Assessing the Impact of Financial Literacy

Session 3

FINANCIAL LITERACY THROUGH MAINSTREAM MEDIA

Financial Education: How to Deliver it?

➢ Scope and reach of even most well-designed financial education is limited:

   ➢ Supply side -- difficult and expensive

   ➢ Demand side – challenging to attract and retain interest

Financial Education Delivery

- Scope and reach of even most well-designed financial education is limited:
  - Supply side -- difficult and expensive
  - Demand side – challenging to attract and retain interest

- Entertainment media offers a promising (potential) solution:
  - Broad outreach – nearly every household has access to a TV
  - Captive audience – emotional connections to storylines and actors

Persuasion in Entertainment Media

➢ Introduction of television linked to improved social outcomes:

  ➢ Lower domestic violence and fertility rates in India and Brazil (Jensen and Oster, 2009; La Ferrara, et al., 2008),

  ➢ Lower adolescent drug use and increased contraception adoption in Brazil (Verner and Cardoso, 2007).

➢ Facebook experiment on emotional contagion in social media (Kramer, et al., 2014)

Research Questions

➢ Can the reach and persuasive influence of mass media be exploited in finance to improve financial decisions?

➢ What underlying decision-making mechanism(s) can explain these results?

Setting

➢ Focus on debt management in South Africa

    ➢ Very high ratio of debt to disposable income (76%)

    ➢ National Credit Regulator reports massive impaired credit records (>47%)

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- ➤ Incorporate debt management into two month long storyline of a popular soap opera, *Scandal!*
  - ➤ Nationally televised soap
  - ➤ Has been running four times a week for 8 years
  - ➤ Storyline was developed in partnership with the production company of *Scandal!* and the National Debt Mediation Association (NDMA)

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➢ Our Study

    ➢ Randomized encouragement design

Research Design

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    ➢ Provide small financial incentives for correct answers in two intermediate phone surveys

    ➢ Ask financial literacy and behavior questions as well (though not linked to incentive)

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➢ Conduct final in-person survey 4 months after conclusion of storyline

Scandal!

The Storyline

Main Character : Maletsatsi
Wife, mother, and manager of local stokvel

Malestatsi gives into social pressure to furnish her guest room

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Convinces her husband, Eddie

Eddie, you don't understand.

I want to be accepted, not mocked.

Buys furniture, fridge, dining set, and TV, all on shop credit!

Buys furniture, fridge, dining set, and TV, all on shop credit!

And the TV? I don't need a new TV.

Eddie is unhappy but Maletsatsi is convincing

- No.
- No, you don't need it. You deserve it.

Payments come due and Maletsatsi realizes she cannot afford them
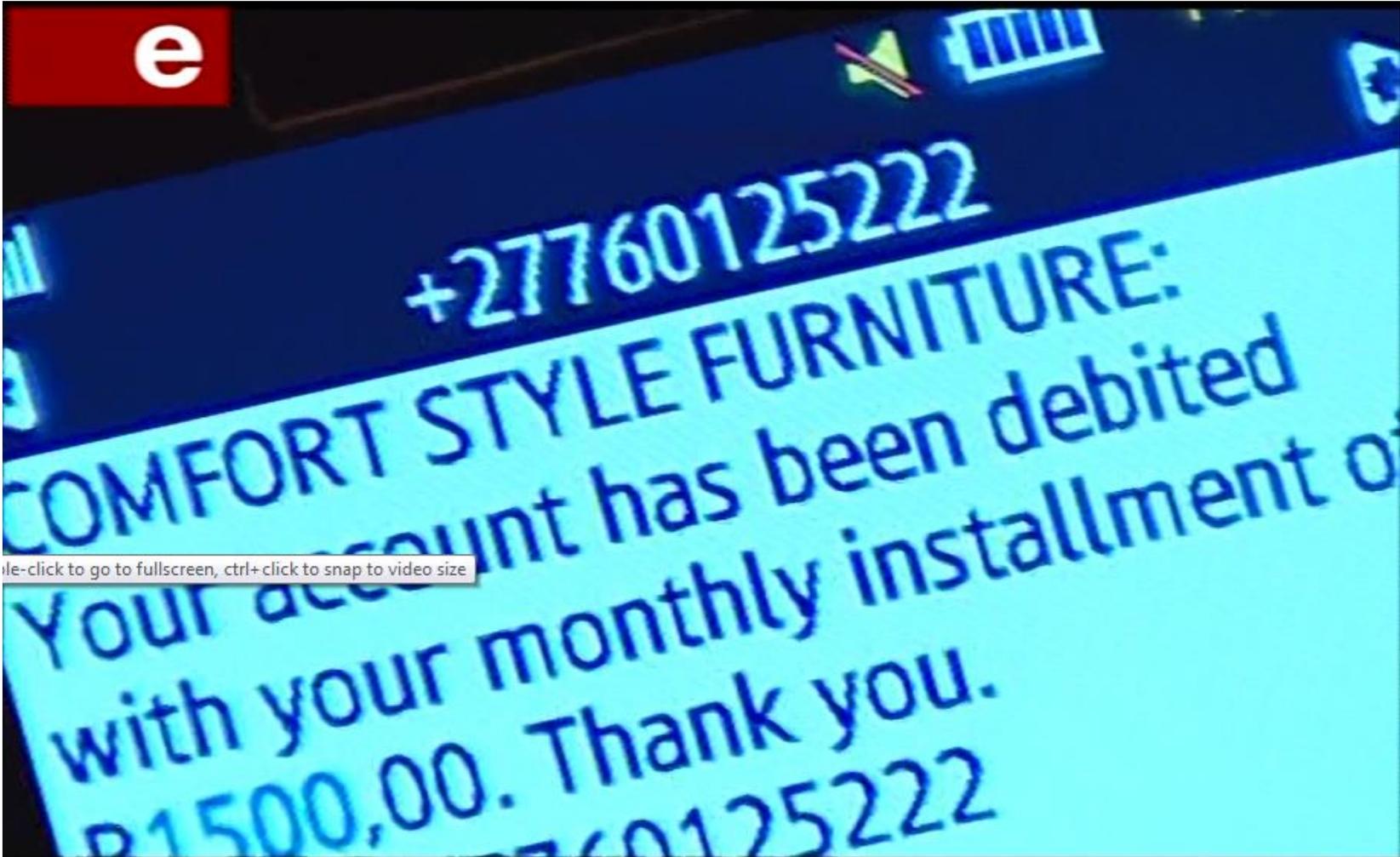
She dips into the Stokvel pot, but lands into trouble
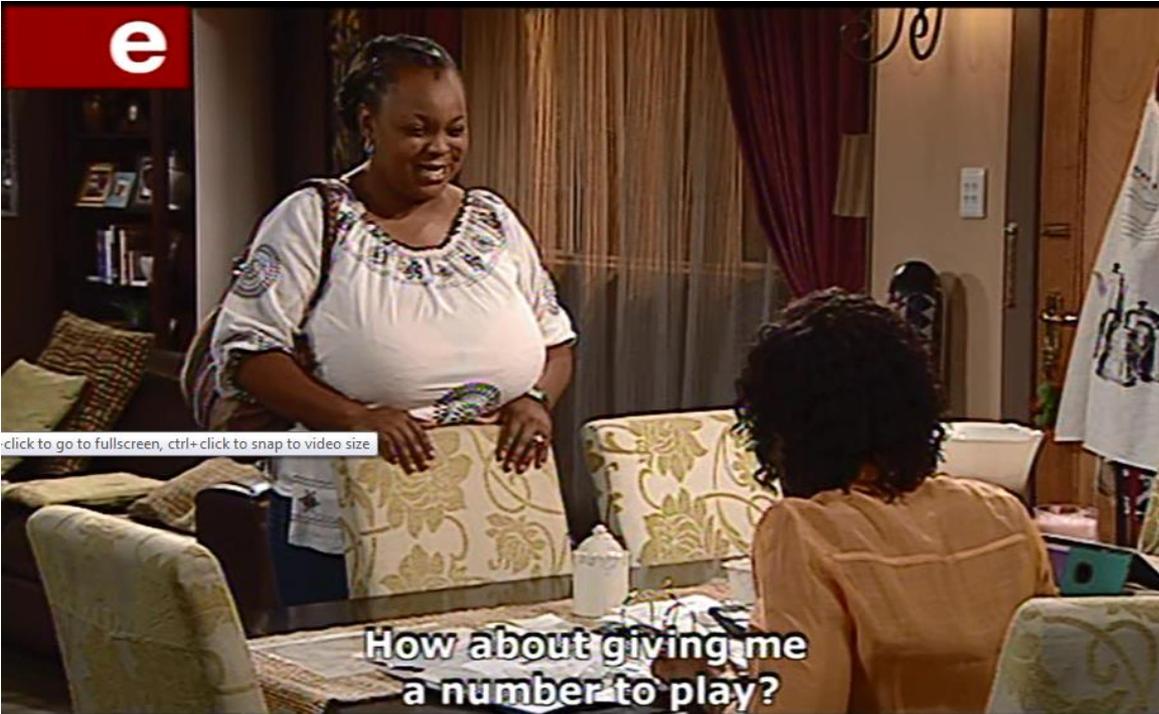
She turns to gambling

