Determinants of HIV

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December 4th, 2014

Outline

- Research Question and Motivation
- Theoretical Framework
- Methodology
- Descriptive Statistics
- Findings
- Conclusion and Limitations

Research Question and Motivation

Research Question: Are community level factors significant determinants of HIV/AIDS incidence rates?

1. Understand why some countries failed to achieve MDG 6A

   - *MDG 6: "Combat HIV/AIDS, malaria and other diseases"*
   - *Target 6A: "Have halted by 2015 and begun to reverse the spread of HIV/AIDS"*

2. Explore disease-specific determinants of health

Theoretical Framework
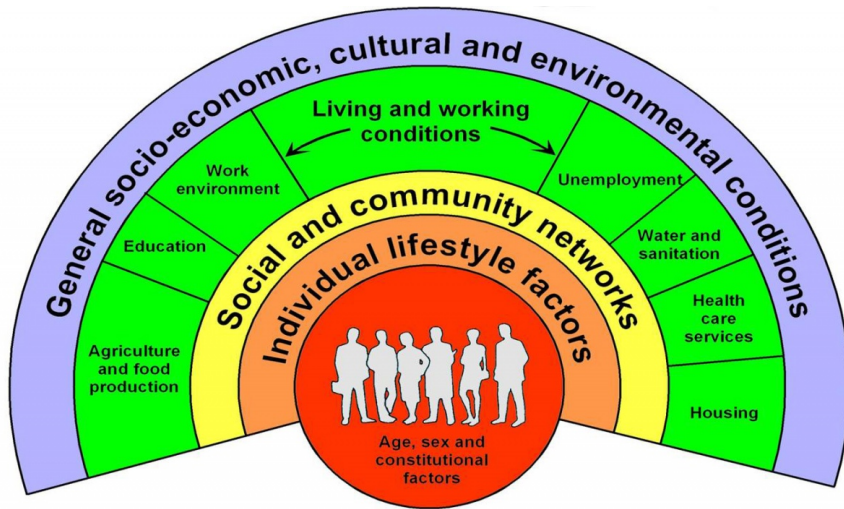
Source: Dahlgren and Whitehead, 1991

Methodology and Dataset

Model

$$I_{it} = \beta_0 + \beta_1 SE_{it} + \beta_2 WLC_{it} + \beta_3 SCN_{it} + \beta_4 ILF_{it} + \epsilon_{it}$$
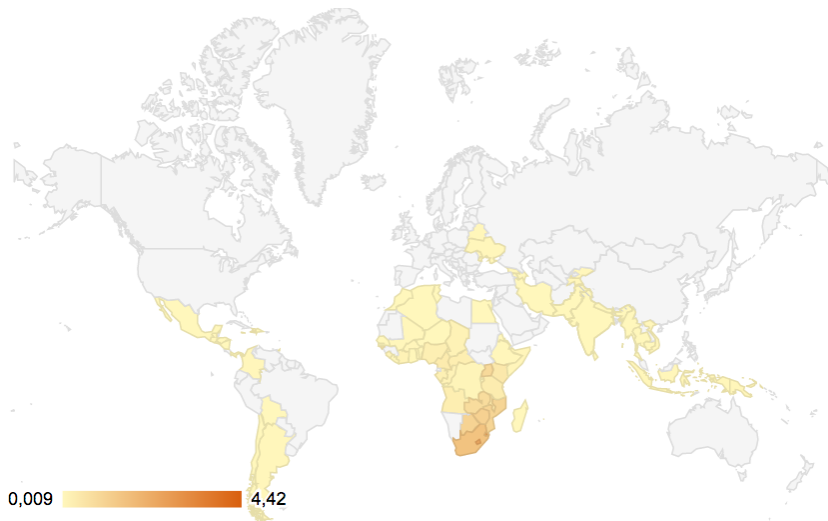
Datasets

