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The Economic and Social Impact of Road Traffic Injuries in South Asia

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Presentation Overview

- Rationale for estimating costs of RTI
- Cost of RTI globally and in South Asia
- Association between RTIs and economic development
- Social Cost Dimensions of RTIs
- Cost-effectiveness of road safety interventions

Cost of Injuries: Why?

Burden of RTIs in South Asia: Magnitude

- One of the highest rate of road traffic deaths in the world
  - Example: India = 29.2/100,000
- RTI account for 50-75% of all injury related deaths
- 15-30% of ER visits and 30-50% of trauma related hospital visits due to RTI

Needed for decisions

- Decision making & prioritization of resources:
  - Need to understand *magnitude* of problem in economic terms in order to determine level of financial investment that is needed
- Selection of cost-effective interventions
  - Identification of interventions with the greatest *return on investment* (ROI) or benefit-to-cost ratio

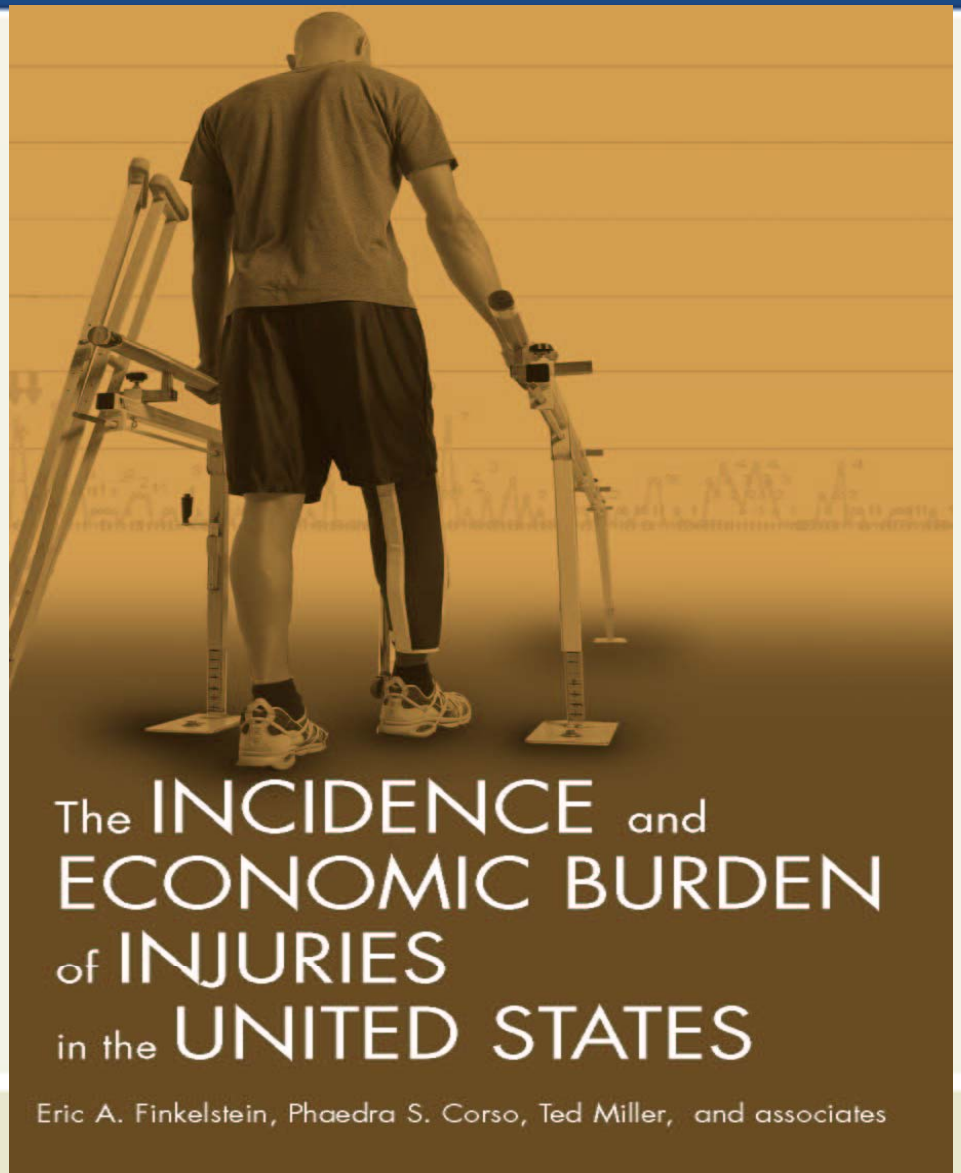
Cost of Injuries

Global Costs of RTIs

Region	Regional GNP 1997	As %	Estimated annual crash costs GNP $ Billions
Africa	370	1%	$3.7
Asia	2454	1%	$24.5
Latin America/Caribbean	1890	1%	$18.9
Middle East	495	1.5%	$7.4
Central/Eastern Europe	659	1.5%	$9.9
Sub total	*5615*		*$64.5*
Highly motorized countries	***22,665***	***2%***	***$453.3***
Total			***$ 517.8 Billion***

(Jacobs et al. ,2000)

Cost of Injuries in USA



US Incidence and Costs of Injury
(Finkelstein, et al 2006)

	Medical Costs	Productivity Losses	Total Costs
Fatal	$1 Billion	$142 Billion	$143 Billion
Hospitalized	$34 Billion	$49 Billion	$ 92 Billion
Non-hospitalized	$45 Billion	$125 Billion	$ 171 Billion
Total	**$80 Billion**	**$326 Billion**	**$ 406 Billion**

Cost Estimates Based on 2000 data

Costs of Road Traffic Injuries

Direct Costs

- Medical
- Mental health
- Emergency response services
- Law enforcement services
- Judicial services

Indirect Costs

- Premature deaths
- Lost productivity
- Absenteeism
- Economic development
- Quality of life
- Other intangible losses

Methods for economic appraisal of RTIs

Human Capital Approach

- Remedial costs (healthcare costs), Loss output (net of future earnings), Reconstruction costs (material damage), Pain and suffering

Willingness-to-pay

- Use of surveys to estimate what individuals are willing to pay to have a lower risk of injury (or what they are willing to accept for a higher risk of injury)
- Value of Statistical Life can be generated

Cost of RTIs in South Asia

India:

- USD $13.5–50 Billion (3% of GDP)

Bangladesh:

- USD $745 Million (1.6% of GDP)