She turns to gambling

And loses

I didn't know what else to do.
So I borrowed money from the stokvel.

Eventually Eddie finds out

Together they seek help from the NDMA and work their way out of debt

Main Messages

➢ Over-indebtedness

    ➢ Temptation spending

    ➢ Borrowing on hire-purchase

➢ Gambling

➢ Help is available

    ➢ National Debt Mediation Association

Analysis

➢ RCT allows for simple cross-sectional OLS using final follow-up data:

$$Y_i = \alpha + \beta_1 . TRT_i + \gamma_1 . M_i + \varepsilon_i$$

➢ Intent to Treat estimate

➢ ATE similar since take-up v. high (96%)

Summary Statistics

Summary Statistics and Tests of Randomization

	Treatment		Control		Test of Difference in Means (p-value)
	N	Mean	N	Mean	
Respondent is Female	553	0.69	478	0.71	0.577
Respondent is Black	553	0.99	478	0.99	0.432
Respondent Age	553	31.24 (10.42)	478	32.16 (11.07)	0.167
Respondent Has At Least Secondary Schooling	553	0.69	478	0.71	0.394
Respondent Has Above Median Financial Literacy	553	0.53	478	0.53	0.914
Respondent's Household Belongs to Lower LSM Group	553	0.46	478	0.43	0.357
Respondent Has a Job or Paid Work	553	0.49	478	0.48	0.689
Respondent Has Not Borrowed Money the Past 6 Months	553	0.58	478	0.58	0.986
Respondent Has Watched "Scandal!" in the Past 4 Weeks	553	0.48	478	0.47	0.830

Attrition

Final Follow-up Attrition

	Present in Final Follow-up	Face-to-Face Interview in Final Follow-up
	(1)	(2)
Invited to Watch "Scandal!"	0.002	0.003
	(0.016)	(0.023)
N	1031	1024
Dependent Variable Mean in Control Group	0.933	0.839

Results

	Financial Knowledge	
	Score on General Financial Literacy Test	Score on Content Specific Financial Literacy Test
	(1)	(2)
Invited to Watch "Scandal!"	-0.010	0.045*
	(0.019)	(0.024)
R-squared	0.005	0.014
N	963	963
Dependent Variable Mean in Control Group	0.564	0.425

	Debt Management		
	Borrowed Money in the Past 6 Months from Any Source	Borrowed Money in Past 6 Months from a Formal Bank	Largest Borrowing in Past 6 Months is from a Formal Bank
	(1)	(2)	(3)
Invited to Watch "Scandal!"	-0.001	0.027*	0.088**
	(0.030)	(0.015)	(0.043)
R-squared	0.003	0.004	0.014
N	963	963	315
Dependent Variable Mean in Control Group	0.327	0.045	0.130

Hire Purchase and Gambling

	Hire Purchase in the Past 6 Months	Gambled Money in the Past 6 Months
	(1)	(2)
Invited to Watch "Scandal!"	-0.043*	-0.052*
	(0.024)	(0.029)
R-squared	0.004	0.003
N	963	963
Dependent Variable Mean in Control Group	0.188	0.307

Debiasing on a Roll:

Changing Gambling Behavior through Experiential Learning

Ferrari is a FAST Car!

Ferrari is a FAST Car!

But how fast is FAST?

Dimensions

Weight	1365 kilo / 3009.3 lbs
Length / Width / Height	4702 mm (185.1 in) / 2035 mm (80.1 in) / 1147 mm (45.2 in)
Wheelbase / Track (fr/r)	2650 mm (104.3 in) / 1660 mm (65.4 in) / 1650 mm (65 in)

Performance figures

Power	660 bhp / 492 KW @ 7800 rpm
Torque	657 Nm / 485 ft lbs @ 5500 rpm
BHP/Liter	110 bhp / liter
Power to weight	0.48 bhp / kg
Top Speed	350 km/h / 217 mph
0-60 mph	3.3 s

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How's the view from back there?

Experience FAST!

Experience FAST!

Concrete and salient

Experience FAST!

Concrete and salient

Instantaneous reflection

Experience FAST!

