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Internationally comparable metrics for agricultural extension

Data, indicators, challenges, and opportunities

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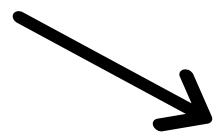
Motivation

- Importance of observable and measurable returns to investment
- In the case of extension, this matters because:
 - Extension is a key input in the theory of change for agricultural development
 - Extension → technology adoption
 - Extension systems have issues of visibility, credibility, and relevance
- Why indicators and metrics?
 - Aggregate descriptive statistics over countries and time
 - Broad system-level analysis
 - Input into priority-setting exercises
- Multiple stakeholders are interested in measuring extension

A starting point

Gates Foundation's internal extension dashboard of 10 indicators (2016):

- Designed to inform investment
- Mix of household-level and public spending indicators



1. Share of Public Budget on Extension
2. Government Budget per Household
3. Financial Incentive of an Extension Agent
4. Continuous Improvement Process
5. Households Directly Reached by Public Extension
6. Households Reached by All Extension
7. Households Reached by ICT
8. Quality of Public Extension
9. Service to Female Farmers
10. Inclusivity

Data sources

- Living Standards Measurement Survey—Integrated Surveys on Agriculture (LSMS-ISA) and similar surveys
 - The World Bank
 - 8 countries: Ethiopia, Ghana, Malawi, Nepal, Niger, Nigeria, Tanzania, and Uganda
 - Multiple survey rounds
- Monitoring and Analyzing Food and Agricultural Policies (MAFAP) database
 - FAO
 - 13 countries: Benin, Burkina Faso, Burundi, Ethiopia, Ghana, Kenya, Mali, Malawi, Mozambique, Rwanda, Senegal, Tanzania, and Uganda
 - Multiple survey rounds

Measuring extension

Challenges

1. Conceptualizing extension metrics
2. Measurement error
 - Non-standardized measurement
 - Misreporting?
 - Precision
 - Limited variation
3. Attributing causality

Opportunities

1. Interesting trends and patterns
2. Sub-sample analysis

Striking a balance between what stakeholders want and what can actually be measured

