

The Long Lasting Effects of War on Disability

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Joint Paper with...

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Does war have effects on disability in the long run?

This paper estimates the long-term impact of US bombing over the period 1965-1975 on disability prevalence in Vietnam four decades later.

Motivation

- The toll of warfare is typically assessed in terms of the number of people killed during war.
- Wars may also have long lasting impacts after wars end through the continued exposure to unexploded ordinance, chemical weapons and indirectly through damaged infrastructure.
- In Vietnam, an estimated one million Vietnamese lives were lost during the 1964-75 wartime period (Hirschman et al., 1995). The long-term impacts of the war on the health of the Vietnamese population remain little documented.

Data, Measures, and Models

Warfare intensity

- The data is from a database assembled by US Govt
- Density of bombs, measured by the total number of bombs, missiles and rockets per km² dropped by allied forces.
- This measure picks up exposure to correlated weapons including UXO, mines and dioxin.

Data, Measures, and Models



Disability



15-percent sample of
2009 Vietnam Population and
Housing Census



Washington Group Short Set
minus the self-care and
communication questions:
Namely, The disability questions
recommended by the United (a)
seeing, (b) hearing, (c)
walking/climbing stairs, (d)
concentrating or remembering
things.

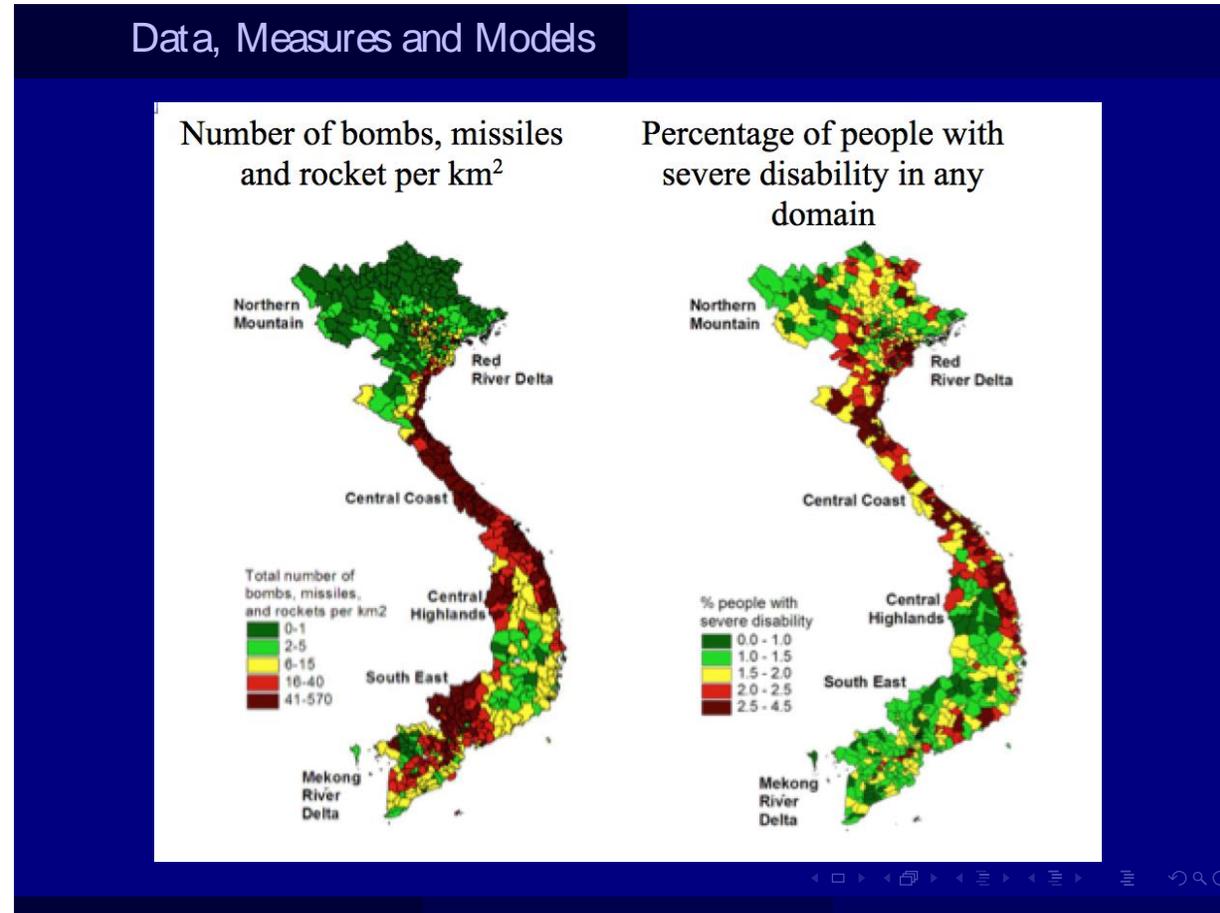


Disability: difficulty of any degree
(some difficulty, a lot of difficulty
or unable to do) in at least one
functional domain.



Severe disability: a lot of
difficulty or unable to do in at
least one functional domain.

Bombing and Severe Disability Prevalence



Disability rates by birth dates

Data, Measures and Models

District-level prevalence rate of disability for people born before and since 1976 (%)

	Districts by quintiles of the number of bombs, missiles, and rockets					