Concrete and salient

Instantaneous reflection

Memorable

Link to Development?
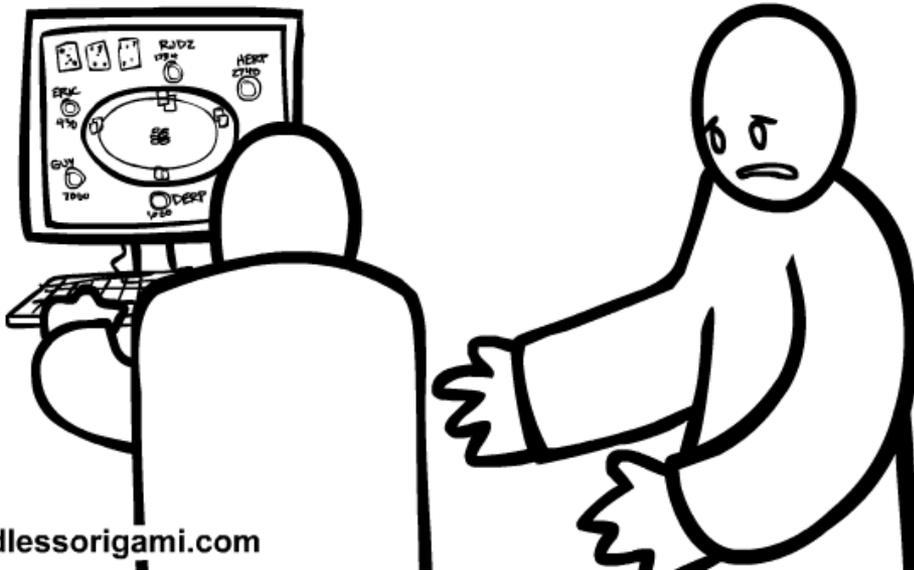
Link to Development?
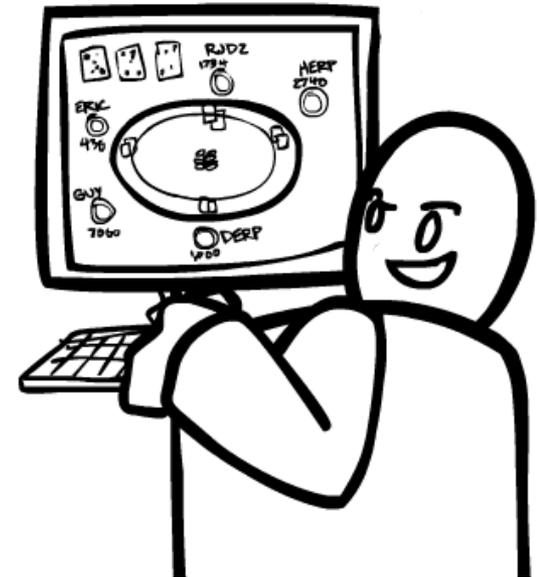
Gambling is Pervasive

- Gambling is an important pastime, especially in many
- developing countries (Custer & Milt 1985, McMillen 1996)

- Poor spend larger income share on gambling (Stearn & Borna 1995)

- In U.S., gambling crowds out 2% of household consumption
- (Kearney 2005). Potential for negative externalities within HH.

- **Puzzle:** Rational risk-averse agents should not engage in gambles with negative expected payoffs (Tversky & Wakker 1995).
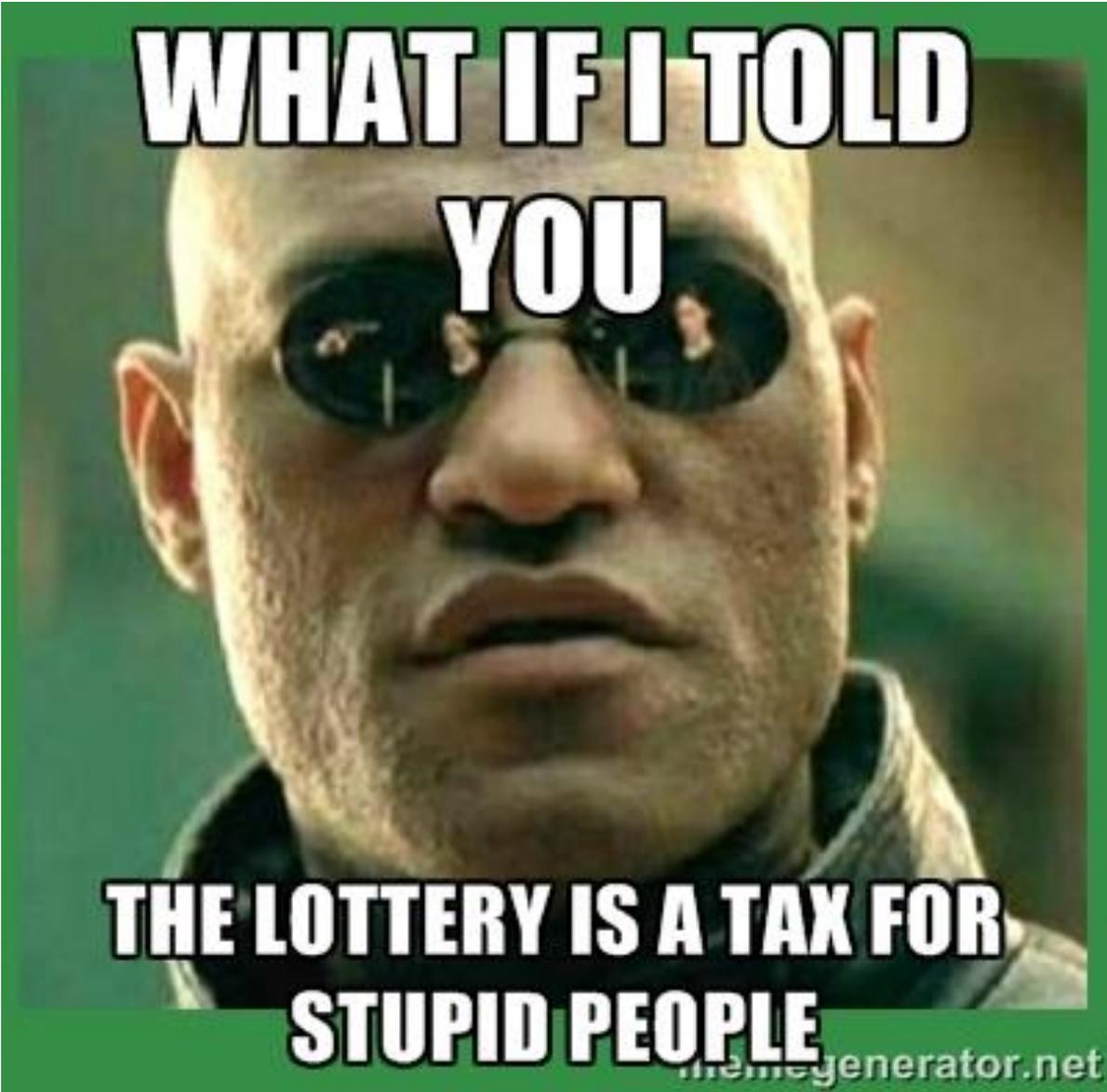
YOU could be the next
Lottery Jackpot Winner

© www.deeprancenow.com

MEGA MILLIONS

Why Play the Lotto?

Rational Reasons:

- Correct assessment of winning odds, but *entertainment/aspirational utility* from gambling (Kearney 2005)

Behavioral Reasons:

- Cognitive biases leads to *overestimation of small probabilities* (Kahneman & Tversky 1979, 1992).

- Decision heuristics, e.g. *availability bias* (Kahneman & Tversky 1973, Clothfelter & Cook 1989, Nisbett & Ross 1980).

Traditional Financial Literacy

In our sample, less than **50%** of participants knew the correct answer to the question: *"If you have R48, and I give you R58, how much will you have?"*

# Visualization? Better… but still abstract

Rules of Thumb?

Experiential Learning?

