The State of Agriculture in Ghana

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Towards Agricultural Innovation in Ghana: An Evidence-Based Approach

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IFPRI GHANA

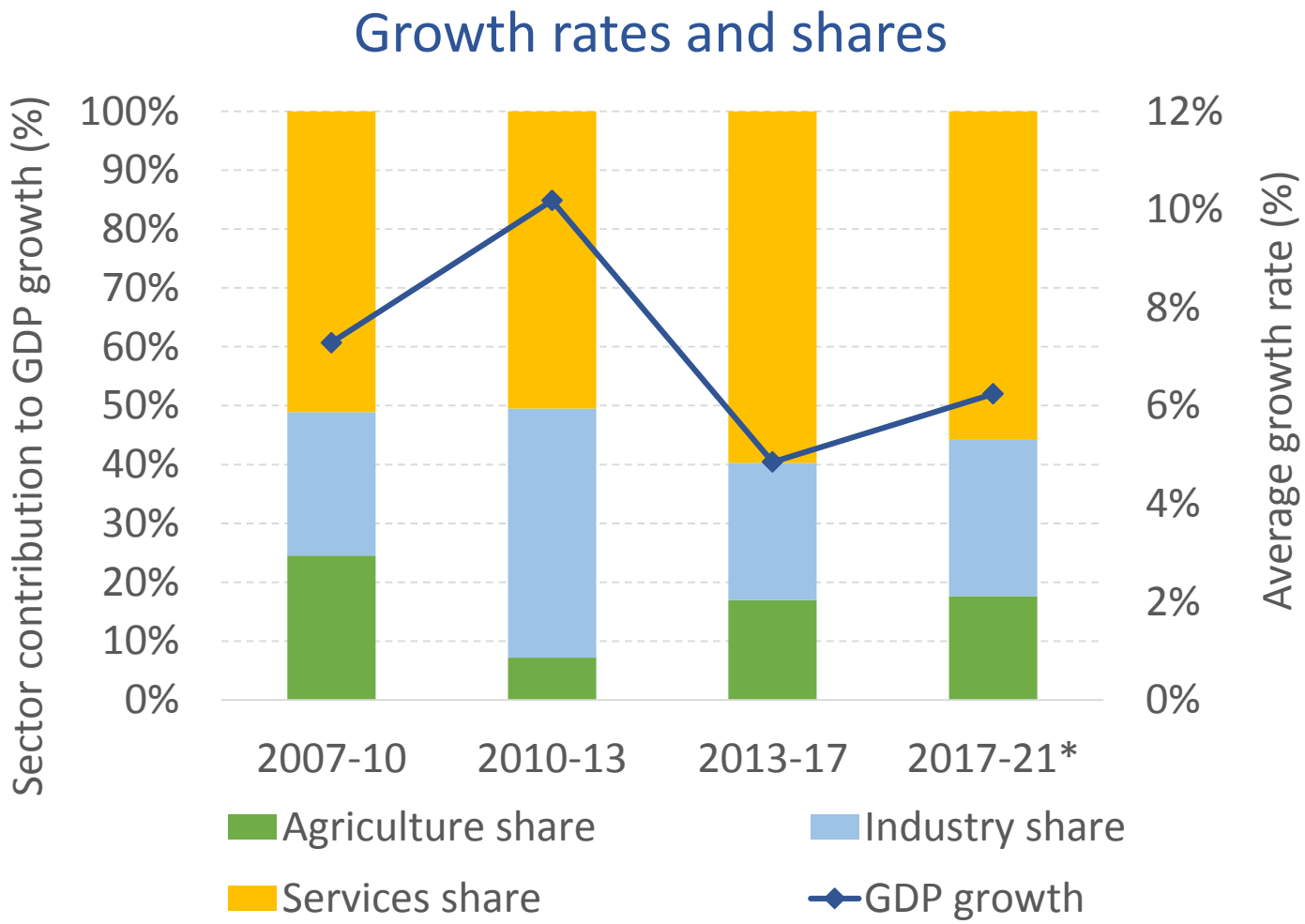
Presentation overview

- Economic growth & the role of agriculture
- Agricultural productivity
- Markets, trade & agribusiness
- Concluding thoughts on research & policy implications

