



Report 1: What We Know & What We Don't Know

*Shell South Africa
Cape Town, 27 August 2001*

HIV/AIDS Market Impact Study

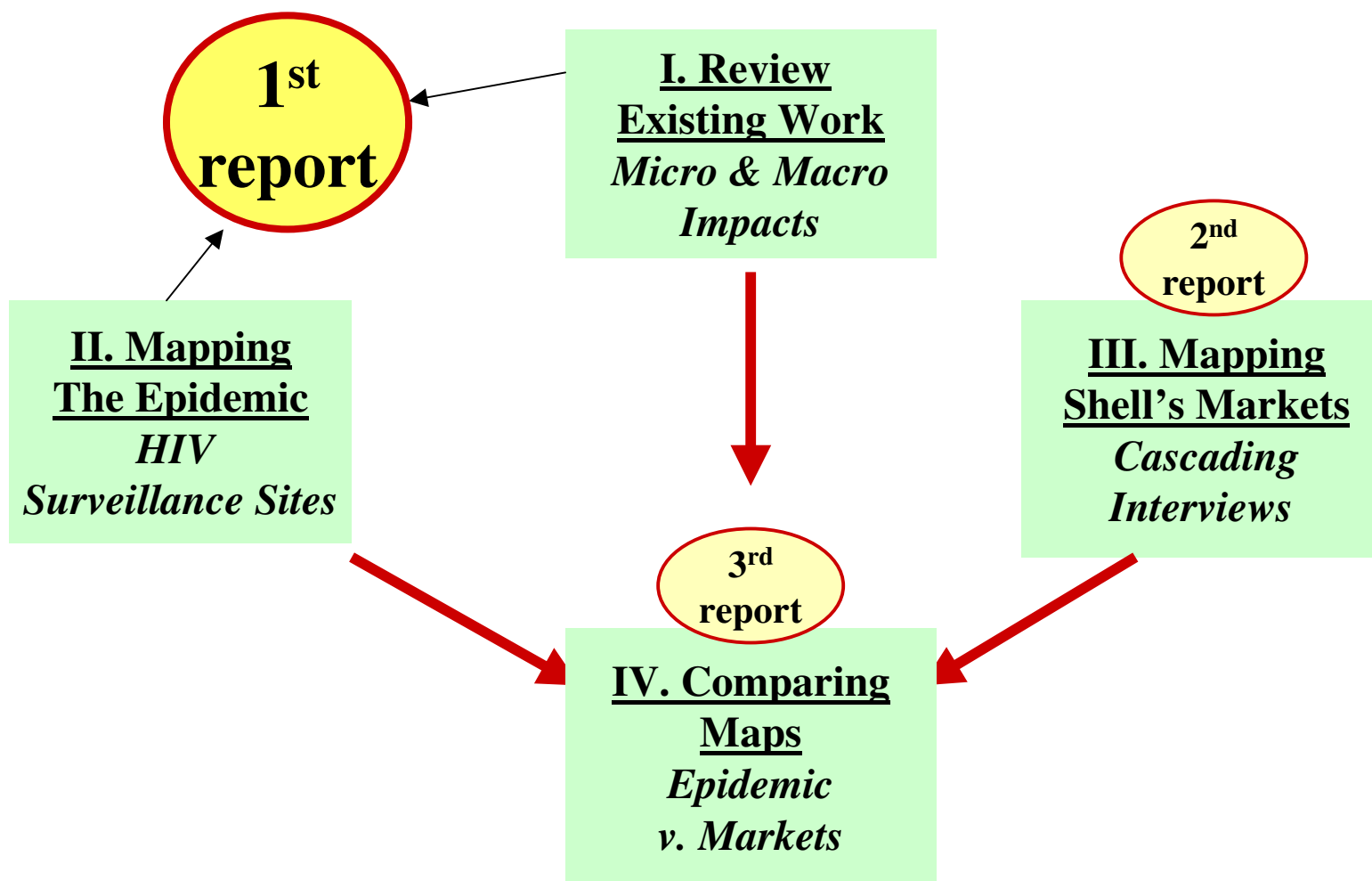
from

**Barbara Heinzen & HEARD, University of Natal
Susan Erskine (epidemiology), Chris Desmond (modelling)**



Shell HIV/AIDS Impact Study

Namibia, South Africa, Botswana, Lesotho, Swaziland, Mozambique





Speakers

Barbara Heinzen: Micro Impact

Chris Desmond: Macro Impact & Modelling

Su Erskine: Epidemiology

Barbara Heinzen - Conclusions



I. Review Existing Work

Micro & Macro Impacts

Households

Companies

Markets

Macro-Economies



Impact on Households



Limited Studies of Household Impact

What's Covered

Rural areas

Uganda
Tanzania
Kenya

Zaire
Malawi
Zimbabwe
Zambia

Cote d'Ivoire
India

What's Missing

Urban households

Wealthy households

Southern Africa

Households
that disappeared

Quantitative
impact on income,
consumption,
expenditure



Household Responses in Rural Areas

<u>Food security</u>	<u>Income</u>	<u>Labour</u>
Eat cheaper foods, e.g. porridge, not bread	Diversify income	Reallocate labour; Children leave school
Reduce consumption	Migrate	Work extra hours
Send children to relatives	Use savings or investments	Hire labour & draught animals
Eat wild foods	Borrow, informal sector	Decrease areas cultivated
Beg	Sell assets	Ask relatives to help
		Diversify income

New Forms of Households Are Emerging



→ *new economic units*

- **Grandparent/elderly + young children**
- **Single-parent + children**
- **Cluster foster care by neighbours**
- **Children exploited or abused by carers**
- **Large households of unrelated children**
- **Itinerant, displaced or homeless children**
- **Neglected, displaced children in gangs**



Conclusions re Households

- Households try to adapt.
- New forms of household.
 - Assets sold.
 - Distress in families.
- Households → poorer
- Households → disappear

Zambia

5 year retrospective study of AIDS-affected families
(232 urban + 101 rural)

Monthly disposable income
fell by >80%

Rakai, Uganda

*Bicycles & radios in
houses with adult AIDS death*

	<i>Bike</i>	<i>Radio</i>
<i>First visit</i>	39	40
<i>Last visit</i>	35	36



Impact on Companies



8+ Recent Company Studies

All in Southern Africa

7 Co's, Boston U.

- Metropolitan Life*
- Sugar Co., KwaZulu Natal
- Simumye Sugar, Swaziland
 - Anglo Gold
 - Debswana
- Utility company study
- Various studies for internal use only

All look at costs.

A few earlier studies of critical operations.

**** an advocacy, not strategy, study***



Boston U. Study of S. African Companies

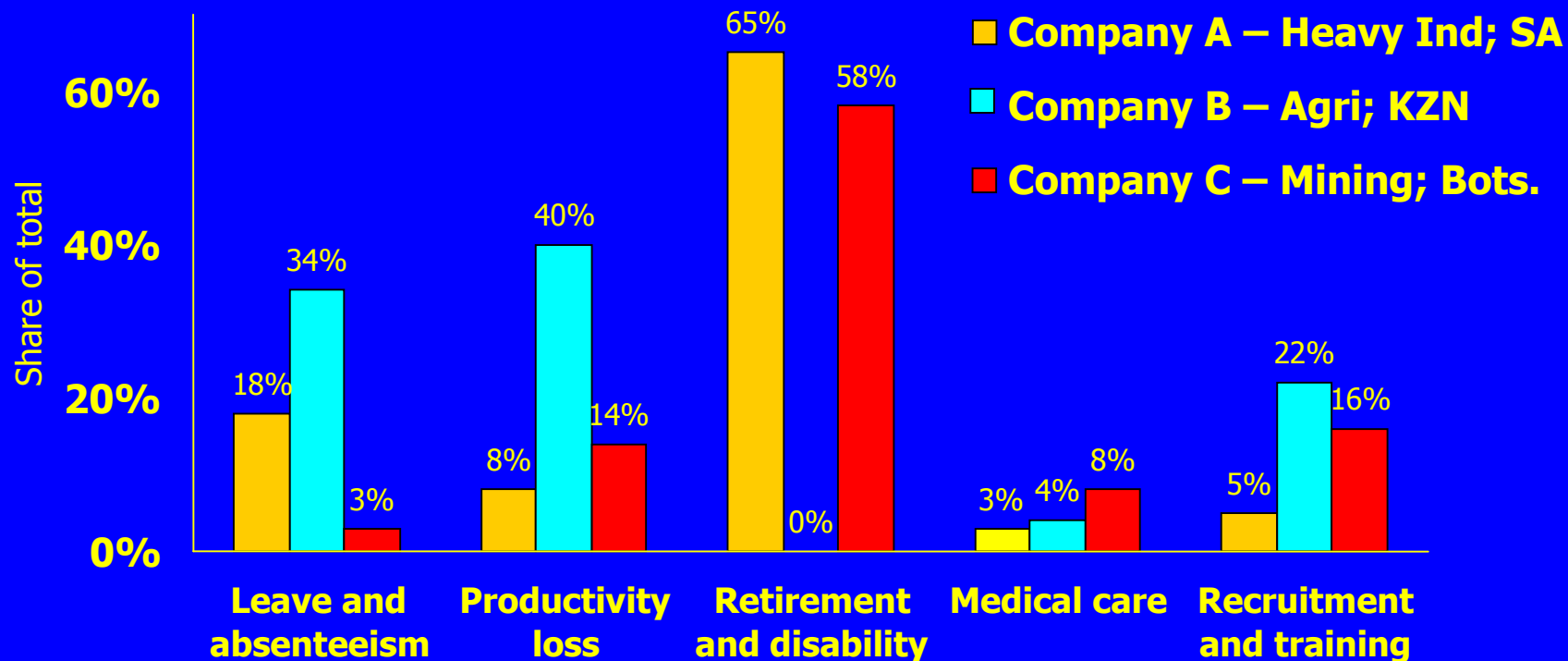
Impact on Costs

- **HIV/AIDS status of workforce → costs**
 - **Cost-effectiveness of intervention**
 - **7 companies, accountancy approach**
 - **Company HIV prevalence measured**
 - **Projected prevalence by job group**
 - **Present & future costs of each infection**
 - **Total costs to firm of HIV/AIDS in workforce**
 - **Funded by USAID, work done 1999-present**



Distribution of the Costs of a New Infection

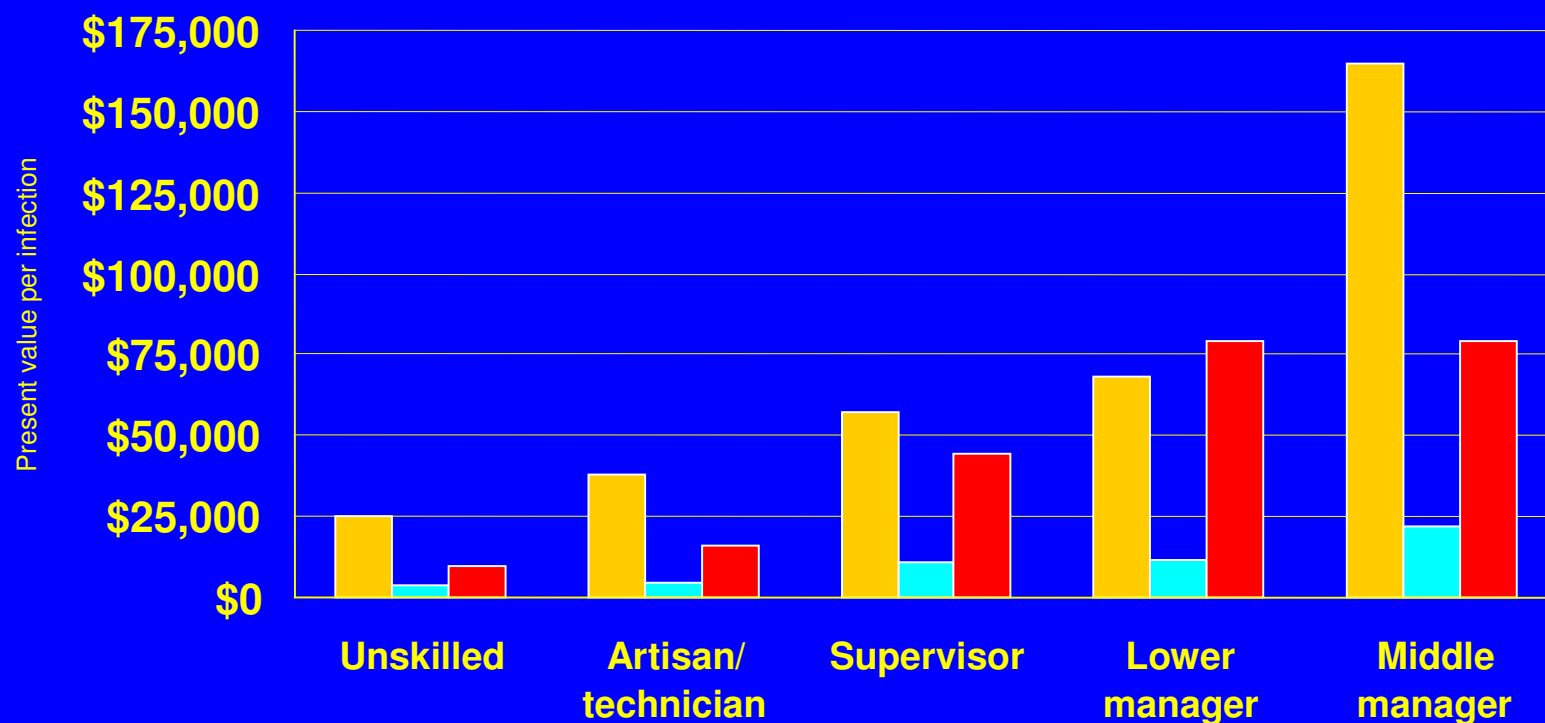
Technicians and artisans, males 35-49





**BU
study**

Cost Per New HIV Infection, Males 35-49 (Present Value)

