

The Economic Impact of AIDS Treatment: Evidence from Western Kenya

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Objectives

- Clinical benefits from ARV treatment clear, our goal is to assess economic benefits
- Work presented today focuses on 5 primary endpoints (3 papers):
 - Patient labor supply
 - Family labor supply
 - Children's education
 - Nutrition of young children
 - Time allocation of tasks within the household

Motivation

- AIDS in sub-Saharan Africa is enormous problem
- ARV treatment works well, but is costly
- Little is known about non-clinical response to treatment
- Non-clinical impacts extremely important for several reasons:
 - Need to understand intergenerational aspect of problem
 - “True” cost-benefit needed to decide investment
 - Helps delineate value of drugs to local economies/societies
- Intrahousehold dynamics interesting in own right
 - How do families cope with shocks?
 - Are reallocations responsive to recovery?

Data

- Panel survey with patients from HIV clinic and households in surrounding villages
- Three rounds of data from 2004-2006
- 81 percent of interviews conducted at home
- Interviews with head, spouse, one randomly chosen youth
- Data collected on demographics, education, health, employment, income, consumption, agricultural activities, anthropometrics, assets, and transfers
- Survey data matched with medical records

Survey Sample Design

- 266 households from Mosoriot HIV clinic
 - All non-pregnant patients within Kosirai Division
 - Sample of patients from outside Division
 - ARV recipients prior to round two: 224
- 503 households chosen randomly
 - Census of all 105 villages in Kosirai Division
 - Primary purpose to control for seasonality
 - Also useful for understanding selection into testing
- Focus on children living in these households
 - Schooling: 8-18 years
 - Nutrition: 0-5 years

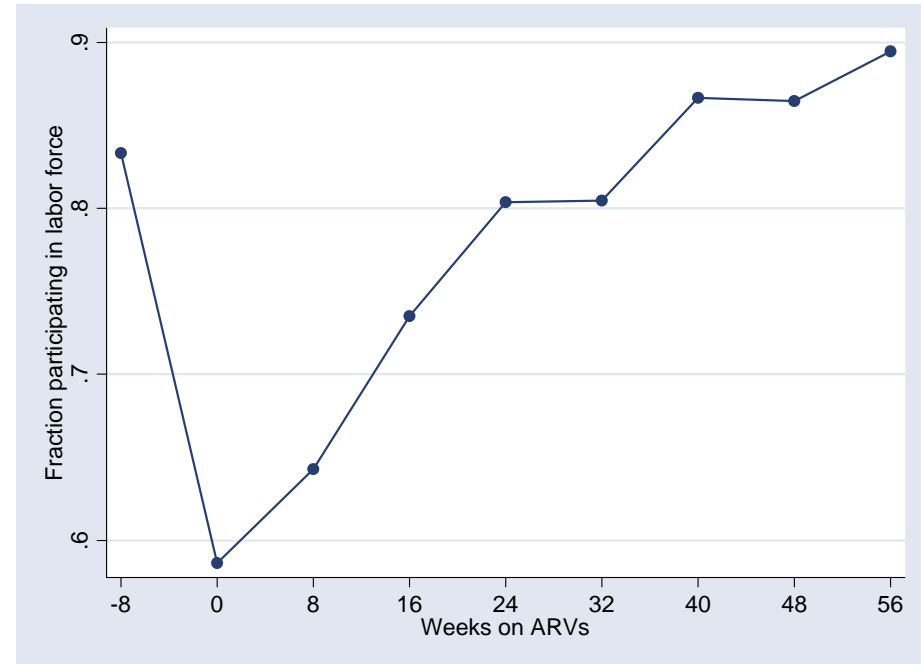
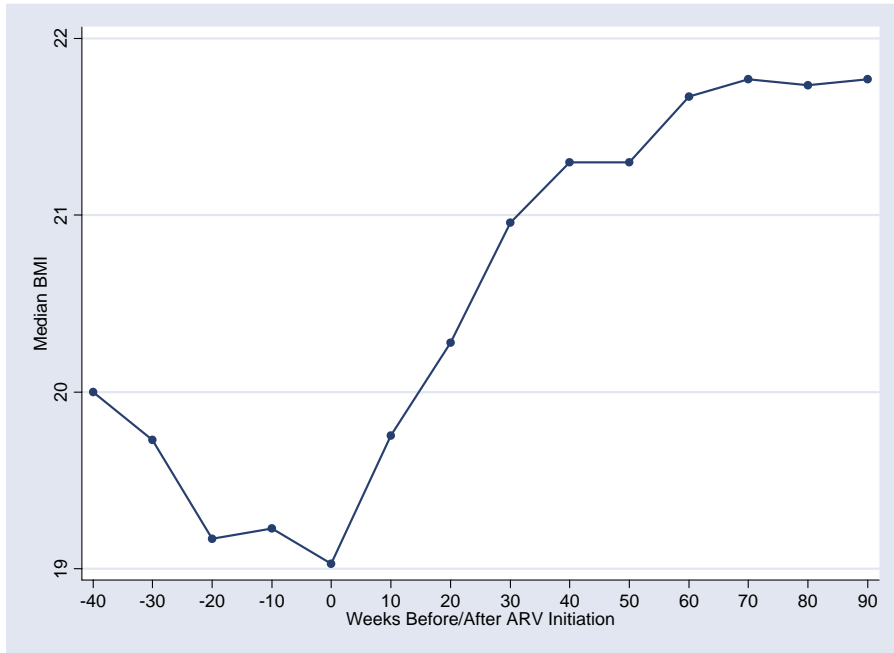
Methodology

