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TEGEMEO INSTITUTE OF AGRICULTURAL POLICY AND DEVELOPMENT

Agricultural Information Sources & their Effect on Farm Productivity in Kenya

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Outline

- Introduction/Motivation
- Questions
- Methods
- Results
- Conclusions & Recommendations

Introduction

- There is a growing demand for agricultural information
  - Changing climatic conditions
  - Technological development and
  - Declining land for agriculture
- Farmers need a wide variety of information on
  - Farm technologies e.g. appropriate seeds, fertilizer, among others
  - Emerging crop and animal diseases
  - Weather related information
  - Market information
- For decades, agricultural extension has been used as a tool for disseminating agricultural information to farmers

Intro cont…

- Identified as a critical agent in transforming subsistence farming into a modern and commercial agriculture in the Agric Sector Development Strategy (ASDS)

- However, prolonged underinvestment in extension services has led to very low extension coverage
  - Decline in staffing & facilitation due to freeze of public employment
  - Reduced funding for operations & maintenance

Intro cont..

- For instance, the ratio of public frontline extension worker to farmers is about 1:1000 as compared to the desired level 1:400 (NASEP, 2012)

- Moreover, earlier models of extension proved to be unsuccessful and unsustainable (government the main service provider)

- The renewed emphasis on pluralistic extension recognizes the existence of many actors in the system beyond the traditional public extension (NASEP, 2012)

Intro cont.…

- As a result, farmers have a wide variety of sources from which they can obtain such information
  - Government
  - NGOs
  - Community based Organizations (CBOs)
  - Faith based organizations
  - Private service providers, among others
- However, access to extension services is still limited in most parts of the country.

Objectives/Research Questions

- This study seeks to understand the current status of agricultural information, existing sources and effects on agricultural productivity. Specifically, the study seeks to answer the following questions:
  1. To what extent are farmers accessing agricultural information?
  2. What are the existing sources of agricultural information available to farmers?
  3. What factors influence farmers' preference of various agricultural information sources?
  4. Is there any difference in the level of farm productivity under different information sources?

Data

- TAPRA 2014 Household survey
- A total of 6,512 households
  - drawn from 38 out of the 47 counties in Kenya
  - across seven agro-ecological zones
    - Coastal Lowlands
    - Lower Highlands
    - Lower Midland 1-2 and 3-6
    - Upper Highland
    - Upper Midland 0-1
    - Upper Midland 2-6
  - semi-structured questionnaires.

Methods

- **Descriptive statistics:** Identify the extent of information access & various information sources available to farmers

- **Multinomial logistic regression:** Establish factors influencing preference of different information sources (Woodridge, 2002).

- **Analysis of variance (ANOVA):** provides a statistical test of whether or not the average farm productivity under the three sources of information is equal (Gelman, 2005).