	Lowest	Near lowest	Middle	Near highest	Highest	All
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People born before 1976						
Disability	12.59	11.11	11.53	11.36	12.47	11.81
Severe disability	2.71	2.44	2.57	2.58	2.88	2.63
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People born since 1976						
Disability	1.55	1.33	1.45	1.39	1.51	1.44
Severe disability	0.53	0.53	0.57	0.56	0.64	0.57

Estimation Strategy: Ordinary Least Squares

$$\text{Log}(\text{Disability}_i) = \alpha + \beta \text{Log}(\text{bomb}_i) + \theta X_i + u_i$$

where ...

$\text{Log}(\text{bomb}_i)$ is the log of bomb density of district i

X_i includes district area and elevation, the share of urban population, district capital and Northern region dummies, and distance to the major cities Da Nang, Hanoi and Ho Chi Minh city

Estimation Strategy: IV Model

We use the distance from the centroid of each district to the 17th parallel north latitude as an instrument of bombing density (Miguel and Roland 2011).

$$\text{Log}(\text{Disability}_i) = \alpha + \beta \text{Log}(\text{bomb}_i) + \theta X_i + \varepsilon$$

$$\text{Log}(\text{bomb}_i) = a + b \text{Log}(\text{Distance } 17\text{lat}_i) + cX_i + u_i$$

where $\text{Log}(\text{Distance } 17\text{lat}_i)$ the distance from the centroid of each district to the 17th parallel north latitude

Results

IV regression of log of disability prevalence rates in selected domains

	Seeing	Hearing	Walking	Remembering	Disability in any domain
Log of bombs, missiles, rockets per km ²	0.050*** (0.013)	0.052*** (0.010)	0.052*** (0.011)	0.080*** (0.012)	0.061*** (0.010)
R-squared	0.099	0.357	0.254	0.214	0.26

Results

IV regression of log of severe disability prevalence rates in selected domains

	Seeing	Hearing	Walking	Remembering	Disability in any domain	Mean score
Log of bombs, missiles, rockets per km ²	0.090*** (0.015)	0.079*** (0.013)	0.078*** (0.014)	0.102*** (0.013)	0.088*** (0.012)	0.066*** (0.011)
R-squared	0.159	0.287	0.197	0.226	0.219	0.211

