HIV, Ethno- Linguistic Heterogeneity and Risky Behavior

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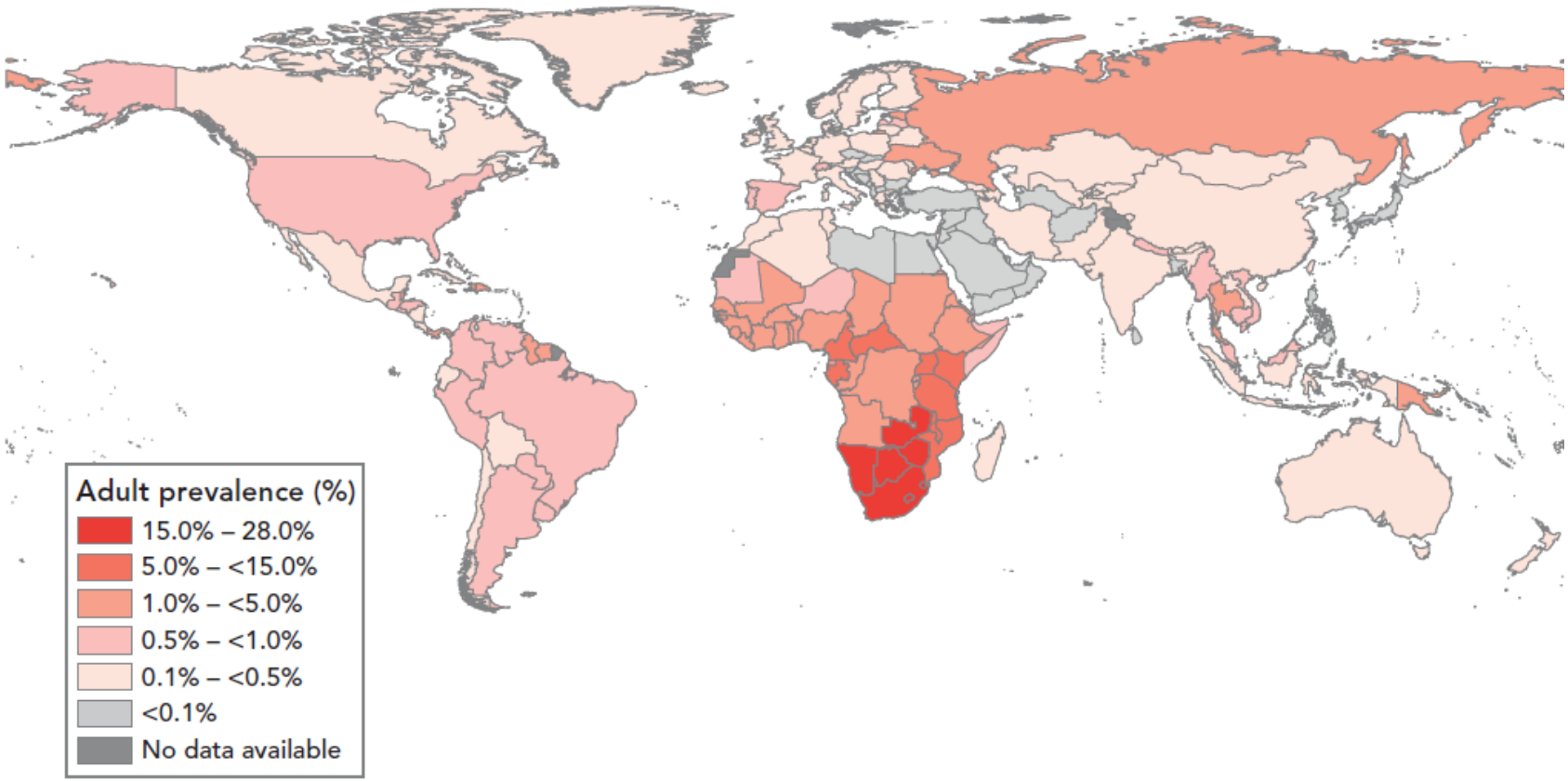
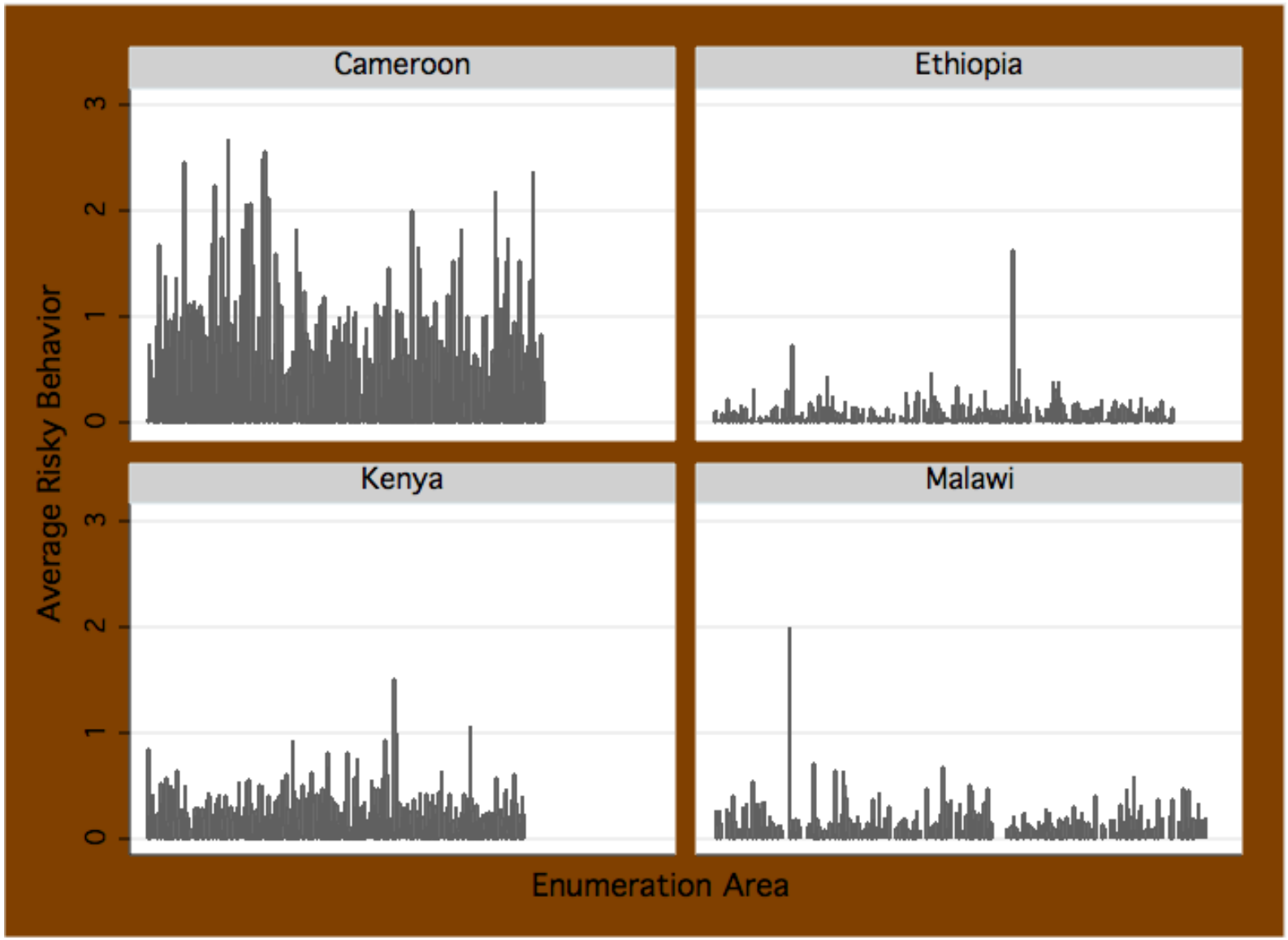