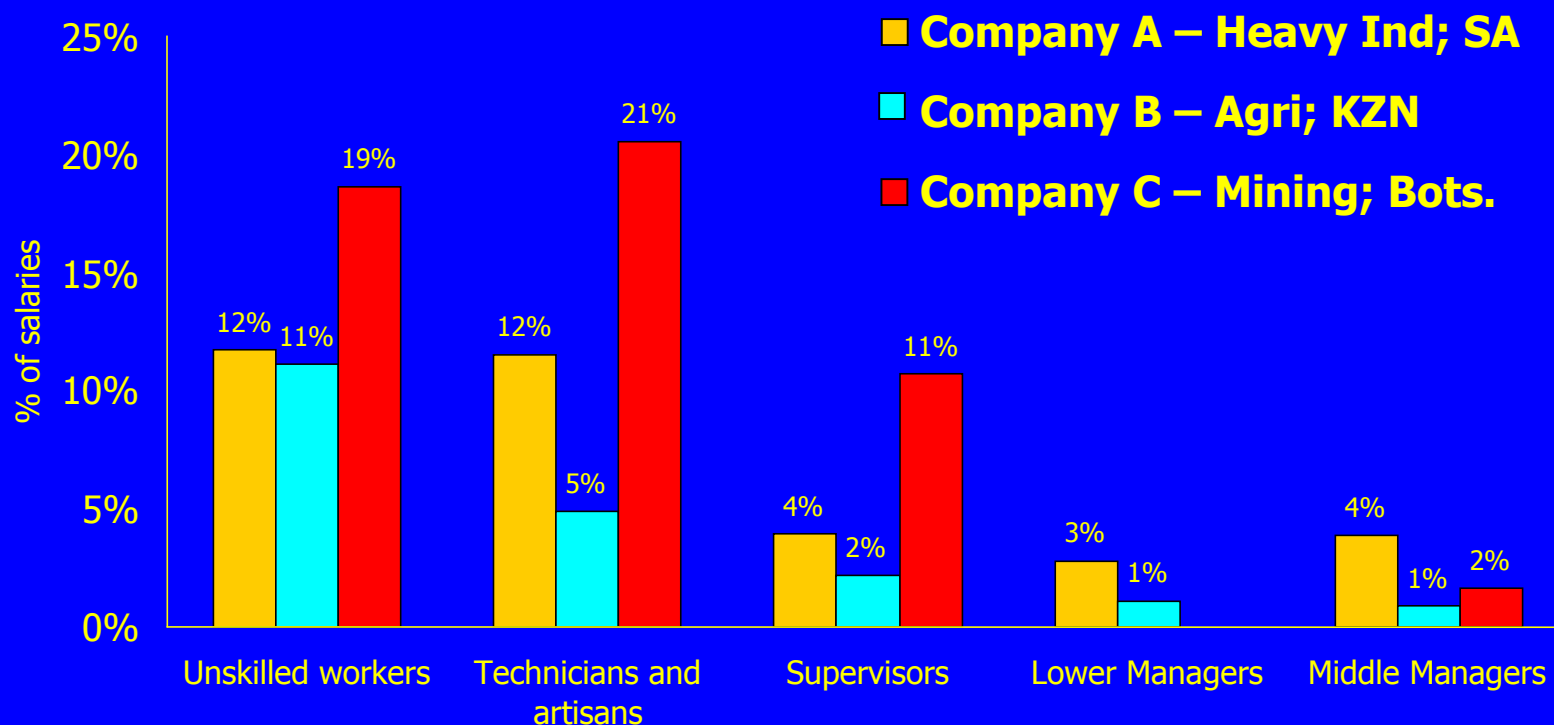


■ **Company A – Heavy Ind; SA** ■ **Company B – Agri; KZN** ■ **Company C – Mining; Bots.**



**BU
study**

Aggregate Cost of New HIV Infections Acquired in 1999 or 2000 (Present Value)





Conclusions: Impact on Companies

1. Direct & indirect costs predicted to grow.

2. Some costs already visible.

1991-98 in KZN sugar mill

**last 2 years of life for employees w/ AIDS
= R9623 per yr, per employee**



Impact on Markets



3 Studies of Market Impact – all SA

Deutsche Securities
stock market analysis

AngloGold
ABI

Internal Strategy

JD Group

Projections of disease & demography
→ Logical implications for market

Nothing empirical



Conclusions: Impact on Markets

- 1. Slower pop. growth → smaller markets.***
- 2. Spending will shift to health care.***
- 3. Quantified impact on disposable income still unclear.***



RS Evidence Meagre, but Impact is Here

Households

1. Households will try to adapt.
2. New forms of household.
3. Assets will be sold.
4. Households → poorer
5. Households → disappear

Companies

1. Direct & indirect costs predicted to grow.
2. Some costs visible now.

Markets

1. Slower pop. growth → smaller markets.
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Impact on Macro-Economies

One Study of Past Economic Impact 1990-97



Bonnel, 2000

**Based on correlation between
changes in economic growth in Africa
&
*Prevalence of HIV/AIDS + malaria***

Findings

**1990s growth reduced by
0.8%**

**1990-1995 per capita growth reduced by
1.2%**



Six Models of Future Macro Economic Impact

Only three relevant studies

<u>1992</u>	<u>1993</u>	<u>2000</u>
Mead Over, et al W. Bank	Cuddington & Hancock	Botswana, BIDPA 1996-2021
30 African countries incl.10 most affected	Malawi & Tanzania	South Africa, Quatteck 2001-2015
1 model, focused on: • Savings rate • HIV rates in skilled workforce	4 modelling runs, different variables	South Africa, Arndt & Lewis (Channing & Lewis) 1997-2010
Forecast dates: 1995-2025	Forecast dates: 1985-2010	Trinidad & Tobago & Jamaica, Nicholls et al, 1997-2005

INGBaring Study, poor quality
SA National Treasury, unpublished study



All Models Are Simplified

Models assume

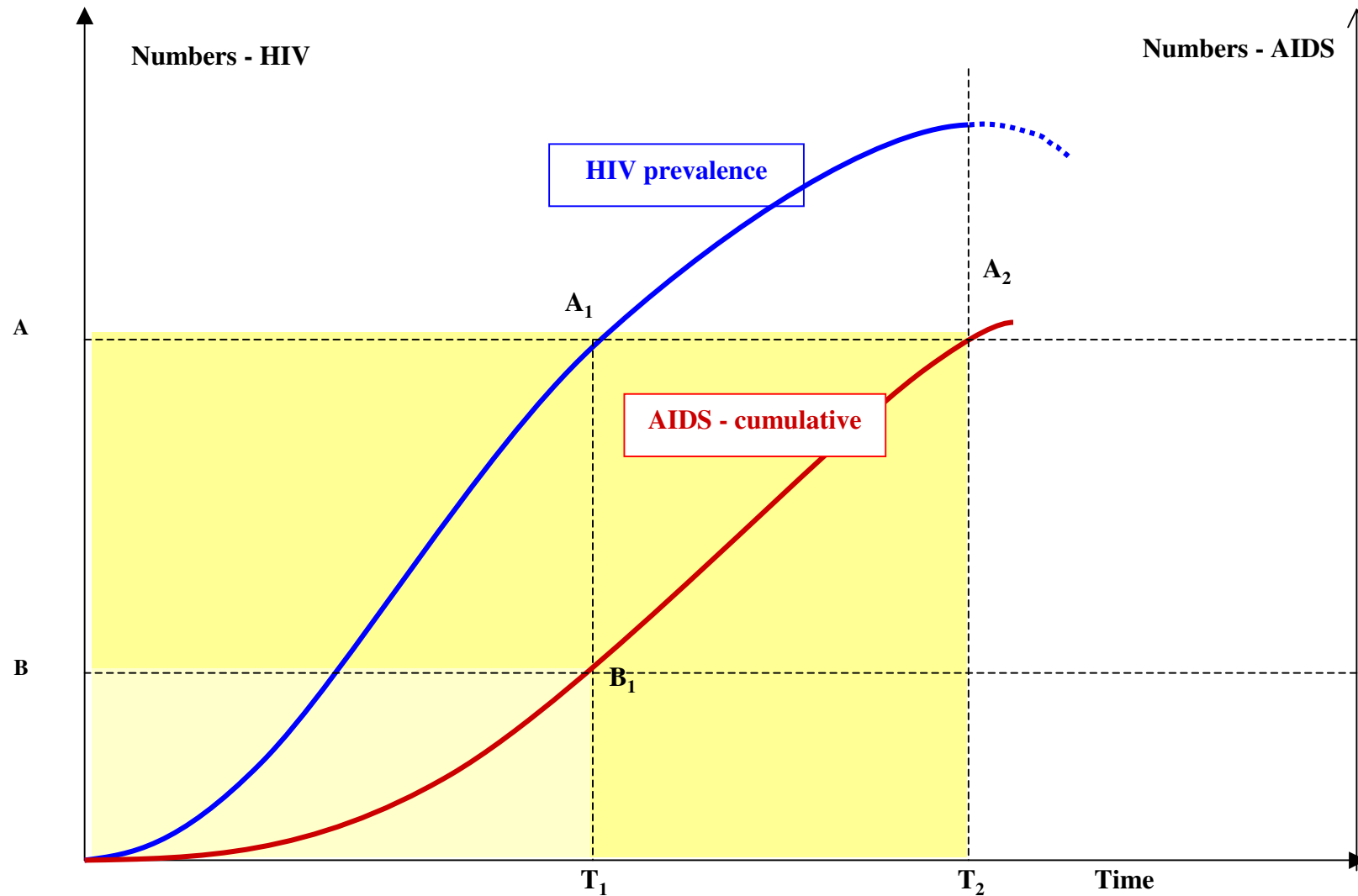
HIV → Economy

not

HIV ↔ Economy

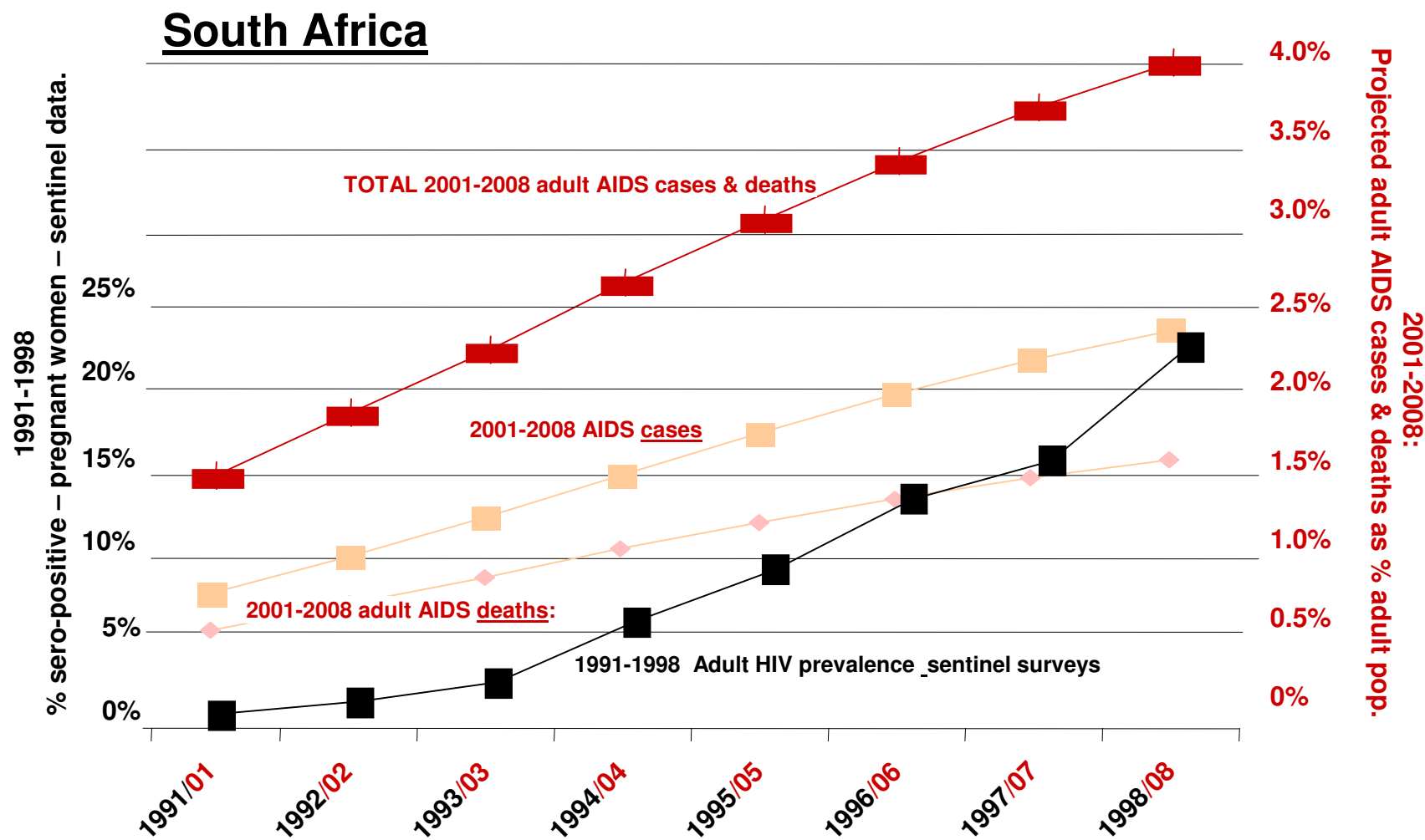


All Begin with Two Epidemic Curves





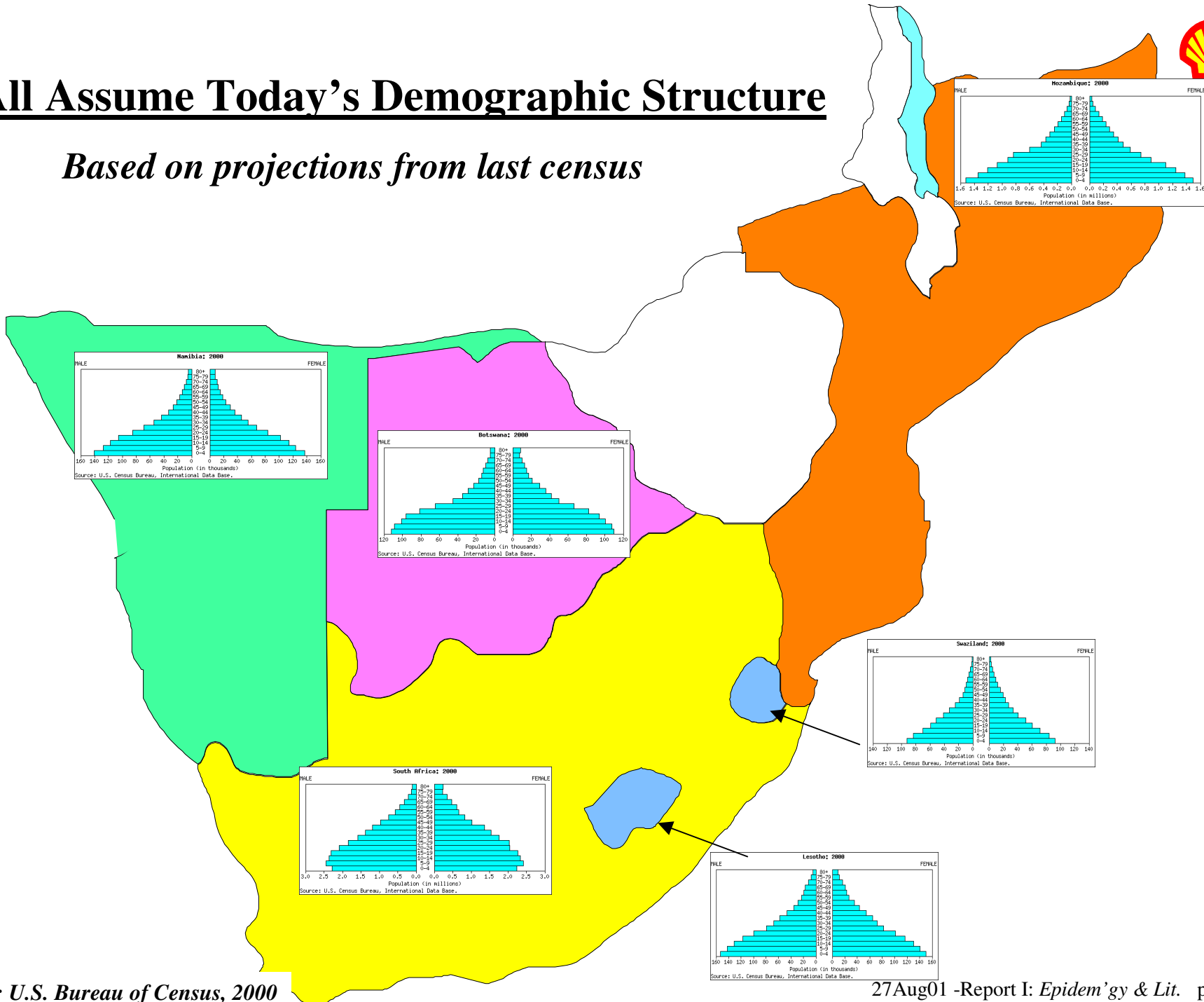
All Show Prevalence Higher than Illness & Death



