Economics 172
Issues in African Economic Development

Professor Ted Miguel
Department of Economics
University of California, Berkeley

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Lecture 11 – February 20, 2007

Table 2 Adjusted differences between cases and comparison pluckers on days plucking at 6-month intervals prior to AIDS-related termination*

Years before termination	Difference†	Percentage difference‡	SE	*P*-value
3.0 years	−1.689	−4%	2.732	0.536
2.5 years	0.466	1%	2.224	0.834
2.0 years	2.400	6%	1.956	0.220
1.5 years	4.113	10%	1.871	0.028
1.0 years	5.605	13%	1.940	0.004
0.5 years	6.876	16%	2.191	0.002
Near termination	7.927	19%	2.684	0.003

"Pre" t=0

"Post" t=1

$Diff_0$ = +1%

$Diff_1$ = -17%

* The final regression model included age, a dummy variable for matched group, the variables for time and a dummy variable to indicate pluckers who went on to an AIDS-related termination.
† Difference in kilograms.
‡ Expressed as a per cent of the average kilograms plucked by comparison pluckers, 41.

Taking the difference-in-differences

- The difference-in-differences (DD) estimator takes the differences between equations (2) and (3) to eliminate omitted variable bias and deliver the true effect:

  Equation (2) – Equation (3)

  $= \{E(Y_{i1} \mid T_{i1}=1) - E(Y_{i1} \mid T_{i1}=0)\}$

  $- \{E(Y_{i0} \mid T_{i1}=1) - E(Y_{i0} \mid T_{i1}=0)\}$

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  $= Diff_1 - Diff_0 = (-17\%) - (+1\%) = -18\%$

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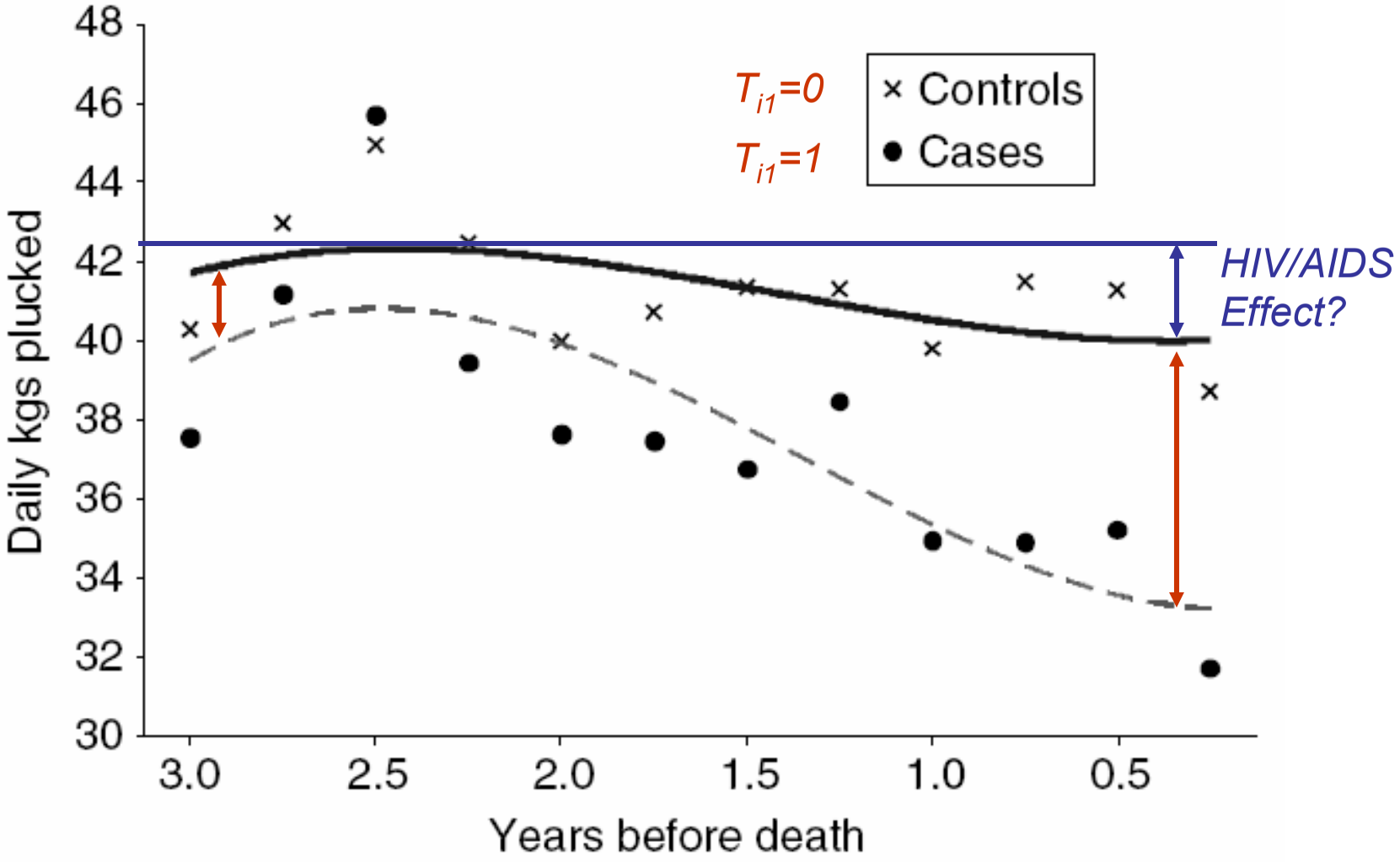

