



Global
**Antibiotic
Resistance**
Partnership

CDDEP THE CENTER FOR
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Do Economic Incentives (or Disincentives) Affect Antibiotics Use?

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1. Introduction

- (a) This question is motivated by *economic* considerations in relation to consumption of *antibiotics* on the one hand;
- (b) and the potential of the disease-causing agents (bacteria) *quickly* becoming *resistant* to antibiotics on the other -- as a result of the *way* the antibiotics are used to deal with diseases.

Introduction...

- Technically, the research question is whether or not antibiotic use is *responsive* to changes in economic incentives.
- The policy concern is whether this information can be used to delay or manage the problem of resistance by harmful bacteria to current antibiotics.

Introduction...

- These research and policy questions have a strong grounding in some literatures on resistance of bacteria to antibiotics:

“The indiscriminate and inappropriate *use* of antibiotics ...is the *single largest factor* leading to antibiotic resistance.” (Alanis, 2005, p. 697); emphasis added.

Introduction...

- A better understanding of antibiotic *consumption* and *prescription* behaviors can help extend effective lives of the existing antibiotics.
- In particular, socioeconomic gradients of antibiotic utilization (patterns of use by SES) can provide information for designing optimal use policies.

Introduction...

- Optimal use of antibiotics (usage pattern that minimizes probability of resistance) is unlikely to be achieved without *empirical evidence* on consumption of antibiotics by socioeconomic characteristics of the population both in hospital settings and in communities.

2. Does Antibiotics use respond to economic incentives?

- Remarkably, this question cannot be adequately addressed without also identifying the effects of non-economic factors on antibiotic use.
- The effects of non-economic factors must be accounted for in order to isolate and measure the impacts of economic factors on antibiotic use.

3. Examples of economic and non-economic factors in relation to antibiotic use

- A. Economic factors and institutions governing effects of these factors on antibiotic use
- *Prices* of antibiotics (associated institutions): payment mechanisms such as insurance, credit and exemption schemes, price subsidies.
 - Types of household *incomes* and assets (associated institutions): intrahousehold distribution rules and norms governing control of income and ownership of assets.

Economic Incentives...

- Incomes of *health care providers* or salaries of health care workers (associated institutions): prescription norms; regulations governing types of antibiotics available in hospitals, clinics, local shops, pharmacies, and other drug outlets, and enforcement mechanisms.
- Antibiotic advertisements by industry and prices of alternatives to antibiotics.

Non-economic Incentives...

- B. Prevailing cultural beliefs about efficacy of antibiotics in curing or preventing certain diseases.
- C. Social-demographic characteristics such as age, gender, education.
- D. Institutions governing the agency relationship between patients and health care professionals (e.g. laws against malpractices or wrong medications).

4. Proposed measurement model

- A model of demand can be estimated to compute responsiveness of antibiotics usage to prices and incomes, controlling for demographics and other non-economic factors such as social networks (e.g. does the patient know another person currently using this antibiotic or who ever used it?)
- Estimation challenges include data availability and model specification issues.

5. Study design and data

- Data collection: possibilities
 - Data may exist in medical research institutes in Kenya to conduct preliminary analysis
 - Data on antibiotic prices and use at the district level or survey clusters can be collected and combined with national data such as the KIBHS of 2005 for selected districts or clusters for prelim. analysis.

Data...

- Small scale surveys can be conducted in a few hospitals in Nairobi to obtain data from outpatients on antibiotic use plus demog at the hospitals and other facilities visited over the previous 2-4 weeks.
- It would be possible to collect information on antibiotic purchases and prices at sites of interviews and same data plus antibiotics use on previous visits.
- Collection of experimental data is not feasible.

6. Conclusion

- Evidence on patterns of antibiotic use by socioeconomic characteristics is an important input into the design and implementation of policies for encouraging optimal use of antibiotics and other drugs.
- This evidence is not currently available in Kenya.
- An example of the type of analysis that needs to be done to generate the required evidence can be provided using existing data or new data from small pilot surveys.

Conclusion...

- Thank you very much.

(The relevant references will be provided)