# Experiential Learning: 4-Stage Learning Cycle
(Zull 2002)
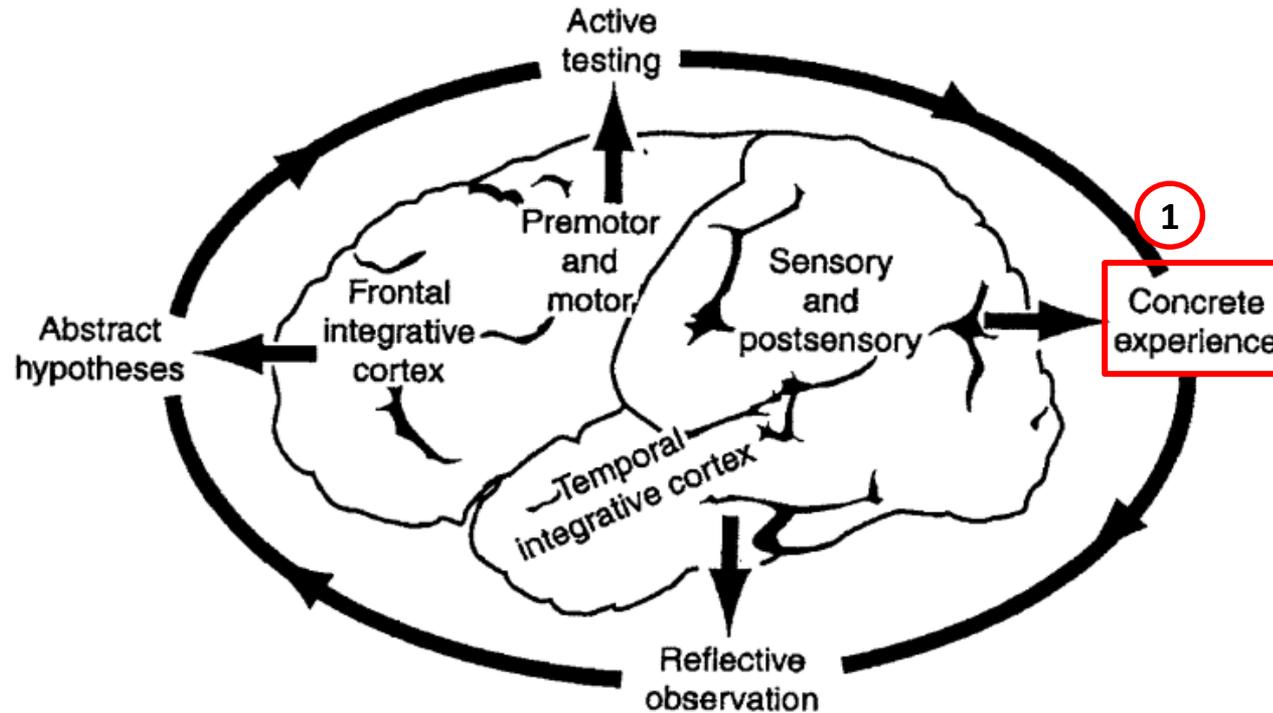
Roll 1 die till one 6
Roll 2 dice till all 6s

Experiential Learning: 4-Stage Learning Cycle
(Zull 2002)

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Experiential Learning: 4-Stage Learning Cycle

(Zull 2002)

Let people roll 9 dice

Relate winning odds and dice:

