Assessing welfare Impacts of Agriculture in western and eastern africa: cases of nigeria and ethiopia

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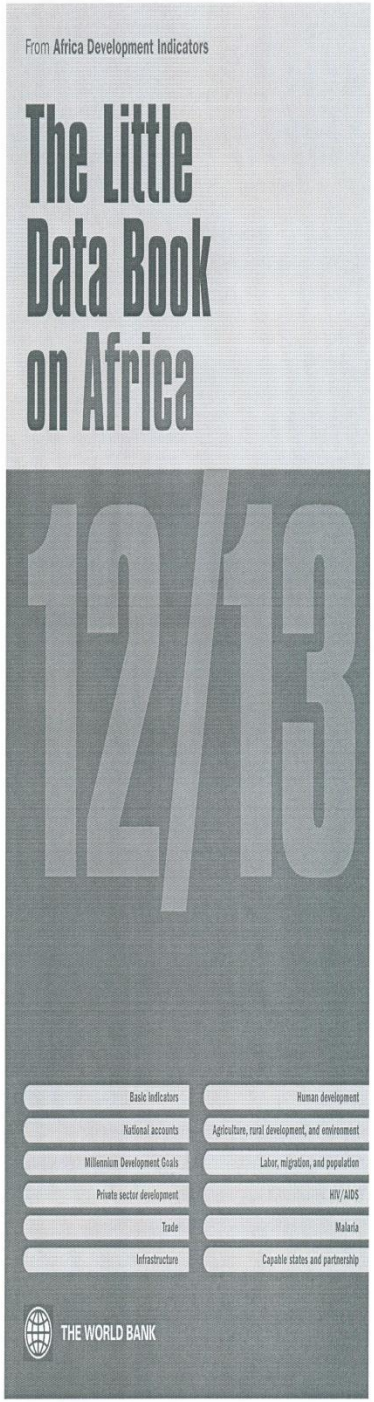
Outline of Presentation

- Introduction
- Brief literature
- Objectives of the study
- Rationale for the study
- Methodology
- Expected outcomes
- Project activity timelines

Introduction

Nigeria

- Lower middle income country
- Population: 158.4m (growth rate: 2.5%)
- Rural population: 50.2%
- Total area: 923,768 sq km
- GDP per capita (2000$): 540 (SSA: 653)
- Poverty headcount ratio: 69
- Agriculture: 40% of GDP
- Cereal crop yield (kg per ha): 1,413.0



Ethiopia

- Low income country
- Population: 82.9m (growth rate: 2.1%)
- Rural population: 82.4%
- Total area: 1,127,127 sq km
- GDP per capita (2000$): 221 (SSA: 653)
- Poverty headcount ratio: 44.2
- Agriculture: 46% of GDP
- Cereal crop yield (kg per ha): 1,674.2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Tunisia
Morocco
Algeria
Libya
Egypt
Western Sahara
RED SEA
Mauritania
Mali
Niger
Chad
Sudan
Senegal
Gambia
Guinea Bissau
Guinea
Burkina Faso
Nigeria
Ethiopia
Somalia
Sierra Leone
Liberia
Cote D' Ivoire
Ghana
Togo
Benin
Central African Republic
Cameroon
Equatorial Guinea
Congo
Gabon
Uganda
Kenya
Rwanda
Burundi
Zaire
United Republic of Tanzania
ATLANTIC OCEAN
Angola
Zambia
Malawi
Mozambique
Zimbabwe
INDIAN OCEAN
Madagascar
Namibia
Botswana
Swaziland
Lesotho
South Africa
LEGEND
International boundary
Study area
0
860
1,720 Kilometers

Brief Literature

- African economic trajectories have always underscored the need for agriculture-led development

- Agricultural growth and accompanying positive growth linkages have wide-ranging impacts on overall growth and incomes of the poor (Dorosh and Mellor, 2013; World bank, 2008; Hazell and Ramaswamy, 1991)

- Others have argued that the peasant nature of agricultural production system, with its low productivity, poor response to technology adoption strategies, and poor return of investment impede sustainable agricultural growth and development.

- Manyong *et al*. (2005) suggest that agricultural commercialization and investment are the key strategies for promoting accelerated modernization, sustainable growth and development

Brief Literature

- Similarly, agricultural development promotes rural incomes which in turn enhance income distribution and welfare in developing economies (World Bank, 2008)

- Income from economic activities like agriculture derives from the fundamental interest in the distribution of human welfare and poverty reduction

- Developing (low-income) countries need to promote agricultural growth and welfare of the citizens

Brief Literature

- According to Dorosh and Mellor (2013), a high rate of agricultural growth has far-reaching positive implications for the economic development of low-income countries in terms of increasing employment and accelerating poverty reduction

- High agricultural growth also disperses urbanisation geographically and thus helps avoid the creation of mega-cities with large slum populations

