Growing-up Unfortunate: War and Human Capital in Ethiopia

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June 6-7, 2016

Outline

Introduction

- Many countries – exposed to both natural and human induced shocks.
- Exposure to war (conflict) can have severe implications (World Bank, 2011).
- Human capital may also be affected by war, especially for children, through increased malnutrition and ill-health, and reduction of education (Santa Barbara, 2006; Justino, Leone and Salardi, 2013; Beegle, Weerdt and Dercon, 2006).
- Early life can have lasting consequences during adulthood (e.g: Alderman, Hoddinott, and Kinsey, 2006; Currie, 2008; Currie and Vogl, 2012; Lucas, 1998, 1999; Martorell, 1999; Silventoinen, 2003; Duflo, 2001; Grantham-McGregor et al., 2007).

...Introduction

- War may have further long term inter-generational implications through the disruption of trust and social networks (Buvinic, Gupta and Shemyakina, 2013; Cassar, Grosjean and Whitt, 2011; Rohner, Thoenig and Zilibotti, 2012).

- Thus, exposure to war may bring permanent damage affecting inter-generational welfare.

- Despite these potential effects of war on economic welfare and human capital, there is but a small albeit recently growing body of literature

...Introduction

Theory

Theoretically, the impact of war (conflict) on long term economic performance of a country is not clear – (Catch-up possible?)

Method

Areas of civil war (conflict) tend to be economically poor making it difficult to find causal effects (Blattman and Miguel, 2010).

Empirical Evidence

Mixed results not only on long term aggregate economic performance of countries but also at the micro level

...Introduction

Contribution 1

Provides evidence on the impact of war on a range of childhood human capital outcomes height (stunting), grade completion, school enrolment, and reading ability.

Contribution 2

Exploits panel data of old and young cohorts (born before and after the war) when they are exactly the same average age.

Contribution 3

Identifys the causal effect of Ethiopian-Eritrean war using a sample of children from Ethiopia

Data

Table: Summary of the data: birth year and survey rounds

Pre-war period				War period				Post-war period survey rounds		
								1	2	3
94	95	96	97	**98**	**99**	**2000**	2001	2002	2006	2009
								1 yr	5 yrs	**8 yrs**
								8 yrs	12 yrs	15 yrs

...Data: outcome variables

- Standardized height-for-age z-score
- Whether a child is stunted or not
- Whether a child is currently enrolled
- Number of highest grades completed by a child, and
- If a child exhibited reading problems or not

Figure: Map of Ethiopia with data points
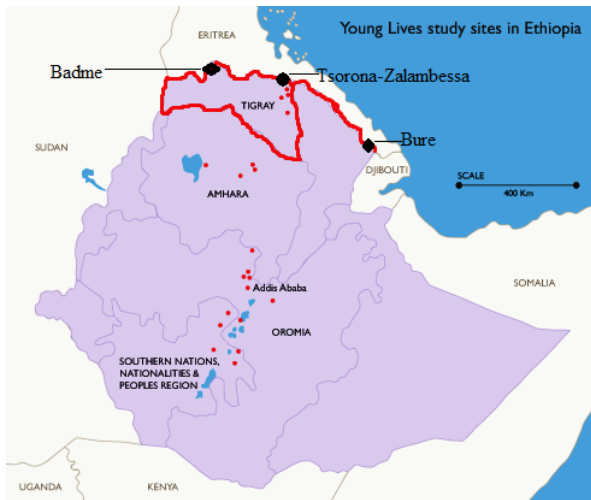
Identification Strategy

- exposure to war varies across time and geographic location.
- difference-in-difference method for same-old children

$$\hat{\theta} = \left[(\bar{y}_{w,o} - \bar{y}_{w,y}) - (\bar{y}_{nw,o} - \bar{y}_{nw,y}) \right]$$

Potential bias

- Parallel trend satisfaction
- Height as measure of health outcome by itself
- Idiosyncratic or covariate shocks such as drought
- Displacement of people from their initial settlement
- Mothers exposed-post-war trauma and stress
- Sample selection bias due to differences in mortality rates across regions overtime either because of the war itself or other factors
- Measurement errors in child age, height, and education outcomes