- We will use the World Development Indicators (WDI) for the independent variables and a dataset from UNAIDS for the HIV/AIDS prevalence rate.
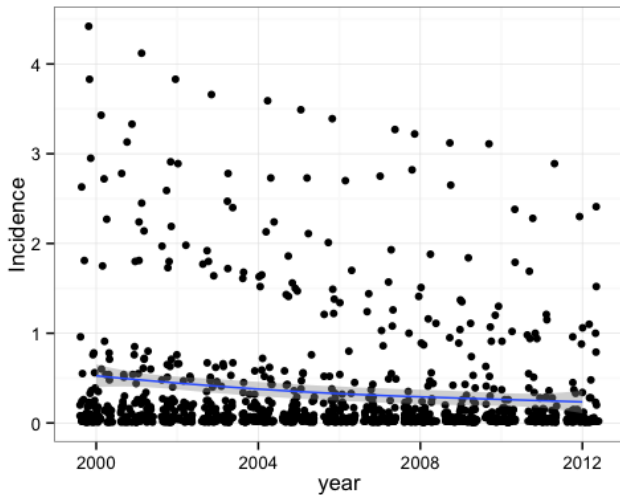
Methodology

- Model 1: Logistic Regression & Predicted Probabilities
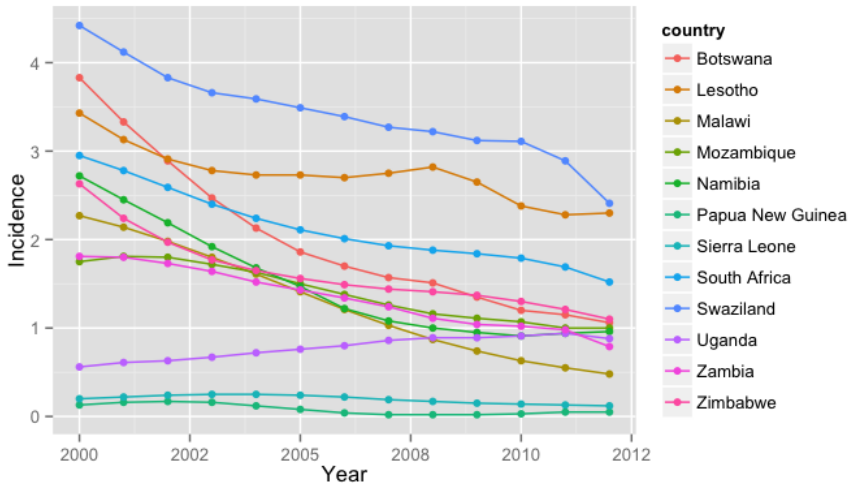- Model 2: Pooled OLS Regression & Fixed Effects