Adult prevalence (%)
15.0% – 28.0%
5.0% – <15.0%
1.0% – <5.0%
0.5% – <1.0%
0.1% – <0.5%
<0.1%
No data available

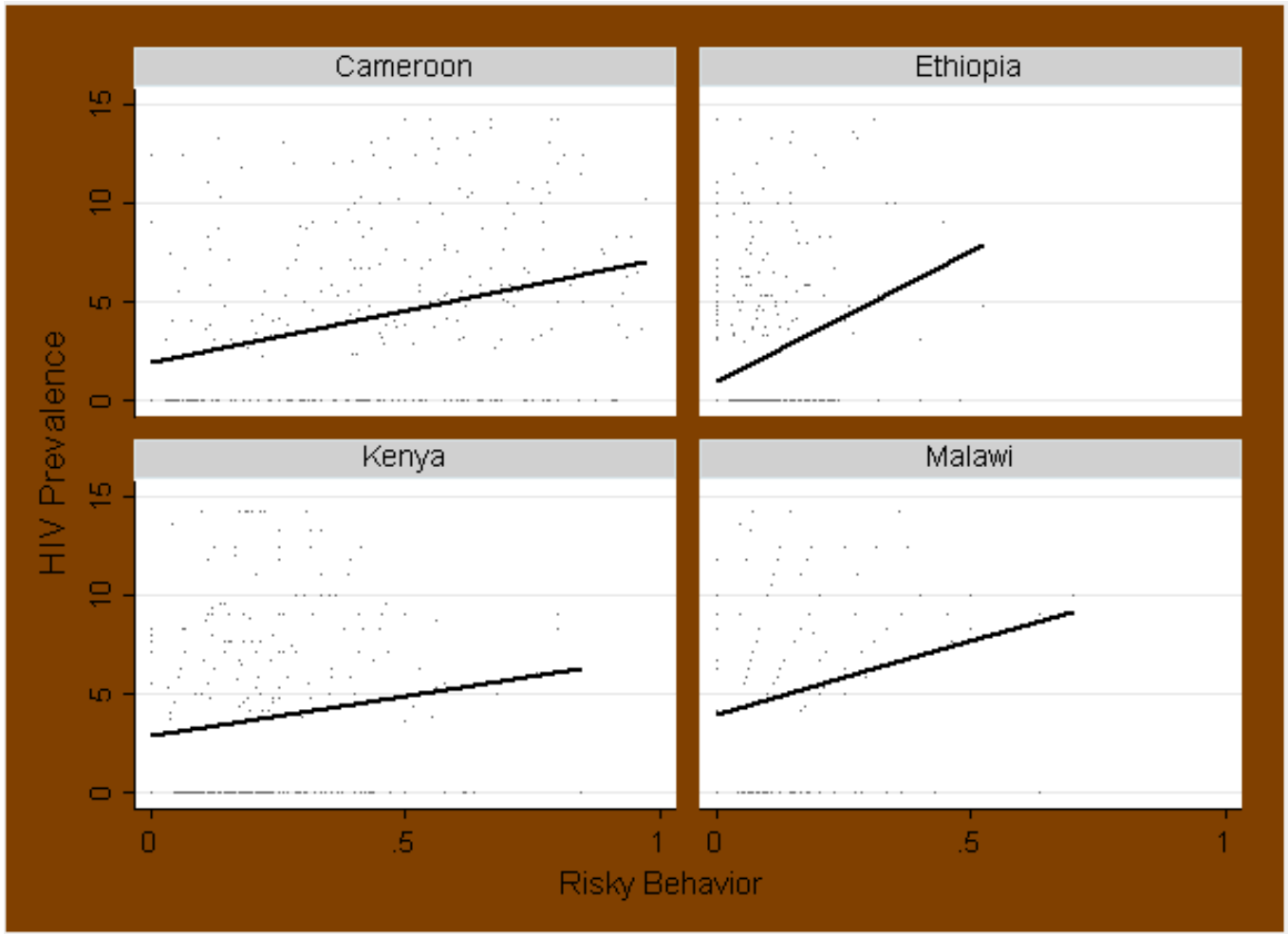
HIV/AIDS Epidemics in Economics

- **Rational for Large Scale Public Intervention**
  - Microeconomic Impact of HIV:
  - Macroeconomic Impact of HIV:
  - Demographic Impact of HIV:
- **Rational for Controling HIV epidemics**
  - Risky Behaviors based on volontary rational decision
  - Sexual networks and social networks