Jackpot = all 6s with 9 dice

③ Abstract hypotheses

④ Active testing

① Concrete experience

② Reflective observation

Roll 1 die till one 6
Roll 2 dice till all 6s

Premotor and motor

Frontal integrative cortex

Sensory and postsensory

Temporal integrative cortex
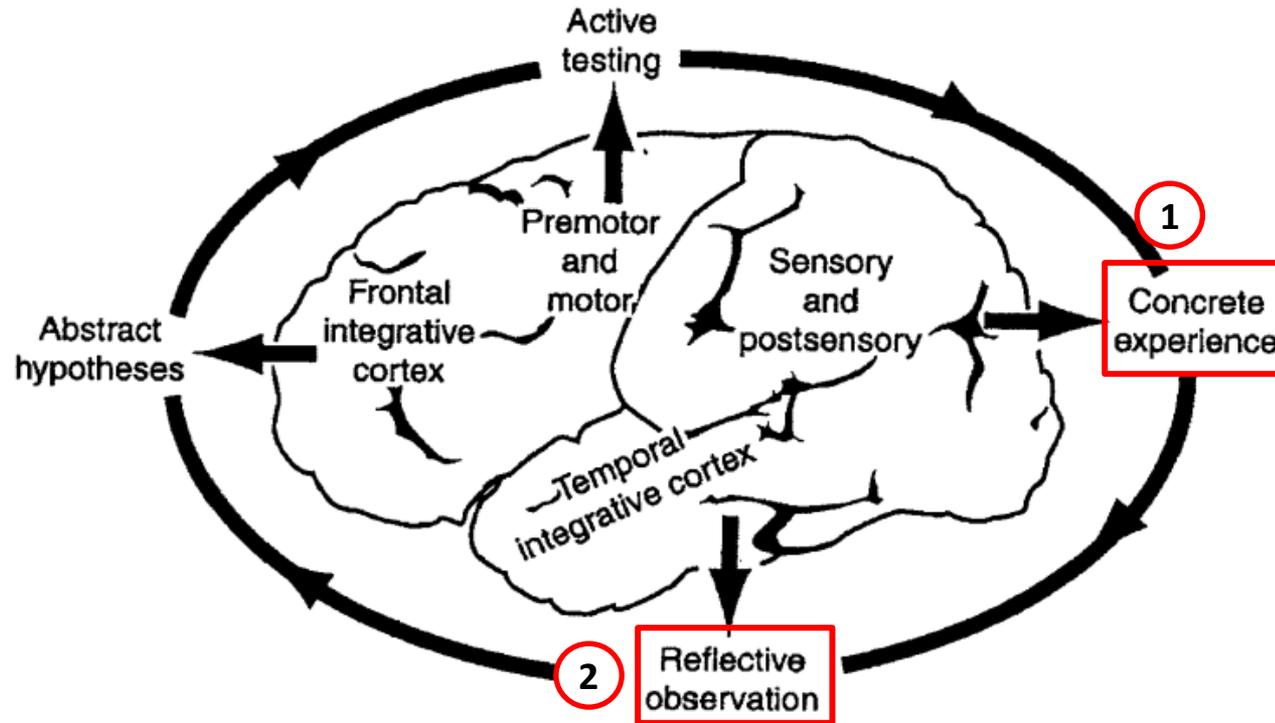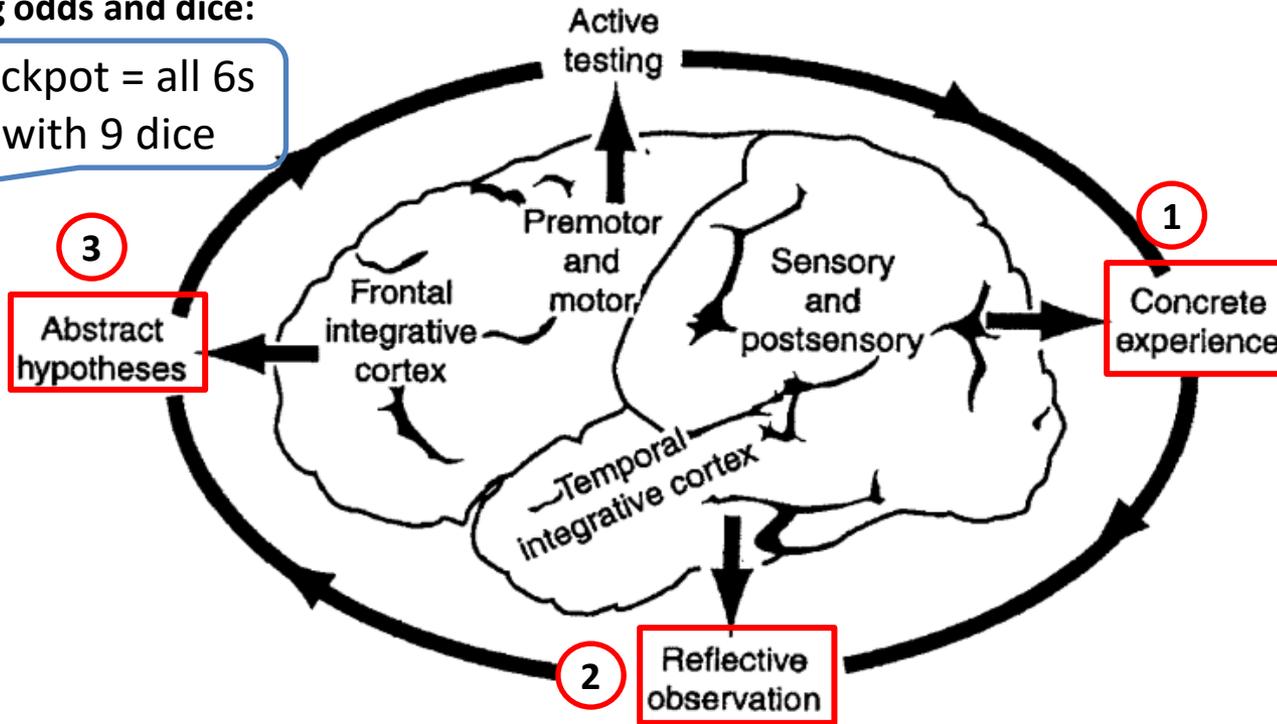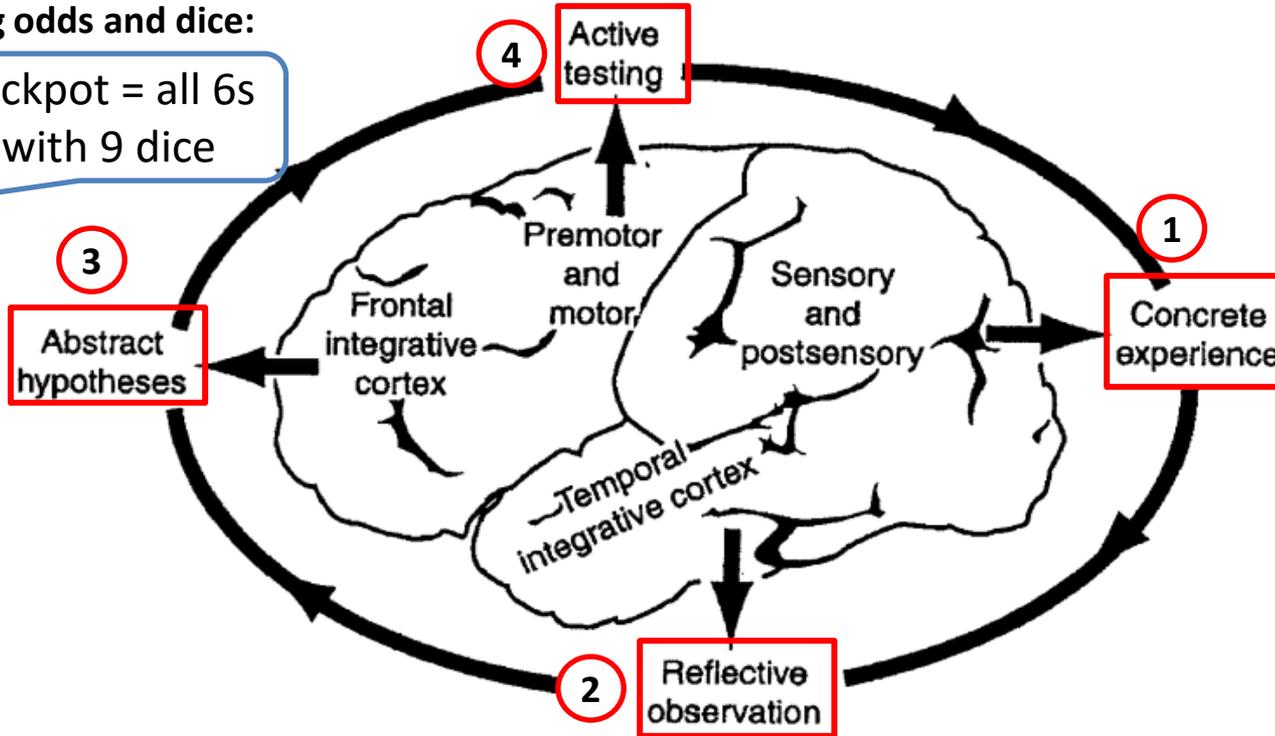
Getting all 6's is difficult / easy!

Field Experiment

- **Sample**:
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- **2-staged randomization**:
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- **Outcomes**:
 - Measured immediately, after 6 months, and 12 months

Main Specification

$$y_i = \alpha_0 + \beta_1 T_{low} + \beta_2 T_{high} + \gamma X_i + e_i$$

Experiential Learning Works!

Local nonparametric regression using the Epanechnikov kernel. 95% Confidence Interval