Economic growth & the role of agriculture

Ghana's growth performance: 2007–2013

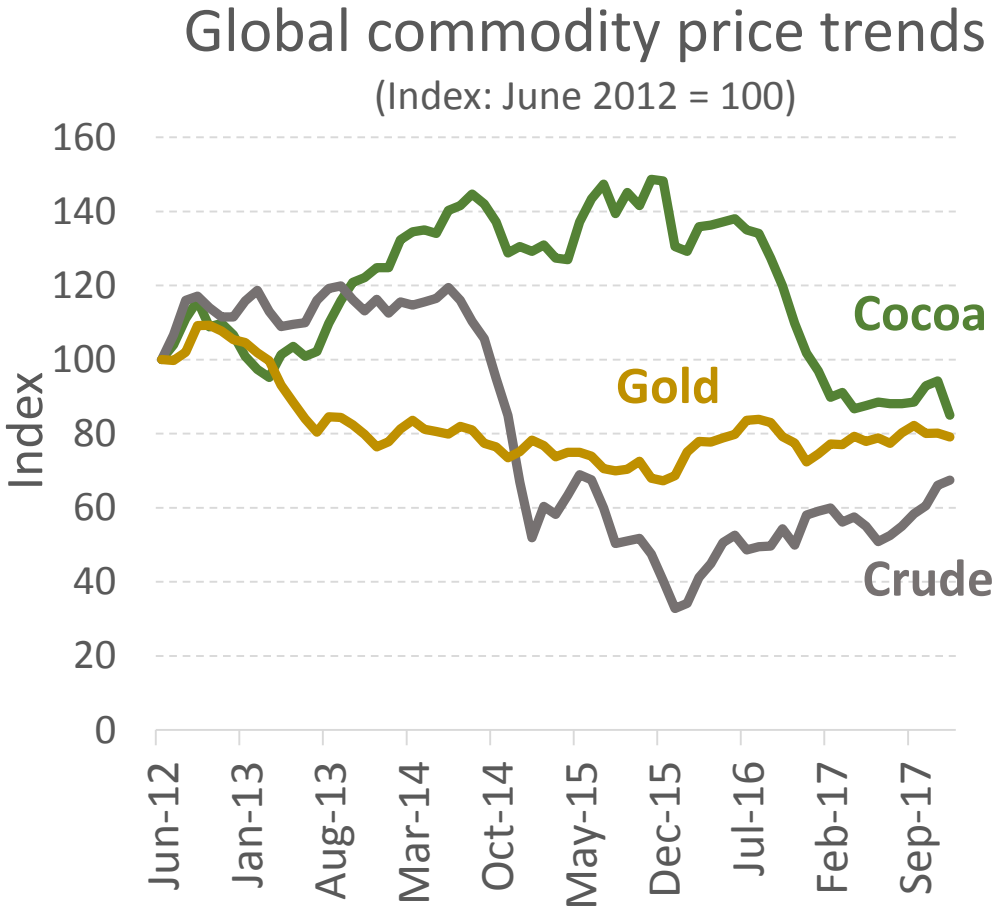
- Rapid growth 2007–2010 (7.3%), driven largely by services sector growth
- Accelerated further during 2010–2013 (10.2%) on the back of the "oil boom"



Source: MoF (2018)