- Comparison of pre- and post-treatment outcomes for patients receiving ARVs
- Correction for seasonality and time-varying determinants with data from random sample
- Ethical constraints to observing counterfactual
- Without treatment, patients will die within 6-12 months
 - Patient-level results are *underestimates* of true impact
- Bias for household-level results less clear so use a range of comparison groups (matching, orphans) to ascertain effects on non-patient

Results: Patient Labor Supply

BMI Before and After ARV Therapy

LFP before and after ARV Therapy



Source: AMPATH Medical Records System – data as of March 2005.

Source (right): Household survey data.

Patient & Household Labor Supply Regression results

- Very large (and rapid) increases in patient labor supply
 - 16.7 percentage points LFP; 6.9 Hours
 - Better counterfactual more than quadruples numbers
- Sizable decreases in labor supply of young boys
 - 22.7 percentage points LFP; 8.6 Hours
 - No significant response for girls, others living in the household

Regression results: child schooling and nutrition

- Kids increase school attendance
 - 6.7 hours all kids; 9.1 hours for boys, 6.4 hours for girls
 - Versus orphans: 10.7 hours all kids; 15.7 hours boys, 10.8 hours for girls
 - Response is concentrated in first 100 days of treatment
 - PSM results show similar effects
- Nutritional improvements for children under 5
 - Z-score weight-for-height improves by one-half standard deviation
 - Effect is seen in first 100 days of treatment, but for those more malnourished (ie wasted), effect persists well into course of treatment

Regression results: time allocation within the household

- Patients
 - Not only healthier, but spend significantly less time (3 hours per week) seeking medical care
 - Female patients increase time gathering water and firewood
- Other adults
 - Women reduce care-giving/health seeking time as treatment progresses
- Children
 - Boys, young and old, reduce housework
 - Older girls reduce water gathering

Conclusions

- AIDS treatment generates large economic benefits and shifts in household labor allocations
 - Tasks shift within households
 - Patient labor impacts translate into \$80 increase in annual earnings (\$270 if counterfactual is no work)
 - Impacts on children suggest strong implications for economic growth as well – as nutrition and education are boosted
- Return on ARV treatment extends beyond direct health benefit with sizable benefits for local economies today and in the future

