

Economics 172
Issues in African Economic Development

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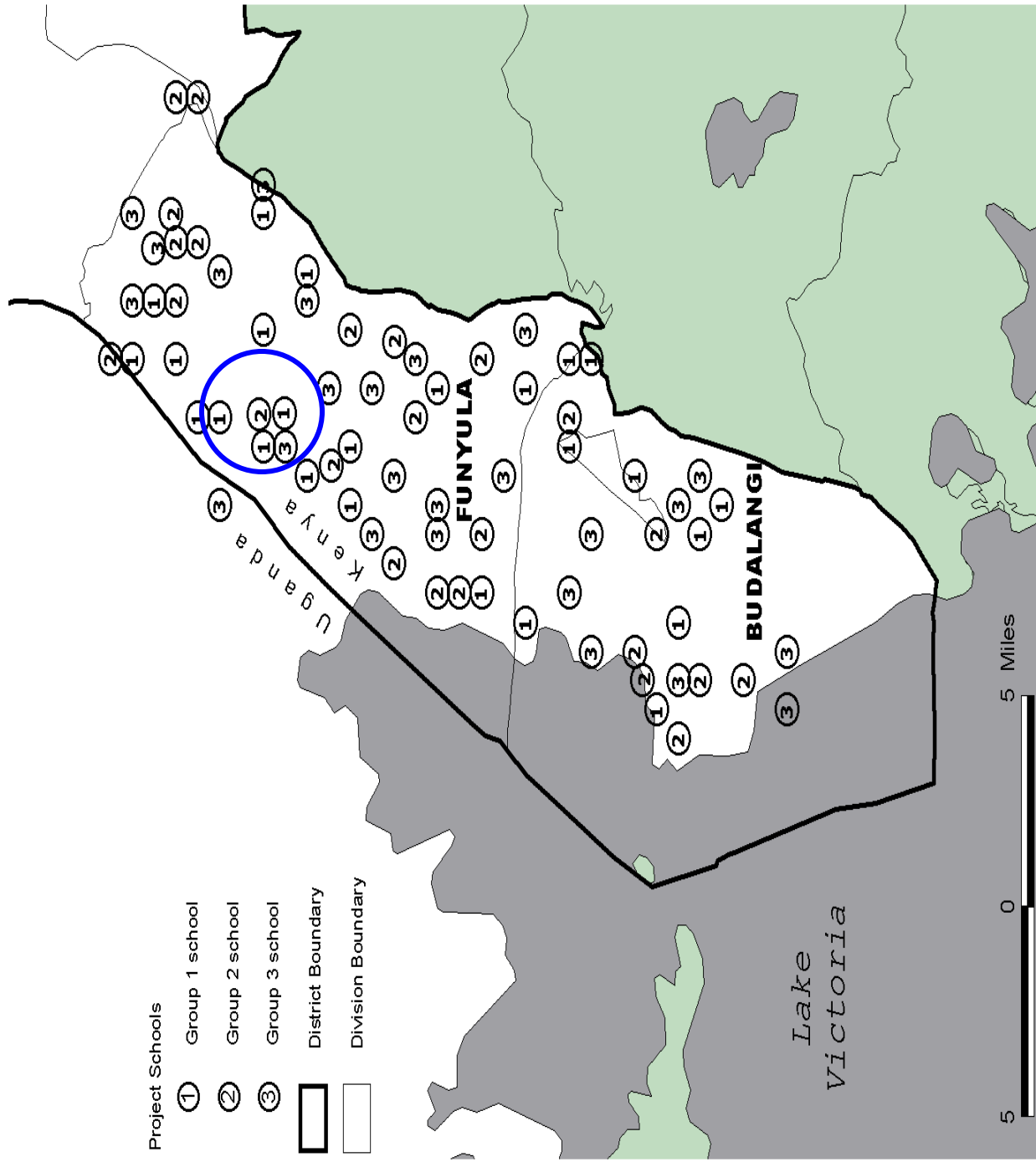
Lecture 8 – February 8, 2007