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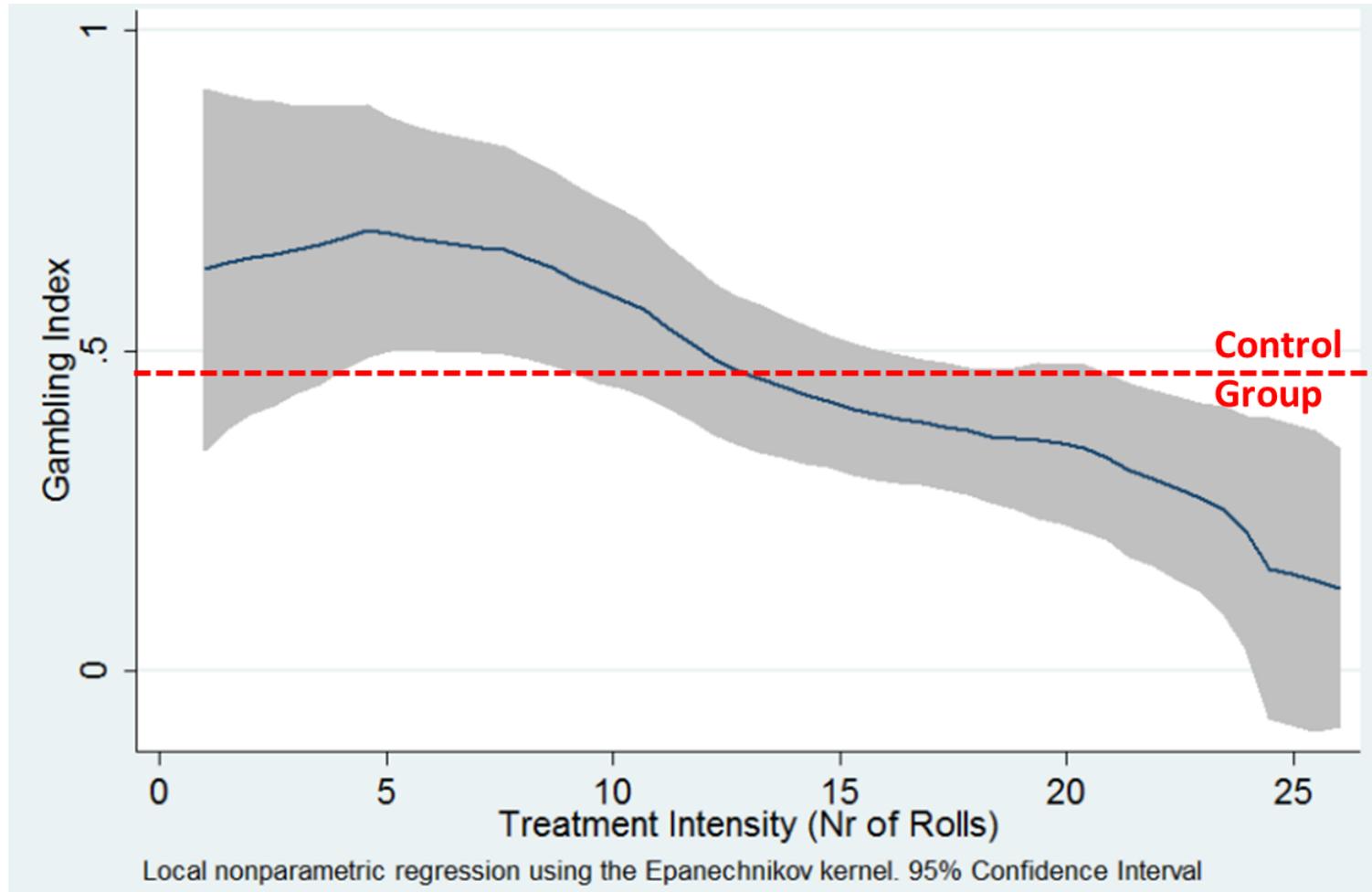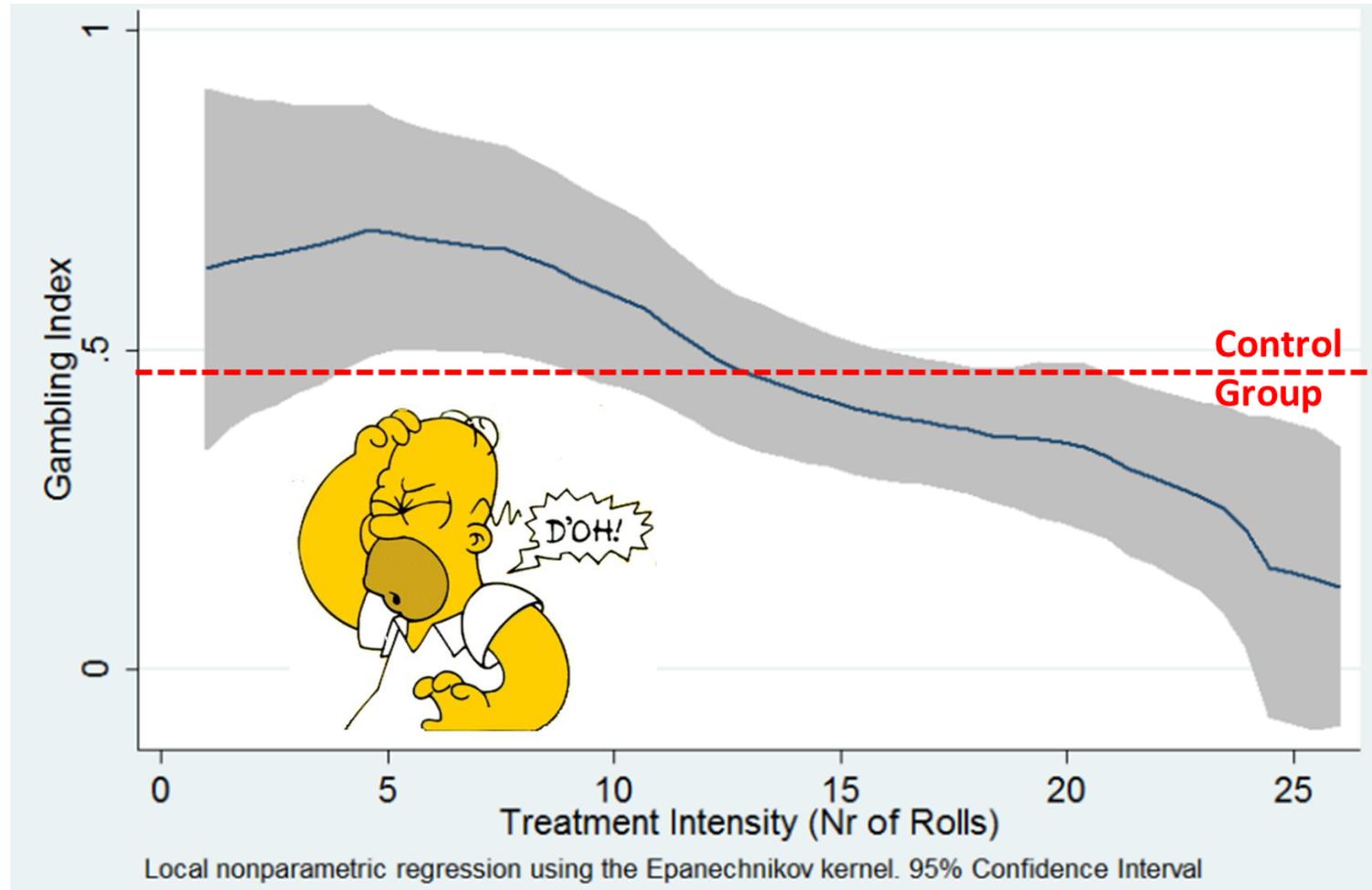
SAMPLING APPLICATION: CLUSTER SAMPLING

Context

- Evaluation of technical and business training for informal small scale enterprises in Uganda

- These SMEs operate in concentrated industrial pockets in the outskirts of Kampala

- Fairly diverse occupations – 9 separate industry types covered

- Sampling frame is all SMEs that are part of the Katwe Small Scale Industries Association (KASSIDA)

Distribution of Sample

	Prop. Of Sample
Sector 1: Barbershop/Hair Salon	0.096
Sector 2: Carpentry	0.064
Sector 3: Catering	0.146
Sector 4: Fitting and machinery	0.015
Sector 5: Electricals	0.016
Sector 6: Foundry and forgery	0.089
Sector 7: Metal fabrication	0.261
Sector 8: Shoe making and repair	0.049
Sector 9: Tailoring and knitting	0.263

Evaluation 101… Quick Review

- Important to establish a counterfactual group in order to assess impact

- We are implementing randomized evaluation where "treatment" of training is randomly assigned

- Hence, by design treatment status is not correlated with any socio-economic/demographic/business factors

What is the Unit of Randomization?

- All else equal, we want to randomize at the lowest level possible – i.e. individual level.

- This maximizes power and reduces required sample size. Satisfies small budgets.

- Can we do this here?

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- Can we do this here?
  - What is the potential problem?