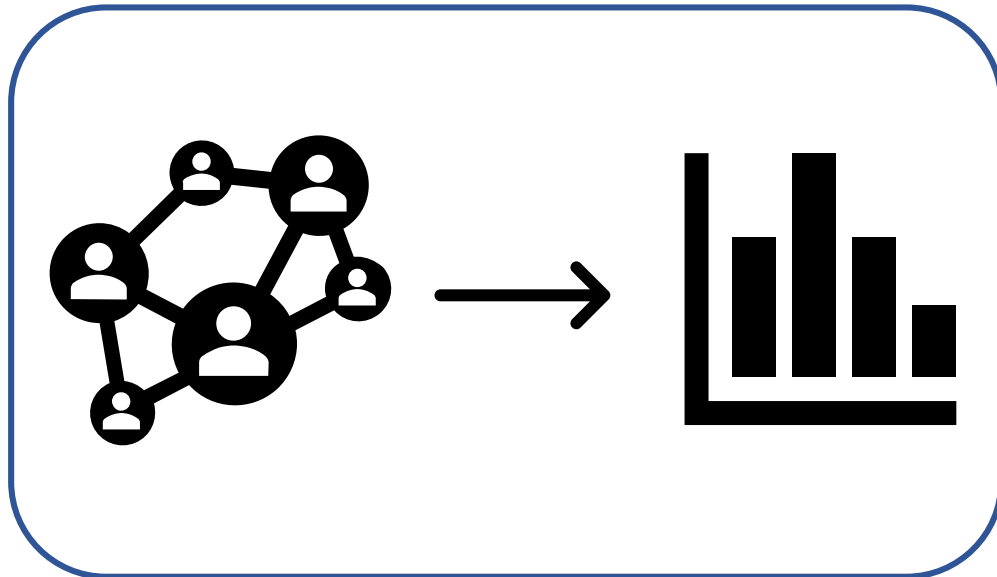
Challenges

1. Conceptualizing extension metrics

Conceptualizing extension metrics

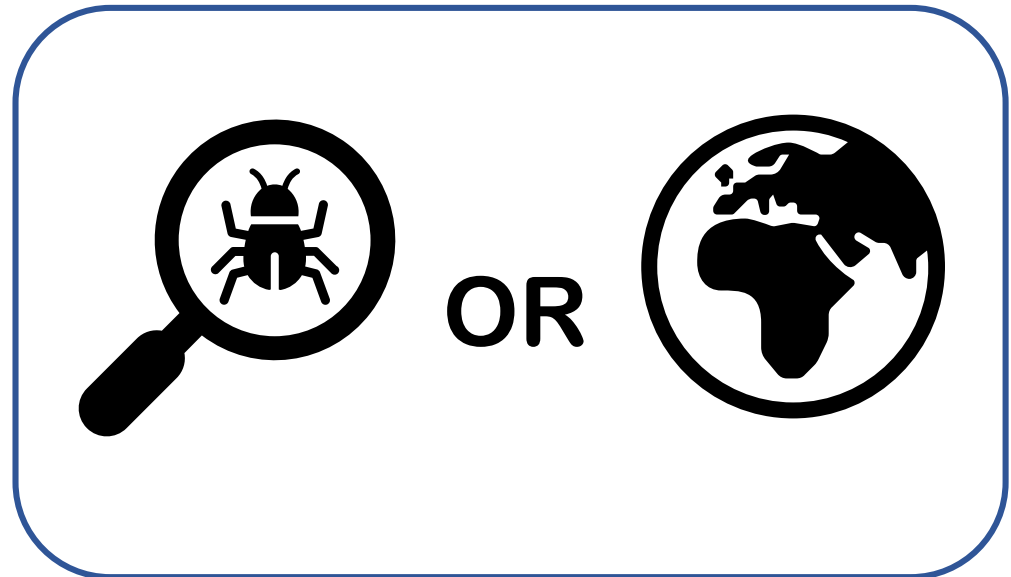
Epistemological debate

Can quantitative measures adequately explain complex, context-specific systems?



Definitional debate

Do we consider narrow measures (public extension spending) or broad measures (pluralism)?