Figure 1 Mean kilograms of tea plucked per day on days of plucking for cases and controls (univariate analysis – curves are trend lines fit using polynomial regression for each group. Note that vertical access scale begins at 30 kg/day).

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- Sick workers often have family member "helpers". So estimates are again likely to be lower bounds
- Is the assumption of no time-varying omitted variables reasonable? AIDS victims have higher absenteeism three years prior. What is the right "counterfactual"?

Key questions in the study of HIV/AIDS

(0) Measuring the extent of the problem (today)

(1) What impact does HIV/AIDS have on economic development in Africa?

-- Labor productivity / labor turnover

-- **Human capital accumulation (orphans)**

-- Investment and savings (as time horizons change)

Parent death and school participation in Kenya

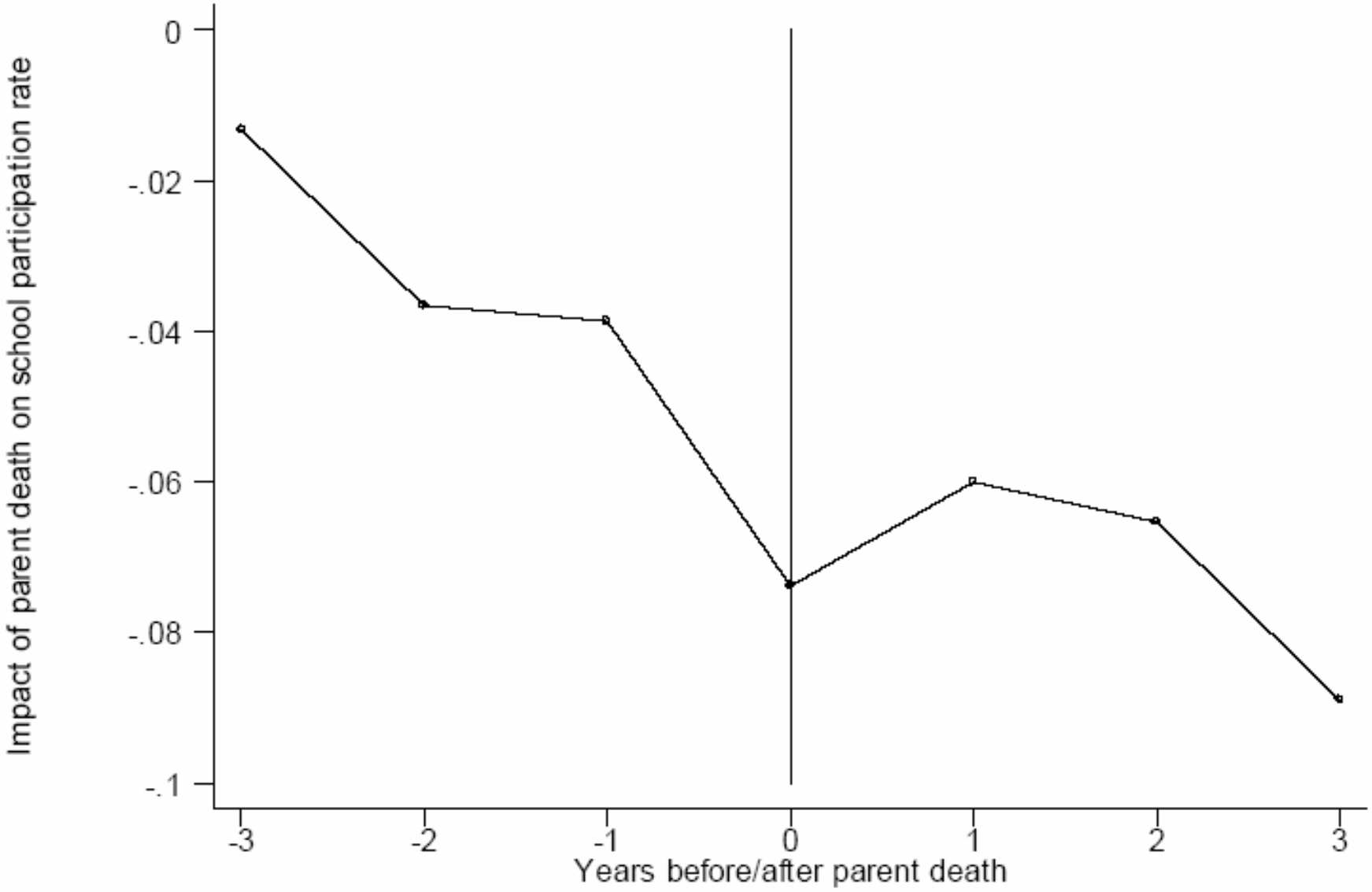
- Evans and Miguel (2005) study the impact of parent death on school participation among primary school children in Kenya (using the deworming project dataset)

- Parent death leads to a drop of at least 5-6 percentage points in school participation
  - Impacts are particularly negative following maternal deaths, and for worse students

How do orphans, others compare at baseline?

	Became Orphans	Never Orphans	B-N
1997 School participation	0.83	0.81	0.02
			(0.03)
1998 School participation	0.92	0.92	0.00
			(0.01)
Weight-for-age (Z), 1998	-1.40	-1.45	0.05
			(0.03)
Malaria in last month, 1998	0.40	0.39	0.01
			(0.02)
Household has a latrine, 1998	0.81	0.82	-0.02
			(0.02)
Household owns cattle, 1998	0.49	0.49	-0.00
			(0.02)

Figure 1: Parent death and school participation over time (relative to four years prior to parent death)