Distribution of HIV Incidence Rates

0,009   4,42

HIV Incidence Rates over Time
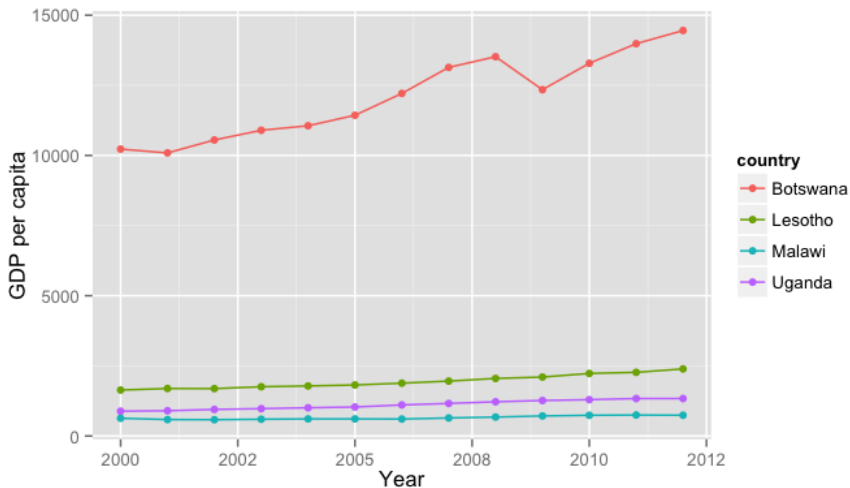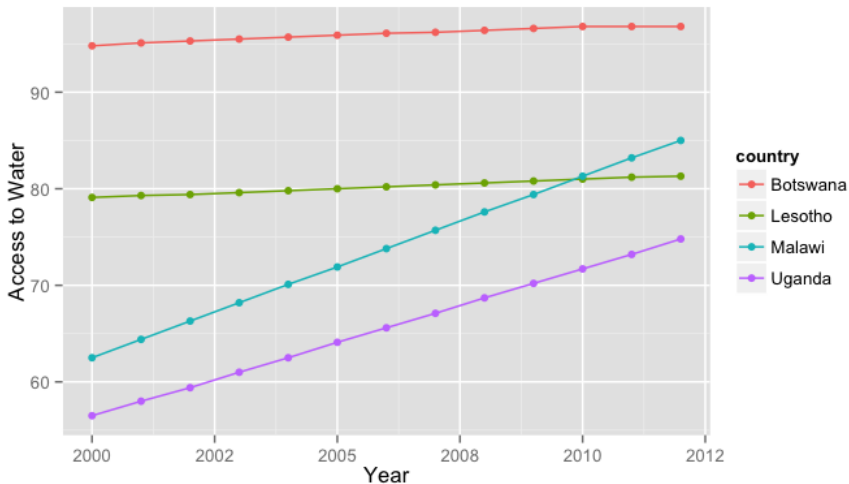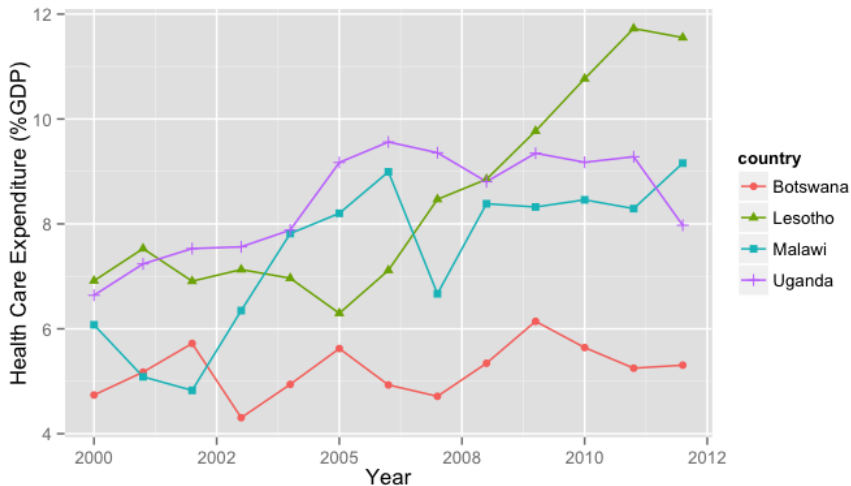
Interesting Cases for HIV Incidence Rates
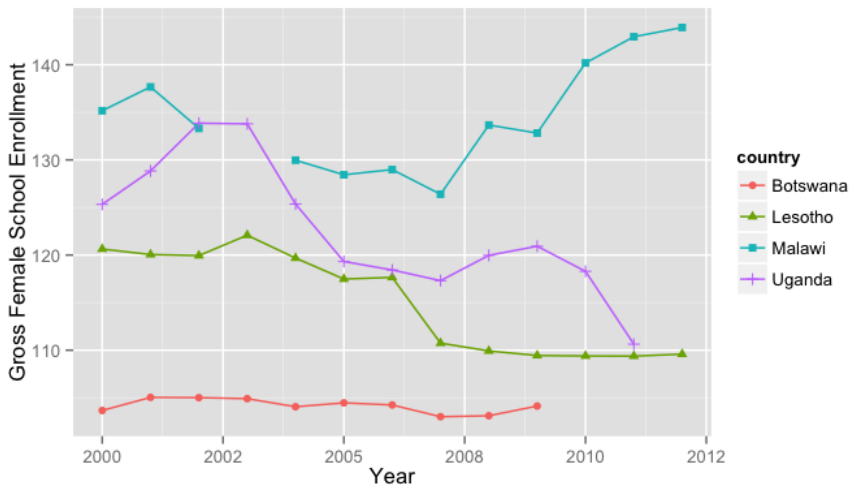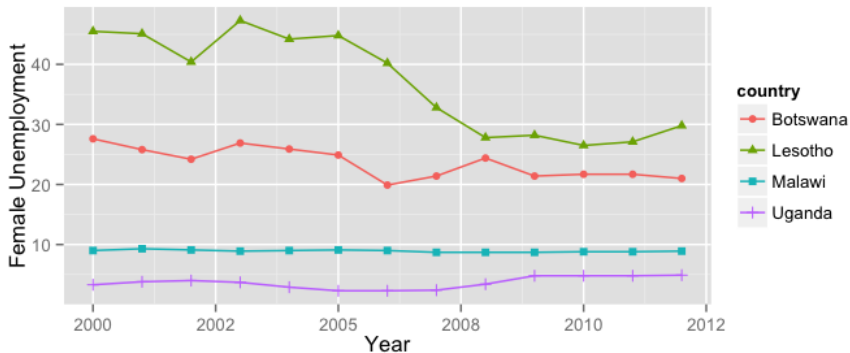
GDP per capita in Selected Countries