Ghana's growth performance: 2013–2017

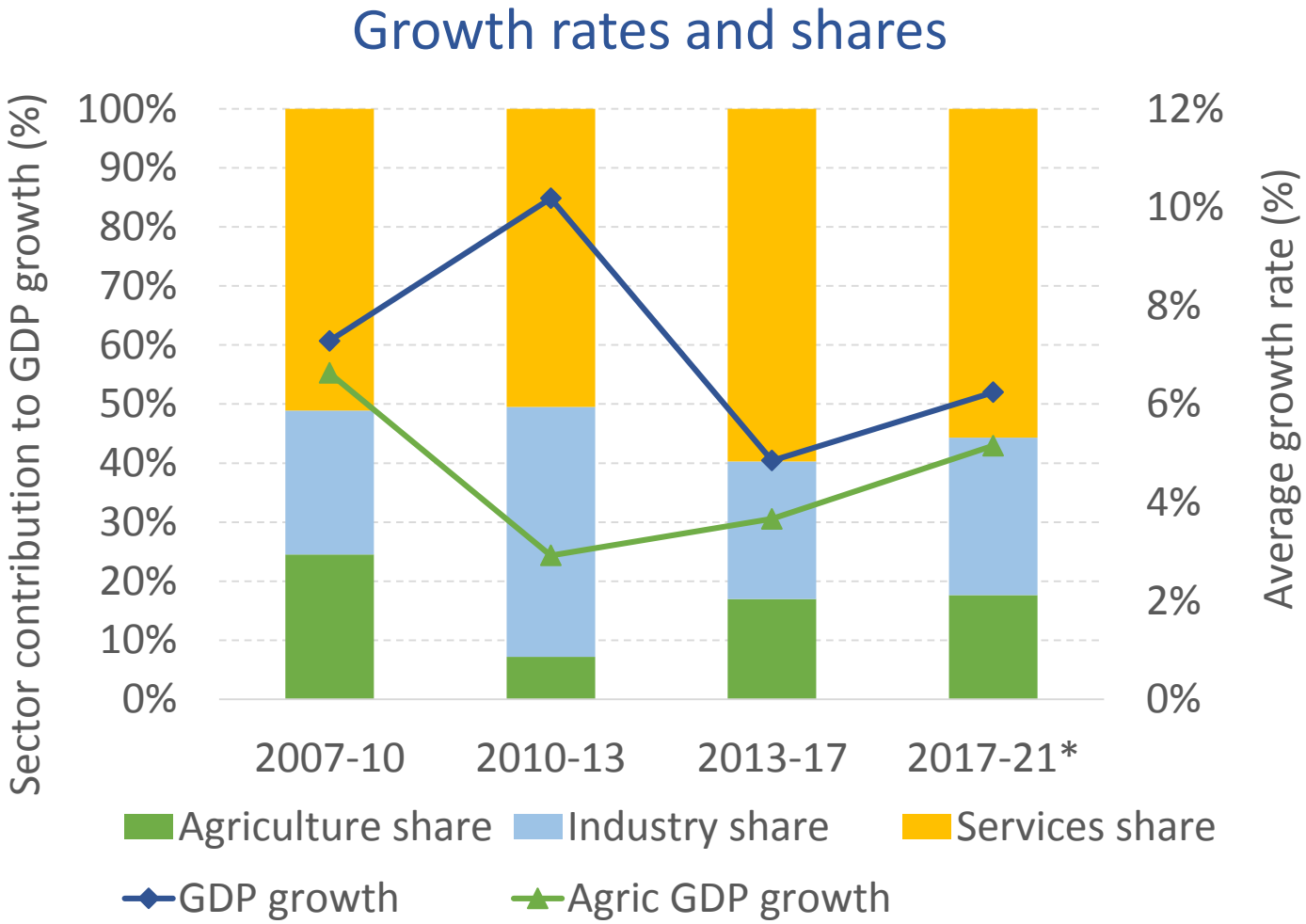
- Growth slowed to 4.8%. Why?
  - Gold and crude oil price collapse
  - Govt. foreign debt (Younger 2016)
- Result:
  - Double-digit inflation during 2012–2018
  - Sharp exchange rate depreciation
  - Rising recurrent budget share



Source: IndexMundi (2018)

Agricultural growth performance

- Agricultural growth lagged national GDP growth
  - Last achieved 6.0% CAADP target during 2008–2009
  - Averaged only 3.3% per annum since 2010
- Agriculture's contribution to national GDP growth disproportionately low