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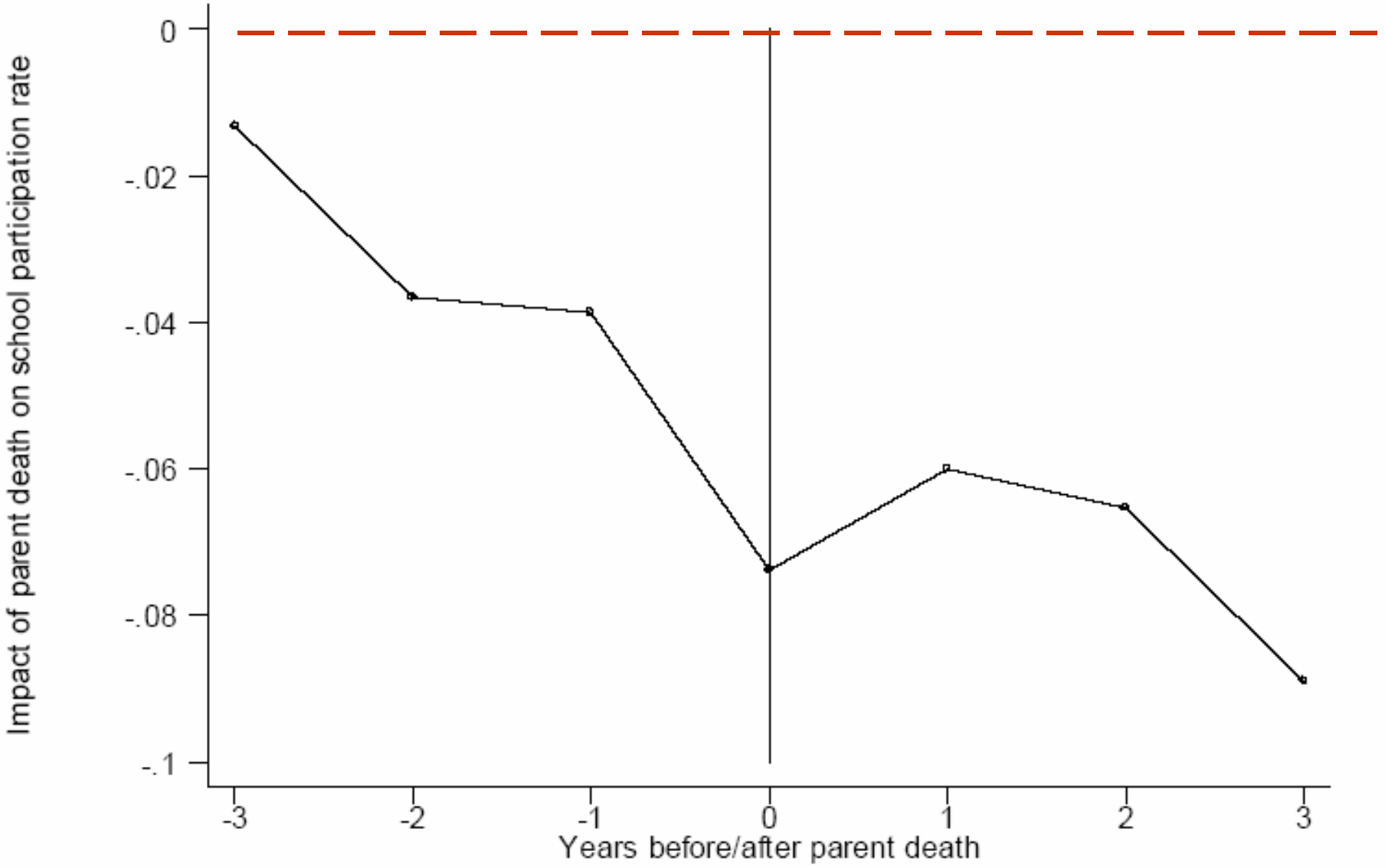