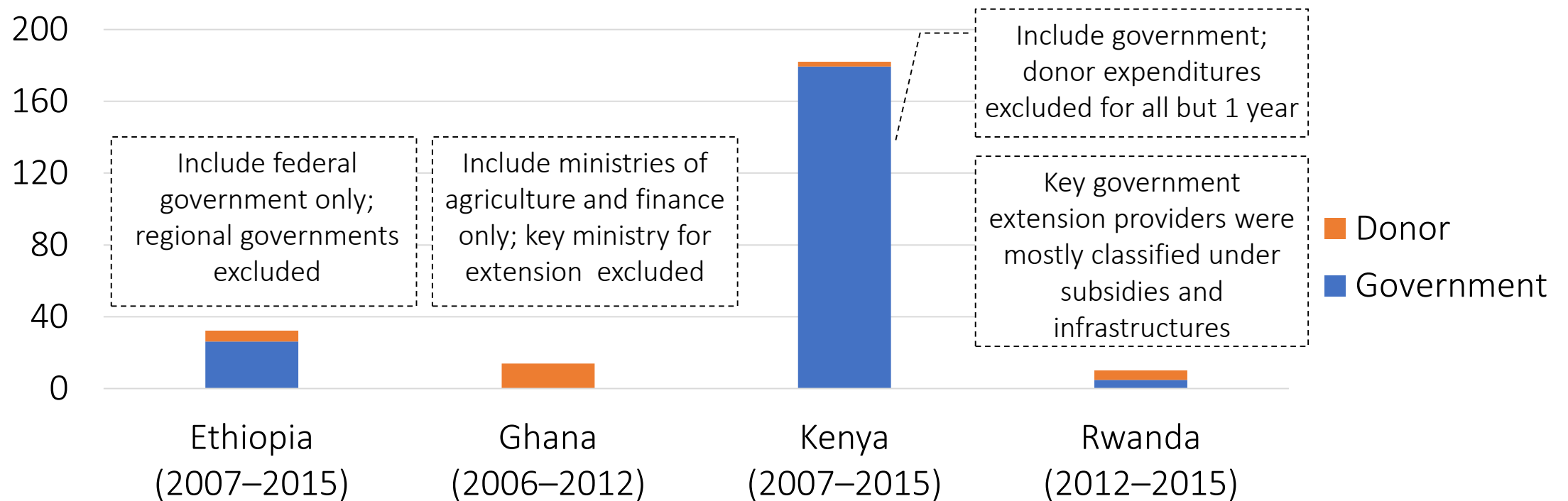


Challenges

2. Measurement error

Non-standardized measurement

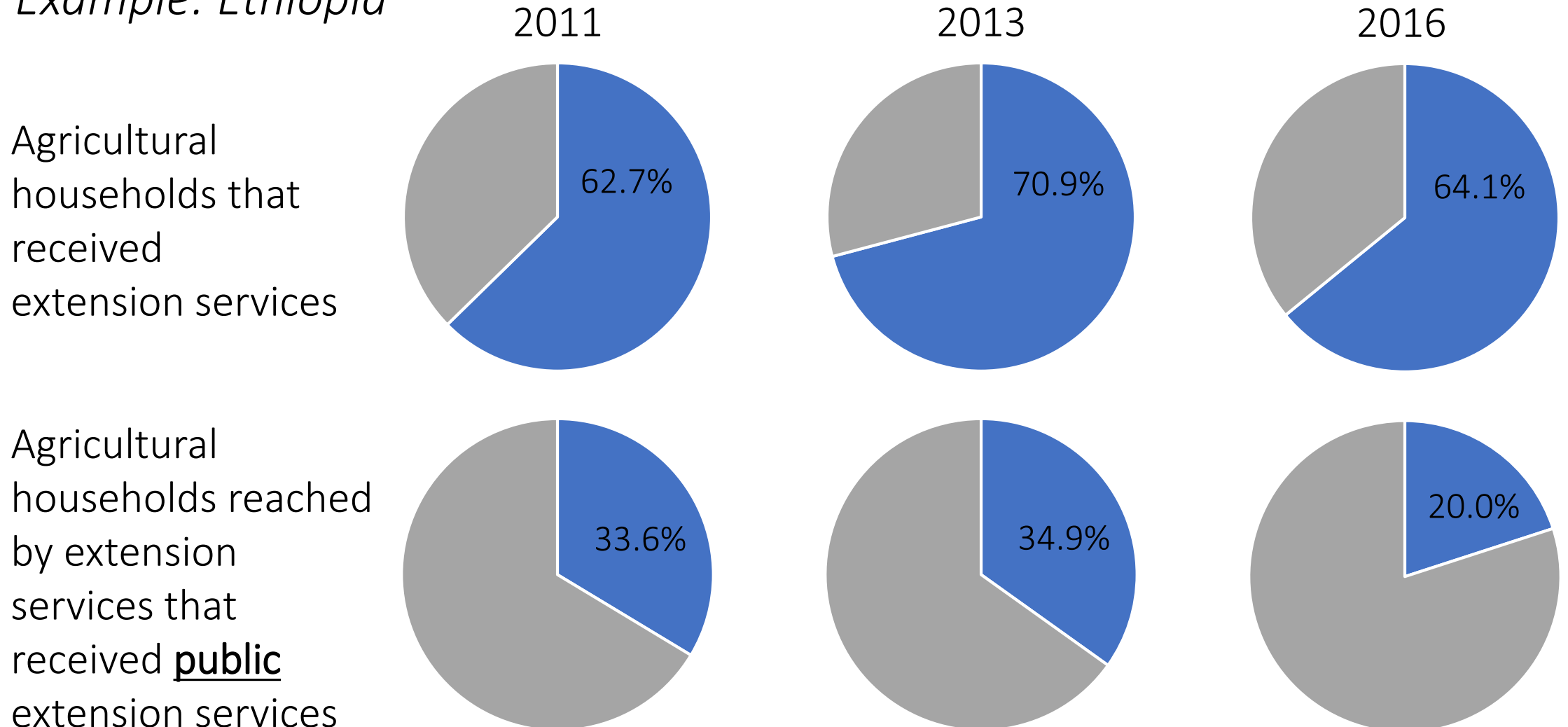
Average annual expenditures on extension
(in million 2011 PPP dollars)



Source: Authors, using MAFAP data

Misreporting?