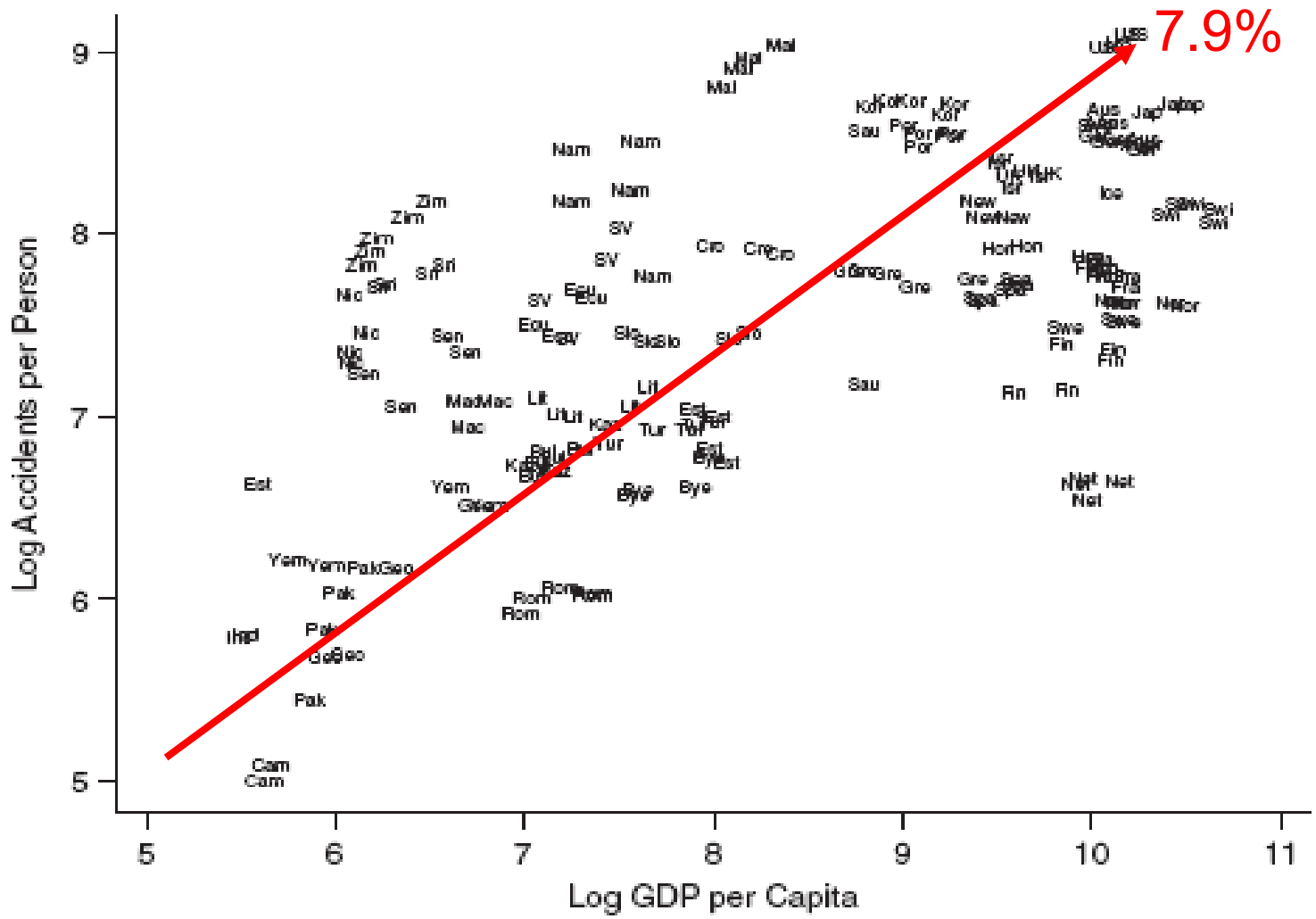
Pakistan:

- USD $1.65 Billion (1.3% of GDP)