Randomize This!
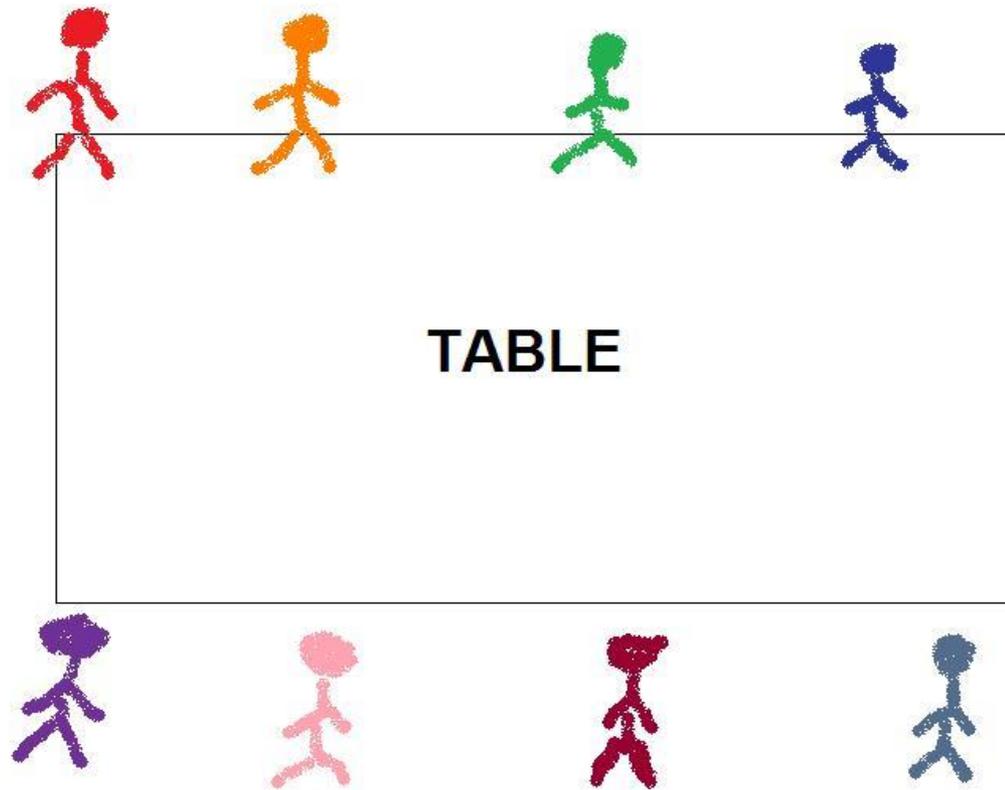
What a Cluster _ _!!
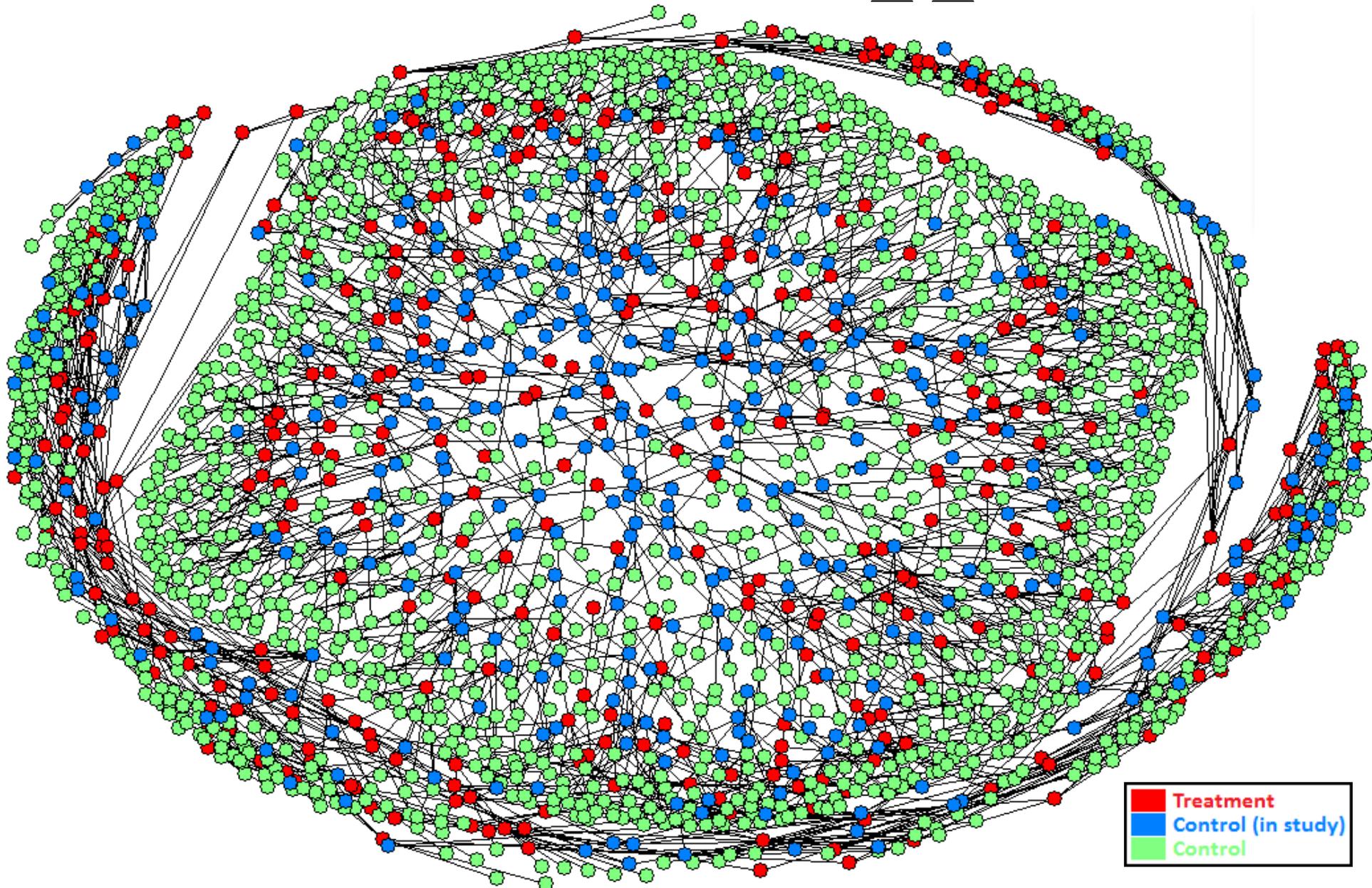
Treatment
Control (in study)
Control

Spillovers…

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  - But how to form groups?