Source: Sentinel Survey Data: U.S. Bureau of the Census, HIV/AIDS Surveillance Data Base; Projections: Metropolitan Life, for Whiteside & Sunter AIDS: The Challenge for South Africa, 2000, p. 68-69

All Assume Today's Demographic Structure

Based on projections from last census

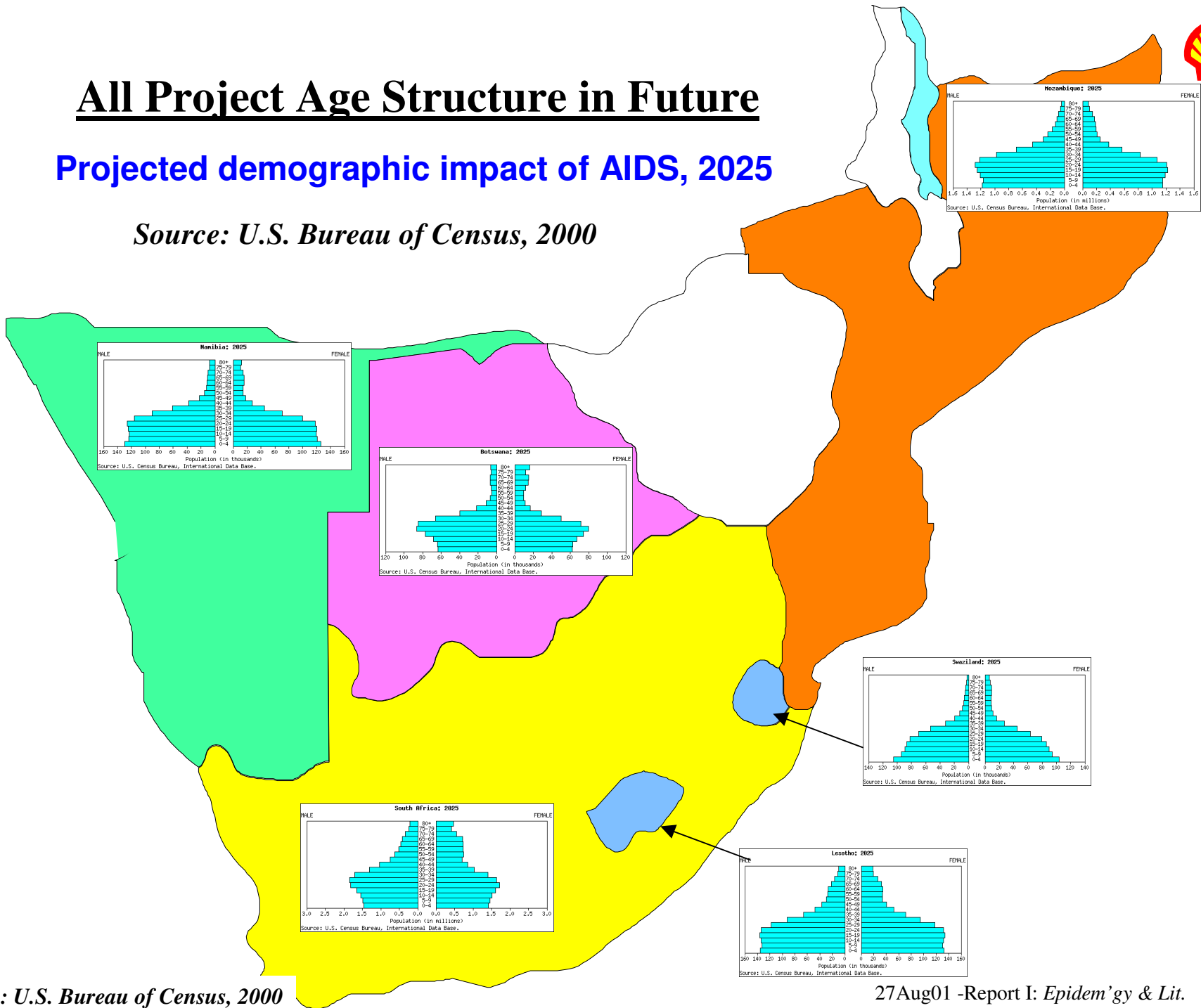




All Project Age Structure in Future

Projected demographic impact of AIDS, 2025

Source: U.S. Bureau of Census, 2000



Source: U.S. Bureau of Census, 2000



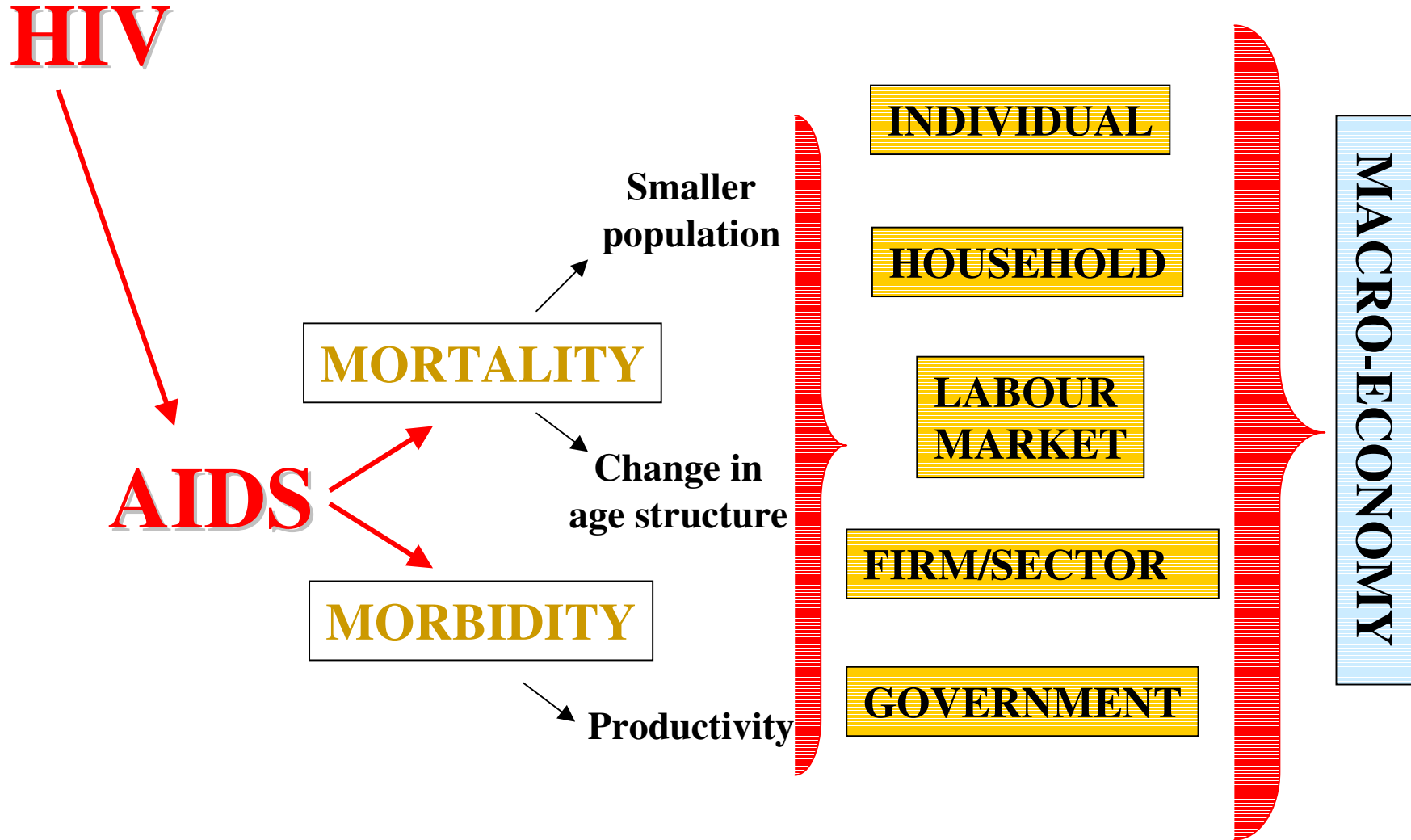
Most assume populations will grow,
but more slowly

AIDS

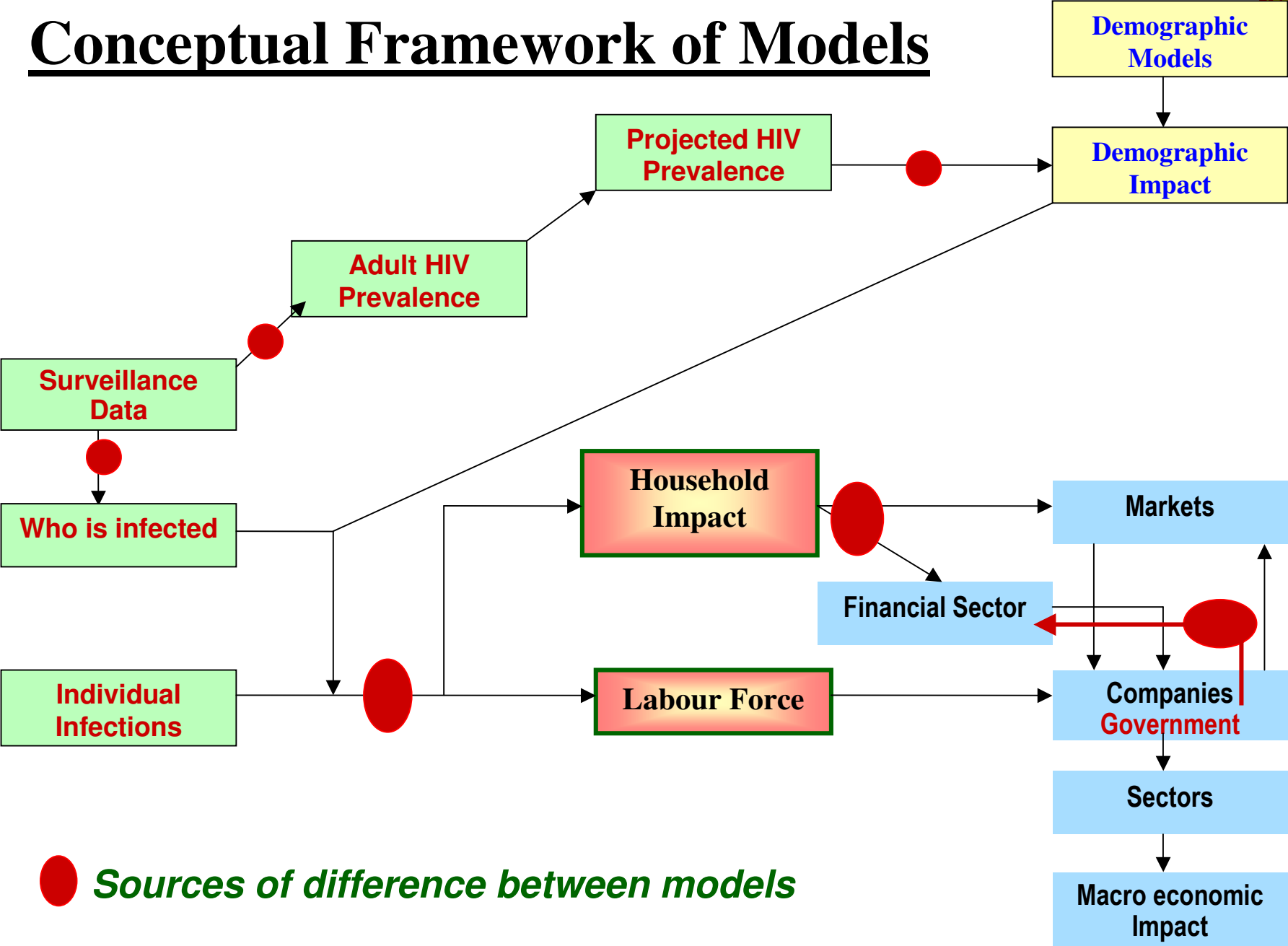




Pathways to Economic Impact



Conceptual Framework of Models



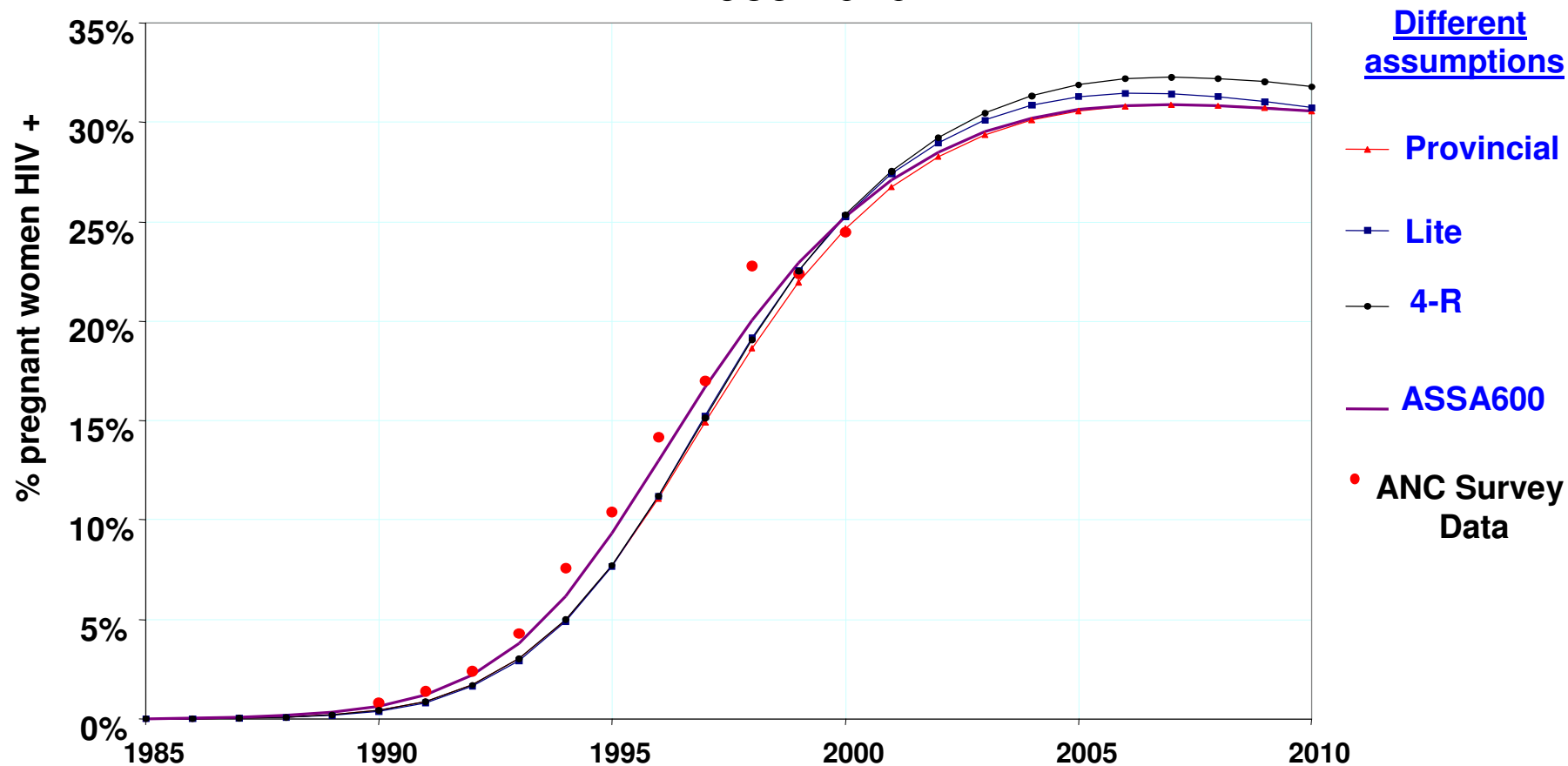
● *Sources of difference between models*