Example: Ethiopia

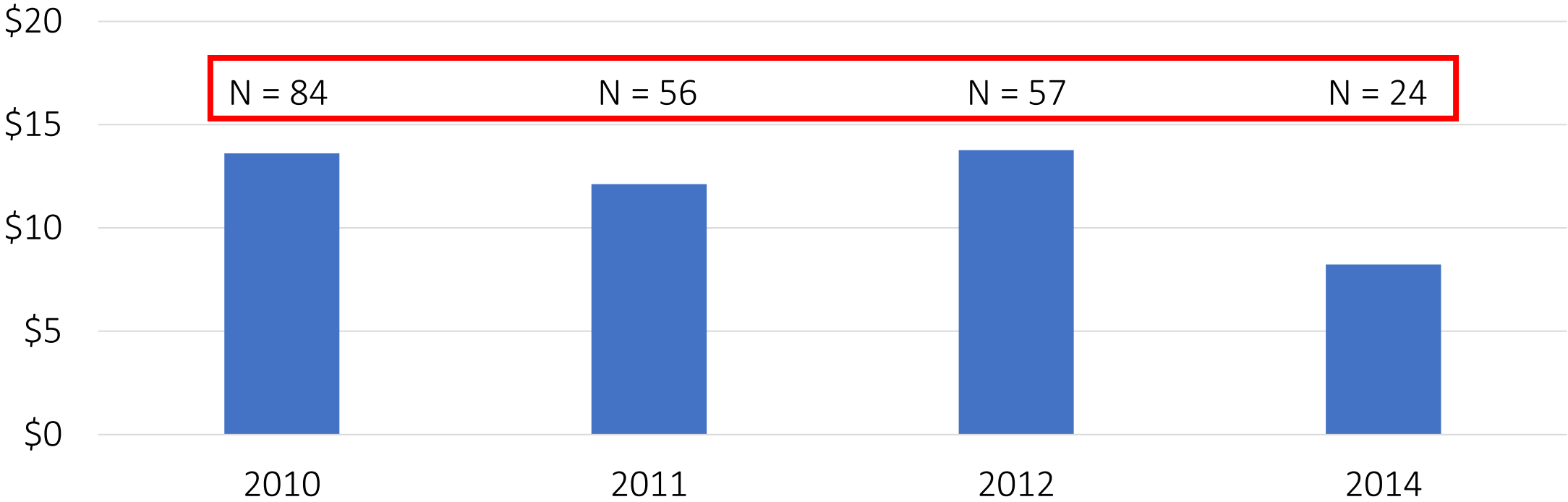


Source: Authors, using Socioeconomic Survey data

The precision problem

Example: Uganda

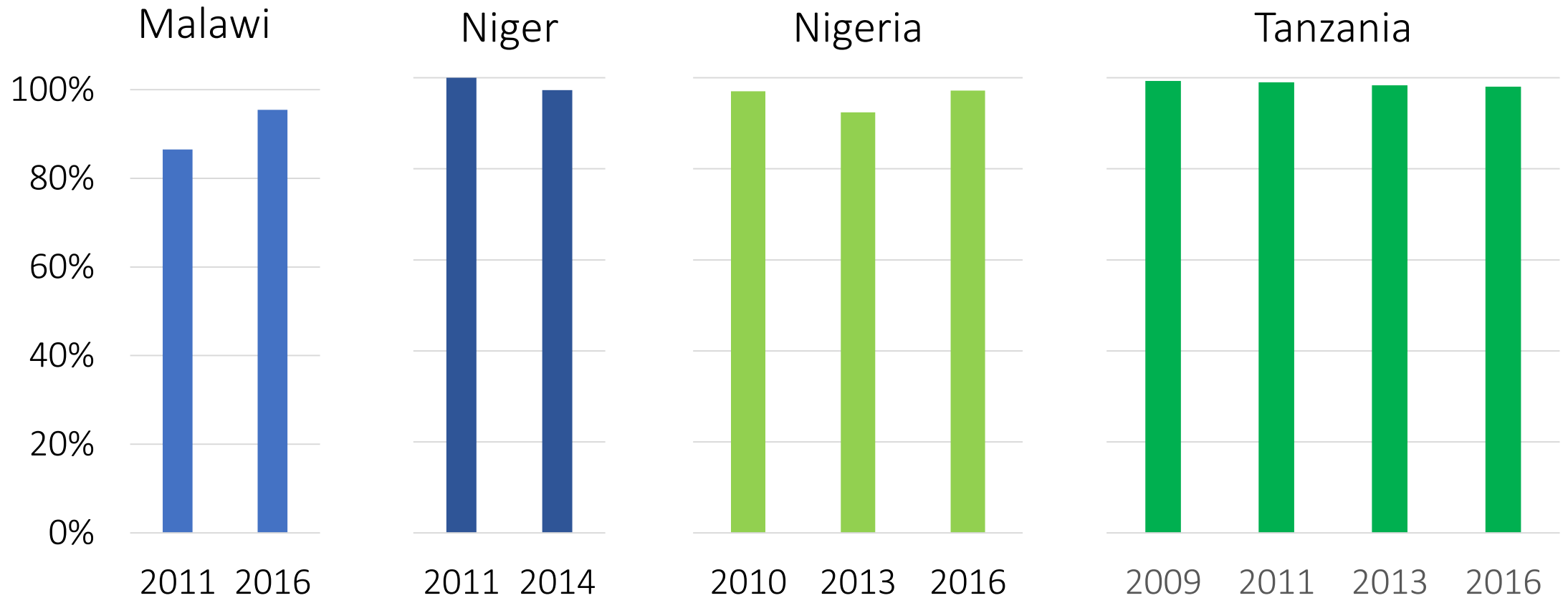
Average annual payment for non-public extension services,
international \$ 2010 prices