Access to Water in Selected Countries
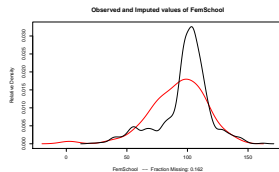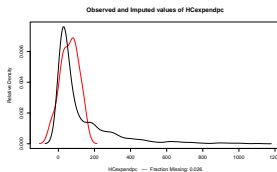
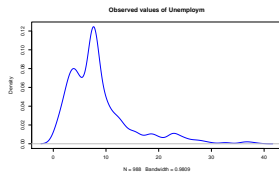# Health Care Expenditure in Selected Countries

Level of Female Schooling in Selected Countries

Level of Female Unemployment in Selected Countries

Imputed missing values
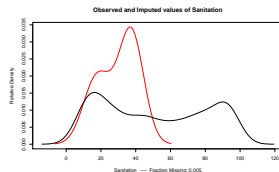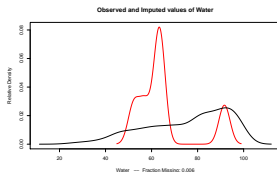
Logistic Regression Results - Model 1

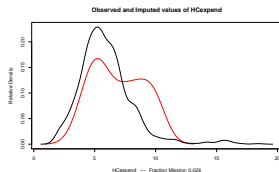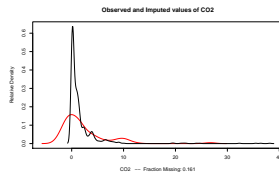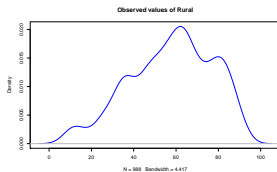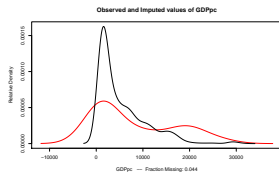|	Value	Std. Error	t-stat	p-value
(Intercept)	-34.8101769	6.8630061	-5.0721471	0.0000006
lGDPpc	0.2347305	0.3630913	0.6464779	0.5196780
lRural	-2.6084135	0.5484434	-4.7560300	0.0000022
lCO2	-0.4805812	0.2117451	-2.2696216	0.0259096
lHCexpend	0.8705199	0.3872092	2.2481899	0.0247368
lWater	-2.4962155	0.8638768	-2.8895504	0.0040535
lSanitation	0.9597174	0.2830083	3.3911282	0.0007092
lLifeExpect	18.8806587	1.7261669	10.9379105	0.0000000
lDPT	-0.6899653	1.0216374	-0.6753524	0.4998215
lMeasles	1.5788585	1.1403764	1.3845064	0.1664731
Inverse	1.8465224	0.2714167	6.8032740	0.0000000
lFemSchool	-5.6996965	0.7328672	-7.7772572	0.0000000