Source: Chris Desmond, HEARD

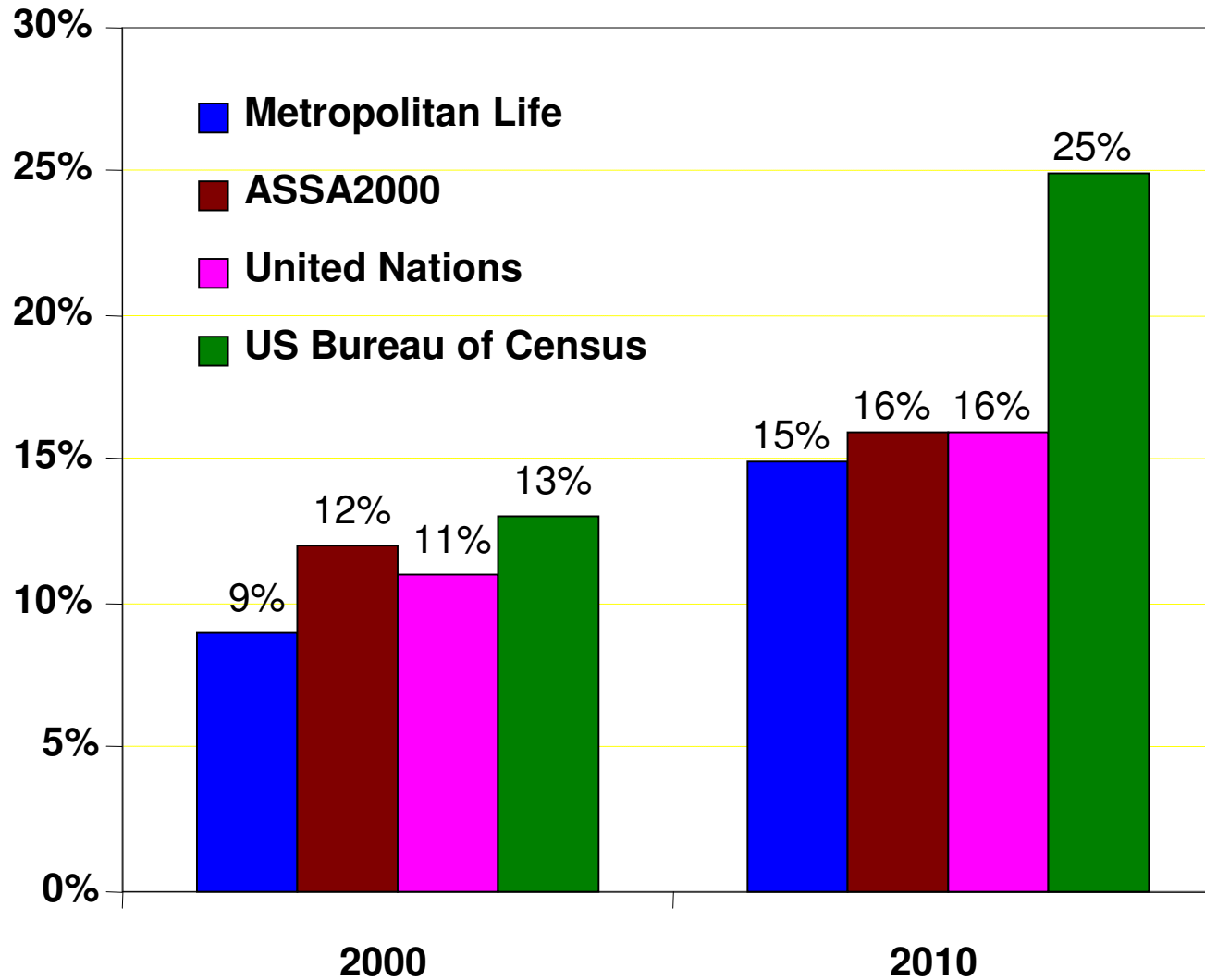


ANC Results and ASSA Model

Projecting the Epidemic in South Africa 1985-2010



Comparing Projections of HIV Epidemic in South Africa



Projections of the Epidemic



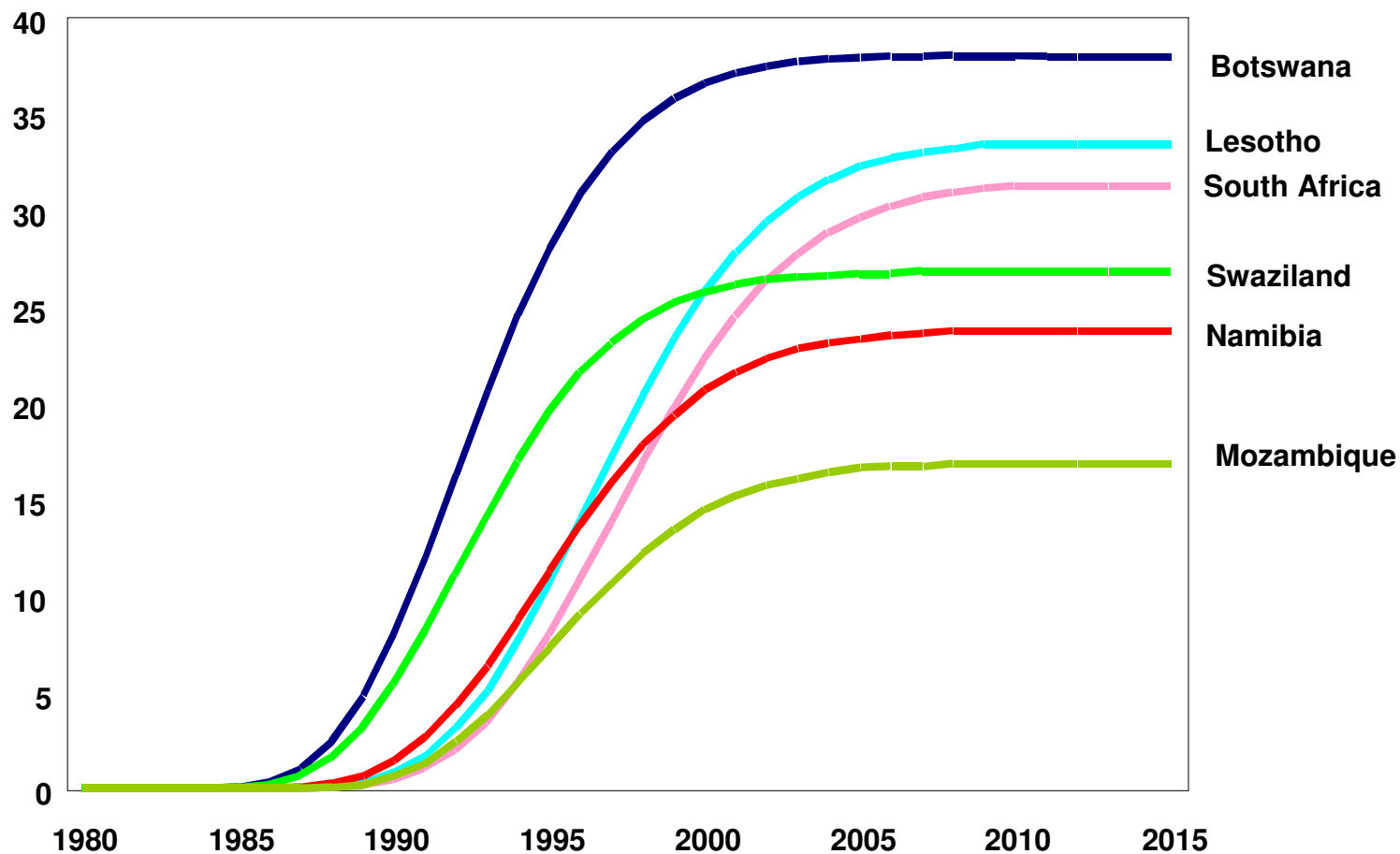
2000			<i>HIV Prevalence</i>				<i>Mortality</i>				
	Total HIV	Total HIV (recast)	Total	15-29	30-44	45-59	Deaths to date	IMR	Child Q5	Adult 45Q15	Life exp
ASSA2000	5 310	5 310	12%	17%	26%	9%	296	58	92	413	56
Metropolitan	3 755	3 986	9%	21%	14%	1%	352	60	97		55
US Bureau of Census	5 578	5 825	13%	21%	25%	15%	1 043	59	120	498	51
UN	4 332	4 583	11%	n/a	n/a	n/a	1 069	61	96	n/a	51

2010			<i>HIV Prevalence</i>				<i>Mortality</i>				
	Total HIV	Total HIV (recast)	Total	15-29	30-44	45-59	Deaths to date	IMR	Child Q5	Adult 45Q15	Life exp
ASSA2000	7 487	7 487	16%	23%	33%	15%	5 287	55	106	791	40
Metropolitan	6 484	6 924	15%	27%	32%	3%	4 107	59	120		39
US Bureau of Census	10 135	11 748	25%	32%	53%	35%	8 042	67	147	840	35
UN	6 685	7 017	16%	n/a	n/a	n/a	6 471	58	103	n/a	46

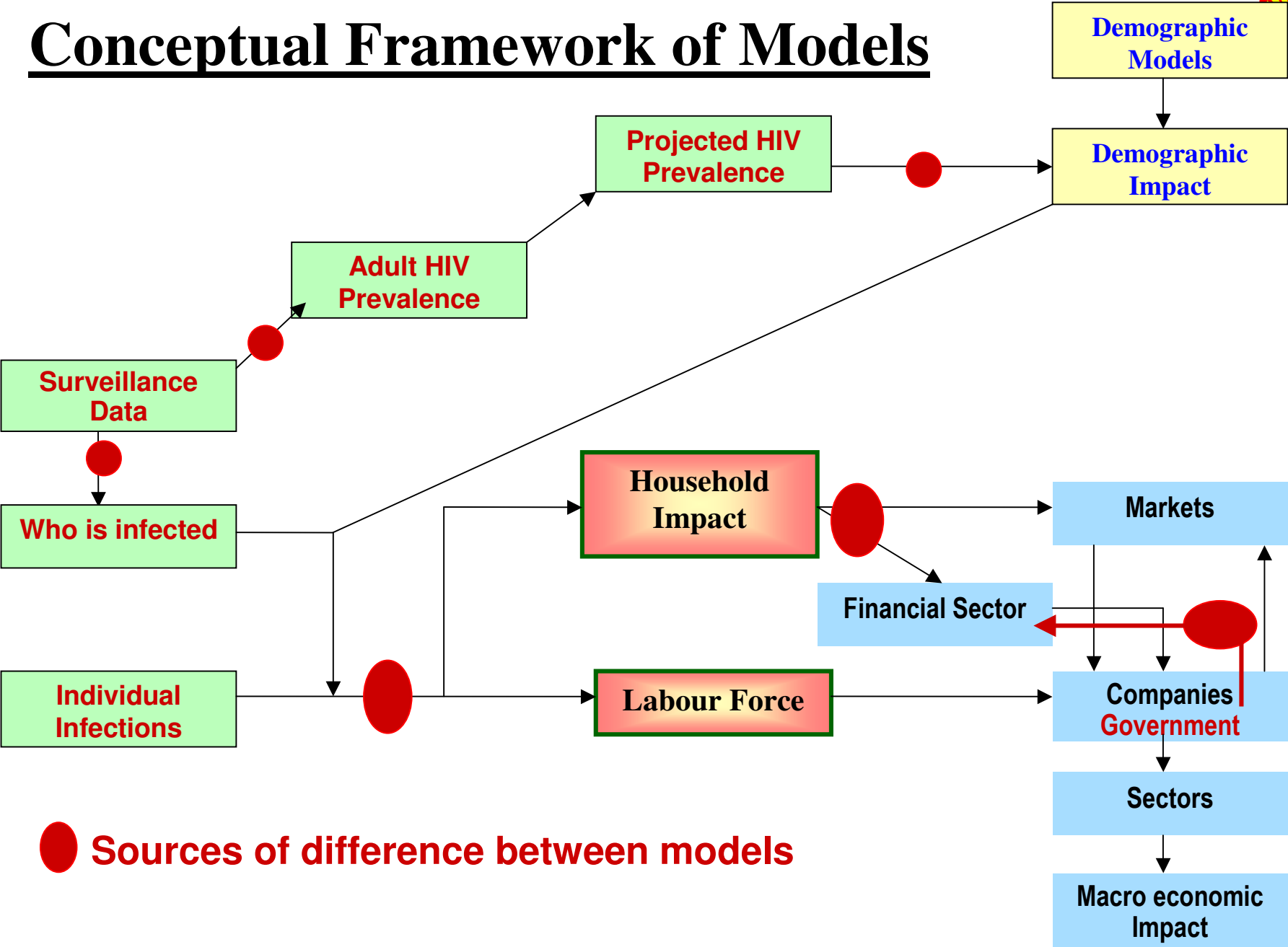


Projected Peak HIV Prevalence

High Confidence in Predictions of Peak



Conceptual Framework of Models



Source: Chris Desmond, HEARD



All Believe Growth in S. Africa Will Fall

Impact mostly due to:

- reduced productivity and increased costs for companies
- reduction in household income due to increased AIDS-related expenditure
- increase in government budget deficit due to increased health spending

	HIV assumptions			% point difference in GDP growth rates/yr		% difference in Real GDP level	
	Start'g	Peak	Peak	2010	2015	2010	2015
	Prev	Date	Prev.				
ING Barings*				-0.3	-0.3	-2.0	-2.8
Channing & Lewis	<i>Not highlighted in studies</i>			-1.6		-17	
ABSA*				-0.7	-0.8	-5.9	-9.6
Abt Assoc.*				-0.4 to -0.2		-5.4 to -2.1	

GDP per capita seen to increase in some studies

All Models See Reduced Annual GDP Growth Sub-Saharan Africa



Impact mostly due to:

- reduced labour productivity
- shortage of high skilled labour
- reduced saving due to higher health spending

<i>Different Studies</i>	% point reduction in annual GDP growth		
	Best	Worst	Country
Over, 1992ff	0.6	1.1	30 SSA
Cuddington 1993 (single sector)	0.6	1.1	Tanzania
Cuddington 1993 (dual economy)	0.6	1.2	Tanzania
Cuddington & Hanock 1994	0.2	0.3	Malawi
Kambou, Devarajan & Over 1992	0.0	1.9	Cameroon
BIDPA 2000	0.8	1.9	Botswana



Conclusions: Macro-Economic Impact

- 1. GDP growth will be slower each year by 0.2-1.9%.***
- 2. Future economies will be smaller than previously expected.***
- 3. Key variables:
skills, savings, gov't finance***