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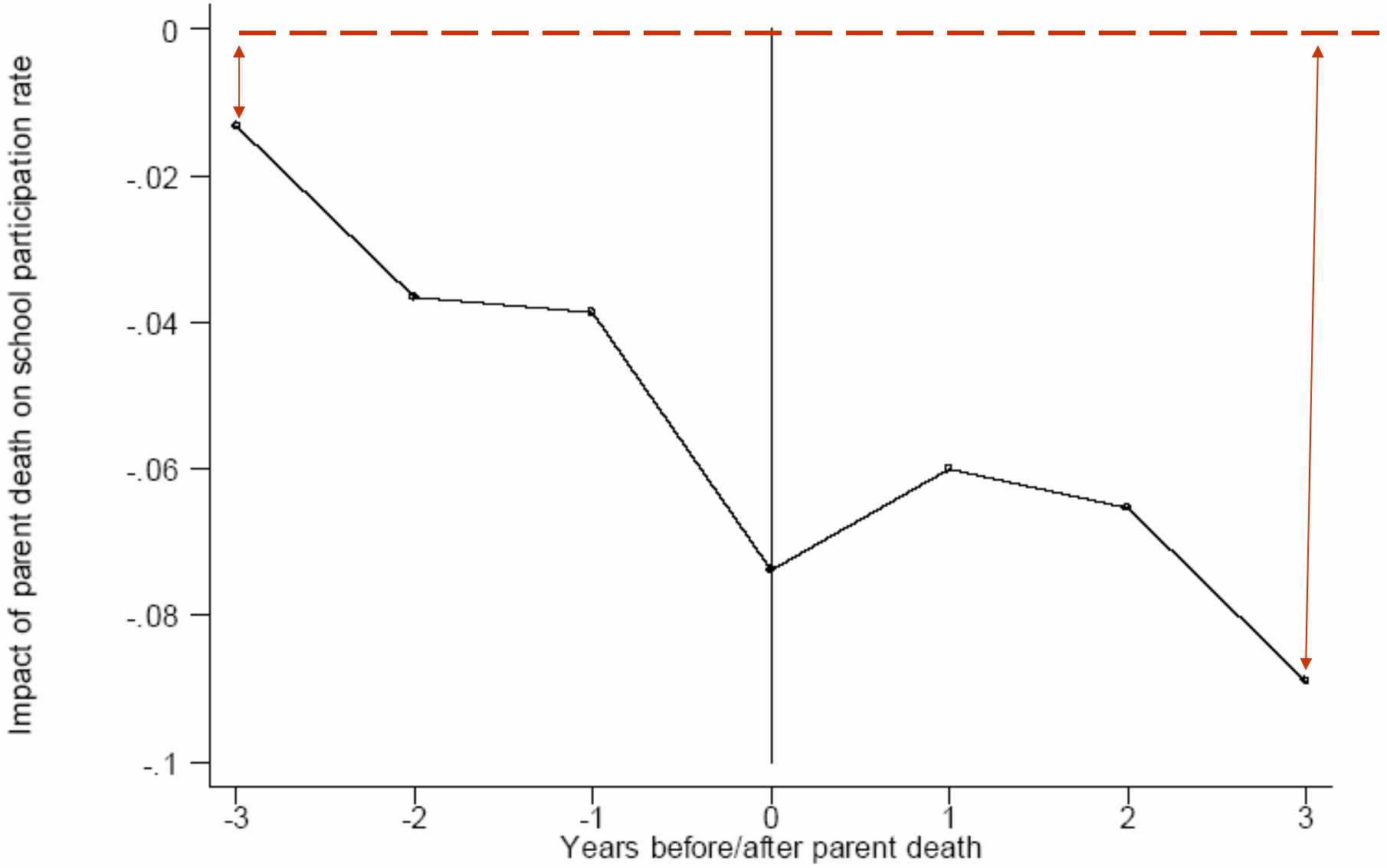