Predicted Probabilities - Female School Enrollment
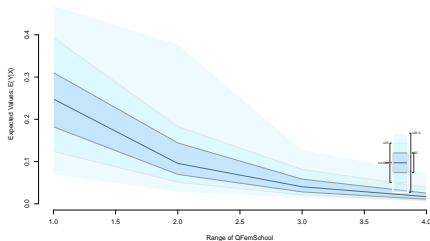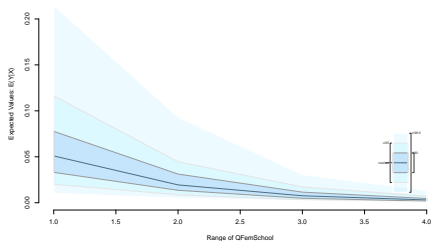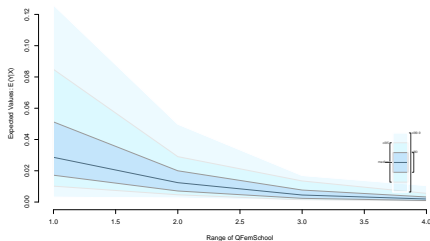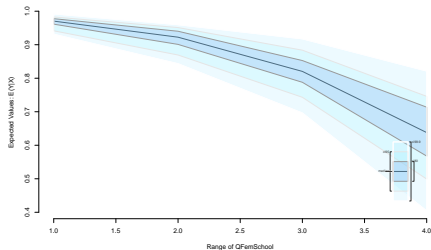
Predicted Probabilities – Female Unemployment
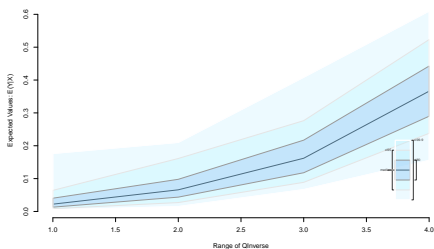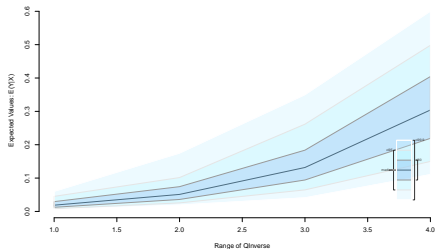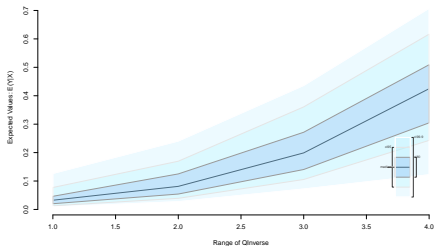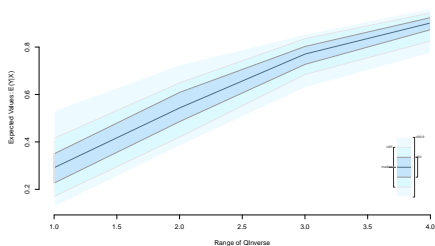
Simple Linear Regression Results - Model 2

	Value	Std. Error	t-stat	p-value
(Intercept)	7.6431455	1.5843076	4.8242814	0.0000015
lGDPpc	0.0006384	0.0750731	0.0085038	0.9932196
lRural	0.2173539	0.1347801	1.6126559	0.1068706
lCO2	0.1100005	0.0300110	3.6653384	0.0002487
lHCexpend	0.3910953	0.1073295	3.6438749	0.0002890
lWater	-0.3632457	0.1913621	-1.8982115	0.0595646
lSanitation	0.0644955	0.0709734	0.9087274	0.3637671
lLifeExpect	-3.5391948	0.3401290	-10.4054472	0.0000000
lDPT	0.6281469	0.2510883	2.5016971	0.0125932
lMeasles	-0.1260773	0.2482753	-0.5078125	0.6117352
Inverse	-0.4297549	0.0489609	-8.7775155	0.0000000
lFemSchool	0.6419082	0.1509709	4.2518658	0.0000503

Conclusions and Limitations - Model 1

1 **Logistic Regression Results of Model 1 (all countries)**

- Generally in line with hypothesis
- Most of the variables are statistically significant
- Only Immunisation Variables and GDP per capital are not significant

2 **Predicted Probabilities of Model 1 (selected countries)**

- Direction of effect of Female School Enrollment matches initial assumptions for all case studies
- Direction of effect of Female Unemployment does not match initial assumptions for any case study

Conclusions and Limitations - Model 2

③ Linear Regression of Model 2 (countries with incidence above mean)

- Significance of some variables changes
- Female School Enrollment and Female Unemployment remain highly significant
- Effect of Female Schooling becomes positive (!)

④ Fixed Effects Regression of Model 2 (countries with incidence above mean)

- Significance of some variables changes compared to simple linear model
- Female School Enrollment and Female Unemployment become insignificant
- Immunisation rates for DPT & Measles become highly significant (!)