

GLOBEMED TALK: THE ECONOMICS OF GLOBAL HEALTH

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- how we can think about global health issues using economics
- own research on HIV/AIDS
- suggestions
- **what is global health?**
- How should we define it?
 - o Do we have access around the world? Are people being able to improve their health outcomes? Access to clean water, mosquito nets, basic health services
- **Discrepancies in health outcomes around the world**
- How people die in low income countries vs. how people die in rich countries
- In low income countries – things that can be prevented – diarrheal diseases, tuberculosis, malaria
- Why are there discrepancies?
- Wealthier countries can afford better treatment
- More chronic long term diseases that affect you much later on in life in the wealthier countries
- **Discrepancies in life expectancy**
- High income countries: +2/3 of all people live beyond the age of 70
- Low income countries: less than 1/5 of all people live beyond the age of 70
- Disease burden in low income countries
- **Why economics?**
- What do you think of “economics”?
 - o Distribution of resources, how should we allocate scarce resources?
 - o Market allocates scarce resources, people that value things more will pay a higher price for things, marginal cost and marginal benefits
 - o Investments, finance, inflation, unemployment, GDP
- Microeconomics (theory) – study how individuals make decisions, stories we tell about how people behave
- Econometrics (empirical) – data, what does the data show on people’s behavior?
- Make models and then test that in the data
- **Global health and prevention**
- Technologies that can dramatically reduce the risk of disease
- Global health: diarrhea (chlorine, filters), HIV/AIDS (monogamy, condoms), malaria (insecticide treated nets or ITNs)
- Puzzle? Why isn’t everyone using these technologies? Especially if you’re in a low income country where your child can die of these diseases
 - o Access and affordability – maybe they’re too expensive, income constraints
 - o Cultural beliefs and religious norms
 - o Lack of education or information
 - o Fatalism – competing mortality risk
 - o Political situation
 - o ^ all of these reasons are outside the biomedical field

- can use economics to try to understand what are the constraints
- **global health and economics**
- economics attempts to understand these puzzles
 - why are some people choosing not to use these technologies?
 - Examine the “demand” for chlorine, monogamy, ITNs
- Standard or “classical models”
 - Focus on benefits vs. costs
- Psychological or “behavioral models”
 - Emphasis on traits like procrastination
 - Emerging field in economics
- **HIV/AIDS globally**
- Research using economics to understand HIV/AIDS
- Sub-Saharan Africa has very high prevalence compared to rest of world – burden of HIV/AIDS
- Disproportionate burden of epidemic
- Why does SSA bear disproportionate burden of the HIV/AIDS epidemic?
 - Lack of infrastructure – health services like clinics, lack of access to condoms, lack of access to health services, social stigma, lack of awareness/education that condoms are effective, biological reason – particular strain in Africa could be more infectious or have more mutations
- Public health/epidemiological explanations
 - Origins of HIV-1 virus in central Africa
 - Public health systems
 - Lack of public awareness
 - Non effective educational campaigns
 - Insufficient access to clinics/health facilities
 - Multiple concurrent partnerships → hypothesis – certain people in sub-Saharan Africa are having different types of relationships than in other countries
 - In US its common to have serial monogamy
 - In SSA there’s evidence that people might have two partners simultaneously
- Is there an economic reason for multiple concurrent partnerships?
 - Income insecurity affecting sexual behavior
- How do people make decisions on sexual behavior? Is there evidence of this story?
- **Microeconomics of sex**
- Individual decision making
 - Weight benefits vs. costs of a decision. Benefits > cost → act
 - Benefits: pleasure, intimacy, procreation, money (prostitution)
 - Costs: STDs, unwanted pregnancy, stigma
 - Do I have sex? And with whom? And how many partners?
 - Perceived benefits and costs may depend on:
 - Emotional/psychological state
 - Alcohol consumption