- Growth generated by agriculture is 11 times more effective in reducing poverty than GDP in any other sectors (IFAD, 2013)

Rationale

- The study will provide empirical evidence to agricultural development and its welfare impacts using comparable datasets in Nigeria and Ethiopia

- This study will reveal the nature and extent of agricultural development and its welfare impacts as well as the level of transformation in the agricultural sector and economic growth and development in the two countries

- The study is also justified given the scope and methodological approaches to data analysis and empirical estimations

Overall objective

- To assessing the factors impacting agricultural growth and welfare in Nigeria and Ethiopia

Specific Objective	Data requirement and source	Method/technique of analysis	Literature
1. Examine the trends in agricultural production (aggregate and sub-sectors) and agricultural productivity (e.g., cereal yields)	Agricultural production indices of crop, livestock, fisheries and forestry, aggregate cereals output and area harvested. (NBS, FAO)	Descriptive statistics, coefficient of variation and trends analysis	World Bank, 2008; Manyong *et al.*, 2005
2. Analyze food prices (composite and disaggregated, rural & urban) and empirically investigate if they contribute to improvements in agricultural productivity	Consumer food prices, producer food prices and composite food price indices (NBS, FAO)	Descriptive statistics and trends analysis, coefficient of variation, regression analysis (Error correction model)	Olayide and Alabi, 2013; World Bank, 2008; Idachaba, 2006; Manyong *et al.*, 2005
3. Assess the trends in rural and urban poverty differentials and examine if these differentials are due to growth and redistribution	Poverty indices by sectors (rural & urban) and regions (LSMS-ISA datasets, NBS, World Bank)	Shapley value-based approach	Shorrocks, 2012; Baye, 2006
4. Identify and estimate the factors influencing agricultural growth and welfare	Real agricultural GDP per capita, and the five categories of capital assets. (CBN, NBS, FAO)	Unit root tests, and Generalized Method of Moments (GMM) estimation	Fan *et al.*, 2008
5. Provide policy scenarios and simulations on employment and agricultural growth of each country	Share of employment and agricultural GDP. (NBS, World Bank)	Simulation and growth multiplier model	Dorosh and Mellor, 2013

Methodology

- Scope of the study

- Nigeria & Ethiopia

- Agriculture-based economies (WB, 2008)

- Sustainable livelihood framework

- Type and source of data

- Secondary data (NBS, FAO, WB)

- Time series (1970-2010) & LSMS-ISA

Analytical techniques

- Descriptive statistics & trend analysis
- Econometric analyses, including generalized method of moments (GMM)

Following Fan *et al*. (2008) and Arellano and Bond (1991), a GMM estimator as an estimation method is stated as:

$$\Delta y_{it} = \sum_{e=1}^{m} a_e \Delta y_{it} + \sum_{e=1}^{n} \beta_e \Delta x_{it-e} + \Delta \eta_i + \Delta u_{it}$$

Where y is the dependent variable; x is a set of independent variables, i = 1,…, N; m and n are the lag lengths sufficient to ensure that u_{it} is a stochastic error, with set of instrumental variables

Classification of Variables	Variables	Variables and measurement
	Y1 & Y2	Real agricultural GDP & real agricultural GDP per capita per annum
Natural capital	X1	Mean rainfall (in mm) per year
	X2	Share of forest area in agricultural land (in %)
Physical capital	X3	Share of goods conveyed by road is used as proxy for transportation/traffic density (in %)
	X4	Total electricity generation (mega watt per hr) per year
	X5	Communication/ teledensity is the number of telephone lines per 100 people
	X6	Aggregate Agricultural production index per year
	X7	Manufacturing capacity utilization rates (in %)
Financial capital	X8	Total agricultural credit per year
	X9	Share of agriculture in Foreign Private Investment, FPI (%)
	X10	Net imports (foreign trade)/Net agriculture import values
	X11	Inflation rate (%)
	X12	Exchange rate (%)
	X13	External reserves (USD)
	X14	Agriculture budgets as % of national budget
Human capital	X15	Literacy rate (%)
	X16	Life expectancy at birth (years).
	X17	Share of females economically active in agriculture (in %)
Social capital	X18	Government regime (democracy dummy)
	X19	MDG dummy

Expected outcomes

- The study will provide empirical evidences for formulating national and inter-national policy on agricultural development and improving rural welfare in Africa

- It will inform sustainable agricultural development prospects, and post- 2015 development agenda

ACTIVITY by number of cumulative months	1	2	3	4	5	6	7	8	9	10	11	12
Project begins. Acquisition of equipment/ materials and research team meetings												
Literature review												
Sourcing (extraction) of secondary data												
Data entry												
Data analysis												
Report writing												
Draft report												
Revised report												
Stakeholders meeting for report dissemination												
Submission of final report & publication												

Thank you for your kind attention