	Water control for extended labor calendars
	Development of value chains and contracting
Rural Transformation	Growth of the rural non-farm economy/ADLIS
	Mechanization and land concentration
	Territorial rural development
Structural Transformation	Rural-urban migration
	Urban-based industrialization and services

→ Suggests a sequence toward modernization/transformations: Assets-GR-AT-RT-ST

2.4. There are multiple forms of SHF inclusiveness in value chains

SHF can be included in a variety of Value Chains (VC) linking them to consumers, from simplest to most complex:

SHF as entrepreneurs	Links to consumers
Pre-VC	Subsistence farming
Inclusive VC	Spot markets Collective action for marketing of inputs and products Contract farming: individual and productive alliances Out-grower schemes: contracts with nucleus institutions
Exclusive VC	Vertical integration: pro-poor benefits through labor markets

- VC for both staple foods and high value crops
- Multiplicity of forms and shapes: contracts, coordination
 Yalue chains can be designed to endogenously overcome

obstacles to inclusion and modernization

2.5. A theory of change for modernization/transformations



• Two contrasted approaches:

o Constraint removal approach: supply-driven
 o Inclusive VC development approach: demand-driven
 → Suggests two complementary action/research agendas:
 o Constraint removal for adoption (ATAI phase 1)
 o IVC development and transformations (ATAI phase 2)

3. Lessons from studies addressing constraints to adoption

3.1. Main constraints identified: liquidity, risk, information, access to market

- **Comprehensive reviews** of ATAI Phase 1 results by Bridle, Magruder, McIntosh, Suri, etc. (see CEGA/J-PAL)
- Solutions explored through RCTs mainly consist in designing institutional innovations to overcome constraints

→ Important contributions, but reveals existence of a **ceiling to** adoption

Why a ceiling to adoption? What can be done?

3.2. Why a ceiling to adoption?

• Heterogeneity in farmers' rainfed **circumstances**:

Complementary factors to fertilizer use: soil organic matter, soil acidity \rightarrow Limits profitable fertilizer use to less than half of plots

- Heterogeneity in farmers' objectives: food security, labor calendars, gender → Limits adoption
- Heterogeneity in farmers' capacities: complex technologies out of reach for many → Limits adoption

3.3. What can be done?

→ Explore an alternative/complementary approach that starts from effective demand and overcomes obstacles through inclusive value chain development, including technological response

4. Lessons from studies addressing inclusive value chain development

- Inclusive Value Chain Development gives incentives to SHF to modernize in order to be competitive in servicing profitable effective demand through intermediaries in the VC
- Includes addressing market/public governance/civil society failures & deficits through value chain construction
- Three areas of intervention and experimentation:
- 1) **Developing resource-providing contracts** (Bardhan's interlinked transactions) to address market failures/ constraints:
 - i. **Contracts** can include credit, insurance, access to inputs, technical assistance/innovation, quality requirements

- ii. Main risks are **side-selling** by producers, **hold-up** behavior by commercial partners, and **discontinuity**
- 2) Achieving vertical coordination in value chains to address government deficits in investments in club/public goods: coordination can be assured by lead agent (monopsonist, aggregator), multi-stakeholder platform, sometimes producer organization (productive alliances).
- 3) Reinforcing civil society organizations: Productive alliances (contracts between producer organizations and commercial partners) require SHF discipline in organizations to contract and modernize

Two observations

- 1) The market-driven Inclusive Value Chain Development approach starts by **building on the best** to achieve competitiveness, and **gradually extends** inclusion toward other regions and SHF
- 2) Inclusive value chains are **demanding to achieve** as they require asset endowments, building on SHF comparative advantages, effective POs, quality recognition low in the value chain, and insertion in a broader Rural Development strategy

5. Conclusion: How we look at transformations

- 1) **Ag and Rural Transformations** are a useful strategy to go beyond the Green Revolution in using agriculture for development and achieving in-situ rural poverty reduction
- 2) They can be achieved via **constraint removal** but more effectively via **inclusive value chain development**
- 3) This **shifts the analysis** to issues of asset building, labor calendars, contracts, vertical coordination in value chains, producer organizations, and enterprise development in the rural non-farm economy
- 4) This multidimensional approach requires extensive **experimentation and institutional innovations**, setting an ambitious research agenda

Thanks