The main channel of HIV transmission in Africa is heterosexual sex. However, there is little response in risky behavior due to HIV prevalence

- Education lowers the probability of seroconversion especially among young individuals.[de Walque (2006)]
- High response in sexual behavior for those who have higher life expectancy and higher future income [Emily Oster(2009)]
- Response of young girls in reducing older partners but the number of partners increased with peers [Dupas (2009)]
- Sexual behavior is heterogenous among different communities

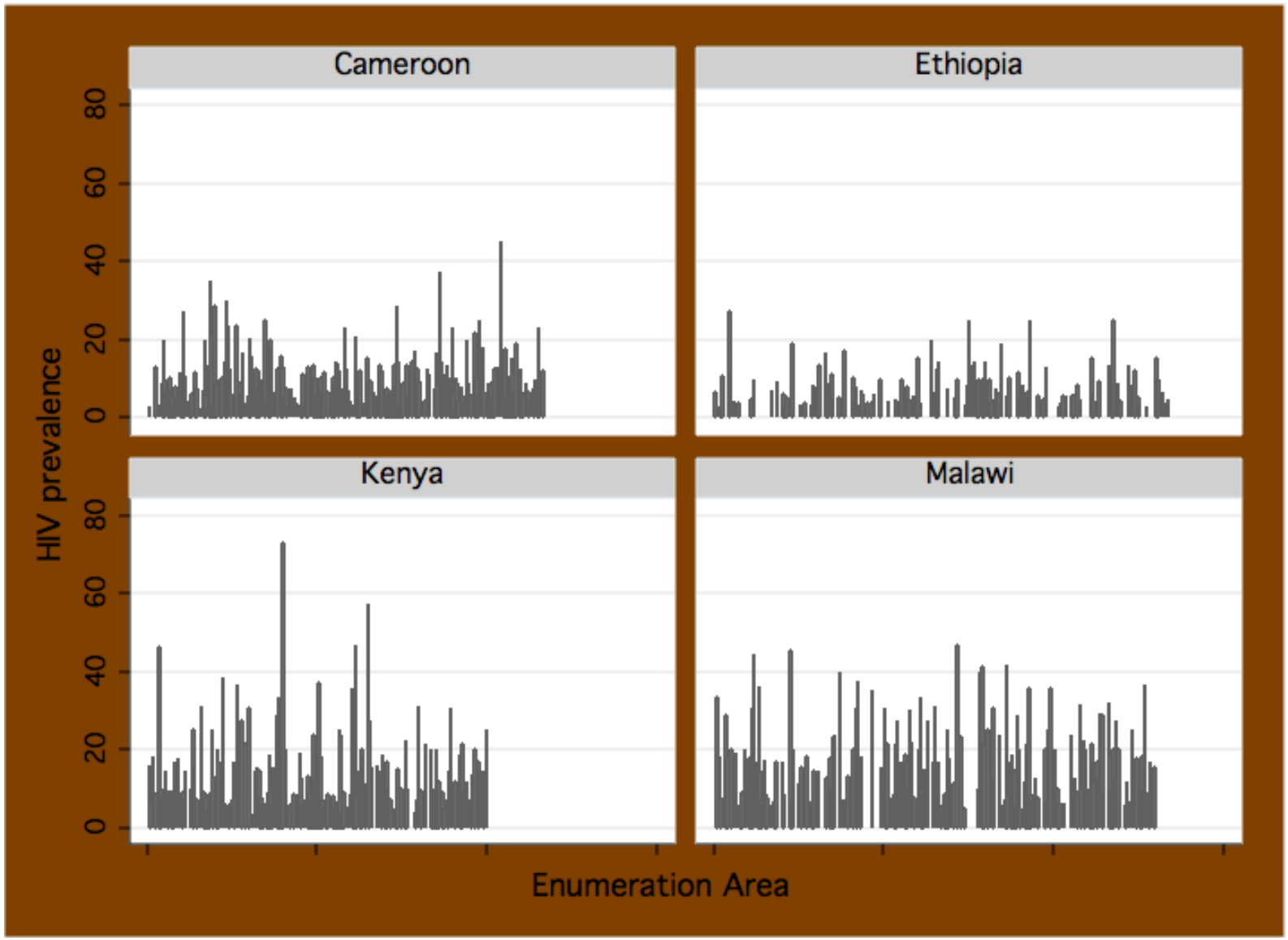

Cameroon
Ethiopia
Kenya
Malawi
Average Risky Behavior
0
1
2
3
Enumeration Area