Source: Authors, using National Panel Survey data

Limited variation

Percentage of households reached by public extension reporting
good quality extension



Source: Authors, using multiple national panel datasets

Challenges

3. Attributing causality

Attributing causality



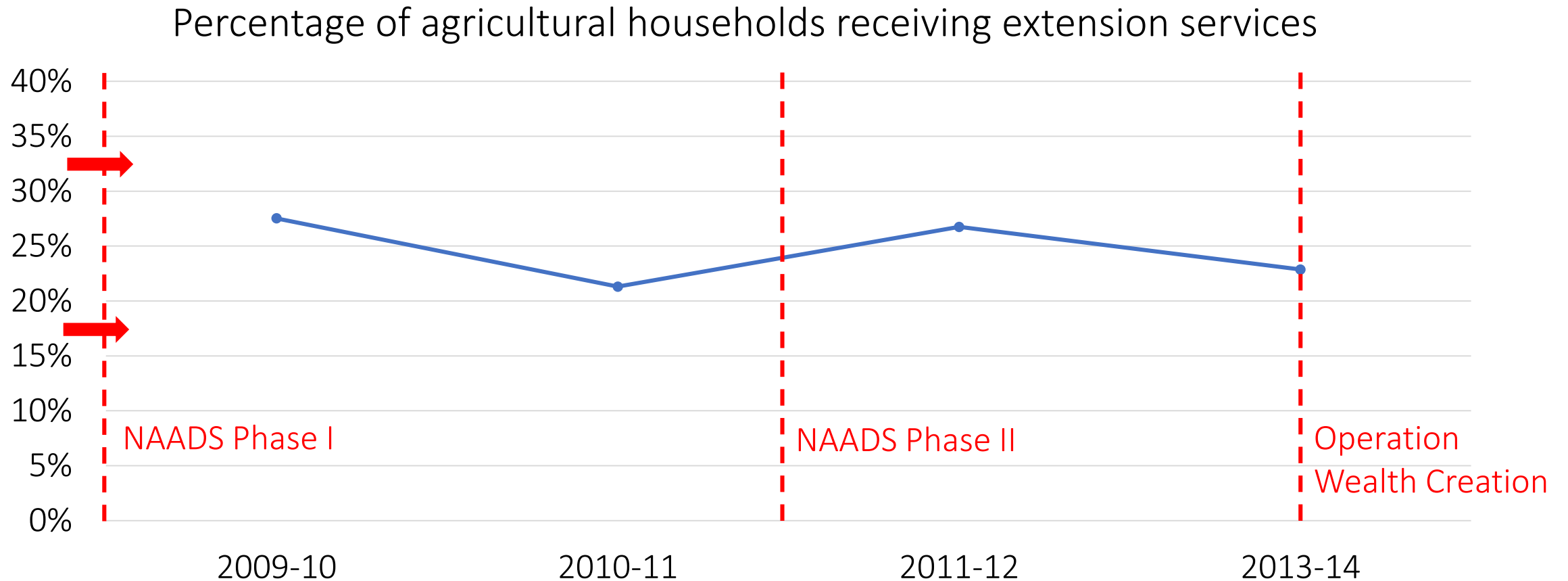
- Correlation \neq causation
- Reverse causality
- Simultaneity
- Need for complementary approaches to ascertain causality between extension and technology adoption

