UNIVERSITEIT VAN AMSTERDAM

Amsterdam School of Economics

# Econometric Game 2010

## Case A (13 April 2010): Modelling the willingness to take part in a voluntary HIV test

## Motivation and background

The spreading of AIDS is taking epidemic forms in Africa, with estimated proportions of HIV positive adults ranging from 2.5% in Angola to 17.5% in South Africa. As noted by Kalichman and Simbayi (2003): "A cornerstone of HIV prevention in South Africa is voluntary HIV antibody counselling and testing (VCT), but only one in five South Africans aware of VCT have been tested". Possible causes behind these low participation rates might be risk attitude, unwillingness to know one's own HIV status due to engagement in prostitution, AIDS related stigmas, etc. In this assignment we will use an exclusive survey dataset from an African country, the identity of which will remain disclosed due to confidentiality of the data, to study which characteristics affect the choices of individuals to participate in a *free* anonymous blood test, which, among other medical conditions, tests for HIV. The sample had to be modified in such a way that it is no longer a representative sample.

## Research Question

Model the willingness to participate in the blood test (variable: `q11_64`) for adults (at least 18 years old). Of course there are many types of different models that can be used to predict the probability of an individual taking part in the test. Investigate which variables are important for this decision for all adults. As a sensitivity analysis, you may consider estimating your model for different groups (e.g. males versus females) separately.

## Data

The data that we will use have recently been collected for a medical treatment study in an African country. A survey has been carried out among individuals within a large subset of households of the population. Although the sample has been modified due to

confidentiality, as indicated above, it should be treated as representative. The survey questions concern variables such as aggregate income and consumption at the household level, as well as a wide range of socioeconomic and medical variables at the individual level. The data set is available in various forms.

**Available data files** (all containing the same data and variable names):
EctrGame2010.xls (Ox, Matlab);

```
Ox:     loadmat("…/EctrGame2010.xls")
Matlab: [num tex] = xlsread('…\EctrGame2010.xls')
```

EctrGame2010.dta (Stata, R);

```
R: library(foreign)
   x=read.dta("…//EctrGame2010.dta",convert.factors=FALSE)
```

EctrGame2010.wf1 (EViews)

# Modelling aspects

In this case we focus on modelling the willingness of the individuals of 18 years and older to participate in a completely anonymous and voluntary blood test, which tests for signs of HIV and other medical conditions. Because of the large number of potential explanatory variables available, a considerable part of the construction of a parsimonious model consists of deciding which (combinations of) explanatory variables to include in the model. Some variables that one might consider as affecting the choice to participate in the test are age, consumption, personality characteristics, medical conditions and risk attitude. One might include particular explanatory variables to test specific hypotheses of interest, for instance to see if AIDS related stigmas play a role, as suggested by the findings of Kalichman and Simbayi (2003).

As noted above, an important aspect of constructing a model is the reduction of the number of the explanatory variables. For instance, the personality related questions consist of 33 items, each of which could be answered on a scale from one to five. Obviously, adding all of these variables separately to the model would lead to a large number of parameters to be estimated.

**References**


Jackman, S (2005), An Introduction to Factor Analysis, Stanford. See http://jackman.stanford.edu/classes/350c/old/factanal.pdf.

Kalichman, S.C. and L.C. Simbayi (2003), HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa, Sexually Transmitted Infections 79 (6), 442-447.

Srivastava, S. (2010), Measuring the Big Five Personality Factors. See http://www.uoregon.edu/~sanjay/bigfive.html.