Source: MoF (2018)

Agricultural subsector contributions to growth

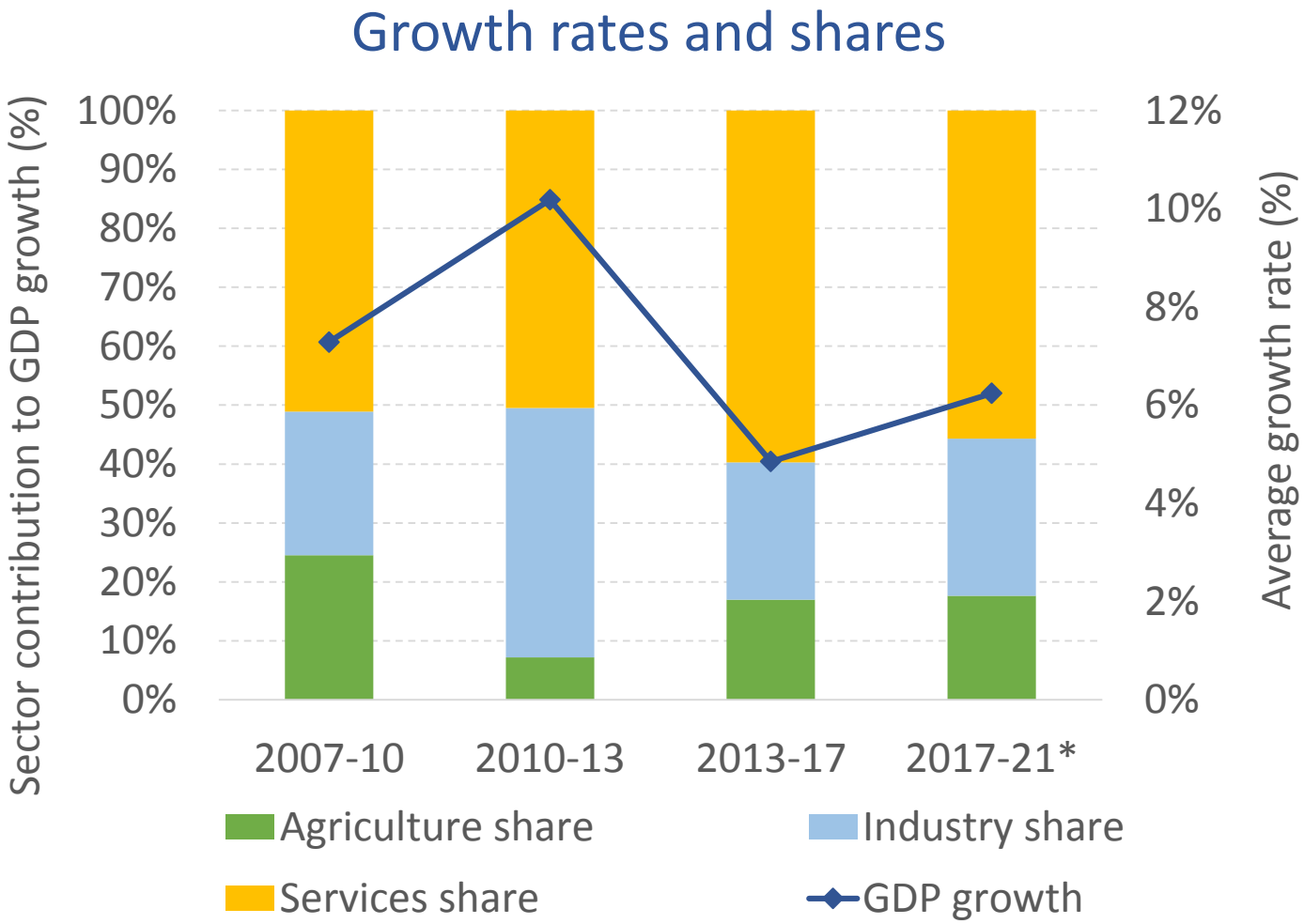
	Average annual growth: 2006–2016			Ag. GDP shares (2015)
	Prod	Area	Yield	
Cereals	3.8	0.5	3.3	18.1
Roots & tubers	5.5	1.3	4.1	16.1
Vegetables	5.2	1.1	4.1	13.2
Fruits	9.1	1.5	7.5	12.5
Cocoa	1.6	-0.9	2.5	10.0