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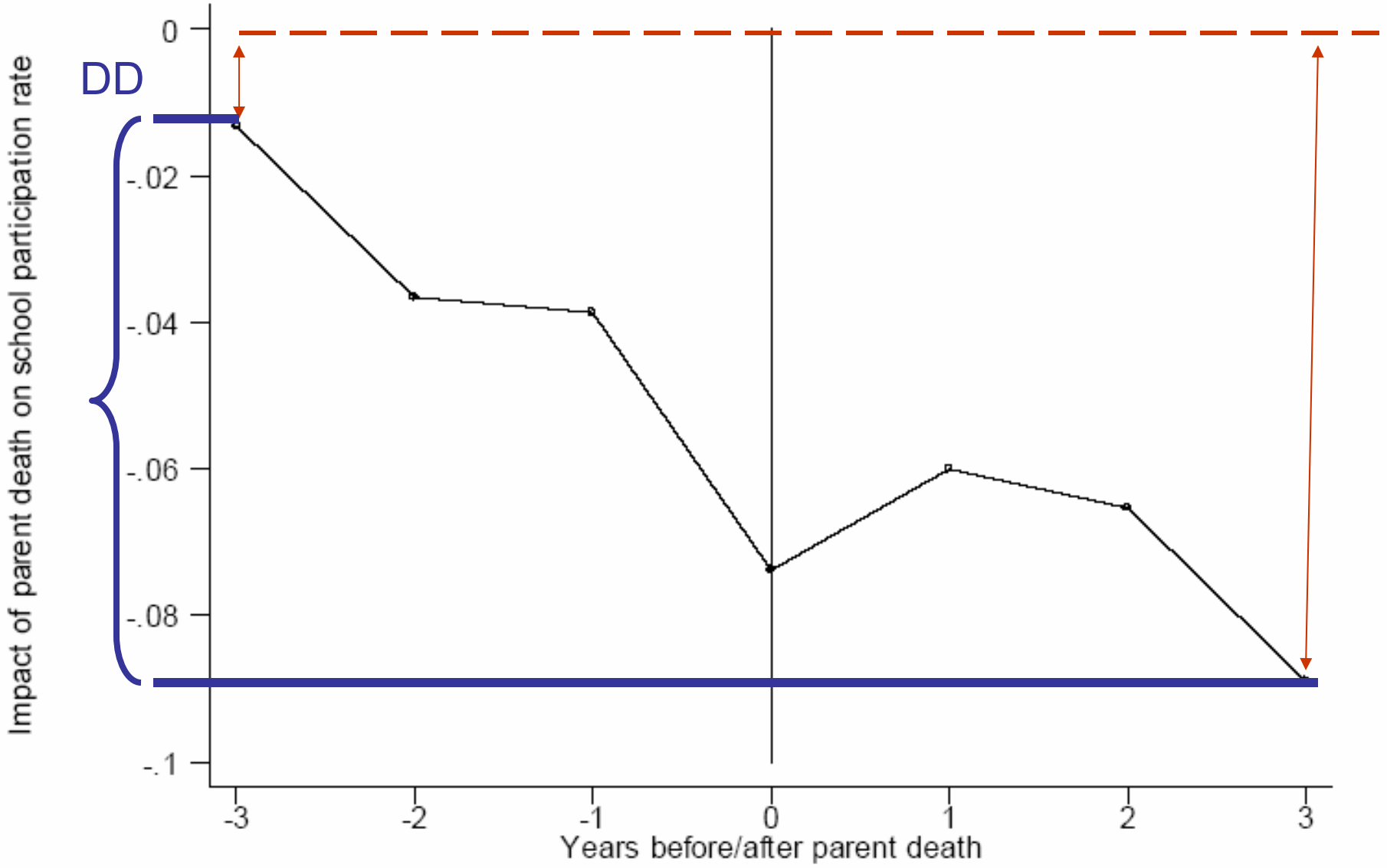

Key questions in the study of HIV/AIDS

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(1) What impact does HIV/AIDS have on economic development in Africa?

(2) Why does HIV/AIDS continue to spread in Africa?

(3) What can / should public policy do about HIV/AIDS?

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(2) Why does HIV/AIDS continue to spread in Africa?

(3) What can / should public policy do about HIV/AIDS?

Why does HIV continue to spread?

- Lack of information, awareness about HIV/AIDS?
  - Probably not a good explanation anymore

- What else?

Why does HIV spread? A simple model

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- Assume the agent is HIV- in her/his youth

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Key term: benefits of unsafe sex (financial, physical, etc.)