II. Mapping the Epidemic

Surveys of HIV Prevalence

**National Sentinel Surveys
Skills, Jobs, Education, LSM**



Sentinel Survey Data

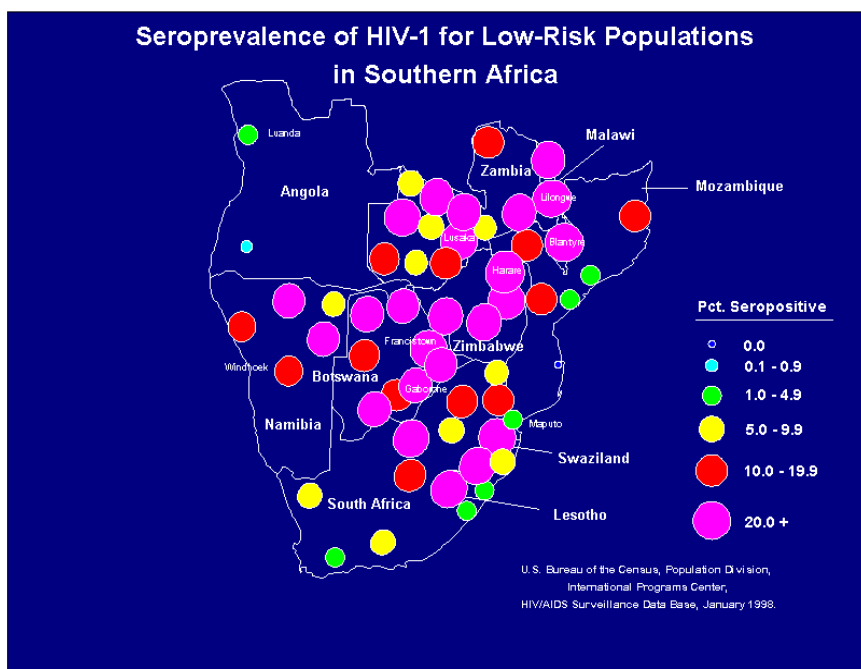
by

geography & time

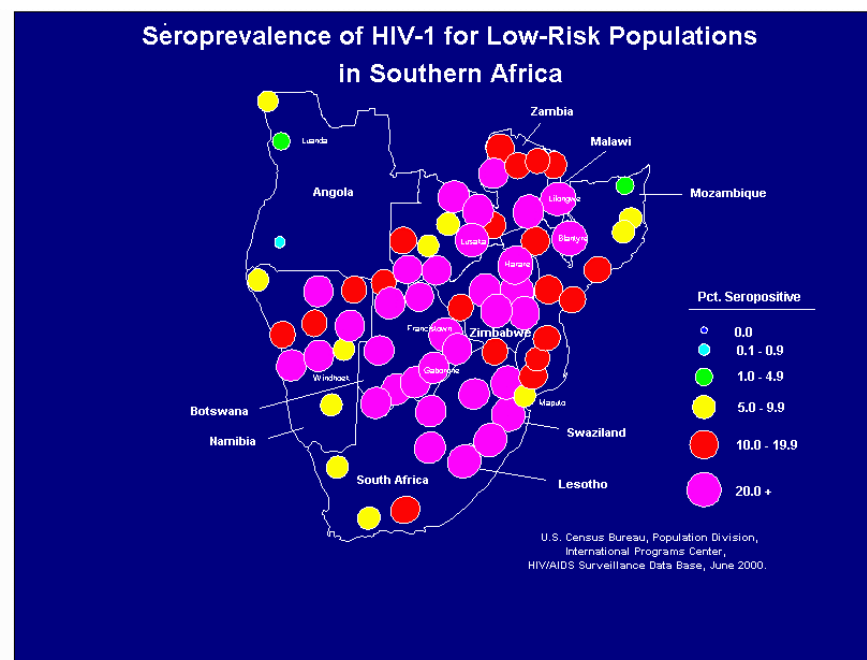


HIV-1 Low Risk Populations

Southern Africa



January 1998

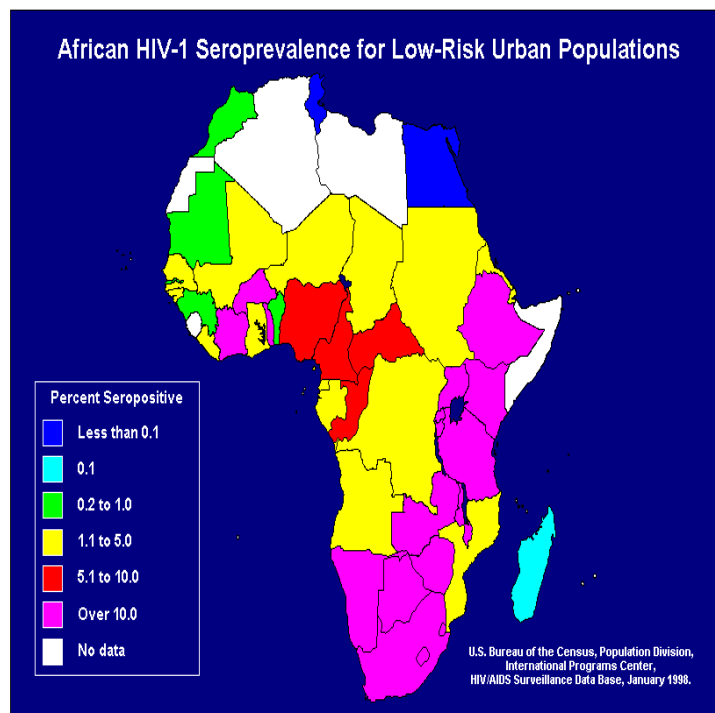


June 2000

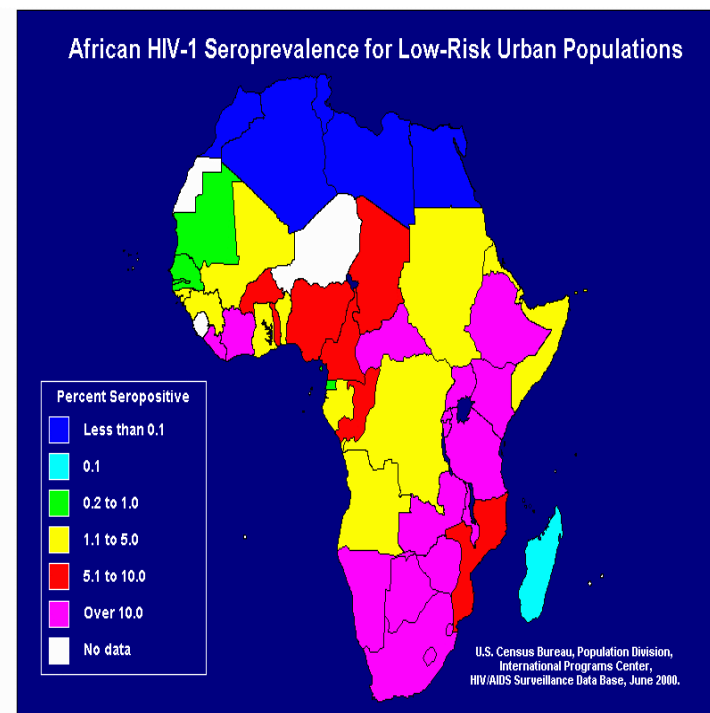
NB: Low risk = pregnant women, blood donors, or other persons with no known risk factor



HIV-1 Low Risk Urban Populations



January 1998



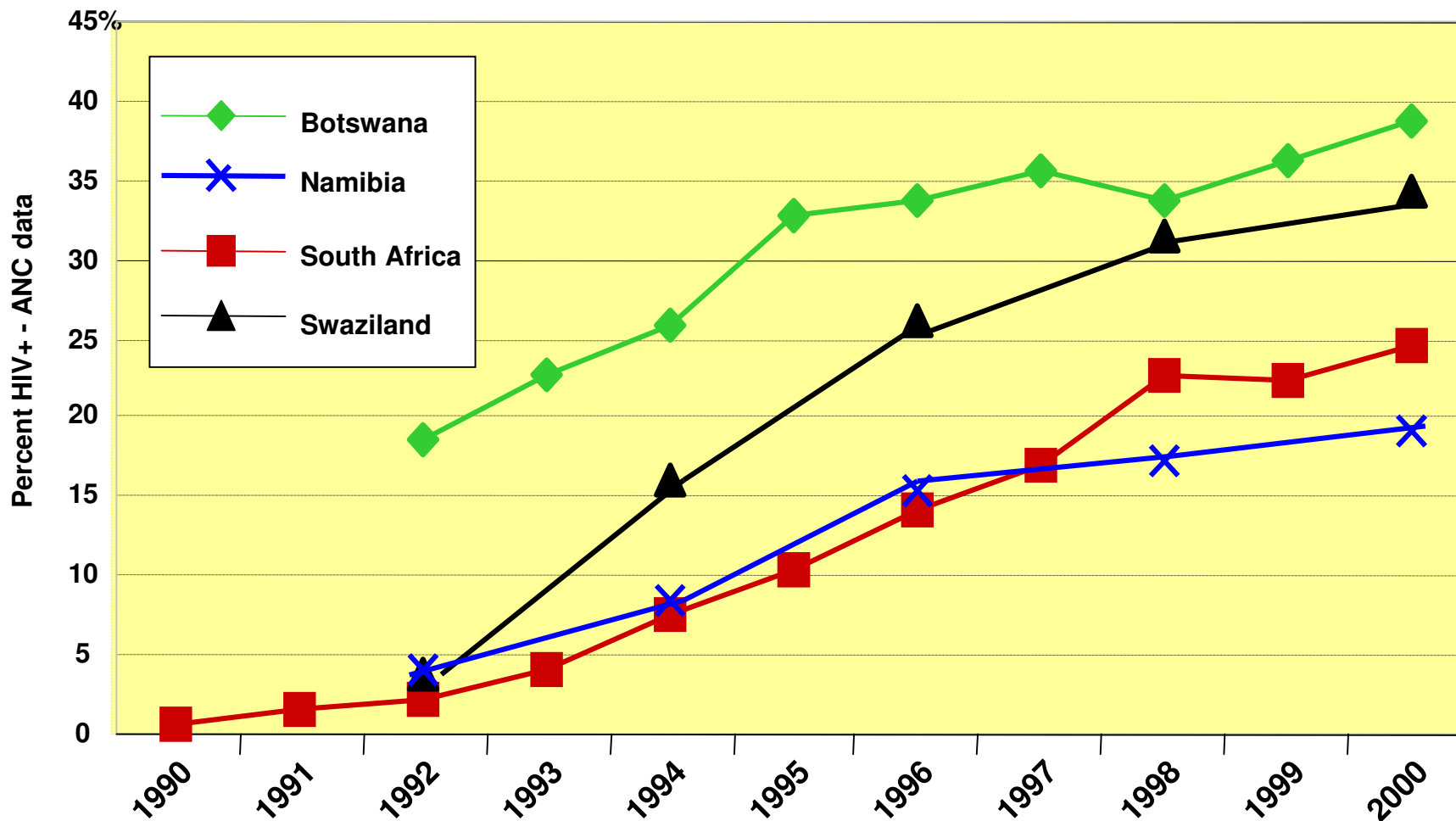
June 2000

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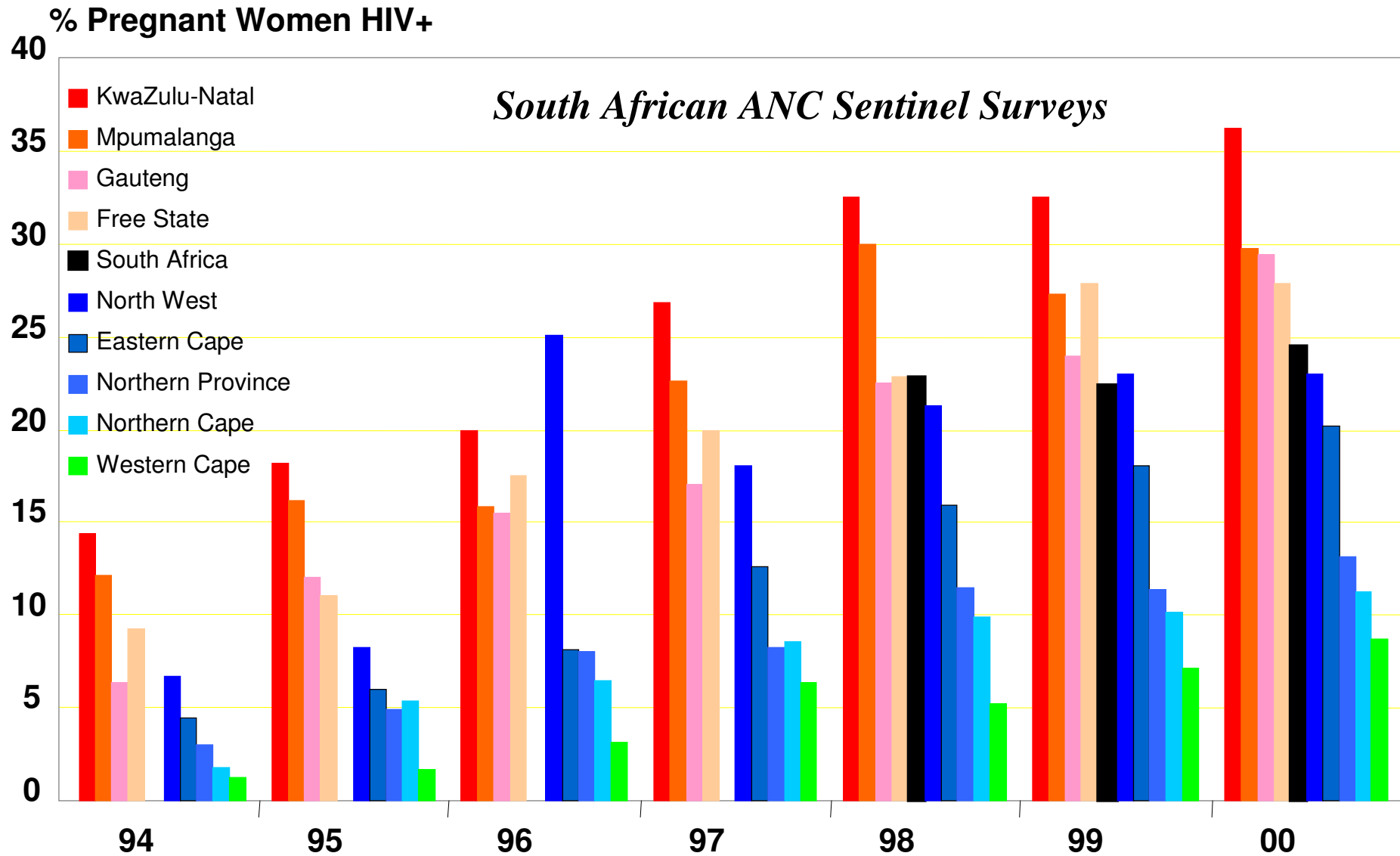