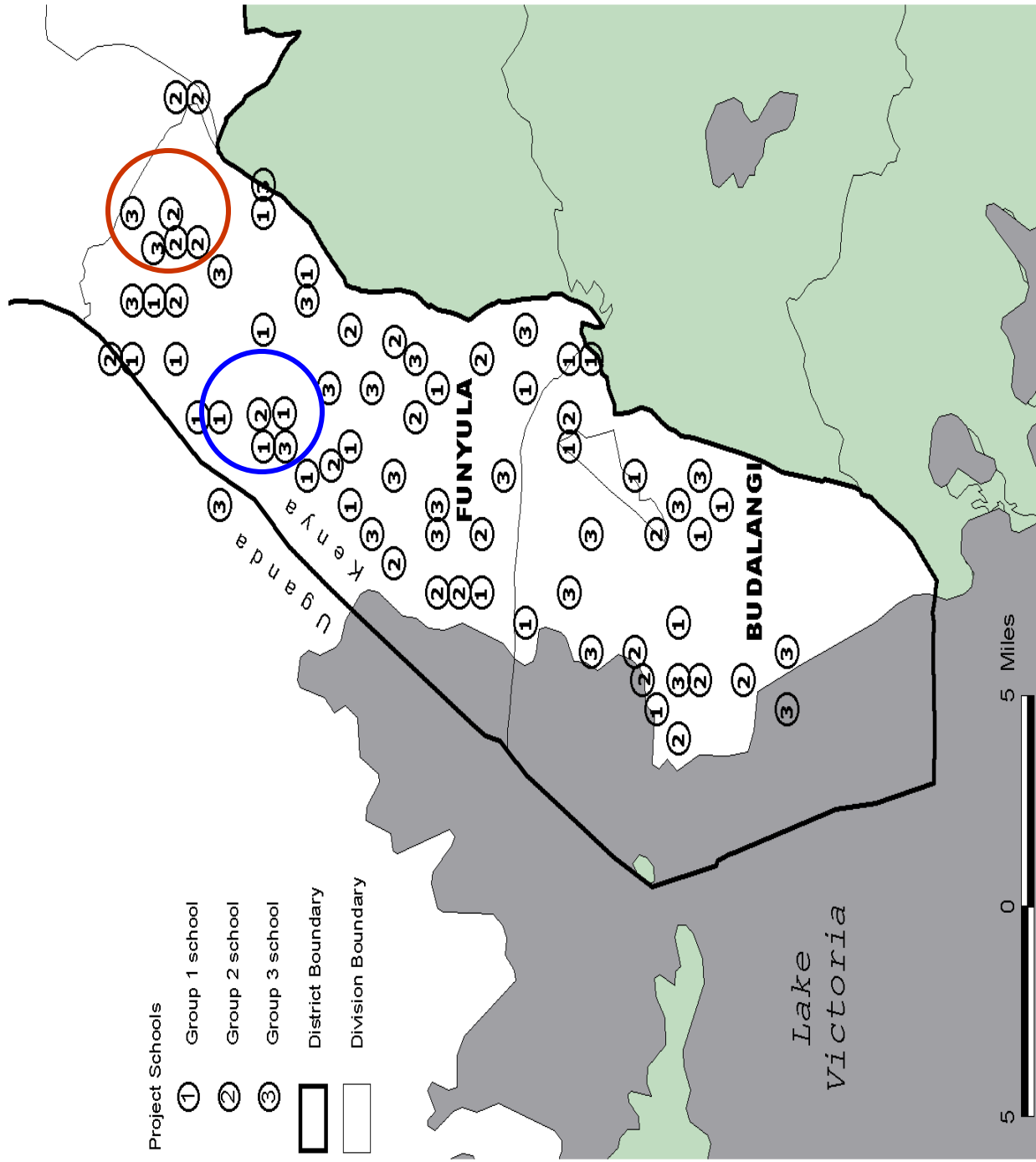
Program impacts

- Three types of analysis:
 - (1) Direct treatment effects: simple difference between treatment and comparison schools
 - (2) Within-school externality impacts
 - (3) Cross-school externality impacts