RESULTS

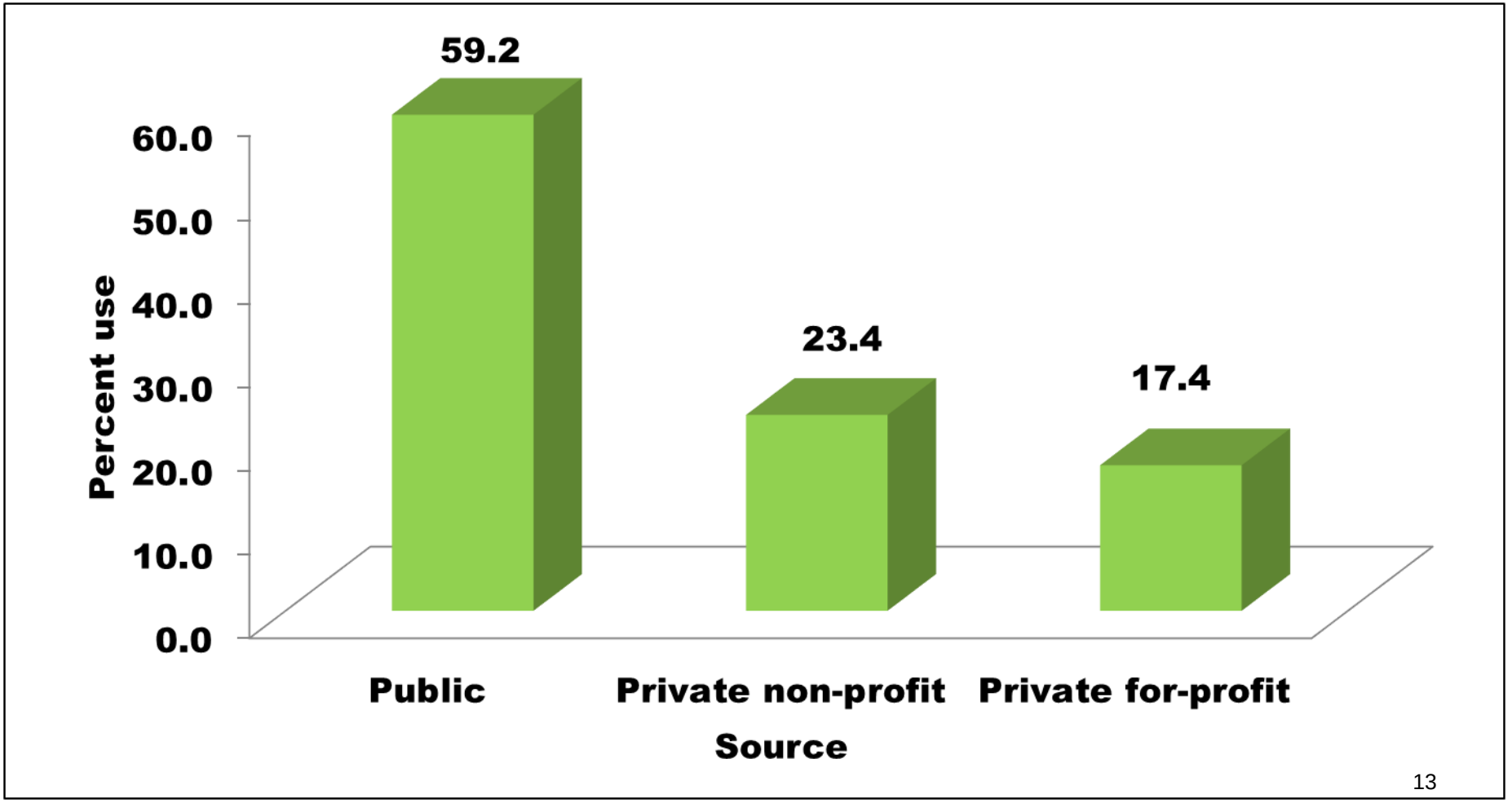
Characteristics of Farmers by Access to Extension

Variables	Accessed extension advice		Chi2 test	Total
	No (79%)	*Yes(21%)*		
Gender (Male=1)	75.4	80.9	18.32***	76.6
Group membership (*if yes*)	52.1	71.6	166.32***	56.2
Credit Access (*if yes*)	24.6	18.9	19.14***	23.4
Own mobile phone *(if yes*)	84.9	93.5	68.90***	86.7
	Mean	***Mean***	***t-test***	***Total***
Age (years)	50.5	50.6	-0.34	50.6
Years of schooling	6.5	8.0	-10.63***	6.8
Land size owned (acres)	3.9	3.7	0.44	3.4
Size of land under cropping (acres)	1.7	1.9	-4.00***	1.7
Household size	5.5	5.8	-3.85***	5.4
Dependency ratio	54.4	66.2	-1.93*	53.2
Distance to the nearest motorable road (Km)	0.4	0.3	4.81***	0.4
Distance to nearest extension service provider (Km)	8.3	6.5	7.35***	7.6
Total value of assets(Kshs)	178,280	280,324	-5.05***	199,717
Net annual household income (Kshs)	231,570	405,774	-2.92**	266,797
Crop income(Kshs)	51,560	95,488	-4.34***	60,443
Livestock income(Kshs)	19,997	79,879	-2.07**	32,106
Off-farm income(Kshs)	146,731	154,380	-0.68	148,278