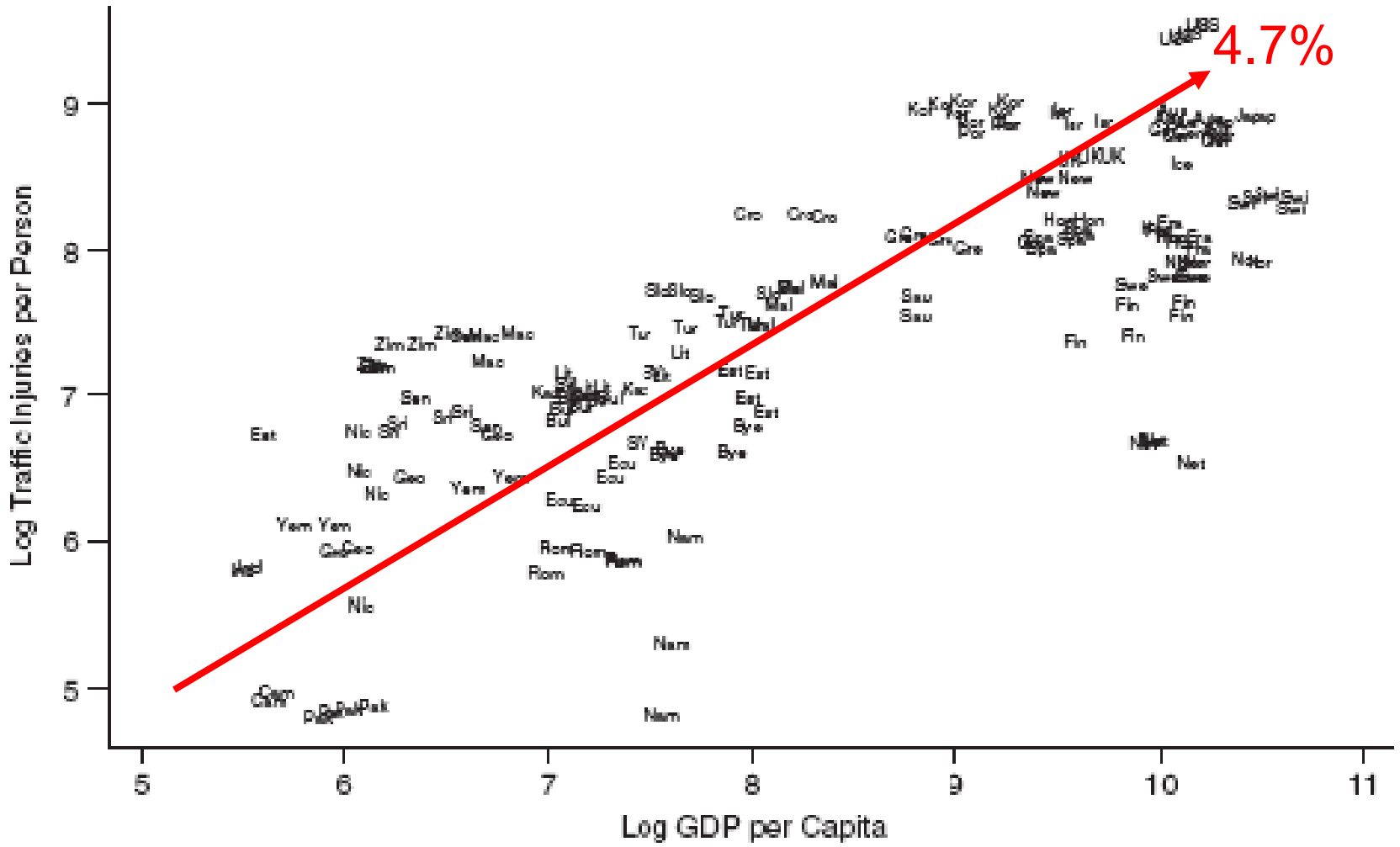
[*based on VOSL estimations; Cropper et al*]