Source: FAOSTAT (2018); GSS, ISSER & IFPRI (2017)

- Crops contributed 77% to agricultural GDP growth
- Agricultural growth driven by yield increases within five main crops subsectors
- But concerns remain:
  - Yields well below potential and not rising fast enough
  - Key crops sectors remain uncompetitive

Growth outlook: 2018–2021

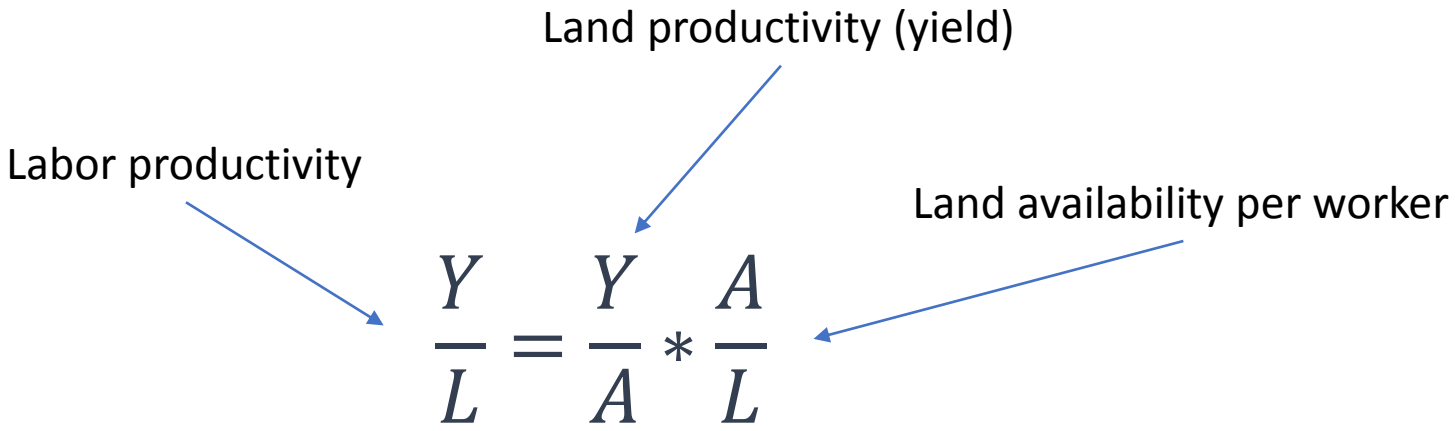
- Stronger growth forecasted (6.2%)
- However, lack of economic diversification a concern (ISSER 2017)
- Agricultural growth expected to recover (5.2%) due to anticipated yield increases



Agricultural productivity

Credit: VisualHunt

Labor productivity identity



- Labor productivity (Y/L) requires growth in land productivity (Y/A) or an increase in land per worker (A/L)
- Ghana: declining agriculture labor share has helped, but gains offset by low productivity growth

  → Reflects slow rate of technology adoption & soil fertility challenges (Jayne et al. 2015)

Technology adoption

- Evidence is mixed and circumstantial, but generally modern seed and fertilizer application has benefits; for example:
  - Yields (profits) of imported hybrid maize seeds (Adikanfo) are 57% (37%) higher than those of the commonly used OPV (Obaatanpa) (Van Asselt et al. 2018)
  - Other countries with similar agroecological conditions have raised yields substantially through technology adoption (Ragasa et al. 2014)
- Despite this, Ghana adoption rates remain low:
  - Only 5% of farmers use hybrid seeds; varieties are outdated
  - Fertilizer application rates around 13kg/ha (Houssou et al. 2017)