Opportunities

1. Interesting trends and patterns

Access to extension and government policy

Example: Uganda

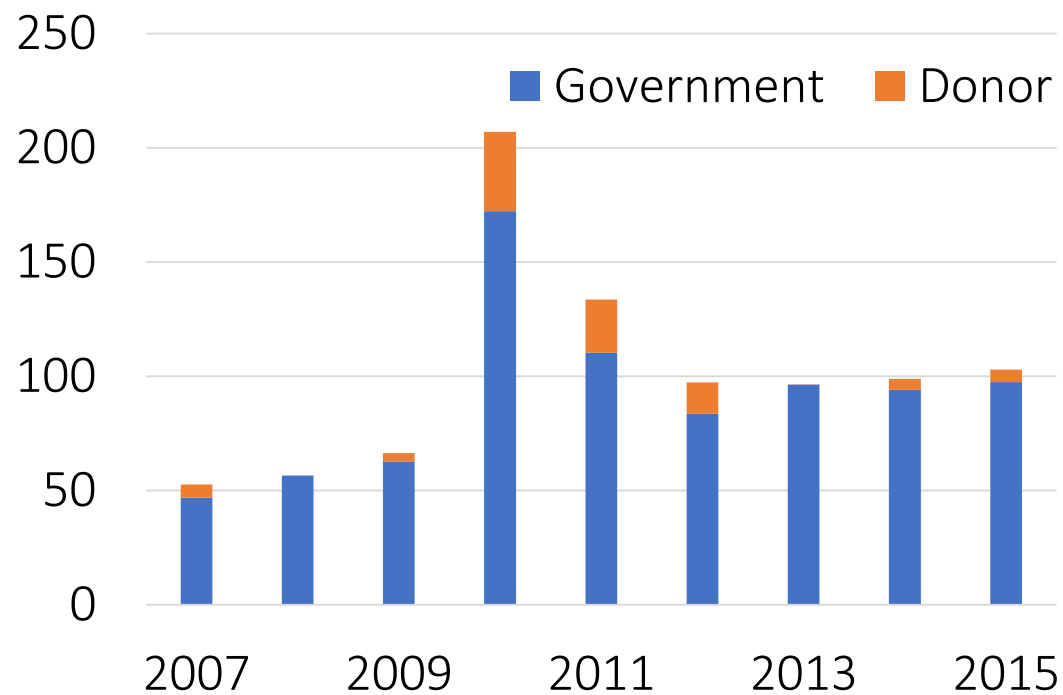


Source: Authors, using National Panel Survey Data

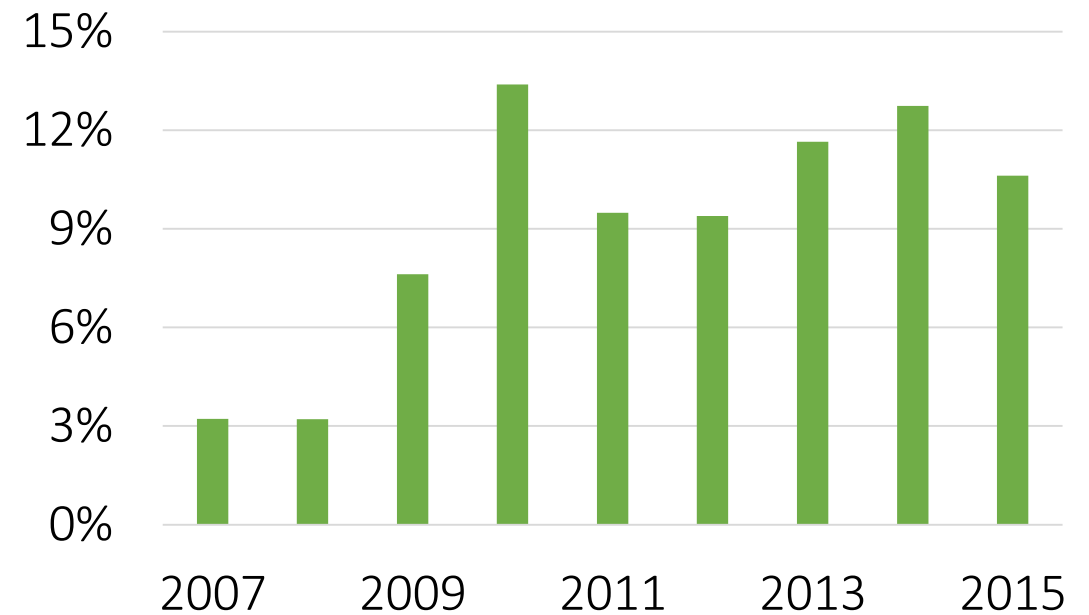
Public spending on extension

Example: Uganda

Extension expenditures
(in million 2011 PPP dollars)



Extension expenditures as a
share in total support for
agricultural sector (%)