RTI and Economic Development: Globally

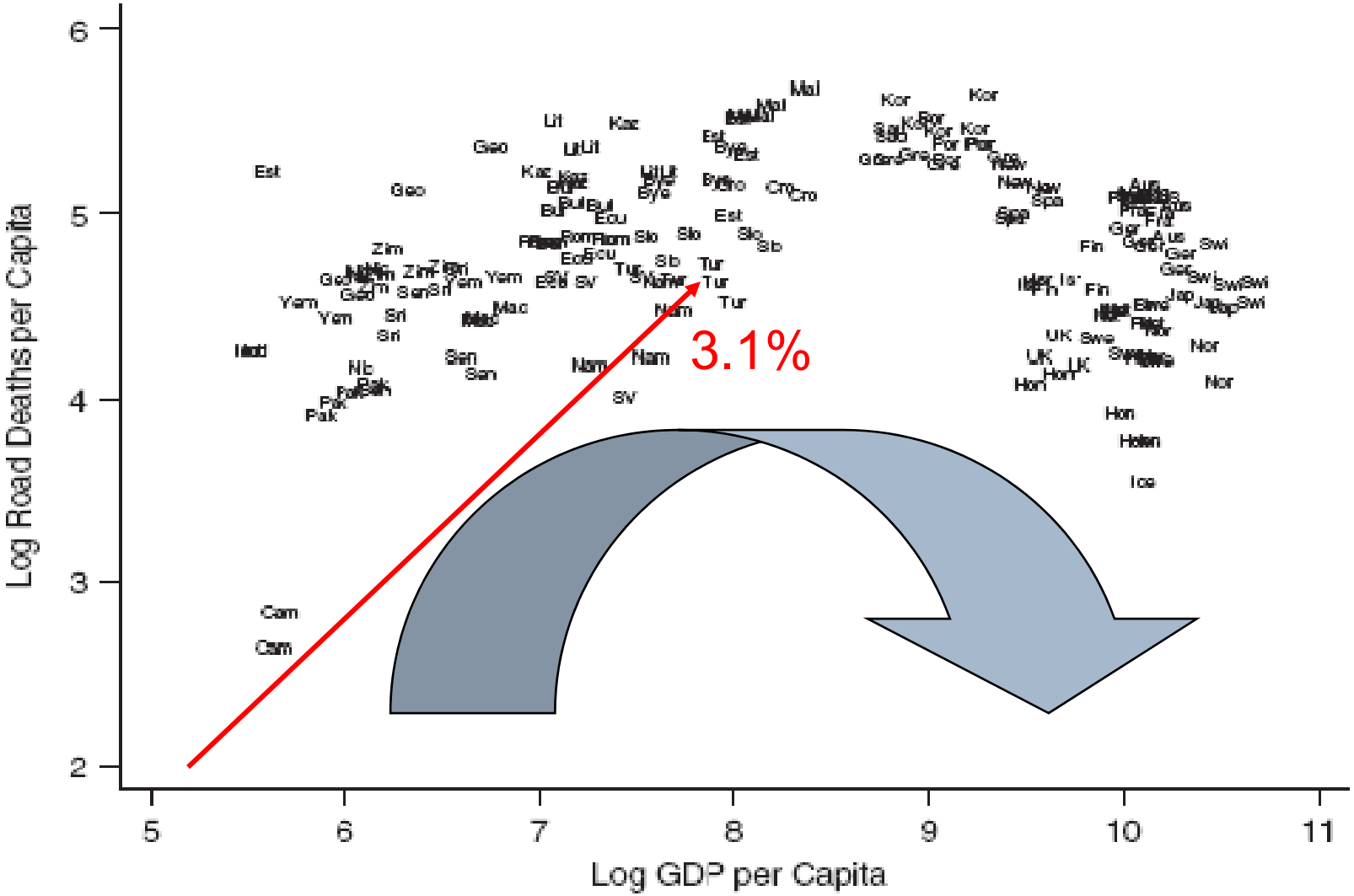
Road Traffic Crashes and Economic Development 1992-1996 (*Bishai et al 2006*)