Results

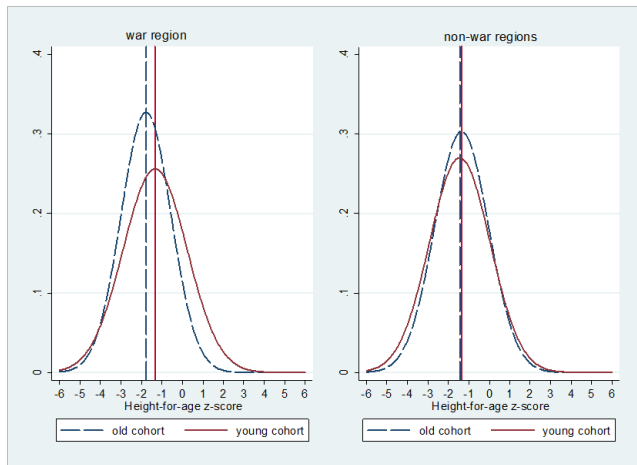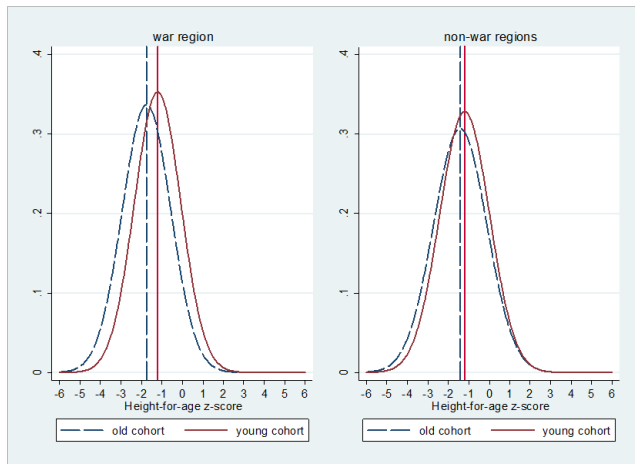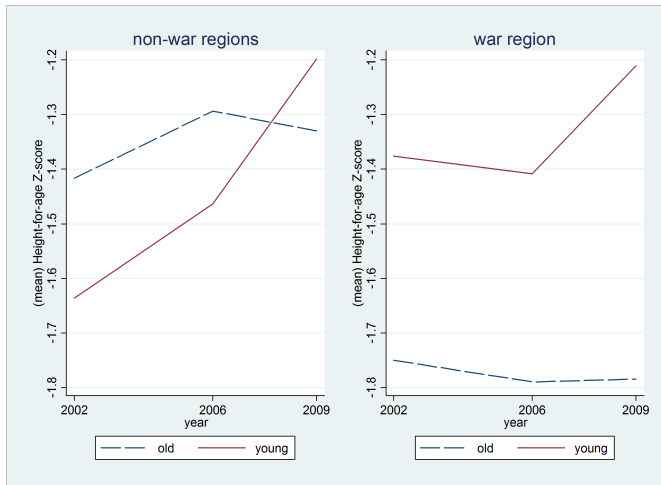Figure: Height-for-age z-score distribution by cohort and region of war exposure

...Results

Figure: Height-for-age z-score distribution by cohort and region of war exposure

Figure: Trends in mean height-for-age z-score by cohort and region of war exposure

Table: The impact of war on child health and nutrition Dependent Variable:
Height-for-age z-score

All Sample	1	2	3	4
born before war*war region	-0.31*	-0.30**	-0.39**	-0.37**
	[0.15]	[0.15]	[0.17]	[0.16]
N	2,812	2,812	2,170	2,141
Rural Sample				
born before war*war region	-0.43**	-0.44**	-0.43**	-0.43**
	[0.17]	[0.18]	[0.20]	[0.18]
N	1,730	1,730	1,439	1,423
Urban Sample				
born before war*war region	-0.11	0.03	-0.18	-0.11
	[0.21]	[0.19]	[0.13]	[0.14]
N	1,082	1,082	731	718
Region FE	Y	Y	Y	Y
Cohort FE	Y	Y	Y	Y
Community FE		Y	Y	Y
Child age FE		Y	Y	Y
Child sex dummy		Y	Y	Y
Urban dummy		Y	Y	Y
Parent's age and literacy			Y	Y
Head age, sex, and education			Y	Y
Additional controls				Y

Table: The impact of war on child health and nutrition Probit marginal effects: Dependent Variable is 1 if child is stunted, 0 otherwise

All Sample	1	2	3	4
born before war*war region	0.13**	0.14**	0.13**	0.11**
	[0.06]	[0.05]	[0.06]	[0.06]
N	2,812	2,812	2,170	2,141
Rural Sample				
born before war*war region	0.19**	0.19**	0.15*	0.13*
	[0.08]	[0.07]	[0.08]	[0.08]
N	1,730	1,730	1,439	1,423
Urban Sample				
born before war*war region	0.05	0.03	0.11**	0.06
	[0.06]	[0.04]	[0.06]	[0.05]
N	1,082	1,082	731	718
Region FE	Y	Y	Y	Y
Cohort FE	Y	Y	Y	Y
Community FE		Y	Y	Y
Child age FE		Y	Y	Y
Child sex dummy		Y	Y	Y
Urban dummy		Y	Y	Y
Parent's age and literacy			Y	Y
Head age, sex, and education			Y	Y
Additional controls				Y

Note: Marginal effects are dy/dx at mean values of xs. Coefficients from OLS or LPM (not reported) are similar to the probit marginal effects.

