

# Adverse Shocks to Health in Early Childhood and its Long-term Consequences

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# “The Fight to Save Ukraine’s 5.2 Million Displaced Kids From Trauma of War”



# Adverse shocks in early childhood

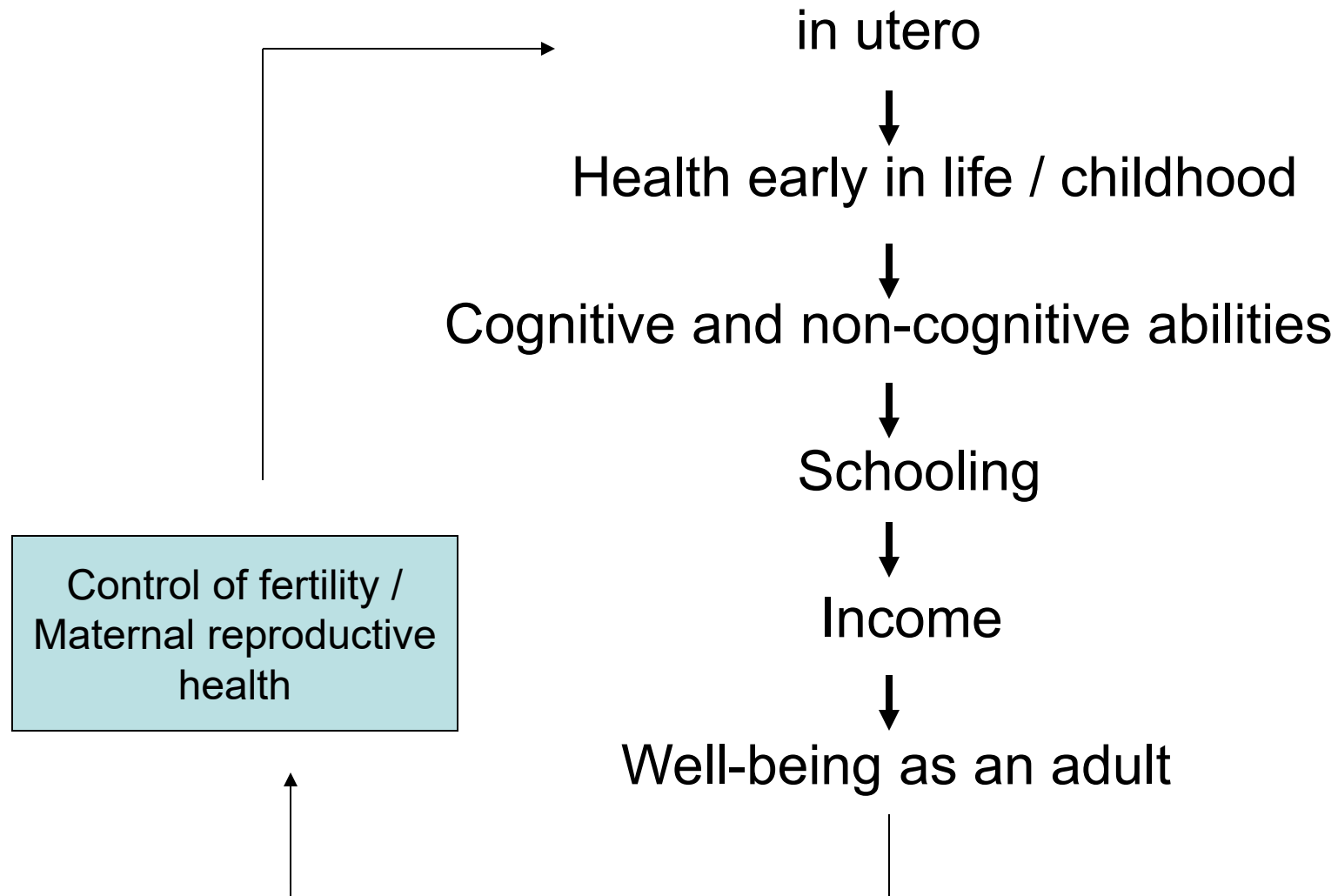
- Hunger
- Disease
- War
- Pollution
- Domestic violence

- A basic insight or a guiding principle is that even when the shocks are temporary—and by that we mean exposure during a few months—for young children, this exposure will have long term consequences
- This is not – or to much lesser degree the case when such shocks occur in adulthood

# What are the mechanisms ?

- Food deprivation/undernutrition: stunting and stalled brain development
- Illness: weakening the body, lack of adequate care, survival of the fittest
- War: anxiety, toxic stress that places the body in a state of constant hypervigilance, making it more difficult to control emotions
- Pollution: lead in the blood, asbestos in the lungs, attention deficit, memory loss, cognitive decline, fertility problems
- Domestic violence: derailed attachment style, trust and relationship problems