- Markets for sex
 - o Require two parties/agents (supply and demand)
 - o What effects this market?
- **Income shocks**
- What happens if you are faced with an unexpected income shock?
 - o You need income/cash in the present
 - o Examples: jobs loss, health problems
- Social safety nets
 - o Health insurance, income assistance
- Financial products
 - o Savings/loans/credit
- **Transactional sex**
- Most low income countries don't have social safety nets or financial institutions - eg. rural Kenya
- Transactional sex as coping strategy
 - o Exchange of material support for sex
 - o Can occur in ongoing long term relationships
- Missing two of the major components we have in rich countries that allow us to cope with unexpected expenses
- Transactional sex not always explicit exchange like in prostitution
- Might be a need for transactional sex because missing two components in low income countries
- Evidence it's a non trivial fraction of the population engaging in multiple concurrent partnerships
 - o Multiple concurrent partnerships could be contributing to transmission of HIV/AIDS
- Economics of sex
 - o Individuals face with income shocks: marginal benefit \geq marginal cost
 - o Markets for transactional sex
- Evidence
 - o Post WWII Germany, Italy, Japan
 - o Great Depression in US
 - o Economic turmoil in USSR
 - o South Africa, Kenya, Malawi
 - o ^ didn't have AIDS epidemic in first three but have it in fourth
- coping strategy has hidden costs if HIV/AIDS is present
- **research question**
- is there a link between income shocks and actual HIV infections in SSA?
- Idea: income shocks \rightarrow increases in transactional sex \rightarrow higher rates of HIV infection
- Reasons
 - o lack of access to formal insurance, savings, credit
 - o Lack of formal safety nets
- HIV is generalized epidemic
- Can we examine data?
- **Data: measuring HIV infections**

- Demographic and health surveys
 - o Population based surveys of 19 countries in SSA
 - o HIV status for +200, 000 individuals 15-49 yrs old
 - o GPS coordinates the villages where these individuals live
- **Data: measuring income shocks**
 - o Difficult to do – why?
 - o No income tax records. No wage data
 - o Difficult to ask people to recall what their income levels were (past month, past year, past 5 years)
 - o Solution: think about factors that affect income SSA
 - o Weather! Specifically rainfall levels
 - Idea: most rural Africans depend on rain-fed agriculture for their livelihoods
 - Irrigation not available to vast majority of farmers
 - During draughts → crop failure → income shock
 - o University of Delaware weather data;
 - 0.5x0.5 degree grid monthly precipitation from 1900-2008
 - o we match ~8000 DHS clusters to 1700 grid cells in UDel data
- **econometrics**
- estimate effect of drought on HIV
- approx. life expectancy is 10 years after infected with HIV and no treatment
- effect of droughts on HIV
 - o chance of getting HIV increases as more droughts experienced in your village
 - o 4.1% for 0 droughts, 5.3% for 3 droughts
- differences between countries with low and high prevalence of HIV
- large effect in countries that have ongoing epidemic
- effects focused on agricultural females
 - o drought principally effect women whose principal income in agriculture
 - o compare women working in agriculture vs. non agriculture (teachers, govt workers)
 - o see relationships between droughts and HIV for agricultural women but not with non agricultural women in urban environments
 - o droughts reduce incomes of agricultural females
 - o suggests that negative income shocks → women increasing supply of risk
 - o droughts are affecting mostly men in non agricultural sector – they are the ones who have income still to pay for transactional sex
- **supply and demand for sex**
 - o women on supply side
 - o men represent demand side
 - o shock increases supply for transactional sex
 - o largest increases in ag females and non ag men
- **summary: income shocks and HIV**
 - o do negative income shocks lead to increased risk of HIV infection?

- Evidence suggests this is the case
- Can economics help explain HIV/AIDS epidemic in SSA?
 - Limited access to savings/insurance and social safety nets
 - HIV is generalized epidemic
 - Markets for transactional sex
- Going forward
 - Response to shocks maybe due to lack of access to savings/insurance or social safety nets
 - Providing access might reduce this response
 - Can access to social
- **Disclaimer**
- Global health is multidisciplinary
- Advice is economics focused
- Career paths: graduate school, policymakers, practitioner/aid worker
- Measurement and evaluation: what works in global health?
- **Ways of thinking/methods/skills**
- Statistics is very important
- Analysis data
- Econ 210-211 sequence is important
- Microeconomic theory
- Economics of global health
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