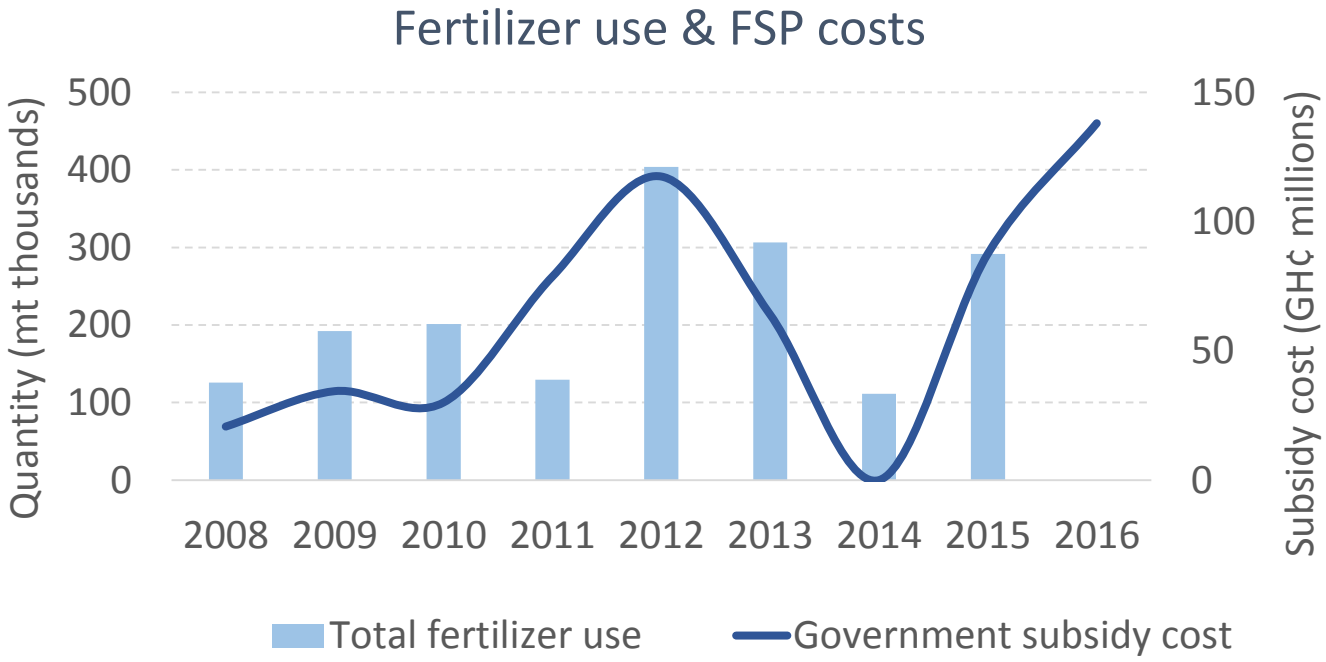
Why do farmers underinvest?

- The “usual suspects” include:
  - Cost of inputs (incl. labor): resource or credit constraints
  - Risk and uncertainty: market price risk, production shocks
  - Supply-side factors: availability or authenticity of seed or fertilizer
- Research can aid our understanding; for example
  - Farmers who received weather insurance spent more on inputs than those who received cash grants (Karlan et al. 2014)
  - Exposure to (successful) technologies often an important determinant of adoption (Van Asselt et al. 2018b; Fosu et al. 2018)
  - Yield penalties for now following recommended practices, e.g., seed and fertilizer use, weeding and refilling, pest management, or natural resource management

Do subsidies encourage fertilizer adoption?