# Human Capital and Well-being over the Life-Cycle



# How do we measure/research health status in early childhood ?

- Antropometrics:
  - we measure the height and weigth of a child an compare with the growth trajectory of a child of the same age that was not exposed to adverse shocks
  - the height of a child at a given age (HAZ) is thus the cumulative result of the nutritional and disease environment since birth (and even earlier: *in utero*).
  - we then link these antropometric indicators with outcomes of the same children later in life, e.g. at school or in the labour market
- I have performed such research for shocks early in life for children in Burundi and Rwanda at the time that these two countries experienced war and genocide

# Rwanda in 1992: health impacts of civil war in the north and crop failure in the south



# Rwanda: Data and Identification

- Empirical identification strategy exploits 2 sources of
- variation
- Variation in when and which regions experienced crop failure and civil war
- Variation in birth cohort measuring child's exposure to the shock
- Estimate province-birth cohort fixed effects regressions
- Examine Rwandan children born between 1987 and 1991
- Use UNICEF 1992 household survey data on a child's height and exact date birth (1774 children)
- Combine with NGO reports and newspaper articles on intensity and geographic extent of crop failure and civil conflict

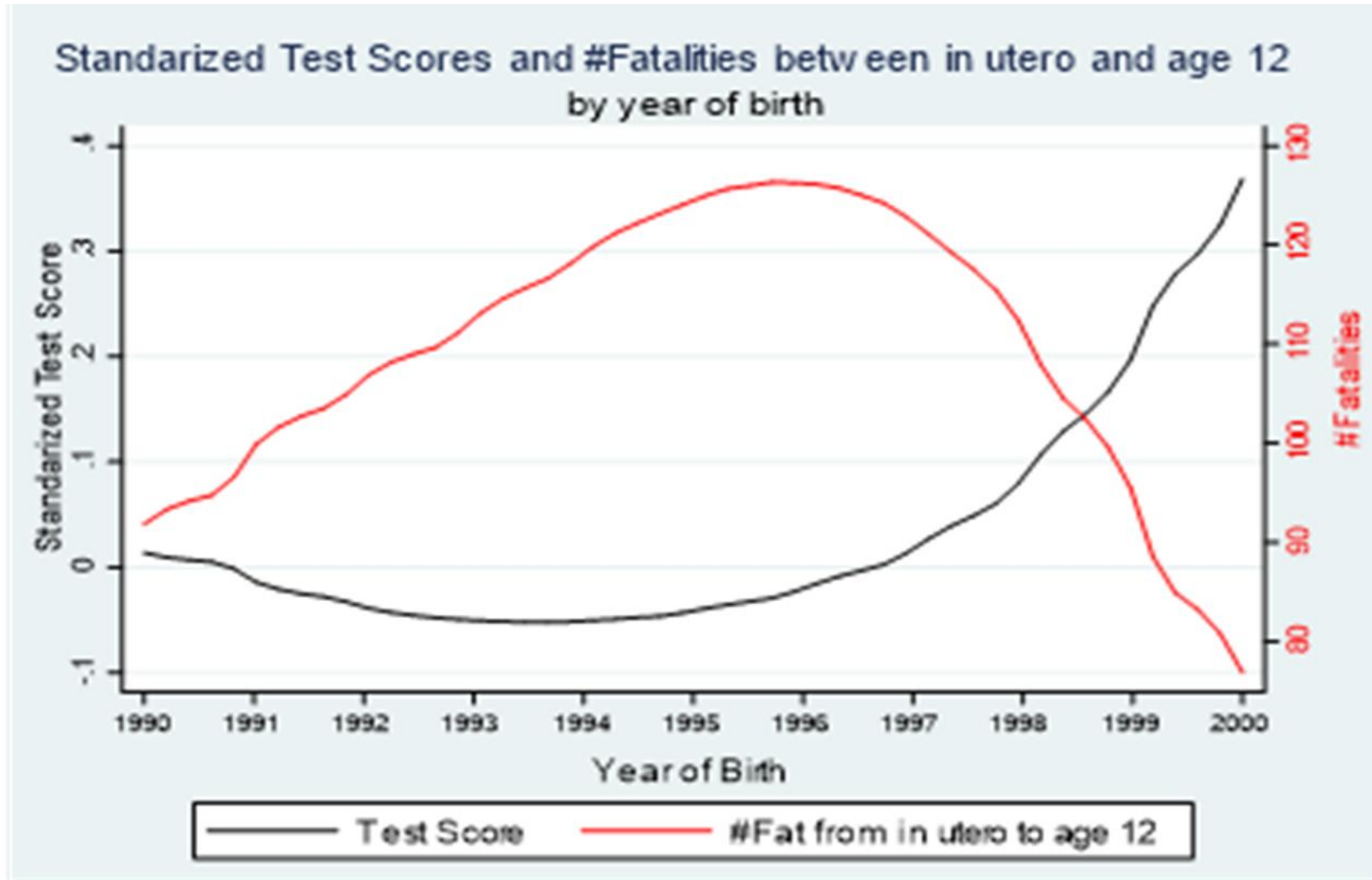
# Rwanda: Results

- \*Boys from poor and non-poor households as well as girls from non-poor households in the crop failure region did not exhibit lower HAZ scores than the control group