Road Traffic Injuries and Economic Development 1992-1996 (*Bishai et al 2006*)

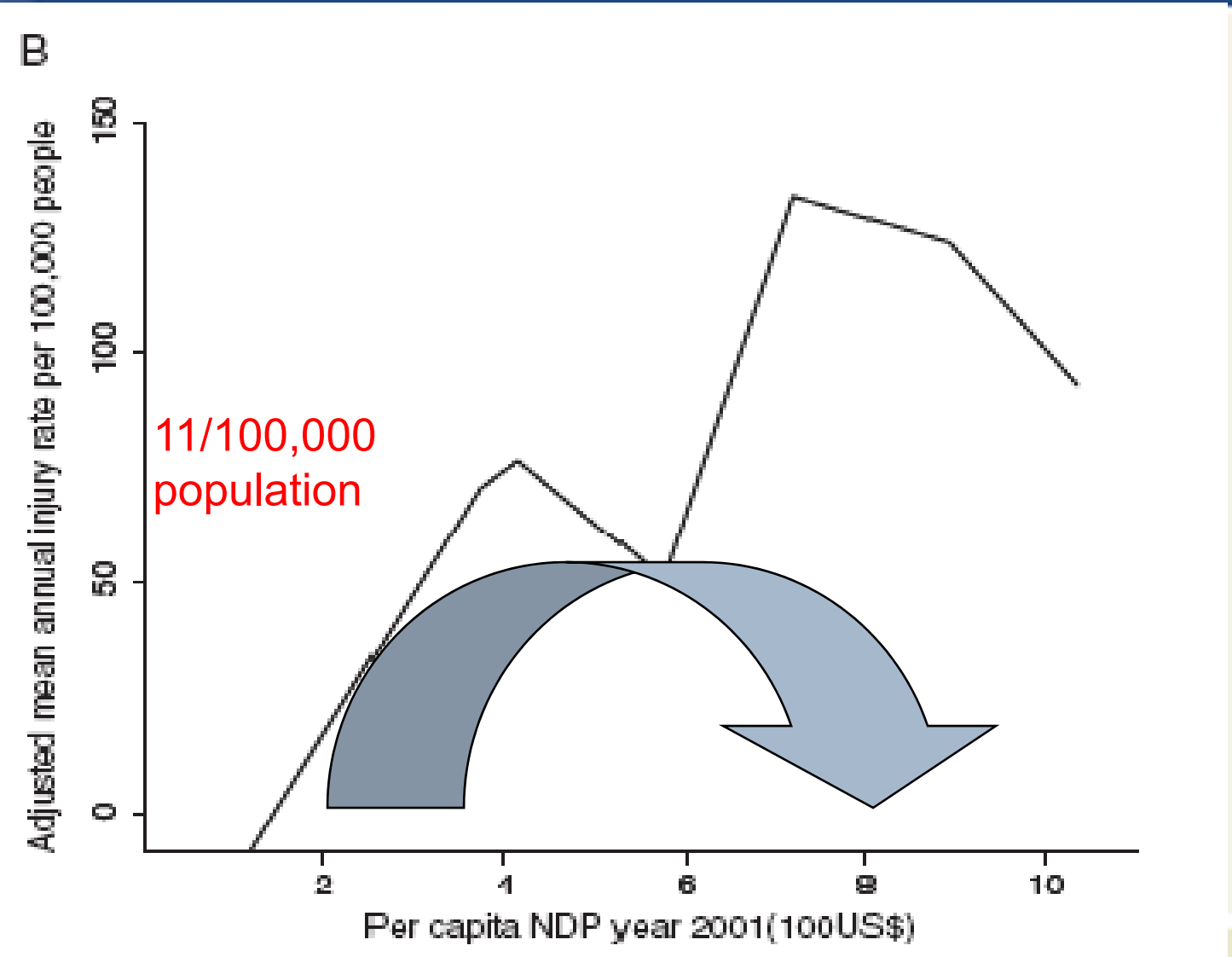


Road Traffic Fatalities and Economic Development 1992-1996 (*Bishai et al 2006*)