National Trends in HIV Prevalence

Percent of Women attending Antenatal Clinics who are HIV +



Multiple Epidemics in One Country

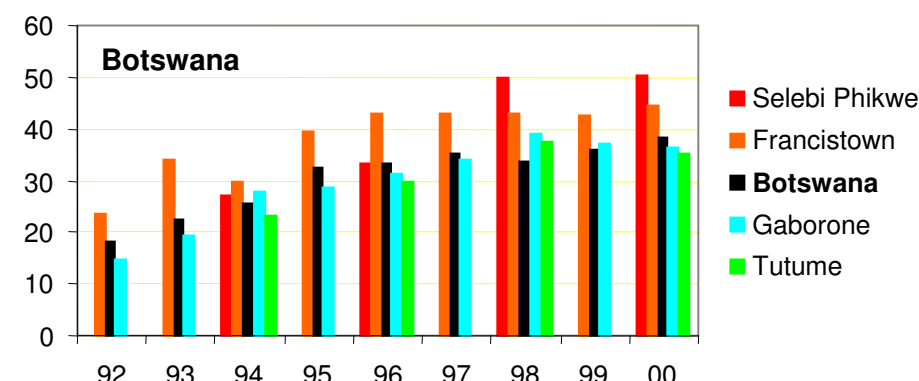
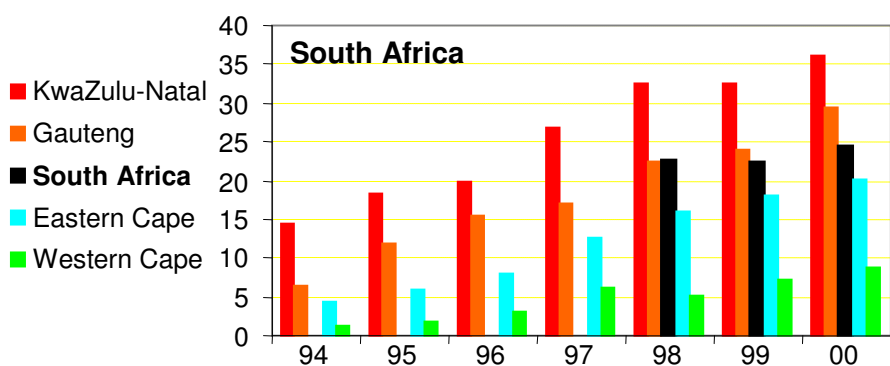
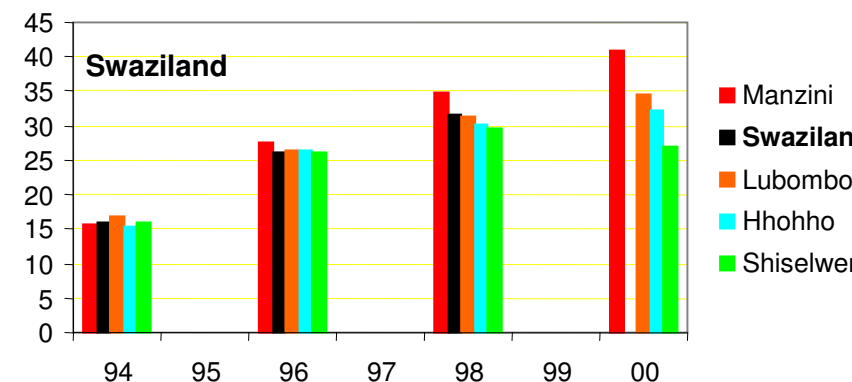
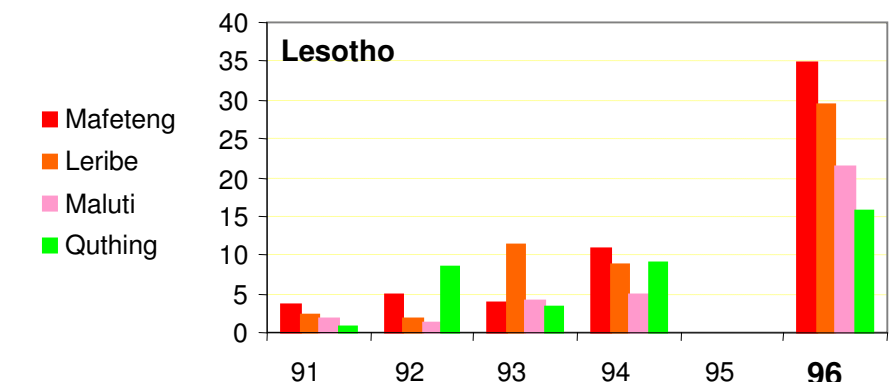
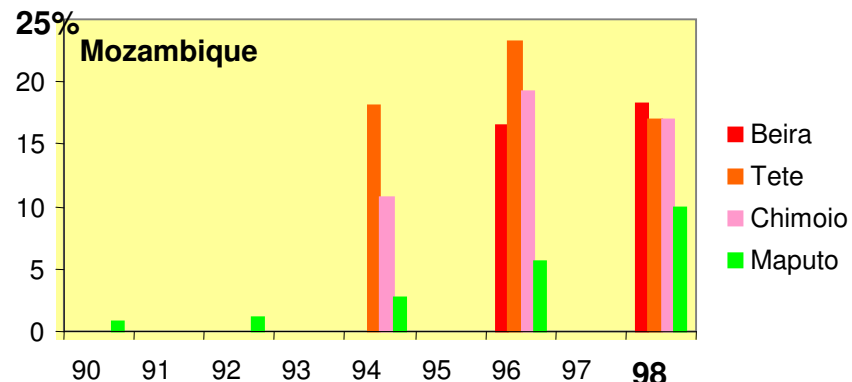
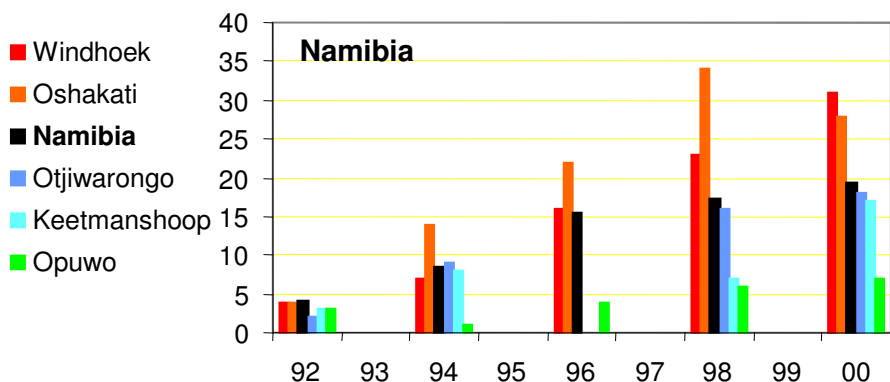


Highest

ANC Sentinel Survey Data

Lowest 

Each country's sites ranked highest to lowest in 2000





Sentinel Survey Data

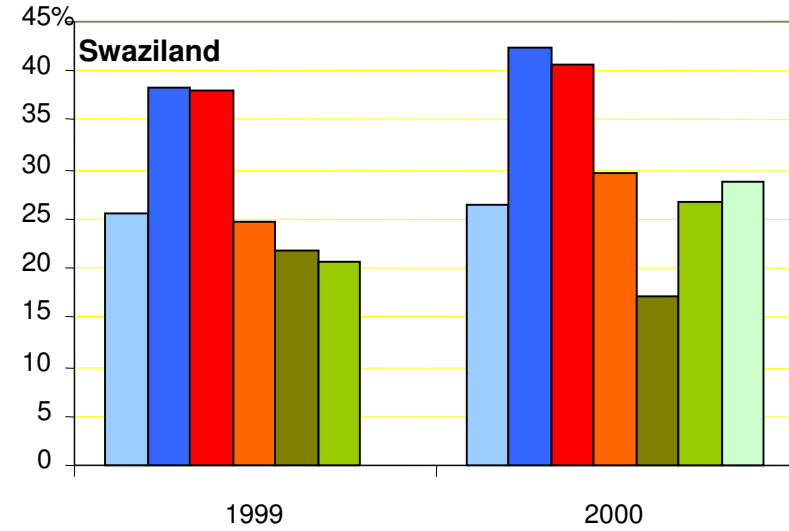
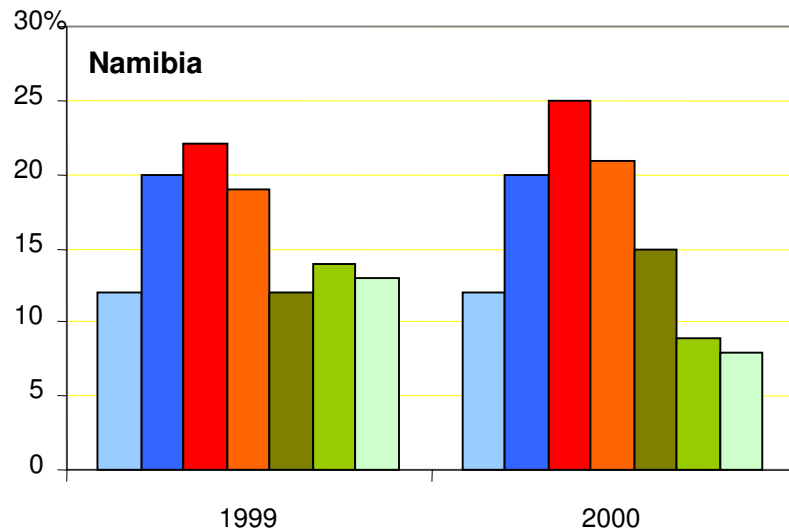
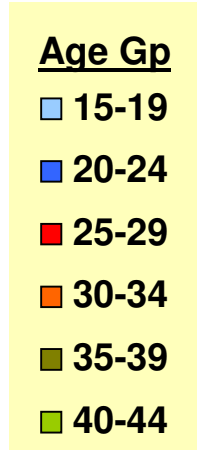
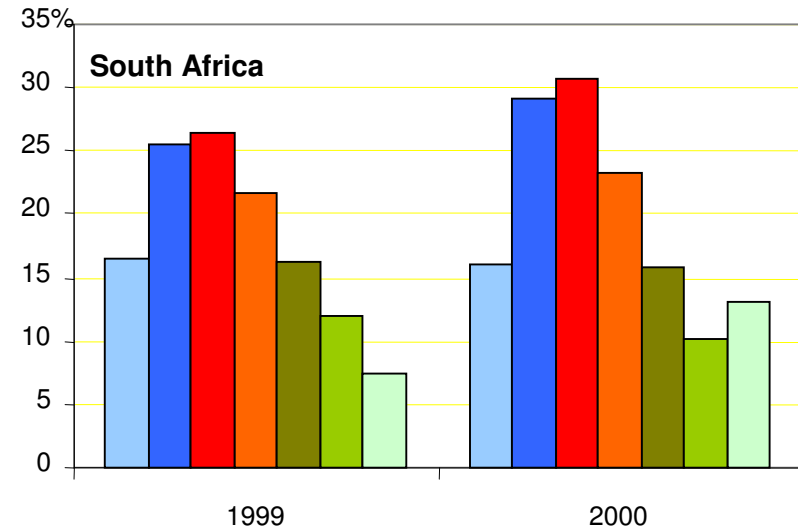
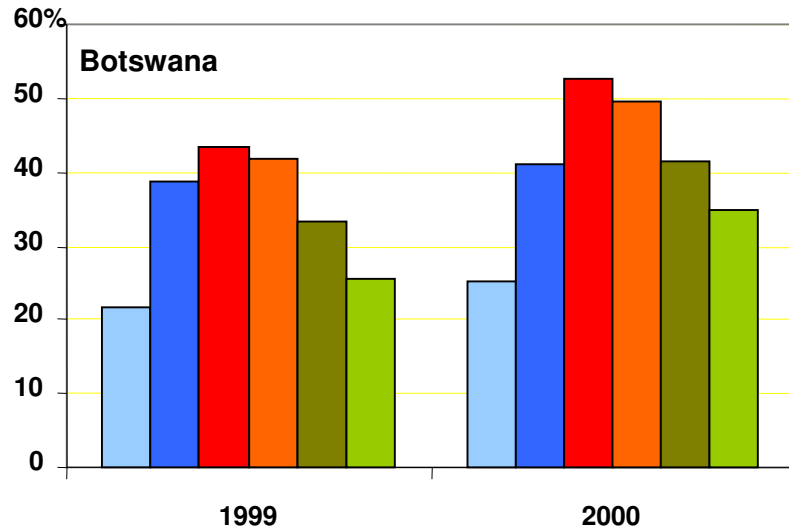
by

Age groups

ANC Sentinel Survey – by Age



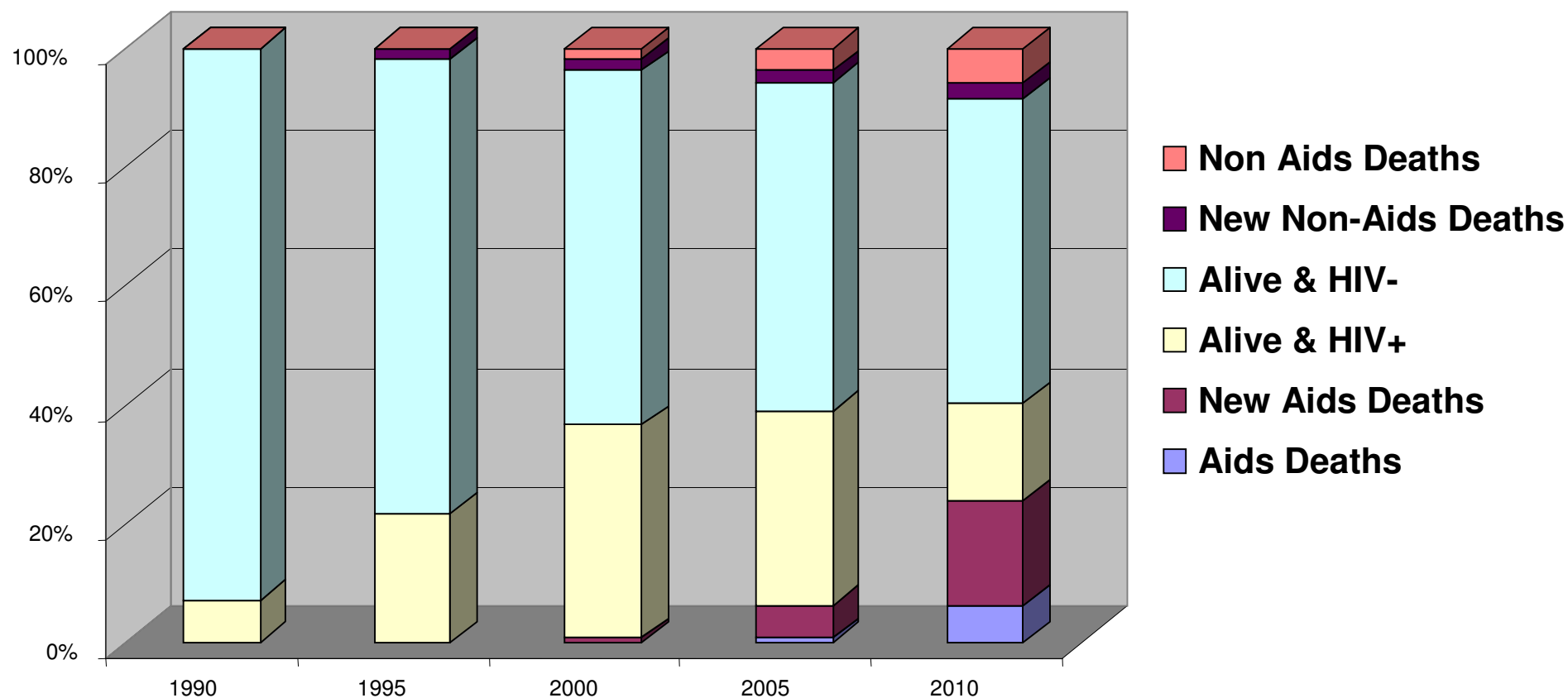
% of pregnant women in each age group who are HIV+