- \*Girls from poor households in southern Rwanda born during the crop failure period have worse HAZ scores
- \*All children, boys as well as girls, from poor as well as non-poor households born during the civil war in northern Rwanda show worse HAZ scores than the control group
- \*Thus, both shocks have a different impact over gender and wealth groups**

# Burundi: impacts of war exposure in early childhood on school test scores as a teenager

- Long lasting civil war 1993-2005 with many casualties
- We look at children who were exposed to armed conflict in their municipality of residence during their entire childhood (in utero to age 12)
- We link this exposure to the universe of school results in a nationwide exam that all Burundese children had to take at the end of primary school (Concours Nationale)
- Analysis done for 600.000 children who graduated 2010-2012

# Burundi: School test scores as teenager and #Fatalities during childhood

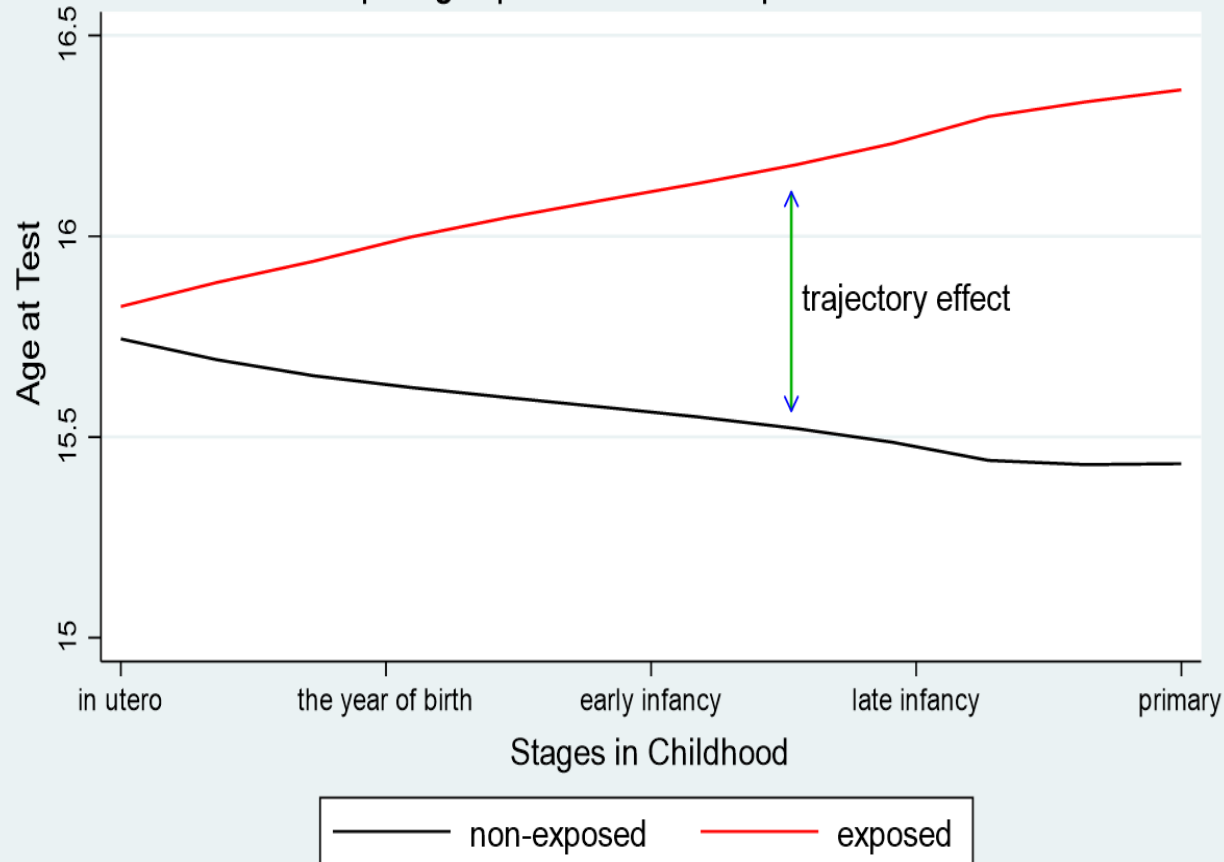


# Burundi: three effect types

- Trajectory effect: exposed children take the exam at a later age  
late entry, grade repetition, absence,...  
→ stronger impact of shocks in primary age (6-12y)
- Scarring effect: taking the exam at a later age results in worse test scores
- Cognitive effect: effect of exposure to civil war on test scores  
conditional on the age-at-test  
brain dysfunctioning, learning issues, anxiety,...  
→ stronger impact of shocks in early infancy (0-3y)