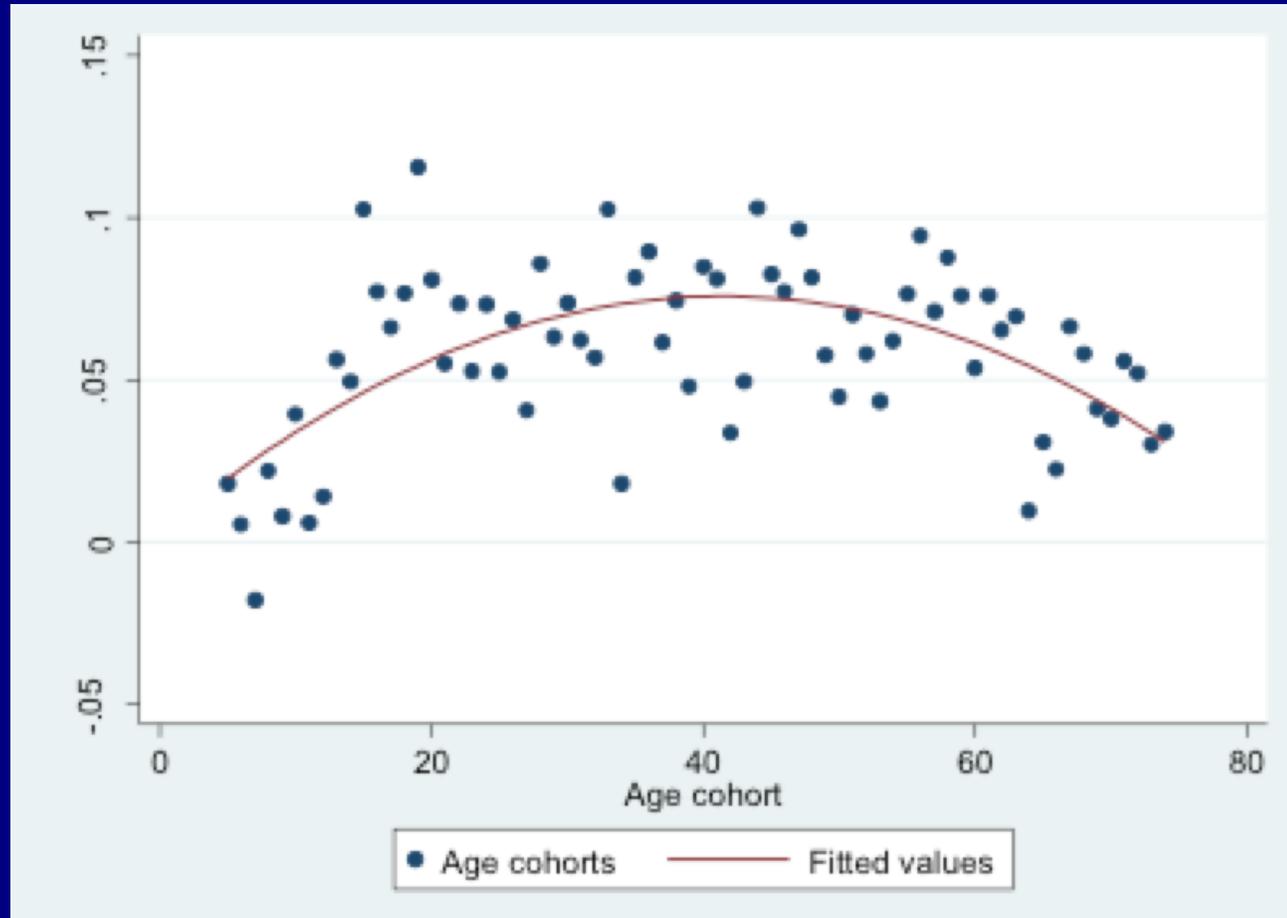
Results

IV regression of other outcomes

	Per capita expenditure	Poverty rate	Years of schooling	Hospitals per one million people	Patient beds per one million people	Doctors per one million people
Log of bombs, missiles, rockets per km ²	-0.008 (0.010)	-0.005 (0.021)	-0.093** (0.045)	0.012 (0.045)	0.031 (0.044)	0.032 (0.060)
Observations	612	612	612	63	63	63
R-squared	0.734	0.731	0.558	0.144	0.242	0.274

Results

The estimated effect of log of bomb density on log of the proportion of people with disability



Conclusions

- The toll of warfare is often assessed in terms of the number of people killed.
- However, the long-term effect of warfare on disability is significant and deserves closer attention.
- These findings from Vietnam highlight the importance of cleaning up the consequences of war and developing health and disability services and increase capacity to prevent disability and to address the health needs of people with disabilities in conflict-affected countries.
- More broadly, improved opportunities for education and secure livelihoods and the removal of barriers in the environment will help to raise functioning levels of persons with war-induced impairments