Impact on a Single Age Group

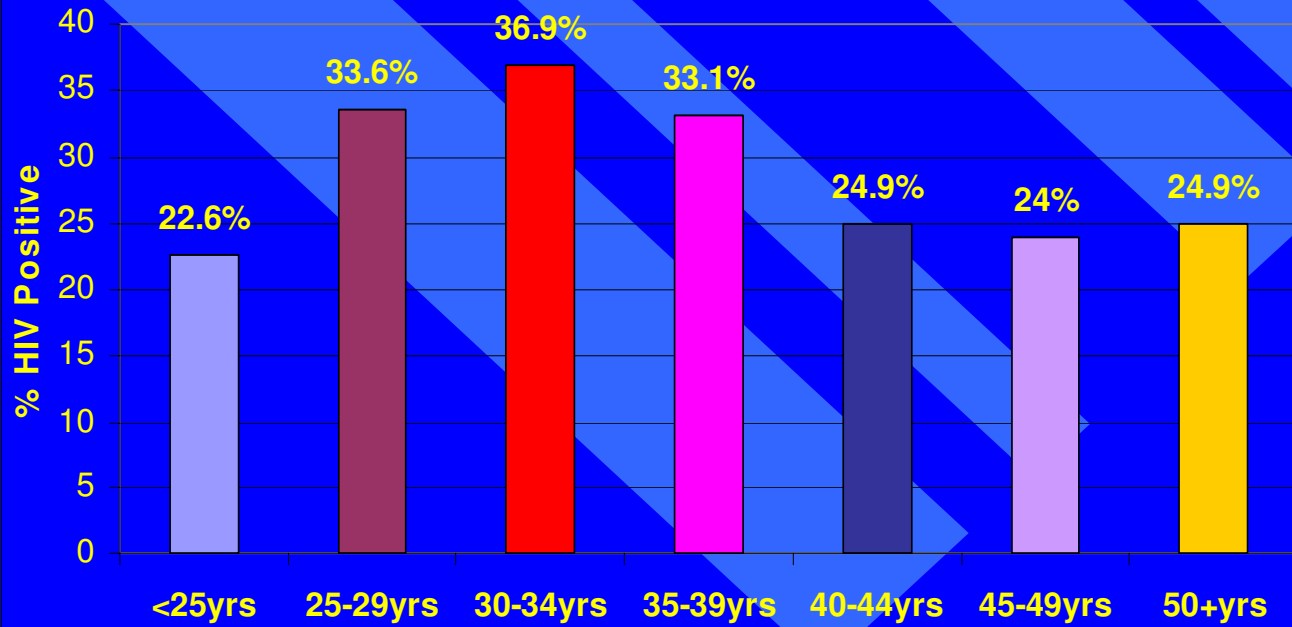
South African men & women who were 20 years old in 1990





Debswana Diamond Company (Pty) LTD HIV Prevalence Study

HIV Prevalence by Age Band in Total Sample (n= 3856)



Clive Evian
AIDS Management & Support



HIV Prevalance

by

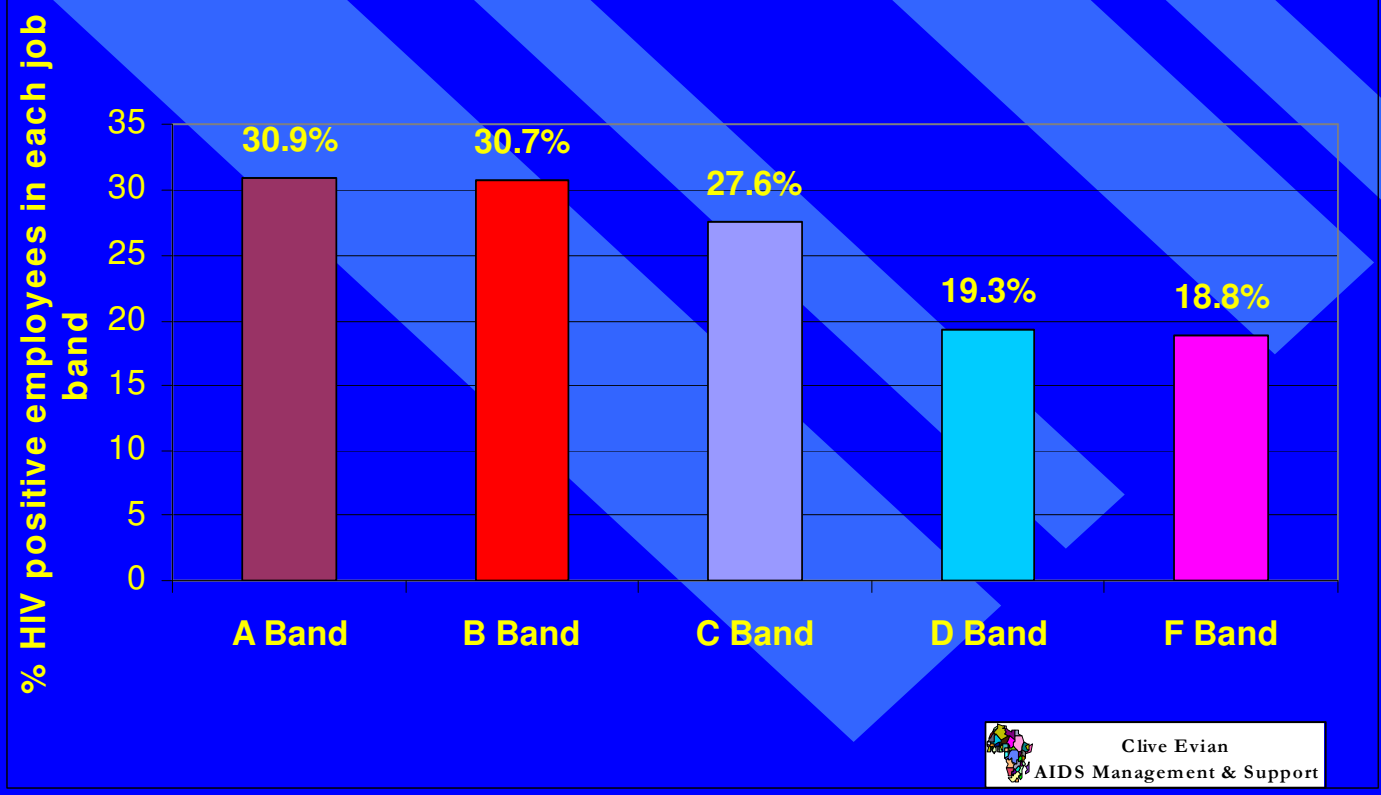
Skill, Job Groups, Education, LSM

(very limited data)



Debswana Diamond Company (Pty) LTD HIV Prevalence Study

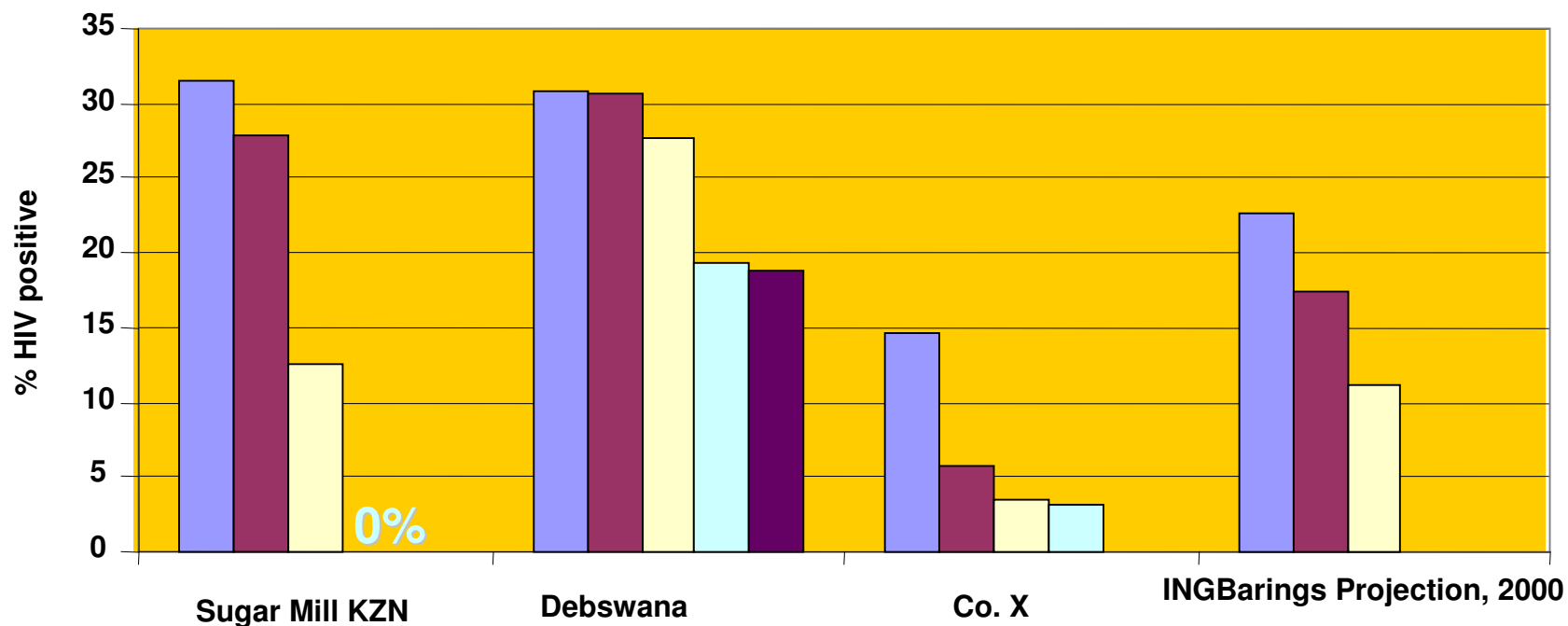
HIV Prevalence by Job Band in Total Sample (n=3379)



Clive Evian
AIDS Management & Support



HIV Rates by Job Group or Skill Level



Differences exist, but

*Neither employment
nor status ...*

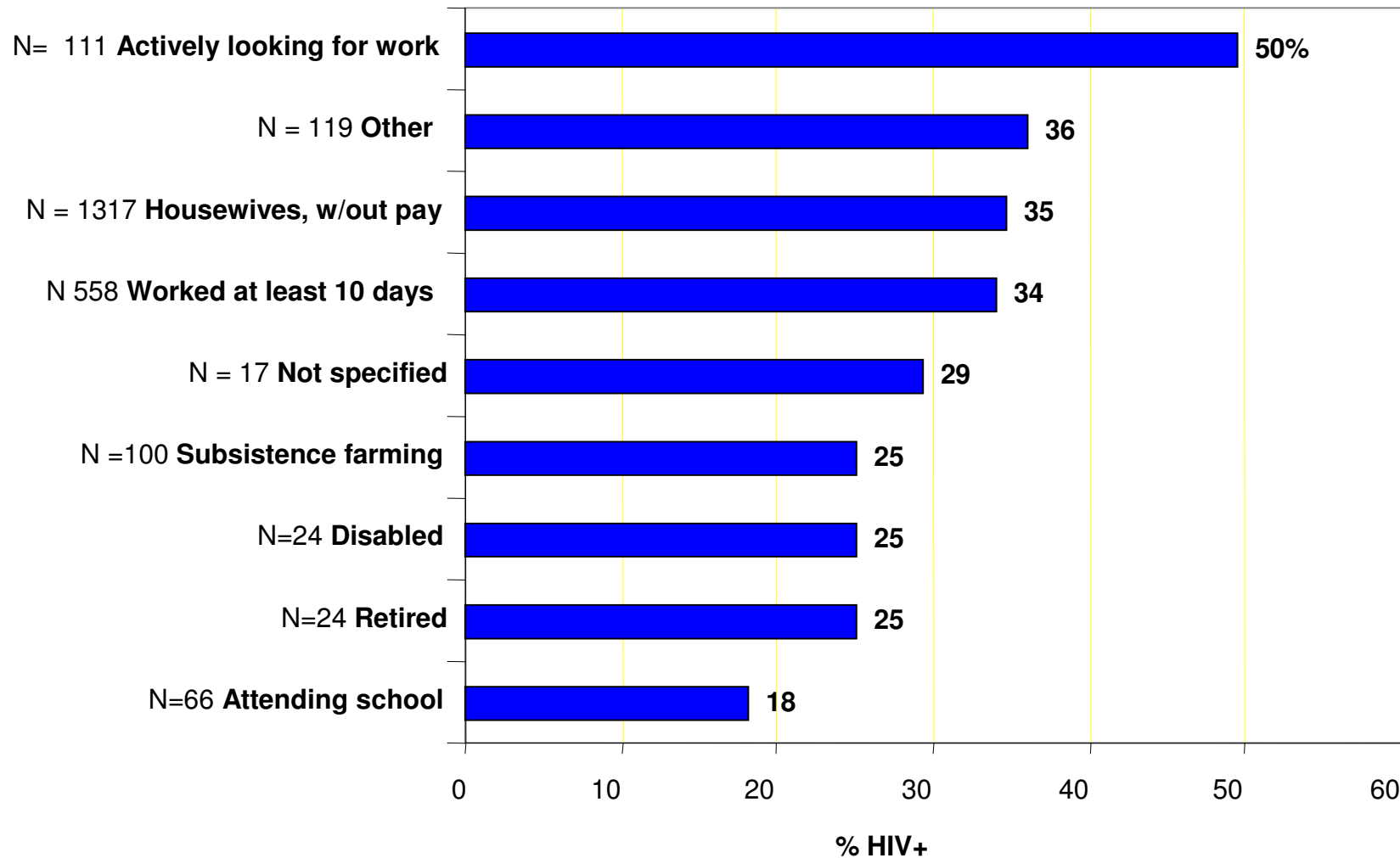
2 Cos	Co. X	INGBarings
Band A	Semi-skilled	Semi-skilled
Band B	Skilled	Skilled
Band C	Mid-manager	Highly skilled
Band D	Snr manager	
Band F		