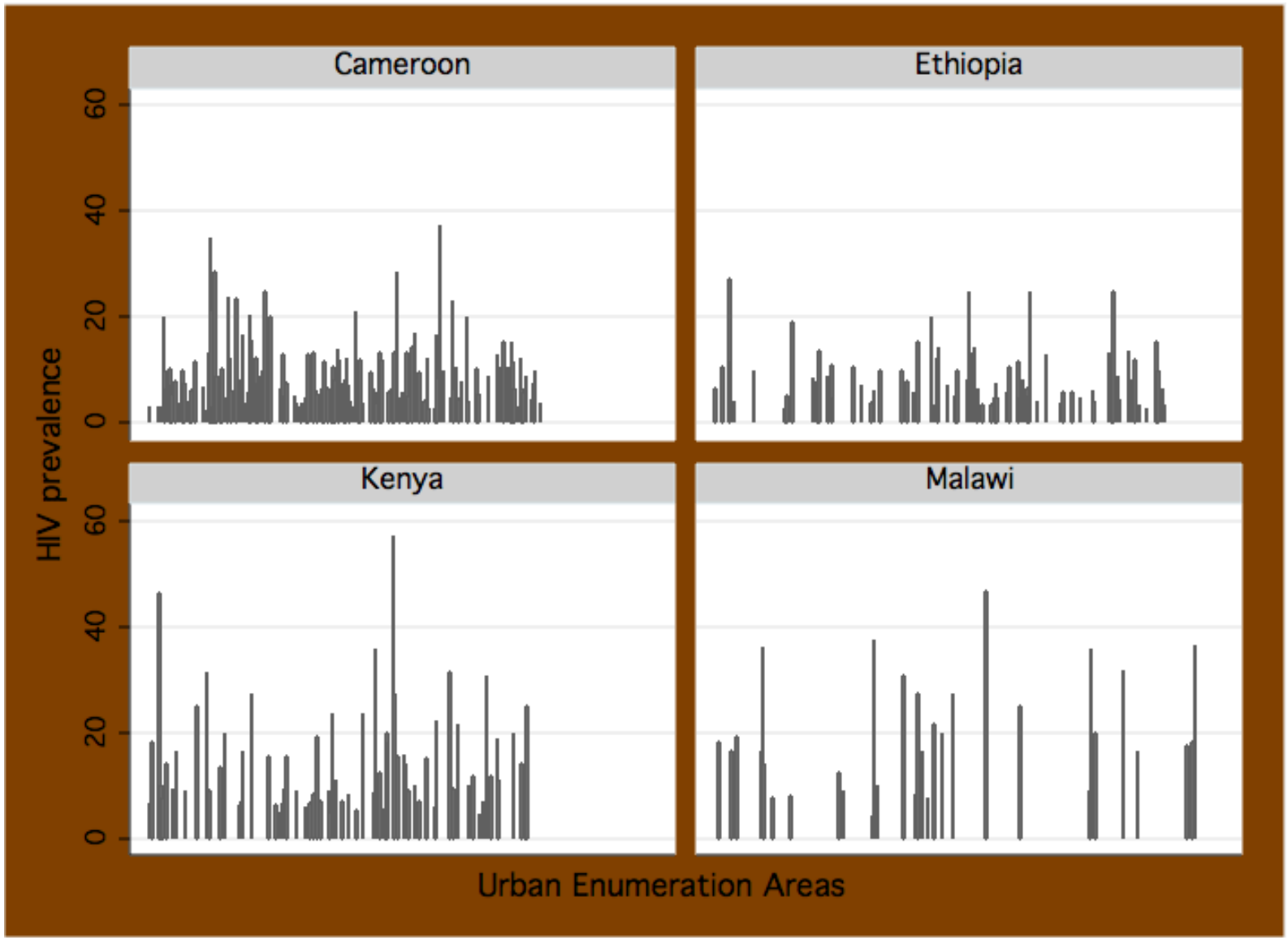

Cameroon
Ethiopia
Kenya
Malawi
HIV Prevalence
0
5
10
15
0
.5
1
Risky Behavior

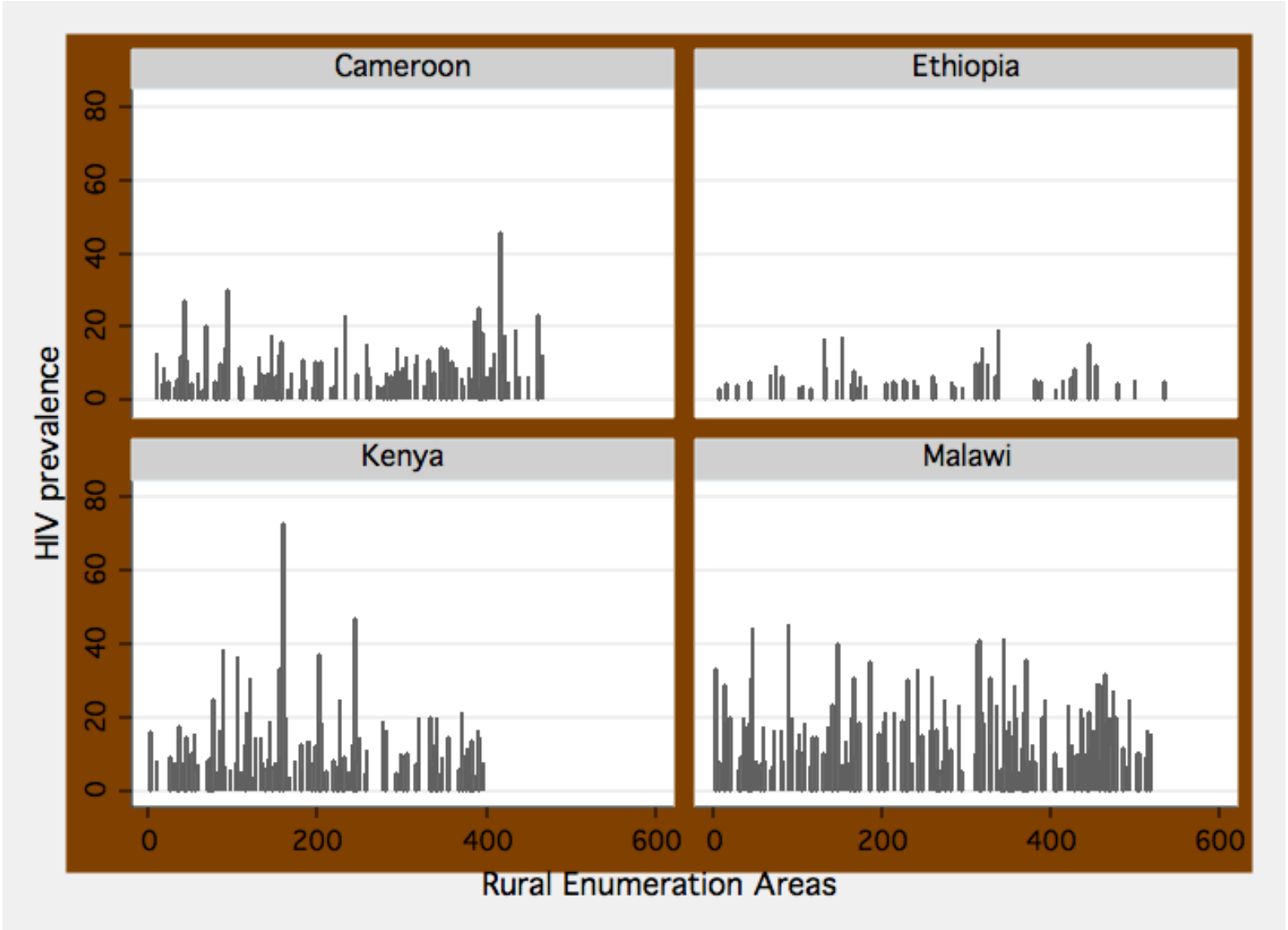
HIV and Sexual Behavior

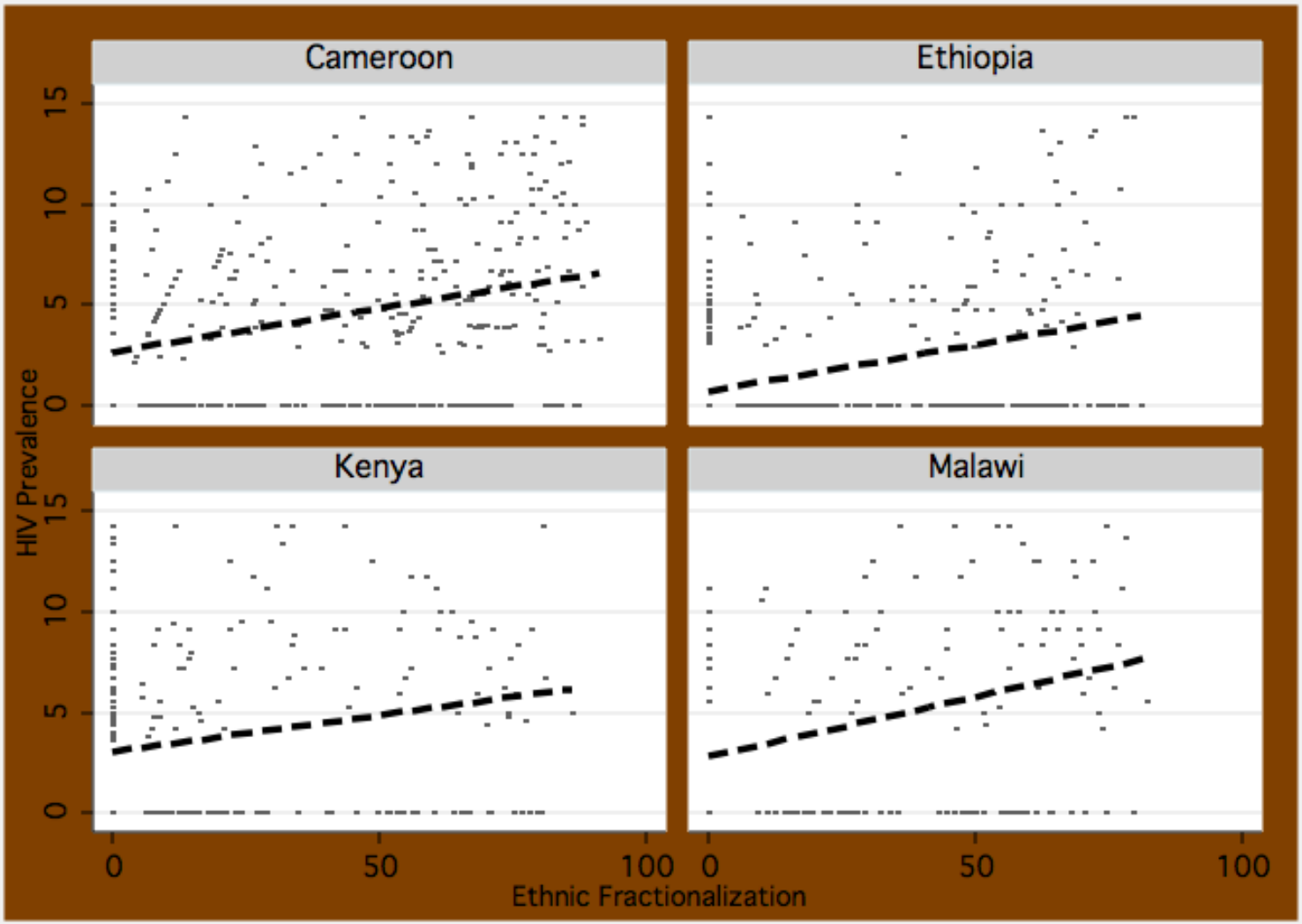
Literature

- Heterogeneity in hiv prevalence is due to high rates of other untreated sexually transmitted infections [Emily Oster (2005)]
- *Individual Characteristics*: Homosexuals, Sex Workers, Truckers and Migrants are the subset of population who are at risk of HIV infecti
- *Community Level Characteristics like social sanctions and stigma might furthermore shape geographically HIV prevalence. Ethno-linguistic heterogeneity affects HIV prevalence through these two channels.*