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Benefits (+) Costs (-)

Why does HIV spread? An extension

- Imagine people do not know their infection status. S/he thinks she has likelihood $R \in [0,1]$ of already being HIV+

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- "Nothing to lose": cost of unsafe sex smaller than before

Why does HIV spread? An extension

- What are implications of this model for public health messages that stress how widespread the HIV virus already is?

- What are the implications of this model for efforts to boost ARV treatment (e.g., Botswana)?

What is this model missing?

(1) People are altruistic

- Allow the benefits of unsafe sex to be a function of *R*: *S* = *S(R)*. This may offset the "nothing to lose" effect

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(2) Not all sexual choices are voluntary (e.g., rape)

(3) Social / cultural norms regarding "acceptable" sexual behavior, especially regarding safe sex

(4) Pockets of poor information about HIV/AIDS

(5) Others?

What can public policy do about HIV/AIDS?

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(5) Subsidize treatment for anti-retroviral medical treatment (ARVs). (Compliance? Profits?)

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(5) Subsidize treatment for anti-retroviral medical treatment (ARVs). (Compliance? Profits?)

(6) Development of an HIV vaccine

- For next time: finish the HIV/AIDS section

Whiteboard #1

Whiteboard #2

Whiteboard #3

Whiteboard #4

Whiteboard #5


Map of Africa
TUNISIA
Mediterranean Sea
MOROCCO
IRAQ
IRAN
Canary Islands (SPAIN)
ALGERIA
LIBYA
EGYPT
Persian Gulf
WESTERN SAHARA
SAUDI ARABIA
MAURITANIA
MALI
NIGER
Red Sea
ERITREA
CHAD
Lake Chad
SENEGAL
GAMBIA
BURKINA
GUINEA BISSAU
GUINEA
SUDAN
DJIBOUTI
SOMALIA
GHANA
BENIN
TOGO
NIGERIA
SIERRA LEONE
IVORY COAST
Lake Volta
ETHIOPIA
LIBERIA
CENTRAL AFRICAN REPUBLIC
CAMEROON
Lake Rudolf
EQUATORIAL GUINEA
UGANDA
KENYA
SAO TOME & PRINCIPE
GABON
CONGO
ZAIRE
RWANDA
Lake Victoria
BURUNDI
TANZANIA
Lake Tanganyika
ANGOLA (Cabinda)
MALAWI
Lake Nyasa
ANGOLA
ZAMBIA
Lake Kariba
MOZAMBIQUE
MADAGASCAR
ZIMBABWE
NAMIBIA
BOTSWANA
SOUTH AFRICA (Walvis Bay)
SWAZILAND
LESOTHO
SOUTH AFRICA


Map of Africa
Mediterranean Sea
ATLANTIC
OCEAN
Equator
Tropic of Cancer
Tropic of Capricorn
Ponta Delgada
Lisbon
Madrid
Barcelona
Rome
Valletta
Tripoli
Ankara
Istanbul
Yerevan
Baku
Tehran
Gibraltar
Rabat
Casablanca
Algiers
Tunis
Beirut
Damascus
Amman
Jerusalem
Baghdad
Cairo
Alexandria
Kuwait
Riyadh
Nouakchott
Praia
Dakar
Banjul
Bissau
Conakry
Freetown
Monrovia
Abidjan
Accra
Lome
Porto Novo
Abuja
Ibadan
Niamey
Bamako
Ouagadougou
NÖDjamena
Khartoum
Asmara
Addis Ababa
Djibouti
Sanaa
Mogadishu
Nairobi
Kampala
Kigali
Bujumbura
Dar es Salaam
Mombasa
Malabo
Yaounde
Douala
Libreville
Sao Tome
Bangui
Brazzaville
Kinshasa
Pointe-Noire
Luanda
Lubumbashi
Lusaka
Harare
Windhoek
Walvis Bay
Gaborone
Pretoria
Johannesburg
Maputo
Mbabane
Maseru
Bloemfontein
Durban
Cape Town
Port Elizabeth
Antananarivo
Moroni
Lilongwe
Beira
Tolanaro
0
1000 Miles
0
1000 Km