Source: Authors, using MAFAP data

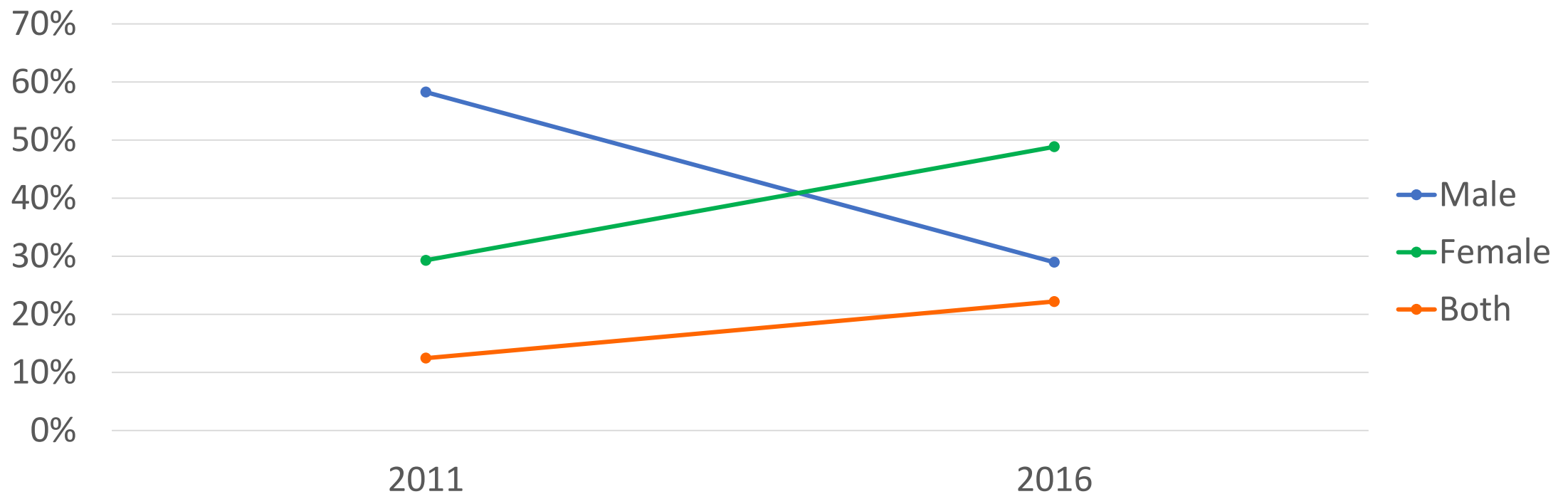
Opportunities

2. Sub-sample analysis

Gendered access to extension

Example: Malawi

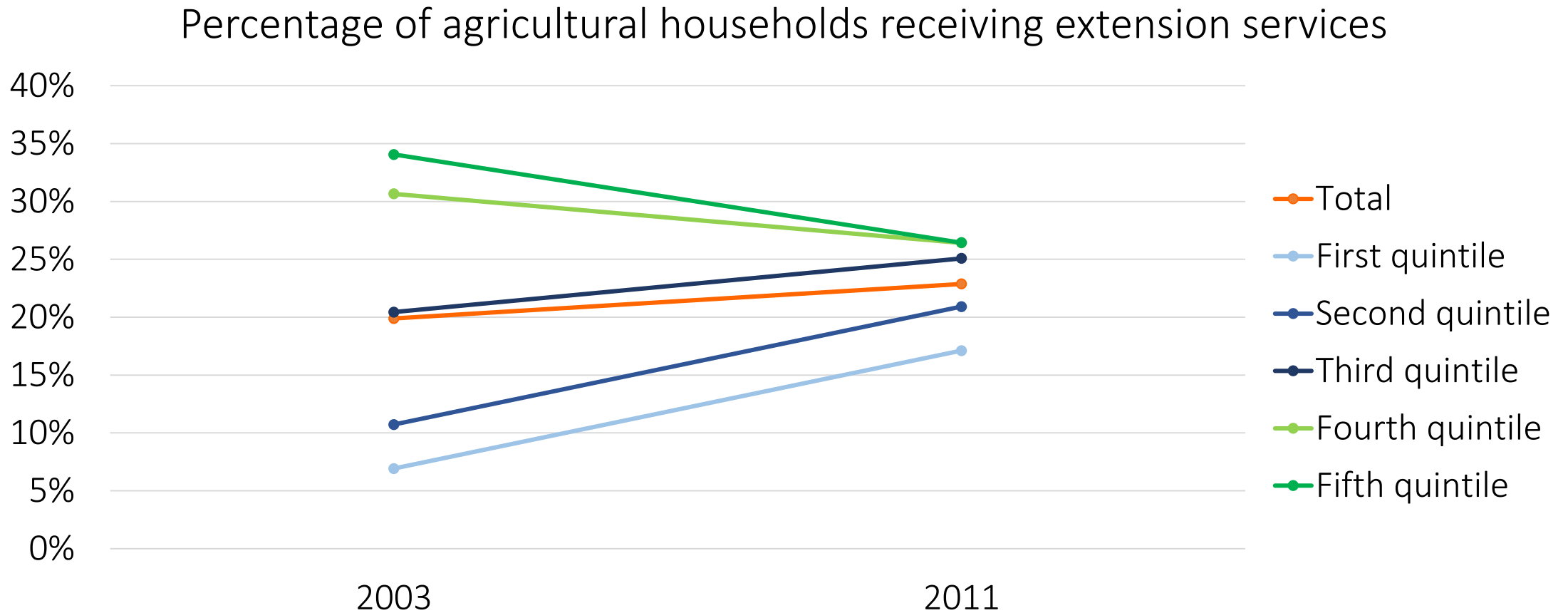
Percentage of agricultural households reached by extension services that received **public** extension services, by gender