Cross-school infection externalities (1999)

- Large reductions in moderate-heavy infection levels within 3 km (2 miles) of treatment schools in 1999, smaller positive reductions up to 6 km





Cross-school infection externalities (1999)

- Large reductions in moderate-heavy infection levels within 3 km (2 miles) of treatment schools in 1999, smaller positive reductions up to 6 km
- An average reduction in moderate-heavy infections of approximately 20 percentage points in the study area can be attributed to cross-school externalities

Implications of treatment externalities

- Standard public finance theory: individual behaviors that generate positive externalities for other people are “under-provided”, since people do not take into account the social benefits of their actions. Thus in the absence of a subsidy, there is too little deworming

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→ a strong rationale for public deworming subsidies

Implications of treatment externalities

- Standard public finance theory: individual behaviors that generate positive externalities for other people are “under-provided”, since people do not take into account the social benefits of their actions. Thus in the absence of a subsidy, there is too little deworming
 - a strong rationale for public deworming subsidies
- Previous randomized studies of deworming within schools showed positive but small impacts on child health, nutrition. Why? Is “deworming not worth it”?

Within-school infection externalities (1999)

Group 1 Group 1 Group 2
(Treated) (Untreated)

Rate of moderate-heavy Infection, 1999

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→ Simple T – C analysis may not give reliable estimates in the presence of externalities (e.g., infectious diseases)

Drugs or behavioral change? (1999)

- Did the health / hygiene education have any impact on worm prevention behaviors? (e.g., hand washing, wearing shoes, avoiding contact with fresh water)

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	<u>Group 1</u>	<u>Group 2</u>	<u>G1-G2</u>
Wearing shoes	0.24	0.26	-0.02 (0.03)

“Clean” hands, clothes (according to enumerators)

	0.59	0.60	-0.01 (0.02)
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Days of contact with fresh water in past week

	2.4	2.2	0.2 (0.3)
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Drugs or behavioral change? (1999)

- Did the health / hygiene education have any impact on worm prevention behaviors? (e.g., hand washing, wearing shoes, avoiding contact with fresh water)
 - If deworming drugs and worm prevention practices are substitutes, then taking the drugs will make kids less conscientious about avoiding exposure

Focus on the girls aged 13+

	<u>Group 1</u>	<u>Group 2</u>	<u>G1-G2</u>
Wearing shoes	0.39	0.42	-0.03 (0.06)
“Clean” hands, clothes (according to enumerators)	0.75	0.77	-0.02 (0.02)
Days of contact with fresh water in past week	2.3	2.2	0.0 (0.3)

Educational impacts – school participation

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- “School participation” data collected by enumerators during unannounced primary school visits

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Older girls (≥ 13 years)

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Pre-school, Grades 1-2

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Grades 6-8

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→ Treating worms reduces school absenteeism a lot!

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- Why might deworming affect test scores?

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- Why might deworming affect test scores?
 - 1) Increased time in school (+)
 - 2) Greater efficiency of learning while in school (+)

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- But the average test gain from deworming is **zero**. Why?
 - Congestion effects in the classroom
 - Time lags
 - Other explanations?

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- Cost of a larger-scale program in neighboring Tanzania: only US\$0.49 per pupil per year
- Cost of health education component (classroom lessons, teacher training) was US\$0.44 per pupil per year

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 - Take these gains in wages ($7\% \times 7\%$) over 40 years in the workforce, discounted at 5% per year
- Deworming benefits are at least three times (3x) as large as treatment costs (using the Tanzania costs)

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 - (2) Socio-cultural explanations / resistance to new technologies. Evidence from anthropologist Wenzel Geissler: “worms are our life”

The Impact of Higher Drug Costs

- In 1998, 1999, 2000 deworming was given for free
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- 2001 deworming take-up:
Free-treatment schools: 75%
Cost-sharing schools: 18%

- For next time: the HIV/AIDS readings

Whiteboard #1

Whiteboard #2

Whiteboard #3

Whiteboard #4

Whiteboard #5