*... insures against
infection*

HIV & Work Status in Previous Month



ANC data 2000 in Swaziland

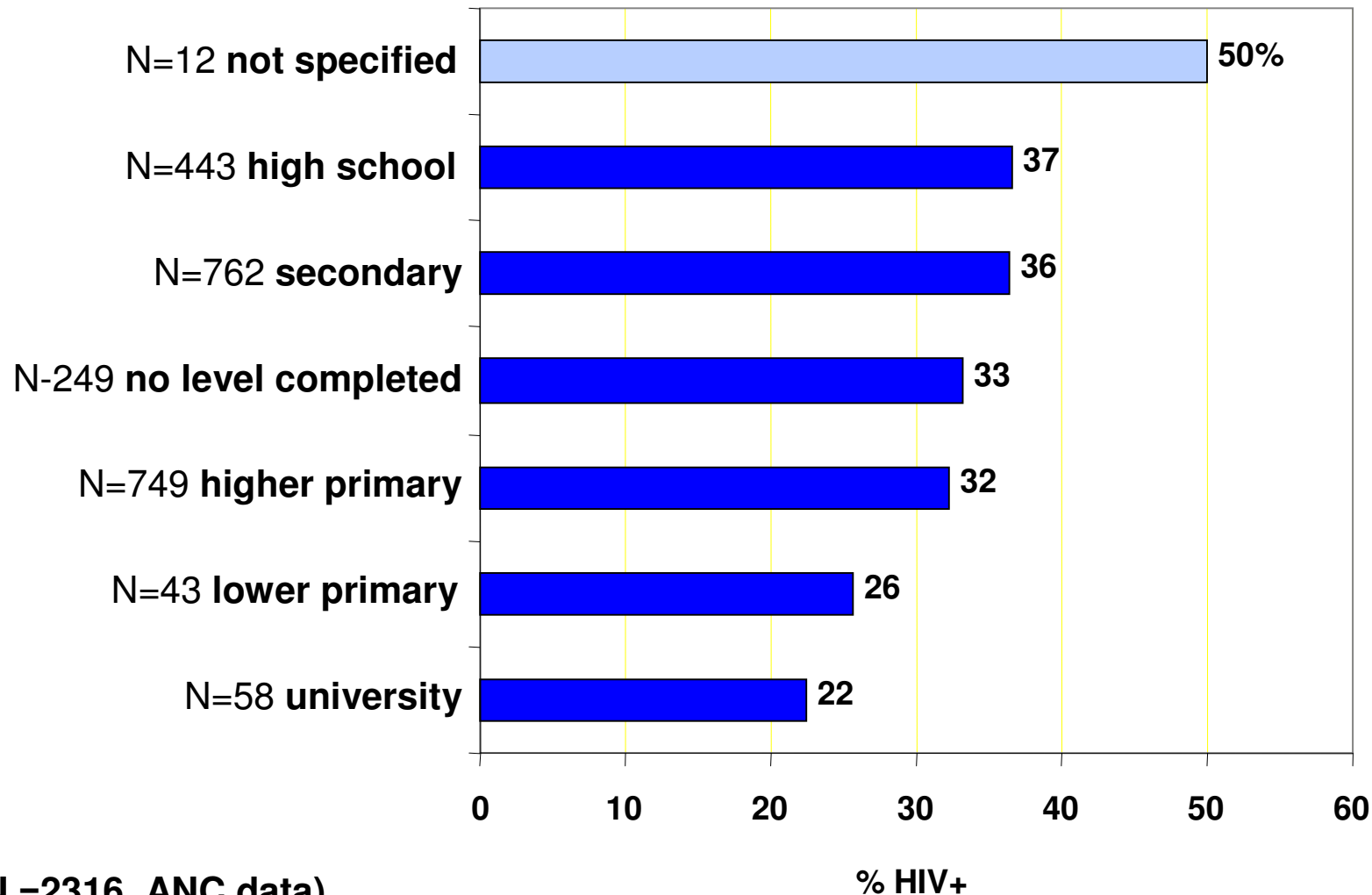


(N =2316)

Swaziland HIV Status & Educational Status



Nor is education an adequate defence



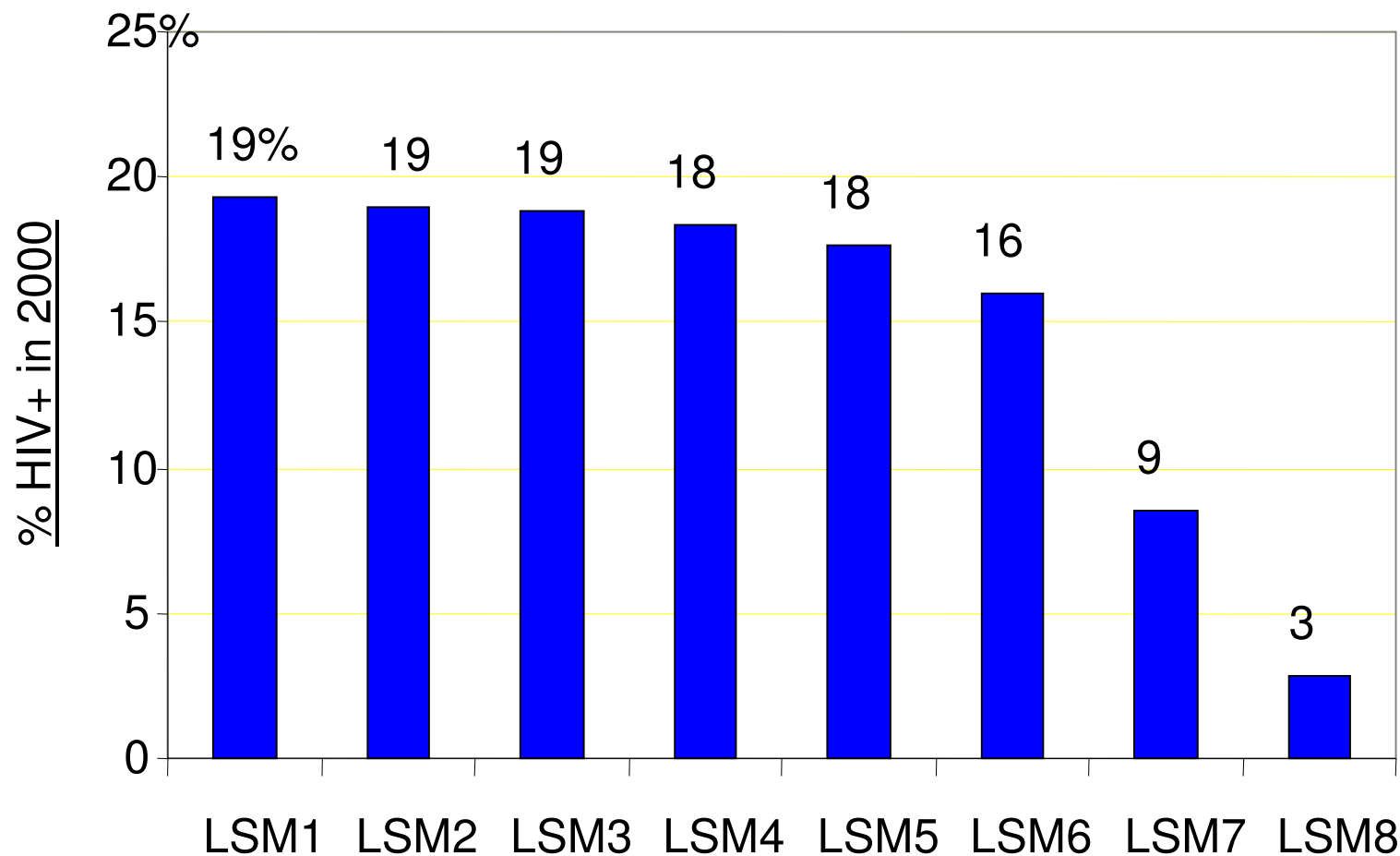
(N =2316, ANC data)

% HIV+



LSM Pop'ns & Estimated HIV Status in SA

All populations & income groups are involved.





Report 1: Final Conclusions



Conclusions: What We “Know” about the Epidemic

via ANC surveys, death rates, extrapolation

Where we are now

**how far HIV infection has spread in 6 countries
geography & age groups**

Where the peak will be

AIDS cases & deaths

for the next 10 years



Conclusions: What We Don't Know re: Epidemic

Distribution of Infection by
Income, education, ethnicity, occupation

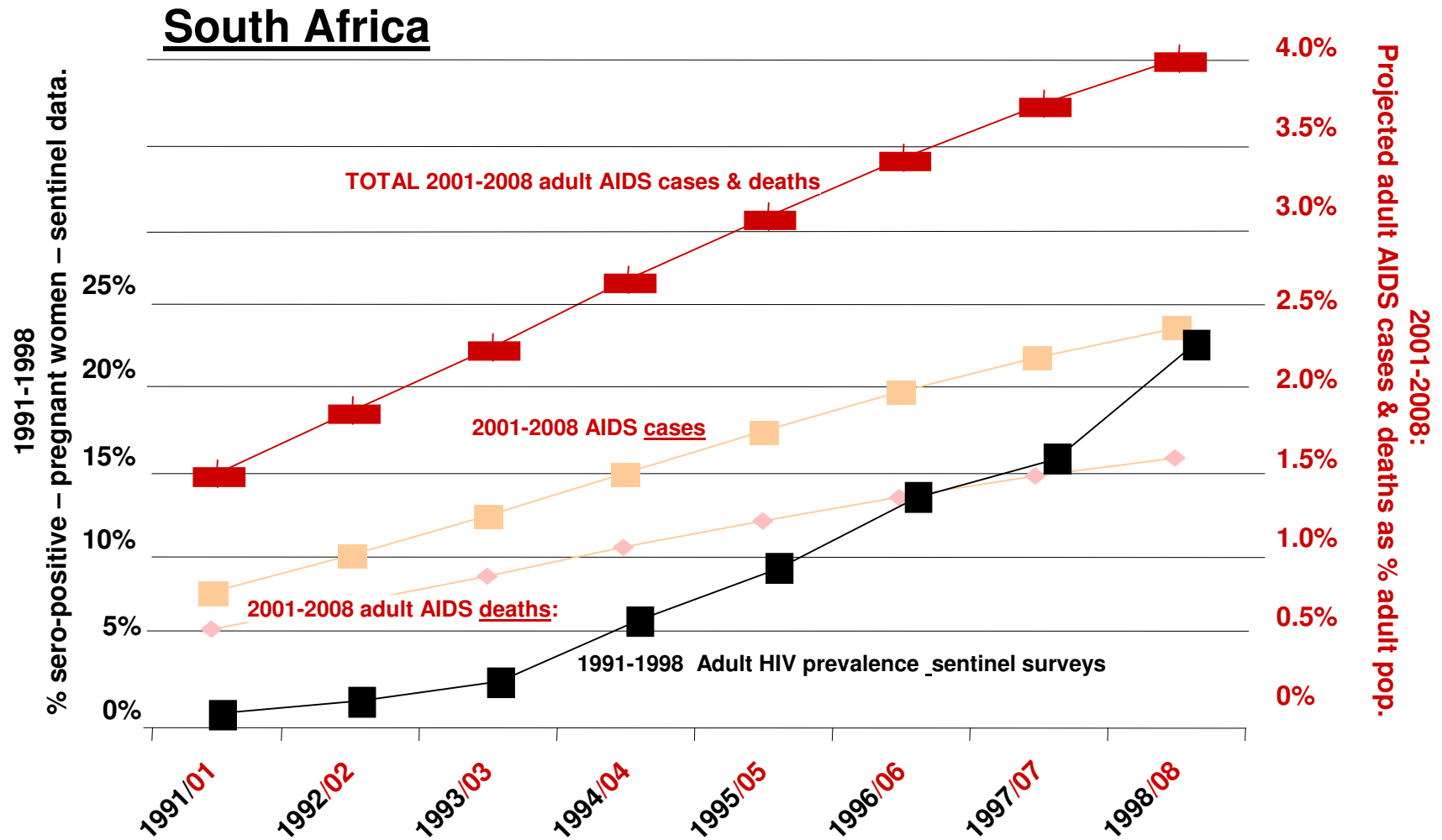
Impact of all interventions
Incl. anti-retrovirals

What Happens After the Peak

Horrendous, but Manageable Epidemic?



Percent of adult population



Source: Sentinel Survey Data: U.S. Bureau of the Census, HIV/AIDS Surveillance Data Base; Projections: Metropolitan Life, for Whiteside & Sunter AIDS: The Challenge for South Africa, 2000, p. 68-69



Evidence Meagre, but → Impact

Households

1. Households will try to adapt.
2. New forms of household.
3. Assets will be sold.
4. Households → poorer
5. Households → disappear

Companies

1. Direct & indirect costs predicted to grow.
2. Some costs visible now.

Markets

1. Slower pop. growth → smaller markets.
2. Spending shift to health care.
3. Quantified impact on disposable income unclear.

**Economies will grow more slowly
& not become as large.**



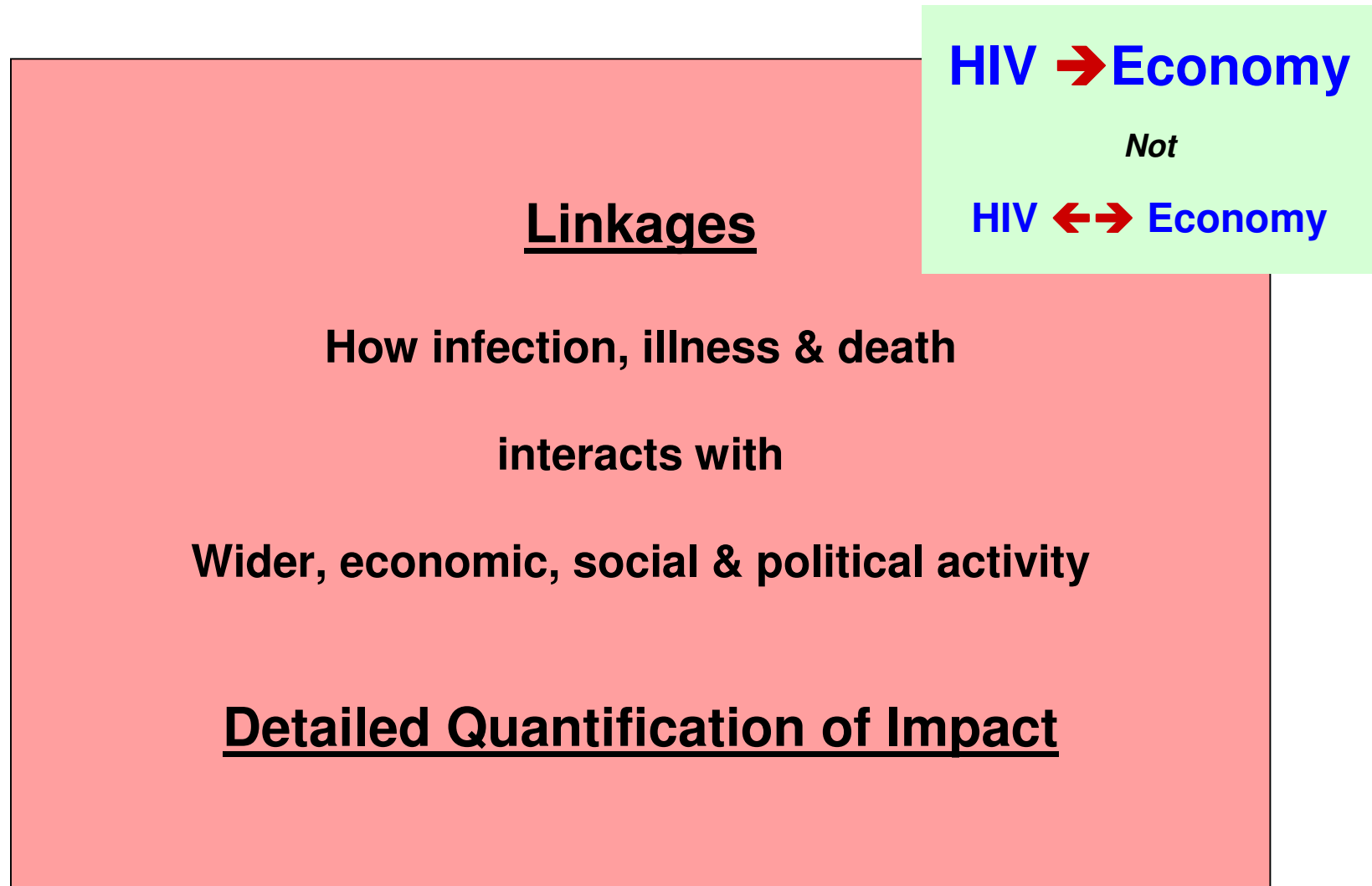
Conclusions: What We Know about Impact

Individuals, Families, Organisation

**are suffering now:
illness, absence, death, poverty & higher costs**



Conclusions: What We Don't Know re Impact





A Major Uncertainty

Are Southern African Societies

**People who will learn to handle the HIV epidemic
&
strengthen their ability to develop politically & economically?**

OR

**People who will fail to meet the HIV challenge
&
risk wider failures?**



FIN – Report 1