Table: The impact of war on child schooling outcomes Probit marginal effects:
Dependent Variable is 1 if child is currently enrolled in school, 0 otherwise

All Sample	1	2	3	4
born before war*war region	-0.32***	-0.36***	-0.38***	-0.37***
	[0.11]	[0.10]	[0.10]	[0.09]
N	2,812	2,812	2,170	2,141
Rural Sample				
born before war*war region	-0.45***	-0.44***	-0.45***	-0.45***
	[0.14]	[0.15]	[0.14]	[0.12]
N	1,730	1,730	1,439	1,423
Urban Sample				
born before war*war region	-0.09**	-0.06	-0.12***	-0.10**
	[0.05]	[0.05]	[0.05]	[0.05]
N	1,082	1,082	731	718
Region FE	Y	Y	Y	Y
Cohort FE	Y	Y	Y	Y
Community FE		Y	Y	Y
Child age FE		Y	Y	Y
Child sex dummy		Y	Y	Y
Urban dummy		Y	Y	Y
Parent's age and literacy			Y	Y
Head age, sex, and education			Y	Y
Additional controls				Y

Table: The impact of war on child schooling outcomes (OLS) Dependent
Variable: No. of highest grade completed by child

All Sample	1	2	3	4
born before war*war region	-0.69***	-0.68***	-0.70***	-0.69***
	[0.14]	[0.15]	[0.19]	[0.19]
N	2,812	2,812	2,170	2,141
Rural Sample				
born before war*war region	-0.71***	-0.72***	-0.70***	-0.70***
	[0.16]	[0.17]	[0.22]	[0.23]
N	1,730	1,730	1,439	1,423
Urban Sample				
born before war*war region	-0.63***	-0.46***	-0.55***	-0.53***
	[0.13]	[0.14]	[0.14]	[0.14]
N	1,082	1,082	731	718
Region FE	Y	Y	Y	Y
Cohort FE	Y	Y	Y	Y
Community FE		Y	Y	Y
Child age FE		Y	Y	Y
Child sex dummy		Y	Y	Y
Urban dummy		Y	Y	Y
Parent's age and literacy			Y	Y
Head age, sex, and education			Y	Y
Additional controls				Y

Table: The impact of war on child literacy outcomes Probit marginal effects: Dependent Variable is 1 if child has problems with reading, 0 otherwise

All Sample	1	2	3	4
born before war*war region	0.21***	0.23***	0.24***	0.23***
	[0.06]	[0.06]	[0.07]	[0.07]
N	2,812	2,812	2,170	2,141
Rural Sample				
born before war*war region	0.24***	0.23***	0.20**	0.19**
	[0.09]	[0.08]	[0.09]	[0.09]
N	1,730	1,730	1,439	1,423
Urban Sample				
born before war*war region	0.21***	0.17***	0.24***	0.24***
	[0.06]	[0.04]	[0.05]	[0.05]
N	1,082	1,082	731	718
Region FE	Y	Y	Y	Y
Cohort FE	Y	Y	Y	Y
Community FE		Y	Y	Y
Child age FE		Y	Y	Y
Child sex dummy		Y	Y	Y
Urban dummy		Y	Y	Y
Parent's age and literacy			Y	Y
Head age, sex, and education			Y	Y
Additional controls				Y

Conclusion

- War may have long term inter-generational implications since war can diminish early childhood human capital that could be manifested in terms of reduced child health, nutrition, and education outcomes.
- Investigated two of the main channels through which the Eritrean-Ethiopian war may have negative inter-generational economic impacts childhood Health and Education outcomes
- This difference-in-difference approach controls for regional unobserved heterogeneity as long as parallel trend assumption is satisfied
- The analysis compares cohorts of the same average ages minimising potential upward bias

...Conclusion

- Exposed children tend to lower height-for-age z-scores and high incidence of stunting, less likely to be enrolled in school, complete fewer grades and are likely to show reading problems.
- Girma and Kedir (2005) estimate average returns to an additional year of schooling in Ethiopia to range from 9.2 to 19.6 percent.
- These estimates suggest that war may reduce wage by about 10 percent during adulthood for war exposed children.
- The speed and coordination with which organizations respond to such crises is important in protecting children during war and armed conflict.
- It remains difficult to flesh out the exact mechanisms driving the impacts of war due the complexity of the war context and limited data availability.

Thank you!