Making Sense of Clusters

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- Randomization at cluster level
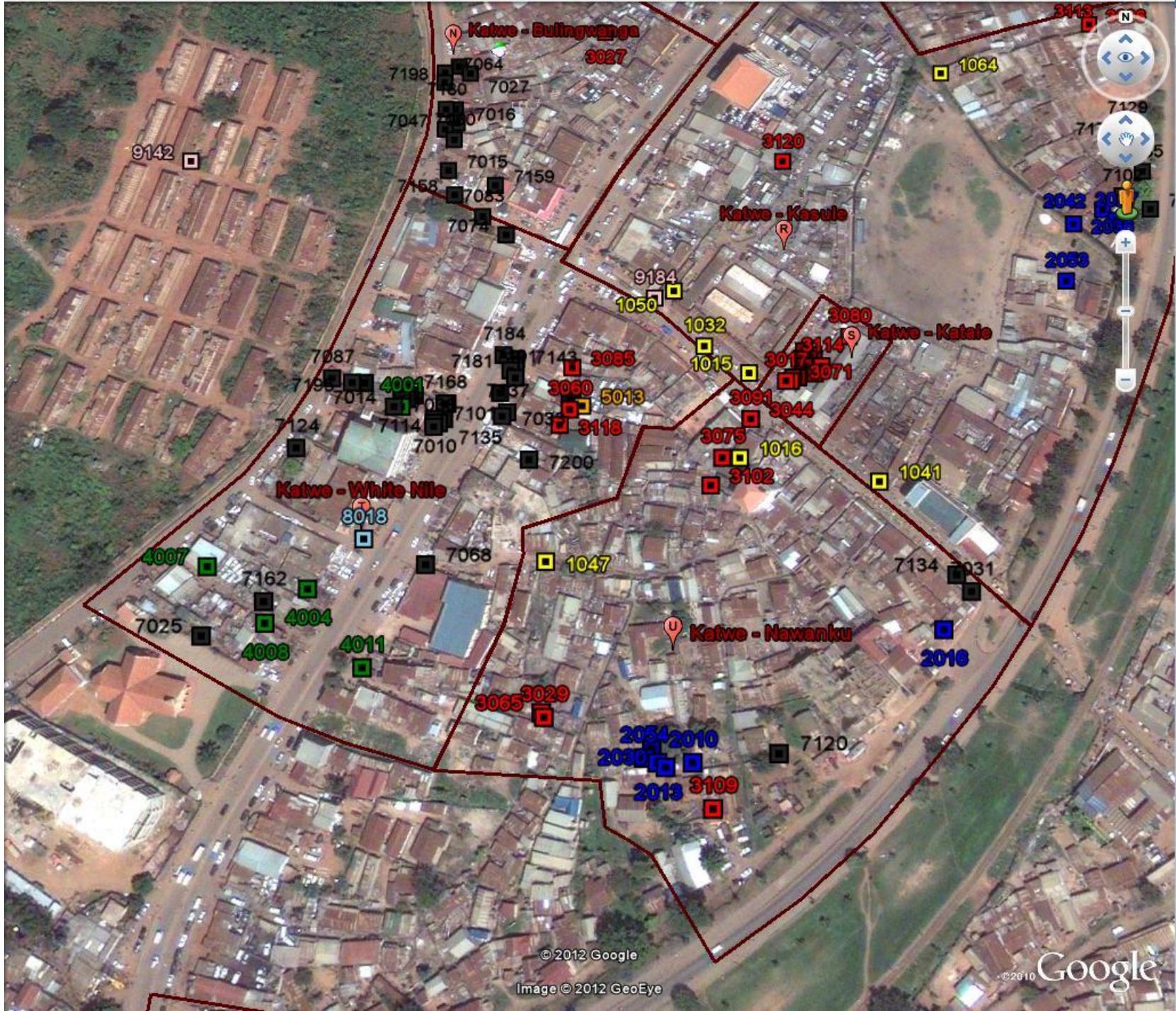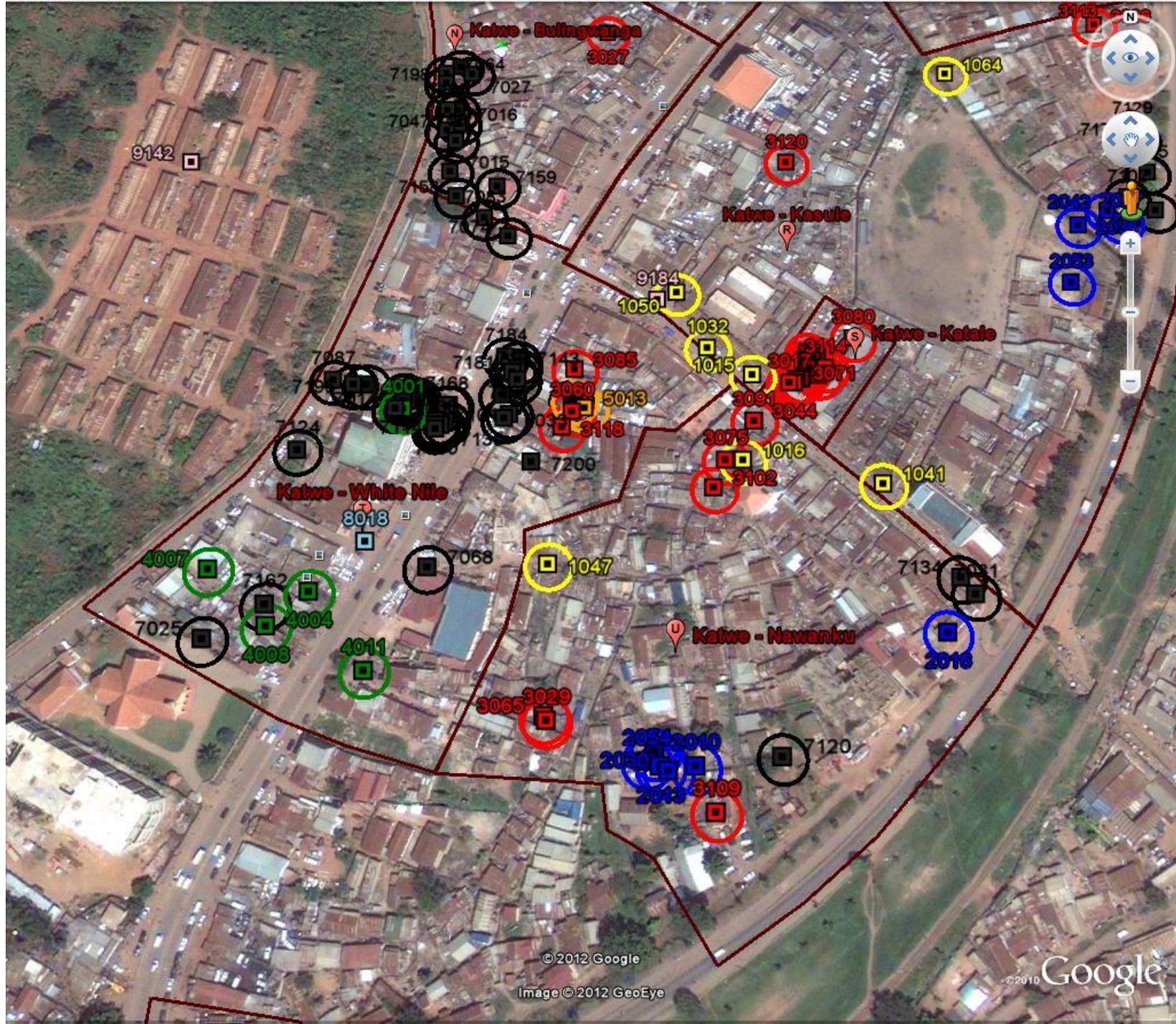
Summary

- Physical proximity often makes individual data less unique

- If we care about precise treatment effects, then we have to move to higher level of analysis

- In our case, this was done by forming clusters based on physical proximity and conducting analysis at cluster level

- As an aside, note that networks do not necessarily depend on physical proximity alone…