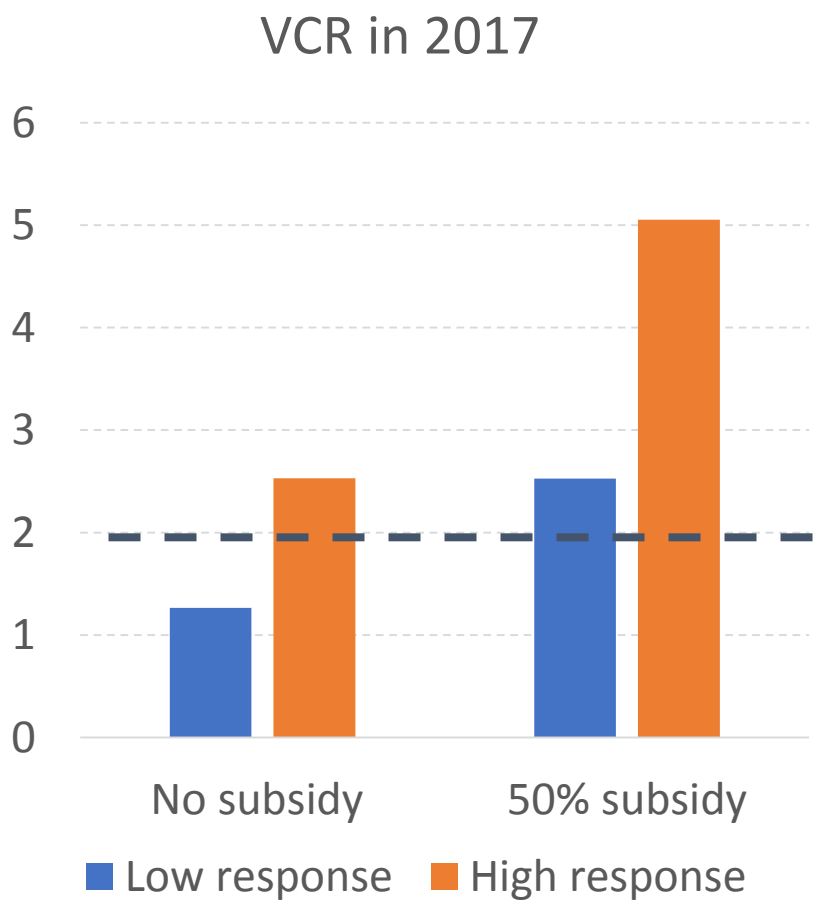
- Fertilizer use in Ghana sensitive to subsidy program budget... in both directions
- Fertilizer demand is a question about value-cost ratio (VCR)

$$VCR = \frac{P_M}{P_F} \times FUE$$



- Sustained fertilizer demand typically requires VCR ≥ 2 (Crawford & Kelly 2002)
- Fertilizer subsidy programs (FSPs) are an “easy” policy response, but sustainability is determined by FUE

Fertilizer value-cost ratios (VCRs) in Ghana



- Theoretically, FUE around 20kg grain/kg N; likely range on farmer-managed fields is 8–16kg (Jayne et al. 2015)
- VCR < 2 at unsubsidized prices & low response rates; VCR > 2 at subsidized prices: inefficient farmers also encouraged to purchase fertilizer
- Long-run sustainability of FSPs requires improvements in FUE. How?
  - Soil- and (crop-) specific fertilizer recommendations given varying soil types across agroecological zones (Chapoto & Tetteh 2014)
  - Complementary soil and water conservation practices, e.g., crop rotation, use of organic matter, etc. (Marenya & Barret 2009)

Markets, trade & agribusiness

Africa's changing food system

- Growing urban middle class increasingly demands higher quality processed foods (Tschirley et al. 2015); consumption among urban poor shifting to cheap convenience foods (Dixon et al. 2007)
- Dietary shifts regarded by some as an opportunity to expand and modernize African food industries
- Yet, food needs increasingly met through imports (Rakotoarisoa et al. 2012). Why?
  - Slow pace of sustainable agricultural intensification (Binswanger-Mkhize and Savastano 2017)
  - Compliance with food safety or quality standards (Hensen and Jaffee 2006)
  - Barriers to enter urban food markets (Ngeleza and Robinson 2013)
  - Logistical challenges (Demont et al. 2017) and the poor business climate (Gelb et al. 2014)

Ghana food trade: is the deficit rising?