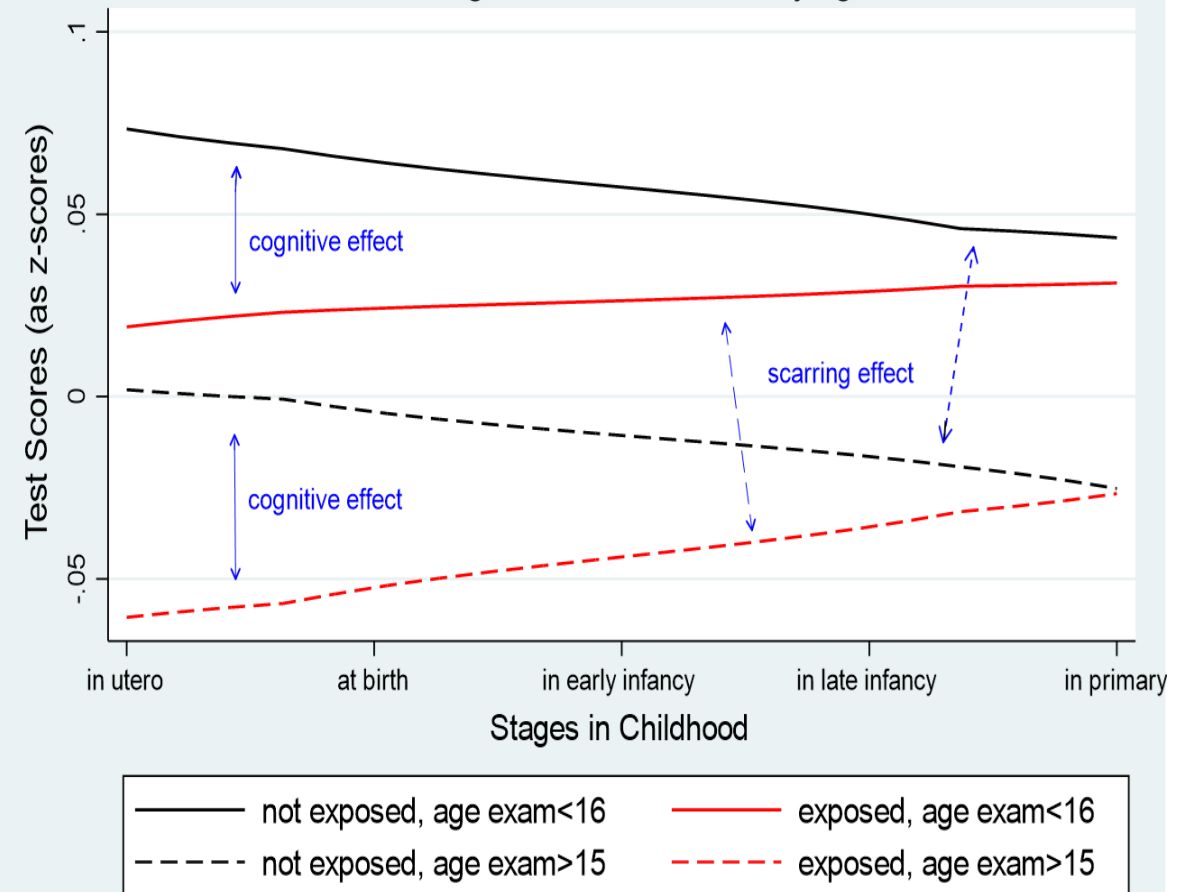
# Magnitude of the type of effect differs for exposure at different stages in childhood

Age at Test and Exposure to War at different stages in Childhood  
Comparing exposed and non-exposed children



kernel = epanechnikov, degree = 0, bandwidth = 1.5

Standardised Test Scores and Exposure to Civil War  
at different stages in Childhood and by age at test



# Can the impact of an adverse shock in early childhood be softened or remediated ?

- Pre-natal care
- Parental investment
  - but : question of inequality
- Child allowances
- Income support
- Conditional cash transfers
- Housing support
  - most of these unavailable (or with severe limitations) in developing countries

# Selected references

- Verwimp, Philip, 2025, The scar of civil war: exposure in early childhood and school test scores as a teenager, ECARES Working Paper 5, Brussels
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