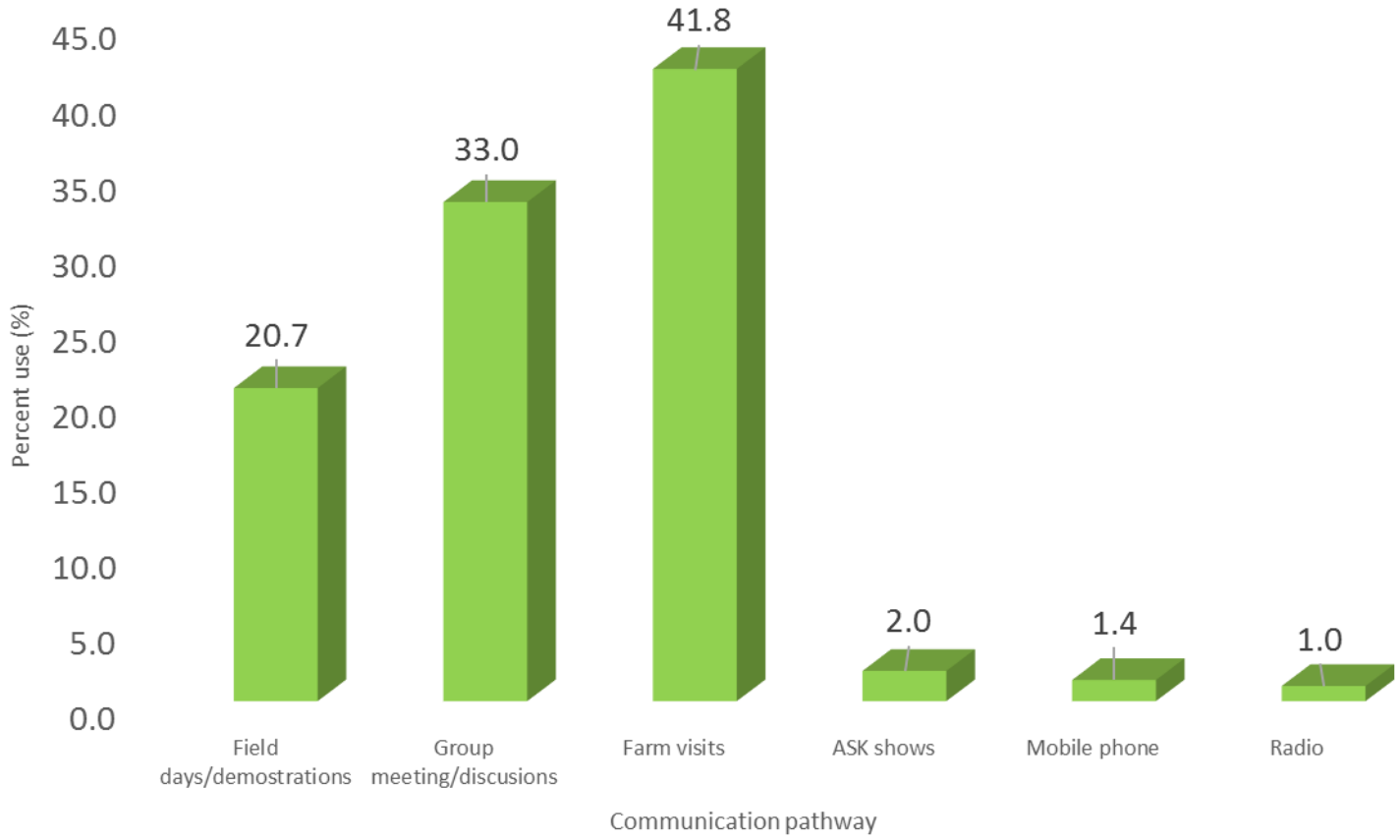
Sources of Agricultural Information in Kenya

Public	Private nonprofit	Private for-profit
Government agent	Non-Governmental Organization (NGOs)	Input dealer
Research organizations	Farmers organization (FOs)	Processing and marketing enterprise
	Community based organizations (CBOs)	Private firms
	Faith based Organization (FBOs)	
	Other farmers	