Cameroon
Ethiopia
Kenya
Malawi
HIV prevalence
0
20
40
60
80
Enumeration Area


Cameroon
Ethiopia
Kenya
Malawi
HIV prevalence
0
20
40
60
Urban Enumeration Areas


Cameroon
Ethiopia
Kenya
Malawi
HIV prevalence
0
20
40
60
80
0
200
400
600
Rural Enumeration Areas


Cameroon
Ethiopia
Kenya
Malawi
HIV Prevalence
0
5
10
15
0
50
100
Ethnic Fractionalization

Framework

Given individual characteristics, agent's engagement in risky behavior (extramarital relation) depends negatively from the following constraints:

- Point 1: The cost of social sanction depends on the probability of being detected as having extramarital sex in the community they live
- Point 2: Cost of social sanctions from their community which extramarital sex implies.
- Point 3: The cost of HIV infection depends on the probability of infection which itself depends on both local HIV prevalence and partner's characteristic of his/her sexual behavior.

Positive Impact of Heterogeneity on Extramarital Sex:

1. $\uparrow$ Heterogeneity $\Rightarrow\downarrow$ social interactions $\Rightarrow\downarrow$ probability of detecting an Extramarital sex in the community $\Rightarrow\uparrow$ Risky Behavior
2. $\uparrow$ Heterogeneity $\Rightarrow$ social exclusion is less costly $\Rightarrow\downarrow$ $\Rightarrow\uparrow$ Risky Behavior

Negative Impact of Heterogeneity on Extramarital Sex:

1. $\uparrow$ Heterogeneity $\Rightarrow\downarrow$ social interactions $\Rightarrow\downarrow$ reliable information on partner's characteristic $\Rightarrow\downarrow$ Risky Behavior

Econometric Framework

$$y_{i,c} = \beta_0 + \beta H_c + \gamma X_{i,c} + \delta D_r + \epsilon_{i,c}$$

1. $y_{i,c}$ $\rightarrow$number of extramarital sex in the last 12 months or HIV status
2. $H_c \rightarrow$ heterogeneity at community level based on the Herfindahl Index
3. $X_{i,r}$ $\rightarrow$individual control variables
4. $D_r \rightarrow$ regional fixed effects

Table 1: Logit Regression - Ethno-Linguistic Fractionalization and Risky Behavior

Dependent Variable	Female	Male	Total
Fidelity	*-0.0036***	*-0.001*	*-0.002***
	(0.0015)	(0.0012)	(0.0009)
	18,620	16,836	35,456
Last relationship with spouse	*-0.005****	*-0.0023*	*-0.0036****
	(0.0017)	(0.0016)	(0.0012)
	12,823	11,979	25,028
Used condom in the last sex	*0.0038**	*-0.0006*	*0.0011*
	(0.0020)	(0.0016)	(0.0012)
	12,770	11,788	24,558

Note: * denotes significance at 10%; ** at 5%; *** at 1%. Variables which we control for are Age, Wealth, Education, Religion, Urban or Rural and Regional Dummies.

Table 1: Logit Regression - Ethno-Linguistic Fractionalization and HIV Status

Dependent Variable	Urban	Rural	Total	Non-Migrants
HIV	*0.007***	*0.005***	*0.006***	*0.007***
	(0.0022)	(0.0019)	(0.0015)	(0.0035)
	10,183	22,028	32,365	14,824
Concordant Couples	*-0.015***	*-0.001*	*-0.006***	
	(0.0057)	(0.0037)	(0.0029)	
	1,426	4,961	6,743	

Note: * denotes significance at 10%; ** at 5%; *** at 1%. Variables which we control for are Age, Wealth, Education, Religion, Urban or Rural and Regional Dummies

Conclusion

- Positive association between Extramarital Sex => Ethno-Linguistic Heterogeneity => HIV prevalence