- Food imports tripled (GH¢ 1.5–4.5bn) during 2009–2013 (GSS 2014)
- Imports make up 8-14% of primary agricultural products; 47% of agroprocessing products (Arndt and Hartley 2017)
- Even basic food commodities among top-ten imported items, i.e., milled rice, poultry products, sugar, and tomato paste (GSS 2014); not counting significant quantities of fresh produce entering informally from neighboring countries (Van Asselt et al. 2018c)
- Food and agricultural exports also rising such that the official trade deficit is negligible, but if we *exclude* cocoa and account for *informal* food trade, the deficit appears to be growing

Lessons from a vegetable competitiveness study

- Although yields are low, vegetable production is profitable, even more than cereals (Van Asselt et al. 2018c)
- Ghana has the potential to meet its own demand, but depends extensively on imported fresh produce. Why?
  - Competitiveness: inappropriate or less-preferred varieties linked to inadequate research system
  - Seasonality: production not year-round, even under irrigation; but this is also an opportunity
  - Market access: agents control access, especially in certain value chains; but does this reduce competition or strengthen market structure?

Lessons from agribusiness studies

- Survey of food processing firms shows 23% left the industry & most others shed jobs during 2014–2017 (Andam & Asante 2018)
- Poultry and aquaculture business face challenges:
  - Productivity constraints along the entire value chain (including feeds); chicken meat production costs double that of competitors (Andam et al. 2017)
  - Local tilapia production expanded 25-fold in a decade, but fish varieties and feed costs lead to price increases and lack of demand (Ragasa et al. 2018)
- Quality differences between imported and local rice means demand increases met almost exclusively by imports (Ayeduvor 2018)

Concluding thoughts: research & policy implications

Many additional important topics…

- Talked about technology adoption and value chain development; several additional topics will be addressed at this conference:
  - Extension services & agronomic practices
  - Insurance & credit markets
  - Contract farming & market linkages
  - Land tenure & investments

  } Ghana, Burkina Faso, Kenya, Zambia

- Other important topics include
  - Agriculture-nutrition linkages
  - Food safety & trade
  - Public agricultural investments
  - Governance & service delivery

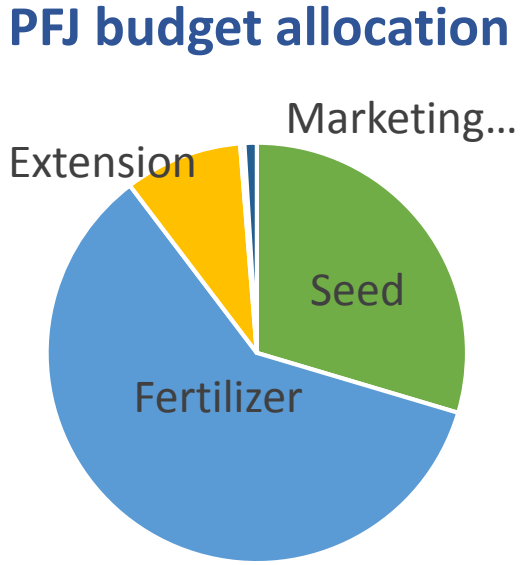
In summary…

- Slow agricultural productivity growth continues to constrain farm income growth
- Low yields associated with limited technology adoption & poor soils
- Trade and agroprocessing also constrained: infrastructure; market access; intermediate input supplies; costs of doing business; etc.
- Increased reliance on food imports, even for basic foodstuffs
- Raises concerns about the pace and nature of agricultural and economic transformation in Ghana

Challenge to policymakers & researchers

- Researchers: translate context-specific research results into practical policy recommendations
  - Emphasis on integrated approaches

- Policymakers: develop a coordinated & holistic government support package for agri-food system transformation
  - Recognize interconnectedness within value chains
  - Locate service delivery responsibilities at appropriate government level



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