Source: Authors, using Integrated Household Surveys

Extension access, by quintile

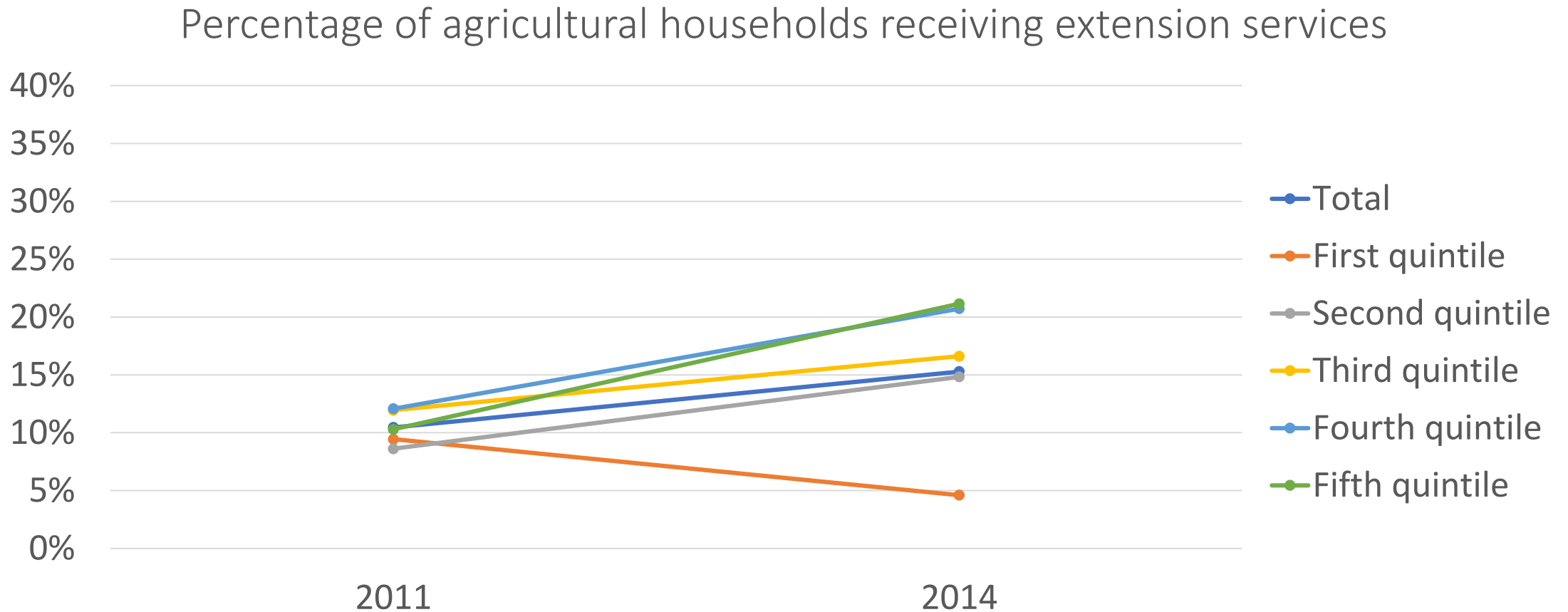
Example: Nepal



Source: Authors, using Livings Standards Surveys

Extension access, by quintile

Example: Niger



Source: Authors, using National Household Survey on Living Conditions and Agriculture

Conclusion

- Need for a standardized and universally accepted definition of extension
- Extension indicators can tell interesting stories and shed light on important patterns and trends
- Need for more good quality data—primary and secondary
- Cross-country indicators should be used with caution in policymaking
- Extension indicators are more useful if complemented by deeper analysis if we are interested in causality
 - In-depth system level analysis complemented by project-level studies and impact evaluations



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The U.S. Government's Global Hunger & Food Security Initiative

Thank you

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