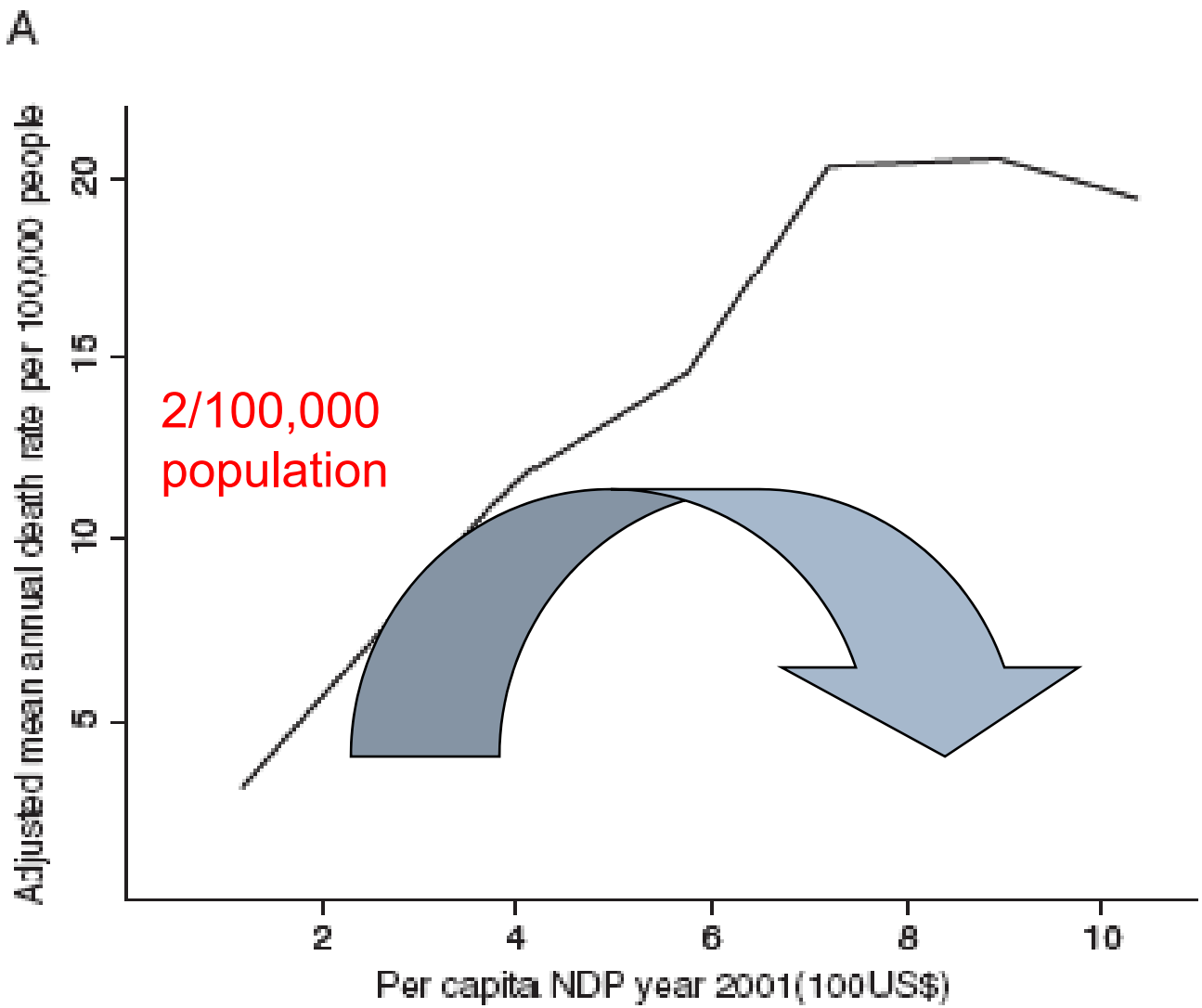


Road Traffic Deaths and Economic Development in India

Road Traffic Injuries and Economic Development in India (*Garg & Hyder 2006*)



Road Traffic Deaths and Economic Development in India (*Garg & Hyder 2006*)



Injury Statistics

"A statistic is not just a number, it is a number with a teardrop on it."

- *Wade Hampton Frost*

Immeasurable losses

38,000 children become orphans each year in Bangladesh

Social Impact of Road Traffic Fatalities in South Asia (*Thomas et al 2004*)

RURAL AREA	Poor	Non-Poor
India:		
Road deaths	48.1	26.1
Bangladesh:		
Serious Injury	91.3	123.9

Rates per 100,000 population; $p<0.05$

Social Impact of Road Traffic Fatalities: Bangalore, India *(Thomas et al 2004)*

URBAN (n=189)	Poor	Non-Poor
Took a loan	73%	53%
Had to sell asset	17%	6%
Took on extra work	25%	10%

All diff's sig. $p<0.05$

Cost-effective Investments?

Spending on Safety: Road Traffic (Bishai & Hyder 2003)

Per capita Expenditure (US$) on Traffic Safety (enforcement, engineering, licensing etc.)

- Uganda spent $0.09,
- Pakistan spends $0.07 ($11,531,934)

This is equivalent to:

- About 1% as much as annual government health spending
- About 0.2% as much as annual military spending

Key Point

Countries should spend more on preventing RTIs---

especially since cost-effective interventions exist

Effective Interventions Exist (*Bishai & Hyder 2006*)

Intervention	Cost per Disability Adjusted Life Year (DALY)
Improved enforcement (LMIC average)	$5.25
Speed bumps at top 25%ile dangerous junctions (LMIC average)	$8.89
Bicycle helmets (China)	$107
Motorcycle helmets (Thailand)	$467

By comparison: treating AIDS patients in Africa with simplest regimen of highly active therapy costs $635 per DALY averted.

Spending on road safety: A Proposal for South Asia

- If 10% of the total costs of RTIs were established as a justifiable level of funding, then spending on road safety should be:

- India: USD $1.35 – 5 Billion
- Pakistan: USD $165 Million
- Bangladesh: USD 74.5 Million

Conclusion

- Under-investment in road safety and strong economic rational for increased spending by governments in South Asia on the prevention of road traffic injuries and fatalities
- Interventions for road traffic injuries are among the most cost-effect health and public health interventions that have shown to be successful
- The cost of injuries is too high in economic and social terms (a “moral imperative”)
- Need to address social dimensions and inequities caused by road traffic injuries

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Thank You

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