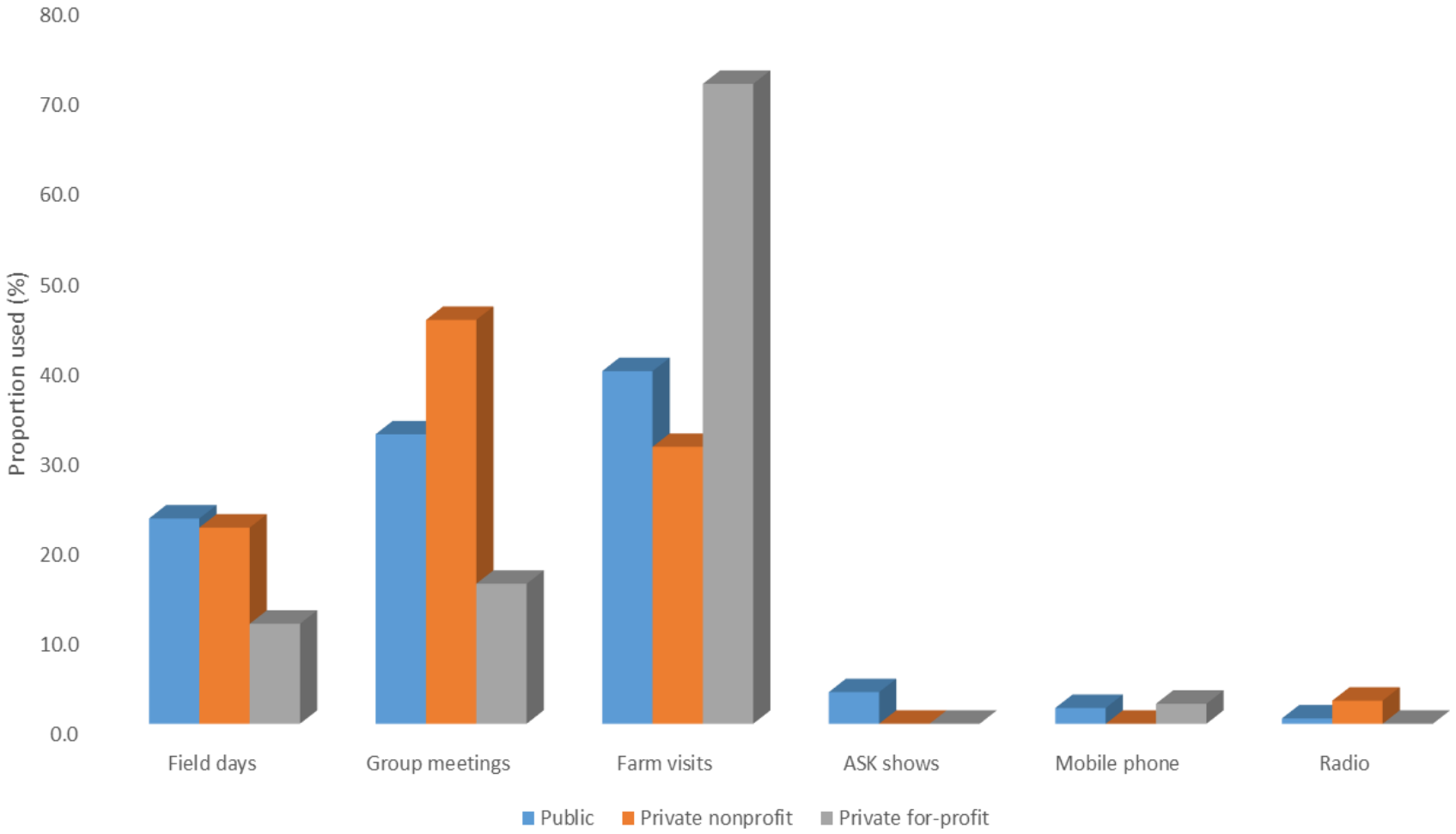
Utilization of Agricultural Information



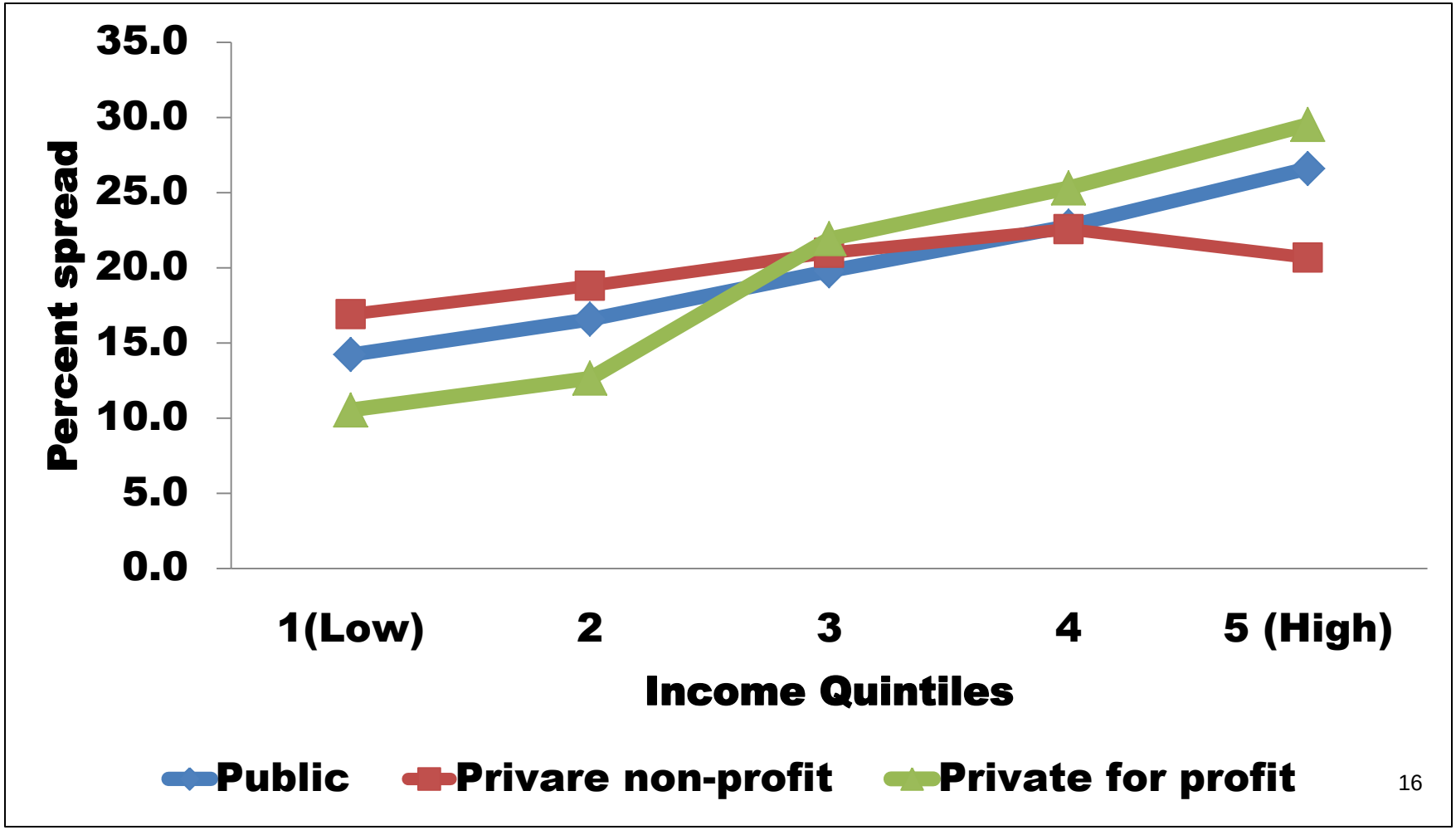
Communication Pathways



Information sources vs Communication pathway



Distribution of service providers across income groups



Farmers' Preference of Agricultural Information Sources

- Base category-public information sources

	Private nonprofit	**Private for-profit**
Age	-***	-***
Group membership		-*
Household size		-***
Land size		-***
Asset value		+***
Ownership of a mobile phone	+**	

Productivity under Different ESPs

ESP	Maize (90kg bags/acre)	Milk (Liters/cow/year)
Public	7.9	1100.5
Private nonprofit	7.4	939.9
Private for-profit	8.5	1626.9

Productivity under Different ESPs

Outcome	Group Vs Group	Group means		Difference	HSD-test
Maize	Public Vs Private nonprofit	7.9	7.4	0.503	1.2763
	Public Vs Private for-profit	7.9	8.5	0.6016	1.5266
	Private nonprofit Vs Private for-profit	7.4	8.45	1.1046	2.8029
	Critical value(.05, 3, 1277) = 3.3183993				
Milk	Public Vs Private nonprofit	1100.5	939.9	160.63	2.1587
	Public Vs Private for-profit	1100.5	1626.2	525.66	7.0643*
	Private nonprofit Vs Private for-profit	939.9	1626.2	686.29	9.2230*
	Critical value(.05, 3, 722) = 3.3213898				

Conclusion & Recommendations

- A relatively small proportion of smallholder farmers are accessing agricultural information in Kenya
  - Increased investment in extension is necessary to achieve the desired results of transforming smallholder agriculture

- Gender differential in access to agricultural extension is evident, yet the role of women in agriculture cannot be undermined.
  - It is necessary of disseminate gender sensitive technologies & interventions to enhance adoption

Conclusion & Recommendations

- Although public extension system has overly been criticized for its inefficiency-this depends on the enterprise in question
  - It is therefore necessary to strengthen the coordination between public and private ESPs to enhance efficiency in delivery of extension service

- Farm visits are still the most common communication pathway used by ESPs
  - Adoption of appropriate dissemination channels (or a combination of different channels) to reach more farmers e.g. *group approach*
  - Integration of ICT in extension, especially the use of mobile phones can increase coverage *(While 87% own mobile phones, only 1.4% are using mobile phones to receive agricultural information)*

Conclusion & Recommendations

- Other ICT platforms like internet (e-Extension) can also be used to improve delivery of agricultural information.
  - However, to achieve the desired result, this will require adequate capacity building for both extension staff and the end users.

Thank you